MINUTES

JOINT COMMITTEE ON INFORMATION TECHNOLOGY

December 14-15, 2010
Room 546-S—Statehouse

Members Present

Senator Tim Huelskamp, Chairperson
Representative Joe McLeland, Vice-chairperson
Senator Tom Holland (December 15 only)
Senator Mike Petersen
Senator Vicki Schmidt
Senator Chris Steineger
Representative Mike Burgess
Representative Nile Dillmore
Representative Harold Lane

Staff

Aaron Klaassen, Kansas Legislative Research Department
Julian Efird, Kansas Legislative Research Department
Dennis Hodgins, Kansas Legislative Research Department
Daniel Yoza, Office of the Revisor of Statutes
Norm Furse, Office of the Revisor of Statutes
Don Heiman, Legislative Chief Information Technology Officer
Gary Deeter, Committee Secretary

Conferees

Dave Larson, Director, Computer Services, Legislative Administrative Services
Alan Weis, KLISS Application Project Manager
Terri Clark, KLISS Infrastructure Project Manager
Joe Hennes, Executive Chief Information Technology Officer
Carol Jordan, Senior Director for Rural Development, Kansas Department of Commerce
Dan Bryan, Legislative Division of Post Audit
Bill Roth, Kansas Chief Information Technology Architect
Andy Allison, Executive Director, Kansas Health Policy Authority
Darin Bodenhamer, Medicaid Director of Eligibility, Kansas Health Policy Authority
Jeff Lewis, Deputy Secretary and Chief Information Officer, Kansas Department of Social and
    Rehabilitation Services
Bobbie Mariana, Director of Economic Support, Kansas Department of Social and Rehabilitation
    Services
Jim Garner, Secretary, Kansas Department of Labor

Brad Williams, Executive Director, KAN-Ed and Chief Information Officer, Kansas Board of Regents; Chairman, Kansas Broadband Task Force

Norma Jean Schaefer, Information Technology Director, Kansas Department of Health and Environment

Kelly O'Brien, Judicial Chief Information Technology Officer

Jim Geringer, former Governor of Wyoming

Tuesday, December 14
Morning Session

The Chairperson called the meeting to order and requested a moment of silence in honor of Representative Morrison. The Chairperson asked staff to review the statutory basis and duties of the Committee, which include evaluating Information Technology (IT) projects developed by state agencies, reviewing information technology (IT) architecture, and receiving three-year IT budget plans from all three branches of state government (Attachment 1).

Don Heiman, Legislative Chief Information Technology Officer (CITO), introduced Sean McGraw, Director, Kansas Legislative Information Services System (KLISS) project; Beth Rice, Project Manager, KLISS; and Dave Larson, Director, Computer Services, Legislative Administrative Services. Mr. Larson highlighted recent developments of KLISS, stating that the decision to go live was made November 15, 2010, and was endorsed by the Legislative Coordinating Council on November 19, 2010. He noted a 15.0 percent reduction in the budget for FY 2011 and a Memorandum of Understanding with vendor Propylon, which will continue to provide support for the project.

Mr. Larson introduced Alan Weis, KLISS Application Project Manager, and Terri Clark, KLISS Infrastructure Project Manager. Mr. Weis commented on the software applications ready to deploy: Law Making, Chamber Automation, Decision Support, Budget, and Legislative Interface. He noted that the external legislative interface will be hosted by the Division of Information Systems and Communications (DISC) and the Information Network of Kansas (INK) will provide $225,000 for start-up costs and $50,000 per year for ongoing support. To date, $3.1 million of the $6.0 million budget has been expended. Ms. Clark provided details on hardware and software systems, secondary vendor support, interfaces, the disaster recovery site in Wichita, and the support desk. She noted that integrated security and consolidated management have enabled staff to provide services that previously were outsourced. She further noted that the Cisco network will enable the Legislature to implement unified communications in the future (Attachment 2).

Mr. Heiman summarized the services and efficiencies provided by KLISS, noted an estimated net savings of $252,000 after KLISS is implemented fully, and recommended the creation of an Office of Information Technology to capitalize on KLISS' full potential (Attachment 3). Answering questions, Mr. Heiman replied that outsourcing legislative printing and moving toward a paperless Legislature may save up to $500,000 in printing costs. He responded that the new positions for the IT office need to be approved during the 2011 Legislative Session in order to be implemented in FY 2012.

Joe Hennes, Executive CITO, provided a status report on the agency's 23 active IT projects totaling $146.2 million (Attachment 4). He noted four projects in caution status when a project is 10.0 percent to 20.0 percent behind schedule:

- Kansas Department of Commerce's Statewide Broadband Project;

- Kansas Corporation Commission's Project 2010—Business Innovation and Improvement;

- Kansas Department of Transportation's Workflow Conversion Project III; and

- Wichita State University's Banner Enrollment Management Implementation Suite.

Three projects are in alert status when a project is 20.0 percent or more behind schedule:

- Kansas Department of Health and Environment's Child Care Licensing and Registration Information System Inspection Module;

- Kansas Health Policy Authority's Data Analytic Interface III; and

- Emporia State University's Campus-Wide Network Wiring Project.

One project has been recast: Kansas Historical Society's Kansas Enterprise Electronic Preservation Project (KEEP).

Mr. Hennes listed five planned projects, three newly approved projects (total estimated cost, $34.9 million), and six completed projects (total estimated cost, $49.2 million).

Mr. Hennes focused on several projects for further comments. Members were interested in discussing the Kansas Department of Commerce's Statewide Broadband Project, a $2 million, two-year project to map Internet connectivity in Kansas, funded by an America Reinvestment and Recovery Act (ARRA) grant. Carole Jordan, Senior Director for Rural Development, Kansas Department of Commerce, explained that vendor Connectednation.com is developing the map for the Kansas Broadband Task Force. The Task Force will be able to identify resources, costs, and the needed technology to extend broadband services (FCC baseline, 768 kilobytes per second) statewide. A follow-up grant of $4 million is available to provide three more years for planning and implementation.

Brad Williams, Chairman of the Task Force, explained that the next step for the Task Force will be to validate the information and develop a plan for higher broadband and wider deployment.

Mr. Hennes resumed his comments about agency projects. He commended the Kansas Department of Labor (KDOL) for nearing completion of its Unemployment Insurance Modernization Project, noting such features as dynamic fact finding and independent verification and validation. He commended the University of Kansas and the Kansas University Medical Center for their collaboration on cooperatively upgrading to PeopleSoft 9.1. He also noted the collaboration of four agencies in developing the Kansas Department of Transportation's K-TRIPS (Kansas Truck Routing and Intelligent Permitting System), which will enable truckers to auto-route even superloads across Kansas. Mr. Hennes recommended the Committee's support for the Kansas Department of Corrections' funding for two projects: Total Offender Activity and Document System (TOADS) and Offender Management Information System (OMIS). He stated that the IT architecture has been completed and won a national award; however, funding for the $12-15 million project was cut last fiscal year.

Afternoon Session

Mr. Hennes resumed his review of agency projects. The Kansas Department of Administration completed the statewide financial management system, the Sunflower Project, now known as SMART (Statewide Management Accounting and Reporting Tool), which went live on July 1, 2010. The project was on time and within budget ($44.7 million).

Mr. Hennes reviewed the Kansas Health Policy Authority's KATCH (Kansas Access to Comprehensive Health). An ancillary project known as K-Med is being funded by a $42.0 million grant from the Health Resources and Services Administration (HRSA), an arm of the federal Health and Human Services (HHS). The project is a response to the federal government's attempt to expand Medicaid coverage and to identify all eligible recipients. The project seeks to interface with Kansas Department of Social and Rehabilitation Services (SRS) Human Resources Management project, known as Avenues. The project has executive sponsors and has received approval from the three branch CITOs. A feasibility study and IT architecture have been completed and a Request for Proposal (RFP) has been issued. He noted that the timeline for completion will be difficult to meet because of SRS funding regulations. This has caused SRS to withdraw from active participation in the project. Responding to questions, Mr. Hennes said the RFP will be closed January 4, 2011, and is geared toward flexibility to incorporate an SRS interface. Bill Roth, Kansas Chief Information Architect, noted that the RFP will be awarded to a vendor in April 2011.

The Committee noted concern that even though the project seeks to interface with the Avenues system, this capability is not included in the original RFP. The Committee expressed concern that failure to involve SRS and its needs as part of the RFP may jeopardize the success of the project and cost the government millions in unnecessary interface costs.

Dan Bryan, Legislative Division of Post Audit, reported on a consolidation audit (Attachment 5) which sought answers to the following three questions.

- **What have other states done in consolidating data services?** Twenty-seven states have pursued data consolidation. Four of the five nearby states are involved in data center consolidation. By consolidating data centers, Texas projected a savings of $25 million, but realized only $9.7 million in savings;

- **Could individual Kansas agencies achieve cost savings by virtualizing their servers?** Of the five agencies selected, about half the servers have been virtualized, saving an estimated $600,000. By virtualizing the remaining servers that are candidates for virtualization, an additional $400,000 to $1 million in estimated savings could be realized within a three-year cycle. Mr. Bryan replied that the survey could not establish effective parameters to measure the consolidation of staff; and

- **Could the state achieve cost savings if DISC leased out virtualized servers to small and mid-sized agencies?** If agencies could be offered low enough lease rates and if agencies had more confidence in DISC's service, the state could save up to an estimated $1.3 million.

A member noted that, if agencies leased virtual services and if DISC's system went down, the system failure would affect more agencies, and, unless DISC's rates were competitive, some agencies could provide servers at lower costs on their own. Responding to a question, Mr. Hennes said DISC presently has deployed all the redundancy the division can afford. Morey Sullivan, Deputy

Secretary, DISC, explained that all hardware has built-in redundancy and that virtualization follows a three-year cycle to allow agencies to amortize their current hardware.

Bill Roth, Kansas Chief Information Technology Architect, reported the findings of a data-center consolidation survey, part of 2010 SB 572, to "evaluate the feasibility of information technology consolidation opportunities" (Attachments 6 and 7). He observed that storage costs, energy costs, and staffing costs or savings were beyond the scope of the study, but that the study included consultation with other states and utilized a Gartner Group analyst. Among the findings:

- Agencies are cooperating more than they did in the past, such as sharing more IT solutions: *e.g.,* the multi-agency Kansas Criminal Justice Information System;

- Agency information is increasing exponentially;

- Agencies are showing creativity and innovation in dealing with data; and

- Virtualization processes are occurring, although some silo systems remain.

Mr. Roth noted two areas of IT growth: the increasing use of consultants, and host systems with server proliferation. Based on the survey, he offered ten recommendations. Among them were:

- The State of Kansas should invest in two new data centers, a primary center in Topeka and another near one of the Regents institutions; all state agencies should transition into these new data centers;

- All computer equipment should be moved into one of the new data centers, with agencies continuing to virtualize all appropriate servers;

- The state should invest in at least two Storage Area Networks (SANs) with redundant architecture to host critical state data; DISC will provide storage service;

- The state should consolidate into one e-mail solution for all three branches of state government with one centralized active directory and one centralized desktop support service;

- The state should continue network modernization under KAN-WIN (Kansas-wide Information Network) and move toward the unified communications (UC) model; and

- State agencies always should maintain their own developmental staff.

Responding to a question regarding costs, Mr. Hennes replied that the federal government is searching for two states to develop IT solutions for health-care eligibility; leveraging these resources also could fund the data center consolidation. To another question, he said the cost-benefit analysis in SB 572 has yet to be done. Mr. Roth replied that consolidation could occur by legislative mandate or by invitation. A member encouraged a comprehensive, not incremental, approach to consolidation. Another member noted that energy savings could be significant under consolidation. Addressing a security question, Mr. Roth replied that the project would be initiated

with an agency such as the Kansas Bureau of Investigation and then extended to the enterprise. Mr. Hennes noted that a model UC office has been set up in the Landon State Office Building.

Mr. Heiman noted that, in 1998, when the Gartner Group developed IT benchmarks, a 1.0 was designated as the norm; because of consolidation Kansas was ranked first with a score of .61. He stated because of the cost benefit of consolidating e-mail, the state could borrow the money to implement the system and pay for the cost with savings generated. He suggested that $175,000 would get the e-mail consolidation started and the Wichita data center could be expanded with little additional cost. He has identified about $100 million in federal funds available for consolidation.

Kelly O'Brian, Judicial CITO, also offered support for consolidation, saying that consolidating infrastructure is only the beginning and that integrating data to provide a single access point for citizens is the ultimate goal.

Wednesday, December 15
Morning Session

The Chairperson noted that Carole Jordan had provided information on broadband mapping and planning as a supplement to her testimony on the previous day (Attachment 8).

Andy Allison, Executive Director, Kansas Health Policy Authority (KHPA), observed that the present state Medicaid program operates under several disparate and obsolete systems, leaving tens of thousands of unenrolled eligible individuals, a point of concern for HHS. Through an HRSA grant of $42 million, KHPA, which originally planned to create an integrated Medicaid system (Kansas Access to Comprehensive Health), shifted focus to a procurement system named K-Med, which is funded 90.0 percent by HHS (Attachment 9). Committee members, noting the strict timeline (the system must be operational by October 1, 2013) and the fact that SRS was no longer collaborating with KHPA by merging their Avenues system with K-Med, questioned Dr. Allison extensively. Dr. Allison explained that SRS, under different guidelines, is required to provide an Advanced Planning Document (APD) before SRS will agree to funding, a process that eliminates any possibility of KHPA meeting the HRSA deadline. Members were adamant in wanting SRS to collaborate with KHPA in selecting a vendor and in building a system as an equal partner. Dr. Allison explained that if the deadline is not met, KHPA loses its funding for the project. He stated that HHS is seeking two to five innovative states to create an eligibility system that can serve as a model for other states; to date, only Kansas and, perhaps, Colorado are pursuing this grant. He explained that the original plan was to improve Medicaid processes in Kansas, a collaborative plan with SRS. K-Med, however, required a separate RFP.

Members requested verification from Jeff Lewis, Deputy Secretary and Chief Information Officer for SRS. Mr. Lewis explained that for funding approval from the Centers for Medicare and Medicaid Services (CMS), SRS must submit an APD to four different federal entities, and SRS could not bypass the APD without jeopardizing its federal funding. He noted that the estimated cost for Avenues is $65 million, with $52.5 million coming from sources outside the State General Fund. He stated that, although Avenues and K-Med cannot be developed together, SRS is creating an interface so that the two systems can communicate once both have been implemented (Attachment 10).

Members questioned the decision-making process that excluded SRS from the project. Bobbi Mariana, Director of Economic Support, SRS, commented that SRS and KHPA share many of the same customers. Darin Bodenhamer, Medicaid Director of Eligibility, KHPA, explained that

the decision was made by the project's executive sponsor group and that the new system is being built on a modular platform so other agencies can integrate with K-Med later. Mr. Hennes stated that the project was approved after consultation with the Legislative and Judicial CITOs and that he was reluctant to stop a $40 million project.

A member expressed strong opposition to continuing the project and recommended procuring a waiver from HHS so that SRS can continue as an equal partner. Mr. Heiman concurred and offered to accompany Mr. Hennes to Washington, D.C., to obtain a waiver.

Jim Garner, Secretary, KDOL, updated the Committee on the agency's Unemployment Insurance Modernization (UIM) project (Attachments 11 and 12). After giving a brief history of the project, which began in 2004, Mr. Garner noted that, after the design phase was completed by IBM, the project was changed to an incremental build-and-deploy approach, resulting in the Siebel upgrade for customer service, FileNet deployment for a paperless workflow process, and Genesys implementation, all of which provides the foundation for a new call center management initiative. Responding to a question, Mr. Garner replied that the entire system will be completed within a year. Mr. Garner listed the accomplishments of the project to date, including the technical architecture, a consolidated call center, dynamic fact finding to gather information during the initial contact, and debit cards to provide immediate access to an applicant's benefits. He illustrated the use of bar coding to speed the claims process (Attachment 13). Of the $47 million appropriated, $37.7 million has been expended to date. Members expressed appreciation for the increasingly efficient call-center services.

Brad Williams, Executive Director, KAN-Ed, and Chief Information Technology Officer, Kansas Board of Regents, updated the Committee on KAN-Ed's accomplishments and future plans (Attachment 14). Stating that KAN-Ed, as a unique public-private partnership, provides a variety of T-1-plus connectivity services to schools, hospitals, and libraries, he noted KAN-Ed's growth from 282 members in December 2007 to its current membership of 445 with 569 connection points. Mr. Williams commented on a 2011 legislative proposal approved by the Legislative Educational Planning Council to update statutory language, add health-information providers to the network, and allow to-and-from connectivity for community-based technology networks and for community anchor institutions, as well as allowing KAN-Ed to partner with DISC. Responding to questions, Mr. Williams said the legislative proposal will enable KAN-Ed to access other funding sources.

Afternoon Session

Norma Jean Schaefer, Information Technology Director, Kansas Department of Health and Environment (KDHE), recounted what she called a "Never Event," a cascading server crash in August 2010 that left the agency without access to its information data-base for over a week (Attachment 15). She gave a day-by-day sequence of the crash, the search for the cause of the crash, and the round-the-clock process of rebuilding the 150 servers and the 83 virtual servers. She commended vendors Xiotech, FishNet, Kroll On-Track, and Cisco for their support and praised her staff for their dedication during the crisis. Replying to a question, she said that an off-site backup would cost about $1 million; funding is complicated when 90 percent of funding comes from federal sources.

Jim Geringer, former Governor of Wyoming and Director of Policy and Public Section Strategy, presented information to show the value of Geological Information Systems (GIS) in legislative decision making. Noting how a state's information resources are fragmented and uncoordinated, he illustrated how GIS, by geo-coding, can create a framework to integrate

information for better decision making regarding budgets, health care, economic policy, education, energy, and other arenas. He suggested Kansas could begin the process by geo-coding the budget process. Responding to a question, he replied that place-based analytics is one of the best ways to make decisions.

In order to prepare the Committee's annual report, the Chairperson asked members to make recommendations for staff to incorporate into the report. Regarding projects and topics reviewed during the 2010 Interim, the Joint Committee made the following recommendations:

- The Committee strongly recommends that the Kansas Health Policy Authority (KHPA) work with the Department of Social and Rehabilitation Services (SRS), and seek input and cooperation from other agencies that will utilize a core human services eligibility system prior to proceeding forward. The Committee noted that the original RFP did not include provisions for the integration of the system with Avenues, and expresses concern that failure to involve SRS and its needs as part of the RFP may jeopardize the success of the project and cost the government millions in unnecessary interface costs. The Committee recommends that the agencies request a federal waiver of the SRS Advance Planning Document (APD), and work together on a joint RFP. The KHPA is seeking to utilize approximately $42.0 million from a federal Health Resources and Services Administration grant to create and implement a medicaid eligibility system. The Committee notes the importance of collaboration in order to make this project successful for Kansas, within the time-frames of the grant.

- The Committee requests periodic reports back from KAN-ED as to the status of E-Rate funding. The Committee would like to track this funding source, and be kept up to date on any changes in funding status.

- The Committee expresses its concern regarding the number of projects being recast or stopped, and recommends that the Executive, Legislative, and Judicial Chief Information Technology Officers (CITOs) monitor closely these projects. The Committee also requests a status report and risk assessment from the branch CITO's as to these projects. Included in the report, the CITOs should advise and note the top risks for each project. The Committee would like to be updated and informed about these projects, and if a Committee meeting is not possible to review these reports, the report should be made available to members.

- The Committee notes that KAN-ED will be seeking revisions to its current statutes. While language was not available for Committee review, the Committee was informed of this intent, and includes this notation for further consideration during the 2011 Session. The Committee also recommends that KAN-ED seek other changes through the Rules and Regulations process instead of changing statutes.

- The Committee discussed the Department of Corrections (DOC) funding related to the Total Offender Activity and Document System and the Offender Management Information System (TOADS/OMIS) Replacement. In its last report, the Committee commended the Department of Corrections (DOC) for following Committee advice, stopping the OMIS and TOADS replacements, and creating an Enterprise Architecture (EA). However, the Committee also noted that, during the EA's creation, funding was eliminated for the new system as part of the legislative process. The Committee recognizes that the EA plan earned national recognition by receiving the Federated Enterprise Architecture Certification Institute's enterprise architecture planning excellence award. The Committee notes concern that

progress has been stalled by funding issues, and knowing the projects importance, merits, and potential for significant savings and efficiency, the Committee strongly recommends that this integrated project be given high funding priority, and that the 2011 Legislature consider providing funding. The cost of the systems replacement is estimated between $12.0 million and $15.0 million.

- The Committee recommends that the 2011 Legislature review and consider consolidation of Legislative Information Technology (IT) staff. As the Kansas Legislative Information Services System (KLISS) goes live, the Legislative CITO recommended that the Committee and Legislature review the organization and structure of Legislative IT and consider consolidating IT resources and staff. The Committee notes that timing is an important factor when considering IT changes, some changes may not be possible in the current fiscal year, but can potentially be considered for future budget years.

- The Committee notes that there currently isn't a redistricting IT plan on file, and that one should be developed and filed as soon as possible.

- The Committee commends the Kansas Information Technology Office for its work on the IT consolidation study, and for its efforts in pulling together the information. The report is available online at <http://da.ks.gov/kito/ConsolidationStudy.htm>. The Committee recommends Legislative review and consideration of consolidation possibilities. The Committee was informed of the significant potential for cost savings, but also for potential risks.

- The Committee recognizes the late Representative Jim Morrison and his devotion for, support, and work on information technology.

- The Committee appreciates the efforts of Gary Deeter, Committee Secretary, over the years, and his diligence and dedication to assisting the Committee's work.

- The Committee recommends review of Information Technology redundancies, backups, and off-site information storage, and associated funding for these efforts. The Committee is concerned as to the sufficiency of the backup and recovery process being utilized for such critical systems. Concerns were raised as to best practices regarding data-backup and recovery, and the Committee requests an evaluation, review, and report from the Legislative, Executive, and Judicial CITO's as to the current Disaster Recovery plans and processes of all state agencies. The Committee is also interested in knowing, as part of the report, if sufficient funds are being provided, or if more are necessary, to properly support the life-cycle of critical IT projects.

- The Committee commends Secretary Garner for his work on the Unemployment Insurance Modernization (UIM) project. The Committee recommends and urges that, even with new administration and agency staff changes, that the momentum the project has gained, should not be lost in the transition.

- The Committee notes that all agencies will be expected to participate in the new statewide Financial Management System (FMS). Without full participation, multiple agencies will continue to incur substantial, unnecessary costs. Merely integrating with the FMS will still require the upkeep and expenses of old systems, and will thwart savings and efficiency that the new system can provide. Information was

provided to the Committee that agencies are still being allowed to exempt themselves from fully participating with the FMS.

- The Committee recommends investigating and pursuing the use of Geo-Coding technology. The Committee heard testimony from Jim Geringer, former Wyoming Governor, as to the opportunities and possibilities that Geo-Coding can provide by tracking the effects of legislation upon a map. With the implementation of the KLISS system, the Committee notes that Kansas has an opportunity to integrate this within the new KLISS system. The Committee was impressed by the wealth of data that can be captured, interpreted, and provided to assist the Legislative process.

- The Committee recommends efforts towards the consolidation of all state email. The Committee notes that for transparency, ease of searching, and overall efficiency in communication, a consolidated email system would provide a foundation. While the Committee notes that there will be challenges associated with such a consolidation, it could be a first step and provide proof and incentive by showing the applicability and success consolidation efforts can achieve.

- The Committee commends the cooperation of KU and KU Med Center, with both adopting the same version of PeopleSoft software.

The meeting was adjourned. No further meetings were scheduled.

Prepared by Gary Deeter
Edited by Aaron Klaassen and Julian Efird

Approved by the Committee on:

     December 30, 2010
        (Date)

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JOINT COMMITTEE ON INFORMATION TECHNOLOGY

GUEST LIST

DATE: _____December 14-15_____

NAME	REPRESENTING
Anthony Schlinsog	KDOT
SEAN M'GRATH	Phopylon.
BETH Rice	PROPYLON
JEFF LEWIS	SRS
DEREK HEIN	HEIN LAW FIRM
IVAN WEICHERT	DISC
CAREY BROWN	KITO
Terri Clark	LAS
Corey Mohn	KDOC
Carole Jordan	KDOC
SEAN M.	Capiol Strategys
BRYAN DREILING	KITO
Bill Noll	KDOC Corrections
Marcia Stambaugh	KDOT
Sean Flynn	KITO
Barbara Schilling	DFM
Linda EAGAN	KITO
Marcy Sullivan	DISC
Javier Zarazua	EPMO
Mitchell Ummel	Ummel Group International, Inc.

JOINT COMMITTEE ON INFORMATION TECHNOLOGY

GUEST LIST

DATE: _____ December 14-15 _____

PAGE TWO

NAME	REPRESENTING
Bobbi Mariani	SRS
Anthony Schlinsog	KDOT
Matt Carey	GBA
Brad Williams	KBOR
Jerry Huft	KBOR
Jonathan "Dewey" Krueger	KBOR
Berend Koops	Hein Law Firm
BRYAN DREILING	KITO
IVAN WEICHERT	DISC KITO
Sean Flynn	KITO
Michelle Butler	Cap. Strategies
Mitchell Ummel	Ummel Group International, Inc.
Ken Ou	Ken Ou Institute
Ed Crane	ESRI
Gov JIM GERINGER	ESRI

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MEMORANDUM

To: The Joint Committee on Information Technology

From: Daniel Yoza, Assistant Revisor

Date: December 14, 2010

Re: JCIT statutory authority and committee responsibilities

The Joint Committee on Information Technology (joint committee) is established in K.S.A. 46-2101. The committee is composed of five members from each house of the legislature. The committee is to meet annually to organize and elect a chair and vice-chair. In odd numbered years the chair is a representative and in even numbered years the chair is a senator. A quorum consists of 6 members of the committee and is required for all committee action. The joint committee is authorized to introduce legislation.

The duties of the joint committee are described in K.S.A. 46-2102. These duties include the study of state agencies' use of computers and telecommunications technology, reviewing hardware and software acquisition, making recommendations on software and hardware implementation and budget estimates, studying the progress of hardware and software implementations, and making an annual report to the LCC and other committees as deemed appropriate by the committee.

The statutes dealing with the information technology executive council also touch the duties of the joint committee (K.S.A. 75-7201 through 75-7212). In K.S.A. 75-7205, 75-7206, and 75-7207 the executive chief information technology officer, legislative information technology officer and the judicial information technology officer are charged with coordinating information technology implementation together. The joint committee is charged with the task of appointing the legislative chief information technology officer (K.S.A. 75-7208).

The joint committee also has the duty of reviewing the information technology architecture and information technology 3-year budget plans of the executive branch, legislative branch and judicial branch (K.S.A. 75-7210). The joint committee is also charged with advising and consulting with the information technology head of a state agency regarding project changes or cost overruns (K.S.A. 75-7211).

The joint committee shall also receive a quarterly report from the university of Kansas medical center regarding all contracts for acquiring data processing hardware and software (K.S.A. 76-3,100).

Attachment 1

JCIT 12-14-10

<p style="text-align:center">JCIT Presentation - KLISS GO LIVE
Dec 14, 2010
Dave Larson, Terri Clark, Alan Weis, Don Heiman</p>

Introduction & Highlights: Dave Larson, Director Legislative Computer Services

KLISS GO LIVE

KLISS received a "GO LIVE" decision Nov 15 from the Steering Committee
LCC briefed on the "GO LIVE" decision Nov 19. Staff commended by the LCC for their work.

KLISS Security Council

- has representation from the Legislative agencies
- established a charter, implement the adoption of full COBIT standards, institute change management procedure and ensure general and application control auditing

Memorandum of Understanding

A MOU was executed Nov 17 between Propylon and the Legislature. What it does...
- LCC agrees to GO LIVE
- Propylon agrees to:
    - hire 4 people to work for us, 2 programmers, 1 data center manager, 1 test administrator
    - create a war room to handle the cut over
    - provide 24X7 tier 1, help desk support
    - embed 14 people from their development team into the legislative departments
    - provide 1 on 1 mentoring of legislative staff on KLISS
    - all at no cost to the Legislature

FY12 Budget

The FY12 budget for IT is 15% less than last year. This will make it difficult to support KLISS after GO LIVE. The IT project funded the increases in benefits and subsistence.

Conclusion

GO LIVE couldn't have happened without Alan Weis and Terri Clark. These two acted as project managers for the application and infrastructure portions of the strategic plan. They each managed their respective projects skillfully and successfully. Most of the time it would have been easier to herd a 500 cats than the 500 people they've organized and lead. Vendors, consultants, other state agencies, legislators, leadership, division directors, Don, me and the division staff. I just can't express sufficiently how difficult their jobs have been over the last 6 years, and they are not done yet. They are to be congratulated and we need to appreciate the service they rendered.

Introduce Alan Weis for the KLISS application update.

KLISS Software Application Status Report: Alan Weis, Assistant Director for Applications and Software

On November 18, 2010, I recommended to the KLISS Steering Committee that we implement the KLISS Software Application for the Kansas Legislative 2011 session. On that date, the Steering Committee approved the implementation of KLISS.

<p style="text-align:right">Attachment 2
JCIT 12-14-10</p>

Law Making

Law Making Drafting training has been developed and the training started on Oct. 21, 2010. Law Making training is continuing and will be completed by Jan. 7, 2011. New secretarial staff members in the Revisor Office were hired recently and they are being trained. The Law Making pre-production system is being put in place this week for drafting of 2011 session bills.

Chamber Automation

The Chamber Automation Remaining Base and Calendar system will be complete this week. This deliverable in now six weeks overdue according to the revised Oct. 31, 2010 schedule. Chamber Automation training for chamber staff has begun this week and this training will continue through Jan. 7, 2011.

Decision Support

Budget Analysis system is in pre-production and KLRD staff are drafting agency write-ups. Budget Analysis workflow, and publishing is near completion as is Appropriations and Omnibus Bill system. The following outputs are complete: supplemental notes, fiscal notes, bill explainer, CCRB, committee agenda and minutes, testimony, and interim committee report. Publishing outputs to the Legislative Interface is under development.

Budget

The KLISS Software Application project is within the $6,000,000 budget allocated to Propylon, the software build contractor. To this date, $3,142,000 has be paid to Propylon as required by contractual commitment.

Legislative Interface

The Legislative Interface is schedule for implementation on Dec. 31, 2010. External Legislative interface will be hosted by DISC with funding from Information Network of Kansas. INK has provided one time funding of $225,000 and $50,000 per year ongoing to support the External Legislative Interface.

Report on the KLISS Infrastructure: Terri Clark, Assistant Director of Infrastructure

The KLISS infrastructure was designed under the principles of integrated security and consolidated management. All systems and integration points include both automatic and manual controls to check accuracy, completeness and security. Staff attended CISSP training, and will be certified in 2011.

The infrastructure consists of:
Hardware:

> 6 Hewlett Packard DL785 servers
> 42GB EMC Clariion Storage Area Network – replicated to Wichita Offsite Data Center
> Avamar Grid Backup System – replicated to Wichita Offsite Data Center
> 25 Dell servers

Software:
KLISS:
VMWare – Ability to have one server administrator managing 130 servers

2-2

Red Hat Linux - Operating system on the KLISS servers
KLISS core – Open Office, Java, Python, Django, Subversion repository, MySQL database, Lucene Search Engine, Apache Server, Active MQ

Chamber:
IRC voting system
Sliq Technologies Harmony application for committee agendas and minutes

Enterprise:
Active Directory, Windows Server 2008
Exchange Server 2007
IronPort – Spam and Malware protection
Sophos Antivirus and Malware protection

Cisco Network is ready for additional modules – Unified Communications, Streaming video from committee hearings, teleconferencing (We work closely with DISC Planning and Engineering implementing these technologies)

Legislative and External Legislative Interfaces
Propylon contracted with Jones Huyett Partners (jhp) for design and usability work
Single platform for legislative staff, legislators and general public
Providing machine readable data for state agencies and outside entities

Disaster Recovery - Wichita Offsite Data Center
Redundant network paths and firewall services should be completed by DISC in 2011. This means if both the DISC and Legislative Topeka data centers were down several additional hours would be needed for recovery of legislative systems. Since this is truly a disaster recovery option for the legislature this is an acceptable risk.

Systems we can recover within an hour:
Active Directory
User Directories
Exchange Server – Email
Senate Voting System
KLISS

Systems we can't recover immediately – 1 to 2 days recovery:
Instant messaging
House Voting System

Service Desk for 2011 Session
Over the summer staff were trained in COBIT and ITIL standards, and have refined the Service Desk and Support processes to meet these standards.

Implemented COBIT and ITIL during 2010
Legislative Service Desk integrated with Propylon in War Room
Implementing more clinics for synching personal devices to email
Implementing more Lunch and Learn clinics for staff
Legislator training in small groups or individually to accommodate schedules

2-3

Report on the KLISS Implementation: Don Heiman, Chief Information Technology Officer

On October 12th I formally turned over a KLISS implementation plan to the KLISS Steering Committee. The plan was briefed to each committee member in advance of the meeting. The plan contained a recommendation to create an Office of Information Technology which would have 18 positions. The KLISS strategic plan position count and staffing level was approved by the LCC in October 2004. The strategic plan called for 17.2 positions and the current recommended implementation plan includes 18 positions in the Office of Information Technology. In addition, the current implementation plan calls for a formal policy on change control through the creation of a change control board directed by Terri Clark and a software release management procedure managed by Alan Weis. Dave Larson with Don Heiman co-chair an emergency control board for release management. The change control board is responsible for approving all changes to the KLISS software and for testing the changes before the change is put into production. Software Release Management is a quality assurance function managed by Alan Weis. Alan makes sure that all the changes have been properly tested, accepted by SME's when appropriate, and the changes will function in full production and failover environments.

In addition, the implementation plan covers IT budgets and staff development using a methodology called pairing. Our staff will be paired with a Propylon staff member for mentoring and one-on-one training while the application is in a live production environment. The implementation plan contains a glossary of terms, training schedules and security assignments.

Finally the plan includes a full staffing plan. The cost for staffing KLISS is $1,160,000 for 18 positions in the Office of Information Technology. Today there are 11 positions in LAS Computer Services with an annual salary amount of 839,580. The difference is $320,419. After KLISS is implemented the legislature can save...

$126,000 files clerks and clippers
  100,000 consulting services for old system support
   32,000 position consolidation CITO/Deputy CITO
  189,000 position consolidation potential (with redistricting software grants)
  <u>125,000</u> print savings
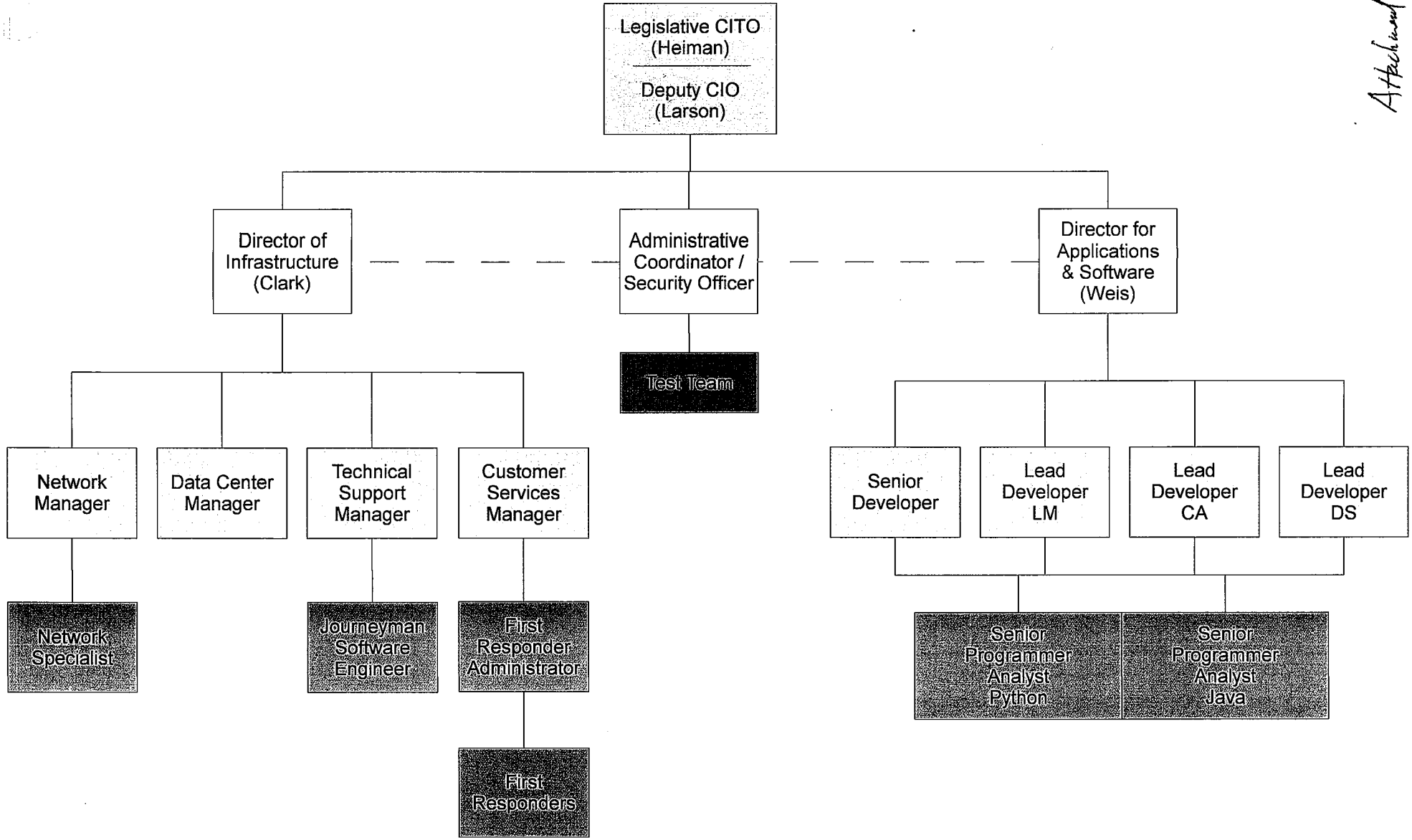$572,000

This savings is offset by the $320,000 increase yielding a net savings potential of $252.000.

Recommendation: On the next page is an organizational chart for the Office of Information Technology. Each position on the chart has a job description and skills requirements statement for the positions. I recommend that the Committee endorse the chart, support the creation of an Office of Information Technology and ask both Senate Ways and Means and House Appropriations to approve the the positions for FY 2012.

This concludes our presentation. May I answer your questions.

2-4

Kansas Legislative Office of Information Technology

```
                          Legislative CITO
                             (Heiman)
                          ───────────────
                            Deputy CIO
                             (Larson)
```

Legislative CITO (Heiman) / **Deputy CIO (Larson)**

- **Director of Infrastructure (Clark)**
  - Network Manager
    - Network Specialist
  - Data Center Manager
  - Technical Support Manager
    - Journeyman Software Engineer
  - Customer Services Manager
    - First Responder Administrator
      - First Responders

- **Administrative Coordinator / Security Officer**
  - Test Team

- **Director for Applications & Software (Weis)**
  - Senior Developer
  - Lead Developer LM
  - Lead Developer CA
  - Lead Developer DS
    - Senior Programmer Analyst Python
    - Senior Programmer Analyst Java

12/10/2010

Slide 1

JOINT COMMITTEE ON INFORMATION TECHNOLOGY

December 14 - 15, 2010

Joe Hennes – DISC Director

Executive Chief Information Technology Officer

1

Slide 2

JCIT Quarterly Report
July-September 2010

Executive Summary

Active Projects:

23 Projects totaling $146,146,849
- 9 Projects are in Good Standing
- 6 Projects are in Good Standing – Infrastructure
- 4 Projects are in Caution Status
  - Commerce – Statewide Broadband Project
  - KCC – KCC Project 2010 BPI – Business Innovation and Improvement
  - KDOT – Workflow Conversion Project III
  - WSU – Banner Enrollment Management Suite Implementation Suite

2

Slide 3

Executive Summary
Active Projects: (Continued)

- 3 Projects are in Alert Status
  - KDHE – Child Care Licensing and Registration Information System (CLARIS) Inspection Module
  - KHPA – Data Analytic Interface III
  - ESU – Campus Wide Network Wiring Project

- 1 Project is in Recast/Alert Status
  - Historical – Kansas Enterprise Electronic Preservation (KEEP)

3

Slide 4

Executive Summary
Active Projects: (Continued)

- 17 Executive Branch Projects
- 4 Regent Projects
- 2 Legislative Branch Projects
- 20 Projects managed by Kansas Certified Project Managers

4

Slide 5

Executive Summary
Planned Projects

Kansas Department of Corrections
- Kansas Information Sharing Initiative – Estimated Cost – To Be Determined

Kansas Department of Health and Environment
- Kansas Special Supplemental Nutrition Program for Women, Infants and Children (WIC) - Estimated Cost - $7,833,134

Kansas Department of Social and Rehabilitation Services
- Addiction and Prevention Services Replacement – Estimated Cost – To Be Determined
- Hospital Electronic Medical Record – Estimated Cost – To Be Determined

University of Kansas
- KU Enterprise Storage Consolidation – Estimated Cost – To Be Determined

University of Kansas Medical Center
- Clinical Research Center – Estimated Cost – $1,850,000

5

Slide 6

Executive Summary
Approved Projects

Estimated Cost $34,970,638

Kansas Health Policy Authority
- Kansas Access to Comprehensive Health (KATCH) – Estimated Cost $29,838,332
- State Medicaid Health Information Technology (HIT) Plan – Estimated Cost $1,567,716

Kansas Bureau of Investigation
- KCJIS-KDOR Data Integration Project – Estimated Cost $901,000

Kansas Department of Transportation
- Kansas Truck Routing and Intelligent Permitting System (K-TRIPS) – Estimated Costs $2,663,590

6

Attachment 4 1
JCIT 12-14-10

Executive Summary
Completed Projects
Estimated Cost: $49,222,672

Kansas Department of Administration
- Statewide Financial Management System

Attorney General's Office
- Case Management System II

Kansas Highway Patrol
- Mobile Data Unit Replacement (East Region)

Kansas Social and Rehabilitation Services
- LIEAP ECCM (Enterprise Customer/Content Management)

Emporia State University (ESU)
- Banner Enrollment Management Suite Implementation Project II

University of Kansas (KU)
- KU Oracle Campus License Agreement
- KU Oracle Database Implementation

7

SELECTED PROJECTS

8

Active Project
Department of Commerce

Statewide Broadband Project

- Project will increase broadband access and adoption through better collection and broadband planning.

- Project will accomplish:
  - Collection of data required by NTIA on the levels of broadband connectivity of residential and anchor institutions in Kansas
  - Provide a publicly available online map of connectivity levels
  - Planning and outreach to support increased connectivity
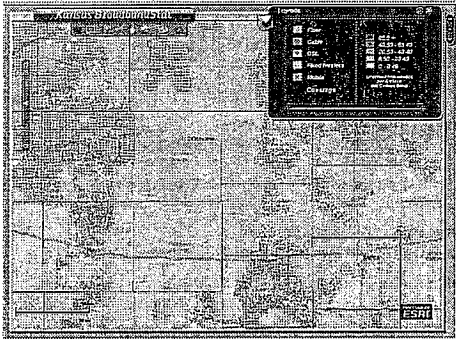
9

Active Project
Department of Commerce

Statewide Broadband Project

- Initial Grant to State
  - $2,000,000 ($1,500,000 initial mapping and maintenance for two (2) years, $500,000 planning money to Commerce to hire broadband coordinator, hold statewide summit, set up task force, conduct surveys and cost analysis for unserved areas).

- Follow-on Grant to State
  - Over $4,000,000 to continue mapping updates for another three (3) years, develop an Enterprise Architecture for broadband, rollout a statewide planning effort using the regional economic foundations, continue with task force and surveys.

10

Broadband STAT Mapping Tool

Available online at http://www.connectkansas.org/

Active Projects
Department of Labor

UIM Build and Deploy

- Project will modernize KDOL's UIM technical and operational model.
- New system will provide feature rich telephony and web services, customer relationship and case management, and provide customers with high quality self service options.
- Project divided into four (4) subprojects:
  - SP I - Focus on infrastructure and core technologies deploying Siebel, Genesys and FileNet Platforms.
  - SP II - Perform prep work for primary build and deploy.
  - SP III - Deploy of first priority functionality, data migration and interfaces.
  - SP IV - Deploy secondary priority functionality and wrap up.

12

Active Projects
Department of Labor
UIM Build and Deploy

- Accomplishments:
  - Project completed first two (2) subprojects as of 2/26/10
  - Began Subproject III on 2/22/10. Estimated end 1/28/11
  - Using Agile Project Management Methodology
  - Project is currently in Good Standing for the quarter
  - Deployed Dynamic Fact Finding (DFF) for unemployment initial claims using the Oracle Policy Automation rules engine
  - Additional deployments include E-talk, InfoMart, and Google Based Knowledge repository
  - Subproject IV Detailed Plan Approved 11/9/10

13

Planned Projects
University of Kansas/University of Kansas Medical Center
KU/KUMC HR/Pay PeopleSoft Upgrade

- Project will be a collaboration between KU and KUMC
- Upgrade from PeopleSoft HR/Pay 7.6 (KU) and SA 8.0 SP1 (KUMC) to PeopleSoft Human Capital Management (HCM) version 9.1
- KU and KUMC will be sharing the new single system
- Current systems are based on outdated version releases that are not fully supported by Oracle and security patches are no longer provided for production versions
- High Level Plan Approved 10/28/10
- Detailed Plan Approved 12/2/10

14

Active Project
Kansas State Historical Society (KSHS)
Kansas Enterprise Electronic Preservation (KEEP) II

Effort will produce a Trusted Digital Repository to preserve and access electronic government documents.

- KSHS doing preliminary work toward a digital archive
  - In 2008, the legislature appropriated $149,500 to begin
  - In 2009, INK awarded a $175,000 grant to build the archive
  - In 2010, Bob Horton – Minnesota State Historical Society re-granted $125,000 from the National Digital Information Infrastructure and Preservation Program (NDIIPP).
- Agencies will archive material under the expertise of Kansas State Archivist eliminating the need for agencies to have own digital archivist
- All three (3) CITOs agree to collaborate, share resources, and provide oversight and report individual projects

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Active Project
Kansas State Historical Society (KSHS)
Kansas Enterprise Electronic Preservation (KEEP) II

- Initial documents to be ingested into KEEP
  - Authentication of legislative meeting minutes
  - Judicial Supreme Court Opinions
  - Attorney General Opinions
- Opportunity for growth
- Accomplishments:
  - Infrastructure is complete
  - Policy framework is in place
  - State Archivist reviewing IT plans for ingestion of records into KEEP
  - Recast Plan Approved 9/13/10
  - Experienced one (1) outstanding deliverable due to a hardware delay related to a server in the Wichita Offsite Data Center
  - Project successfully resolved issue and recovered 11/16/10

16

Approved Projects
Department of Transportation
Kansas Truck Routing and Intelligent Permitting System (K-TRIPS)

- History
  - Current Permit Application System functionally obsolete
  - In 2007, report commissioned to evaluate current system and determine strength, weakness and future steps to better serve customers
- Scope - Replace current permit application system for truckers, carriers and permit agencies. New system will include:
  i. Self service, internet based, auto routing environment
  ii. Advance, graphical, mapped based interface
  iii. Real time access to oversize/overweight permitted, routing and incident data

17

Approved Projects
Department of Transportation
Kansas Truck Routing and Intelligent Permitting System (K-TRIPS)

- Accomplishments:
  - Multi-agency collaboration – KDOT, KDOR, KHP and KCC
  - High Level Plan was submitted and approved on 9/14/10
  - A Request for Proposal (RFP) was approved on 10/7/10

18

Planned Project
Department of Corrections

Total Offender Activity and Documentation System /Offender Management Information System (TOADS/OMIS) Replacement

- Replace current TOADS/OMIS with a new system for managing offenders from community corrections through post incarceration supervision
- History:
  - JCIT requested KDOC perform Enterprise Architecture (EA) project prior to beginning TOADS/OMIS on 8/17/07
  - Successfully completed EA on 6/1/09
  - Received the "Leadership in Enterprise Driven Results" for the EA project on 9/10/09
- Status of Current Project:
  - TOADS/OMIS IT Planned Project approved 11/5/07
  - Pending additional funding to proceed

19

Completed Project
Department of Administration

Successful Project Execution

- Statewide Management Accounting & Reporting Tool, SMART, went live – as planned on July 1, 2010!
- SMART is the largest statewide implementation of PeopleSoft ever executed.
  - 108 Organizational Business Units
  - 16 PeopleSoft Modules
- The Sunflower Project was executed:
  - On Time - Many projects are requiring 25% - 50% more time
  - On Budget - Many projects are over-spending budgets by 50% - 100%
  - With all planned scope
    - Purchasing, General Ledger, Accounts Receivable, Accounts Payable, Asset Management, Projects/Grants, Time & Labor
    - Data Warehouse
- Over 60 agency administrative systems decommissioned

20

Completed Project
Department of Administration

Successful Project Execution

- Since Go-live SMART has processed over:
  - $11.8 billion in deposits
  - $11.4 billion in expenditures
- Approximately 3,000 State employees have access to SMART
- Over 1,100 State employees are accessing SMART each day
- A Service Center was established to provide administrative support to 35 agencies, boards and commissions
- Help Desk in place to support end users – over 12,000 Help Desk tickets have been logged, with approximately 300 still open
- All critical risks were identified and appropriately managed.

21
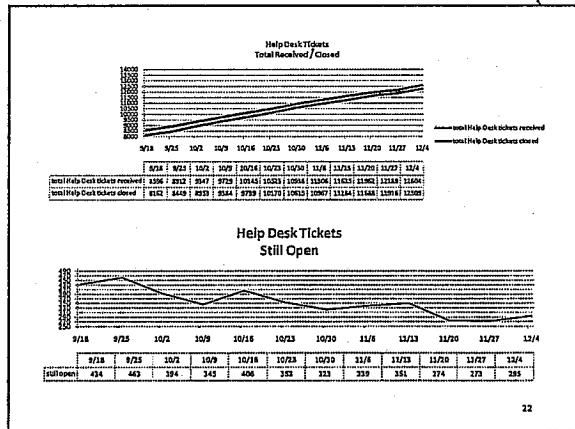
22

Approved Project
Kansas Health Policy Authority

Kansas Access to Comprehensive Health (KATCH)

- Objective: Expand Medicaid Health Insurance Coverage
  - Develop and Deploy an online, web-based, Eligibility/enrollment system
  - Develop and Deploy a Statewide Outreach and Marketing Plan
- Made possible by a Health Resources and Services Administration (HRSA) grant for approximately $42M
- Driven by Federal Mandate as part of Health Information Exchange and, as a stipulation to continue to receive Federal funding, it has to be implemented by January 2014

23

Planned Project
Social and Rehabilitation Services

Human Services Management (HSM) - aka "Avenues"

- Implement a modern integrated IT system that will enable the delivery of SRS services in a client focused, outcome driven manner.
- New customer focused approach will eliminate "stove pipe" process.
- Provide more effective service delivery to Kansans through a single interface to various program areas.
- Previous Agreement between SRS and KHPA to initiate this project
  - Attempted twice unsuccessfully to acquire funds for the project

24

Approved Project
Kansas Health Policy Authority
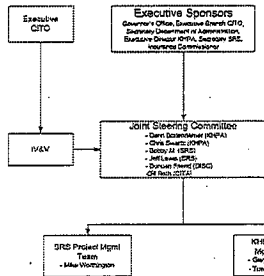
Kansas Access to Comprehensive Health (KATCH)
- Accomplishments to date:
  - Executive Sponsors Group Established
    - Gov. Office, Sec SRS, Sec Admin, Exec Dir KHPA, Executive Branch CITO, Insurance Commissioner
  - Governance Structure
  - Feasibility Study Report Completed
  - Architectural Study Completed
  - Outside Project Mgt and IV&V
  - Steering Committee Established
  - In June 2010, tentative agreement to pursue single project.

25

Governance Structure

KHPA

Roles, Responsibilities and Scope of Governance

Approved Project
Kansas Health Policy Authority

KATCH Feasibility Study
- Purpose:
  - Will develop a flexible, dynamic and integrated automated eligibility system providing enhancements for medical assistance:
    - Maximize Investments
    - Improve Accuracy
    - Improve Customer Service
  - Goals:
    - Use SOA to insure maximum benefit in the future
    - Create a framework that can be built on and leveraged within KHPA and by other agencies is achieve common business function
- Web Address for KATCH Feasibility Study:

  http://www.khpa.ks.gov/katch/download/FS_%20NEXT_GENERATION-FINAL_8-3-2010.pdf

27

State of Kansas – Electronic Health and Human Services Strategic Roadmap

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Approved Project
Kansas Health Policy Authority

Joint KHPA-SRS Steering Committee Vision
- Working together, KHPA and SRS will use a phased strategy to implement a state-of-the-art medical eligibility system that leverages appropriate federal and state resources, streamlines customer service and provides the means to improve access to medical benefits for eligible Kansas customers.
- Commitment to the goals of the KATCH project and participation of both KHPA and SRS is essential to success.

29

Approved Project
Kansas Health Policy Authority

KATCH – Status Today
- Challenges have been encountered throughout the process
  - Timelines have been very difficult to sync
  - Differences in Federal Partners Project Approval Process
  - High Level Approval was given 9/30/10
  - RFP is on the street
  - SRS Participation is limited at this time

30

Federal Initiatives

USDA and HHS

- New grant opportunity
- Exchange integration with eligibility determination
- Five (5) states
- Initial states become models
- Hosting center for multiple states
- New money
- Fast Track Due 12/22

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JCIT Quarterly Report
July-September 2010

Questions?

JCIT Quarterly Report
July-September 2010

Joe Hennes – DISC Director
Executive Chief Information Technology Officer
900 SW Jackson, 751-South
Topeka, Kansas 66612

http://www.da.ks.gov/kito/projstatusreport.htm

4 - 6

Quarterly IT Project Report – April/May/June 2010

<u>Active Projects</u> (Project Cost = $193,170,202)

14	Projects in Good Standing
9	Projects in Good Standing/Infrastructure
0	Project Caution Status
3	Project Alert Status
1	Project Recast/Alert
0	Project Recast
0	Project Recast/Infrastructure
_0	Report Insufficient
27	**Total Number of Projects**

22 **Projects are managed by a Kansas Certified Project Manager**

19	Executive Branch Projects
6	Regents Projects
0	Judicial Projects
_2	Legislative Branch Projects
27	**Total Projects by Branches and Regents**

Quarterly IT Project Report – January/February/March 2010

<u>Active Projects</u> (Project Cost = $188,448,210)

9	Projects in Good Standing
8	Projects in Good Standing/Infrastructure
1	Project Caution Status
4	Project Alert Status‹
1	Project Recast
_1	Project Recast/Infrastructure
24	**Total Number of Projects**

20 **Projects are managed by a Kansas Certified Project Manager**

19	Executive Branch Projects
3	Regents Projects
0	Judicial Projects
_2	Legislative Branch Projects
24	**Total Projects by Branches and Regents**

Quarterly IT Project Report – October/November/December 2009

<u>Active Projects</u> (Project Cost = $185,555,718)

7	Projects in Good Standing
4	Projects in Good Standing/Infrastructure
0	Project Caution Status
6	Project Alert Status
_2	Project Recast
19	**Total Number of Projects**

15 **Projects are managed by a Kansas Certified Project Manager**

16	Executive Branch Projects
1	Regents Projects
0	Judicial Projects
_2	Legislative Branch Projects
19	**Total Projects by Branches and Regents**

4-7
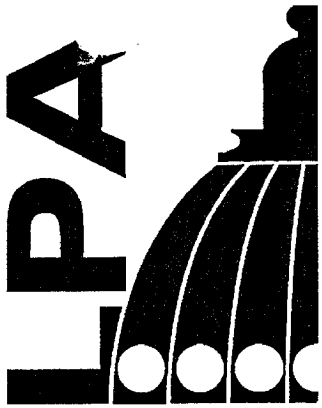
Legislative Post Audit
Performance Audit
Report Highlights

Agency Data Centers: Assessing the Potential Savings of Consolidation (A K-GOAL Audit)

Report Highlights

July 2010 • 09PA06

Audit Concern

Legislators are interested in knowing whether there is potential for significant cost savings in Kansas from consolidating data centers, and what potential up-front costs would be incurred to achieve those savings.

Because the 2010 Legislature directed DISC to perform an information technology consolidation study and the large upfront costs involved with setting up a consolidated data center, we decided to focus our audit on steps agencies could take on a more immediate basis to save costs and prepare for future consolidation.

Other Relevant Facts for Question 1

Kansas currently has the network needed to support Statewide data centers but doesn't have the physical buildings needed to house the servers.

According to DISC officials, building Statewide consolidated data centers would cost between $31 and $77 million (the cost would be even greater if it included the Regents' institutions).

**Estimated Potential Cost Savings as a Result of This Audit :
$ 400,000 to $2.3 million over three years**

AUDIT QUESTION 1: What data center consolidation efforts have other states undertaken?

AUDIT ANSWER and KEY FINDINGS:

- Kansas currently has the network needed to support Statewide data centers but doesn't have the physical buildings needed to house the servers.

- According to DISC officials, building Statewide consolidated data centers would cost between $31 and $77 million (the cost would be even greater if it included the Regents' institutions)

- Kansas was one of five states that had proposed data center consolidation in 2007. Currently, Kansas is still in the planning stages.

- During the 2010 legislative session, the Legislature passed Senate Bill 572 which requires DISC to conduct a formal feasibility study examining the consolidation of several information technology areas including staff, disaster recovery operations, and data centers. The study results are due back to the Legislature during the 2011 session.

- Four of five nearby states are pursuing various forms of data center consolidation.

  ➤ **Colorado**—consolidated into statewide data centers

  ➤ **Texas**—contracted with IBM to provide statewide data centers but has encountered significant problems including bad data backup and missing consolidation deadlines

  ➤ **Nebraska**—developing a plan to consolidate into statewide data centers

  ➤ **Oklahoma**—developing a plan to consolidate all information technology resources

  ➤ **Missouri**—no data center consolidation completed or planned

Attachment 5
JCIT   12-14-10

AUDIT ANSWER and KEY FINDINGS:

- To assess where State agencies were in terms of virtualization, we selected five agencies with the most physical servers including the Departments of Administration, Health and Environment, Revenue, Social and Rehabilitation Services, and Transportation.

  - ➤ So far, the five agencies have virtualized 406 servers—about half of their servers that can be virtualized—saving an estimated $600,000 to date.

  - ➤ By virtualizing the 364 remaining servers that are good candidates for virtualization, the five agencies could potentially save $400,000 to $1 million over three years. The estimated cost savings by agency are shown in the figure below.

- Virtualizing servers within an agency would be a logical first step toward consolidating data centers across agencies, because it reduces the number of physical servers that would need to be moved.

- Unfortunately, not all servers can be virtualized. Barriers that prevent virtualization include servers that use so many resources they can't share with other servers, federal requirements for some programs, and private software companies that won't provide technical support if the software is installed on a virtual server.

- Further, several barriers can prevent or slow an agency's virtualization efforts including staff resistance and startup costs.

Other Relevant Facts Question 2

Virtualization is the process of replacing several physical servers with a single host server that is powerful enough to simulate several servers.

Server virtualization is a relatively new process that can yield cost savings and other benefits including freeing up physical space in data centers, reducing the burden on air conditioning systems, and increasing server flexibility.

The amount of agency savings depends on the number of virtualized servers put on each host server. We estimate agencies need to put at least five virtualized servers on each host server to break even.

Servers are typically replaced every three to five years.

Agency	Current Average Number of Virtualized Servers Per Host Server	Server Replacement Cost If Not Virtualizing		Server Replacement Cost If Virtualizing					
				Using Agency's Current Average Virtualized Servers Per Host			Using Average of 10 Virtualized Servers Per Host		
		# of Physical Servers	Cost	# of Host Servers Needed	Cost	Savings	# of Host Servers Needed	Cost	Savings
Dept. of Administration	7	65	$325,000	10	$216,000	$109,000	7	$151,000	$174,000
KDHE	19	13	$65,000	1	$22,000	$43,000	1	$22,000	$43,000
Dept. of Revenue	7	42	$210,000	6	$129,000	$81,000	5	$108,000	$102,000
SRS	6	162	$810,000	27	$582,000	$228,000	17	$367,000	$443,000
KDOT	4	82	$410,000	22	$474,000	($64,000)	9	$194,000	$216,000
Total	6	364	$1,820,000	66	$1,423,000	$397,000	39	$842,000	$978,000

Table title: **Three-Year Estimated Savings Agencies Can Achieve Through Virtualization**

5-2

AUDIT ANSWER and KEY FINDINGS:

- The State could save up to an estimated $1.3 million if agencies would lease virtualized servers from DISC.

    - ➤ If DISC leased its available, unused server space, we estimate the State could save more than $800,000 over three years.

    - ➤ If DISC expanded its data center to accommodate all small to medium-sized agencies, we estimate the State could save an additional $500,000 over three years.

- These savings depend on the extent to which agencies are willing to lease server space in the DISC data center. Agency officials expressed concerns about the cost of leasing and DISC's customer service.

- Agencies are unlikely to lease server space from DISC unless the lease rates are set low enough that agencies can save money. Currently, DISC hasn't determined a lease rate for its program.

- Agency officials also have expressed concerns about DISC service, including:

    - ➤ Agency officials think that the DISC network is unavailable too often.

    - ➤ Agency officials are concerned that DISC has too many bureaucratic
    layers, often making it difficult to get help with a problem.

    - ➤ Agency officials also reported that DISC has poor customer service

We Recommended

- DISC officials should conduct regular customer service surveys and use the results to improve its customer service.

- DISC should set its server leasing rates at the actual cost of providing the service to keep the cost low and make the server leasing program more attractive to agencies.

- Agency officials at our five selected agencies should virtualize the remaining servers identified in this audit, and in the future look to virtualize new servers whenever possible.

Agency Response: *The agencies generally concurred with the report's findings, conclusions, and recommendations.*

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5-4

LEGISLATURE OF KANSAS

LEGISLATIVE DIVISION OF POST AUDIT

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TOPEKA, KANSAS 66612-2212
TELEPHONE (785) 296-3792
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E-MAIL: lpa@lpa.ks.gov

July 15, 2010

To: Members, Legislative Post Audit Committee

Senator Terry Bruce, Chair	Representative John Grange, Vice Chair
Senator Anthony Hensley	Representative Tom Burroughs
Senator Derek Schmidt	Representative Ann Mah
Senator Chris Steineger	Representative Peggy Mast
Senator Dwayne Umbarger	Representative Virgil Peck Jr.

This report contains the findings, conclusions, and recommendations from our completed performance audit, Agency Data Centers: Assessing the Potential Savings of Consolidation.

The report also contains an appendix which shows the methodology we used to estimate Statewide cost savings by virtualizing servers.

The report includes two recommendations for the Division of Information Services and Communications (DISC) officials to improve customer service and to make DISC's virtual server leasing program attractive to other State agencies. The report also contains a recommendation for agency officials to virtualize agency servers and assess future server needs for possible virtualization. We would be happy to discuss these recommendations or any other items in the report with any legislative commit-tees, individual legislators, or other State officials.

Scott Frank
Interim Legislative Post Auditor

5-5

READER'S GUIDE

The Big Picture

Audit Highlights	The highlights sheet, inserted in each report, provides an overview of the audit's key findings
Conclusions and Recommendations	Located at the end of the audit questions, or at the end of the report
Agency Response	Included as the last Appendix in the report
Table of Contents, and lists of figures and appendices	Lets the reader quickly locate key parts of the report

The Details

"At-a-Glance Box"	Used to describe key aspects of the audited agency; generally appears in the first few pages of the main report
Side Headings	Point out key issues and findings
Charts, Tables, and Graphs	Visually help tell the story of what we found
Narrative Text Boxes	Highlight interesting information or provide detailed examples

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Agency Data Centers: A K-GOAL Audit Assessing the Potential Savings of Consolidation

The Kansas Governmental Operations Accountability Law (K-GOAL) subjects any State agency or program to audits, reviews, and evaluations as determined by the Legislative Post Audit Committee. Through this process, the Legislature can, in the words of the Act, "retain and maintain appropriate and effective governmental operations, remediate defective governmental operations, and terminate inappropriate or obsolete government operations."

The Committee is required to direct at least four audits each year under the law; it has chosen to focus these audits primarily on efficiency and cost savings issues. The law states that such audits may determine whether the agency or program is still needed, whether another agency could effectively perform the functions of the agency or program, whether the agency or program could be operated more efficiently and still fulfill its intended purpose, and other factors as determined by the Legislative Post Audit Committee. The Committee has designated this audit of data center consolidation as a K-GOAL audit.

According to the most recent set of agency information technology plans compiled by the Kansas Information Technology Office, executive branch agencies (excluding the Regents' institutions) spent more than $154 million on information technology services in fiscal year 2009. One of the major information technology cost areas is the operation and maintenance of data servers. According to the information technology plans, agencies currently operate more than 2,000 servers.

A 2005 report commissioned by the Texas Department of Information Resources estimated that Texas could cut the cost of operating mainframes and servers by almost 23% if they were consolidated into a single data center. Data center consolidations potentially create cost savings in areas such as staffing, hardware, software, maintenance, space, power consumption, and support contracts. According to proponents of data center consolidation, non-monetary benefits can include better security, reliability, and technology available to state agencies.

In 2007, the National Association of State Chief Information Officers (NASCIO) conducted a survey of the states to look at current trends in data center consolidations. Out of 29 states responding to the survey, six reported having completed a consolidation, 16 were in the process of consolidation, and five indicated they were in the planning stages.

Legislators are interested in knowing whether there is potential for significant cost savings in Kansas from consolidating State agency data centers, and what potential up-front costs would be incurred to achieve those savings.

As approved by the Legislative Post Audit Committee, this audit initially had the following question:

1. **Could State agency data centers in Kansas be combined to achieve cost savings?**

However, because legislation was introduced and ultimately passed during the 2010 legislative session calling for a study of the feasibility of consolidating information technology resources in Kansas—including servers and data center resources—and because of the large up-front costs involved in setting up a consolidated data center, we decided to focus our audit effort on steps agencies could take on a more immediate basis to save costs and prepare the State for future possible consolidation. Given that focus, we broke the original question into the following three questions:

1. **What data center consolidation efforts have other states undertaken?**

2. **Could individual Kansas agencies achieve cost savings by virtualizing their own servers?**

3. **Could the State achieve cost savings if DISC leased out virtualized servers to small and mid-sized agencies?**

To answer these questions, we reviewed state data center consolidation survey results from the National Association of State Chief Information Officers (NASCIO). We talked to officials in our neighboring states to understand their data center consolidation efforts and to learn about their experiences during those consolidation efforts. We also reviewed the information technology plans the Kansas Information Technology Office compiled and we gathered additional information from some State agencies about their servers.

Additionally, we interviewed agency officials about any current virtualization efforts they have underway and any concerns they have with the primary information technology agency in Kansas—the Division of Information Services and Communications (DISC). Finally, we estimated the savings for a selection of agencies to virtualize their servers and we estimated the savings that could occur if DISC leased virtual server space to additional small and medium-sized agencies. Throughout the report, we have excluded any information related to the Regents' institutions.

We conducted this performance audit in accordance with generally accepted government auditing standards. The standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. As a standard part of our preliminary review of the agency server data for our selected agencies, we visually reviewed the data for reasonableness, which included looking for missing or duplicate records, data that weren't consistent with other related datasets (Kansas' three-year information technology plan), and for outliers that couldn't be explained.

Although the number of servers our selected agencies reported having didn't match what had been previously reported on the three-year information technology plan, our preliminary testing didn't disclose any systematic problems that would make the data grossly inaccurate. We also used the three-year information technology plan data for analysis in Question 3. This data is self reported, but it is the only data available on agency information technology resources. We think that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our findings begin on page 9, after a brief overview of data centers in Kansas State agencies.

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DISC Is the State's Central Information Technology Agency

The Division of Information Systems and Communications (DISC) is one of five operating divisions within the Department of Administration. By law, it's charged with providing central mail, telecommunications, networking, and data processing services to all State agencies.

DISC operates the KANsas Wide area Information Network (KANWIN), which is the backbone of the State's information technology network infrastructure. KANWIN is the Statewide data network that allows agencies to connect to one another and connect to the Internet. DISC provides the hardware and software necessary to support and manage KANWIN. Agencies are required by law to use the KANWIN network, and each agency pays a fee for the use of the network.

In addition to operating KANWIN, DISC also offers optional information technology services to agencies for an additional fee. These include such things as providing general information technology support for small agencies that lack expertise, housing servers for agencies inside DISC data centers, and designing or operating web sites for agencies.

As part of its responsibilities for providing mainframe and other computing services and support, DISC operates three data centers. A data center is a centralized facility where State agencies can house their servers. The facility typically has the infrastructure and resources needed to provide a secure environment that will maximize server performance and life span, including things like adequate cooling and battery backup for power failures. There are three data centers that are operated by DISC:

- **Landon State Office Building data center**—DISC's primary data center is in Topeka and houses servers for 20 agencies, including the Department of Administration. Agencies can lease floor space to house servers for day-to-day operations or for backup purposes. There is limited open floor space remaining to lease in this data center.

- **Historical Society data center**—DISC has a data center located on the premises of the State Historical Society in Topeka housing servers for 12 agencies. DISC encourages agencies to use this data center mostly for backup purposes and disaster recovery because the data center is small and has limited cooling and electrical infrastructure. There isn't any remaining open floor space available to lease in this data center.

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● **Wichita data center**—DISC rents data center facilities from a third party in Wichita which currently houses servers for six agencies. DISC expects most agencies to use this data center for backup purposes and disaster recovery, but some agencies located in Wichita may use the data center for day-to-day operations. This data center is relatively new and has a lot of floor space available for lease.

Although agencies are required to use DISC's network (KANWIN), agencies aren't required to use DISC's data centers to house their servers.

Agencies Are Responsible For Maintaining Their Internal Networks, Including Their Own Data Centers	Most State employees use desktop or laptop computers as part of their day-to-day work, but the information, forms, and other documents they use generally are stored on servers that they access through a network. The network access allows servers to be located in a different location than the desktop and laptop computers, including outside the agency in an off-site data center.

The information technology field has many unique terms many of which are defined on page 8.

Kansas has about 2,000 servers spread across 79 State agencies (excluding the Regents' institutions). According to the information shown in the January 2010 Kansas Information Technology Plan, Kansas spent about $154 million on information technology in fiscal year 2009 (this total excludes the Regents' institutions). These expenditures included all information technology areas such as data centers, security, and application development.

In fiscal year 2010, the 79 State agencies had about 1,300 full-time equivalent information technology staff, 2,000 servers, and 22,500 desktop computers. In general, each agency is responsible for buying, administering, and maintaining the servers it needs to run computer programs and store the data used in its operations—whether it houses those servers in-house, with another agency, or leases server space from DISC.

Figure OV-1 on page 6 summarizes the information technology resources for Kansas agencies (excluding the Regents' institutions).

Only about one-third of State agencies house any of their servers in a DISC data center. Of the 79 State agencies mentioned above, only 23 have any servers in a DISC data center, either for day-to-day operations, or for backing up data. (56 agencies house all their servers outside of DISC's centralized data centers.)

Figure OV-1 State Agency Information Technology Resources As of January 2010 (excluding Regents' institutions)			
Agency	# Physical Servers	IT Staff (FTE)	Total FY 2009 IT Expenditures (in millions)
Top 20 Agencies with the Most Physical Servers			
Department of Social and Rehabilitation Services	285	239	$25.3
Department of Transportation	269	152	$24.3
Department of Revenue	220	136	$8.8
Department of Administration	202	232	$34.7
Department of Health and Environment	160	51	$8.7
Department of Corrections	128	52	$3.5
Department of Labor	91	63	$7.1
Department of Commerce	66	38	$2.1
Department of Education	56	53	$1.0
Kansas Health Policy Authority	45	10	$3.4
Secretary of State	45	10	$1.3
Department on Aging	45	15	$0.9
Department of Wildlife and Parks	30	0	$1.4
Highway Patrol	25	24	$2.6
Kansas Corporation Commission	22	16	$0.9
Board of Indigents Defense Services	22	3	$0.3
Juvenile Justice Authority	20	13	$0.8
State Historical Society	20	4	$0.2
Legislature	20	14	$3.4
State Fire Marshal	17	2	$0.3
All other State agencies (59 agencies)			
All other State agencies	257	154	$23.1
Grand Total (79 agencies)	**2,045**	**1,282**	**$154.0**

Source: Unaudited data from the three-year information technology plan from the Kansas Information Technology Office (dated January 2010).

Information about the specific location of all servers in the State wasn't readily available. To get a more detailed look at where agencies house their servers, we reviewed additional information for agencies with 50 or more servers, which is shown in *Figure OV-2.*

Department of...	Total # of Servers	Servers In a DISC Data Center		Servers Outside a DISC Data Center	
		#	%	#	%
Social and Rehabilitation Services	285	121	42%	164	58%
Transportation	269	21	8%	248	92%
Revenue	220	52	24%	168	76%
Administration	202	202	100%	0	0%
Health and Environment	160	0	0%	160	100%
Corrections	128	61	48%	67	52%
Labor	91	40	44%	51	56%
Commerce	66	60	91%	6	9%
Education	56	0	0%	56	100%
Grand Total	1,477	557	38%	920	62%

Figure OV-2
The Number of Servers in DISC Data Centers
For a Selection of Agencies

Source: Unaudited data from the three-year information technology plan and additional server information from agency officials.

As the figure shows, most of the agencies use the DISC data centers to house at least some servers. However, most agency servers—except those owned by the Departments of Commerce and Administration—were housed outside of DISC's data centers. While some agencies house servers in one of the DISC data centers to support day-to-day operations—such as the Department of Commerce—many agencies are using the data centers solely for disaster recovery purposes—such as the Department of Transportation.

Very few State agencies have consolidated their data centers with other agencies. During our audit work we noted that many agencies operate their own data centers. For example, the Departments of Health and Environment and Transportation have large, sophisticated data centers. Other agency operations are much smaller. In most cases, agency data centers are operated solely by the agency and don't house servers from any other agency. One exception we found was the Department of Agriculture which has consolidated servers for three other agencies into its data center, but this type of situation appears to be rare.

Definition of Technical Terms Found in This Report

Data Backup – Backup is the periodic copying of an agency's data to another device or location, and is done to help ensure that if data are corrupted or destroyed, the data can be recovered. Generally, backup data are stored in a location far enough away from the original server to avoid being affected by the same event that harmed the original data. Both personal computers and servers normally are backed up on a regular schedule.

Data Center – A data center is a facility used to house servers and the associated components, such as telecommunications and data storage systems. Data centers typically have the infrastructure and resources—adequate cooling, battery backup for power failures, etc— to provide a secure environment that will maximize servers' availability and life span.

Disaster Recovery – All State agencies are required to have a disaster recovery plan, which is a business continuity plan in the event of a disaster. Disaster recovery is the process, policies, and procedures related to the recovery or continuation of servers, related computer components, and data in case of a natural or human-induced disaster such as a flood or computer virus. Virtualized servers can make recovery after disaster much quicker and easier because the servers and data can be quickly copied onto new hardware.

Host Server – A more powerful server that is capable running multiple virtualized servers, though the use of special software.

Network Uptime/Downtime – Uptime is the percent of time that servers are operational and accessible to staff. If the network is "down," the information on the servers can't be accessed and work is halted. Uptime is usually a measure of reliability and stability. Downtime is the opposite.

Physical Server – A server is a combination of hardware and software designed to accommodate multiple users at the same time and to efficiently and quickly move data back and forth over a network. Because of the multiple users needing to use it at the same time, a server is a type of computer that typically will process data faster and be able to store more data than a typical personal computer.

Service Level Agreement (SLA) – A service contract between agencies that documents the agreed-upon services and expectations of both parties. These types of agreement commonly are used for information technology services. For example, an agreement between DISC and the Legislature promises that the network will be up and running 99% of the time during the session. If DISC fails to meet the agreed upon level, it must pay a penalty.

Virtualization – The process of taking many physical servers and replacing them with one more powerful host server that is capable of running multiple virtualized servers.

Virtualized Server – A virtualized server is a software-only version of a server that operates inside of a host server. Because it is a software version, many virtualized servers can be run on one host server. Virtualized servers operate independently of other virtualized servers on the same host server.

Question 1: What Data Center Consolidation Efforts Have Other States Undertaken?

Answer in Brief:	*As of 2007, the latest year for which information had been compiled, at least 27 states were pursuing data center consolidation. Four of five nearby states we examined—as well as Kansas—are pursuing various forms of data center consolidation. Kansas has investigated consolidating all servers into a Statewide data center, and is planning to study the issue further in fiscal year 2011. These and related findings are discussed in more detail in the sections that follow.*

As of 2007, At Least 27 States Were Pursuing Data Center Consolidation

In 2007, the National Association of State Chief Information Officers (NASCIO) surveyed all states (and the District of Columbia) about progress made toward data center consolidation at the State level. Data center consolidation involves moving the physical servers from several agencies into a few specific locations. The 29 responses to the NASCIO survey are summarized in *Figure 1-1.*

Figure 1-1
Data Center Consolidation Efforts By Each State
As of 2007

6 Completed
16 Partial/In Progress
5 Proposed
2 No Activity
22 No Information Available

Source: The National Assocation of State Chief Information Officers.
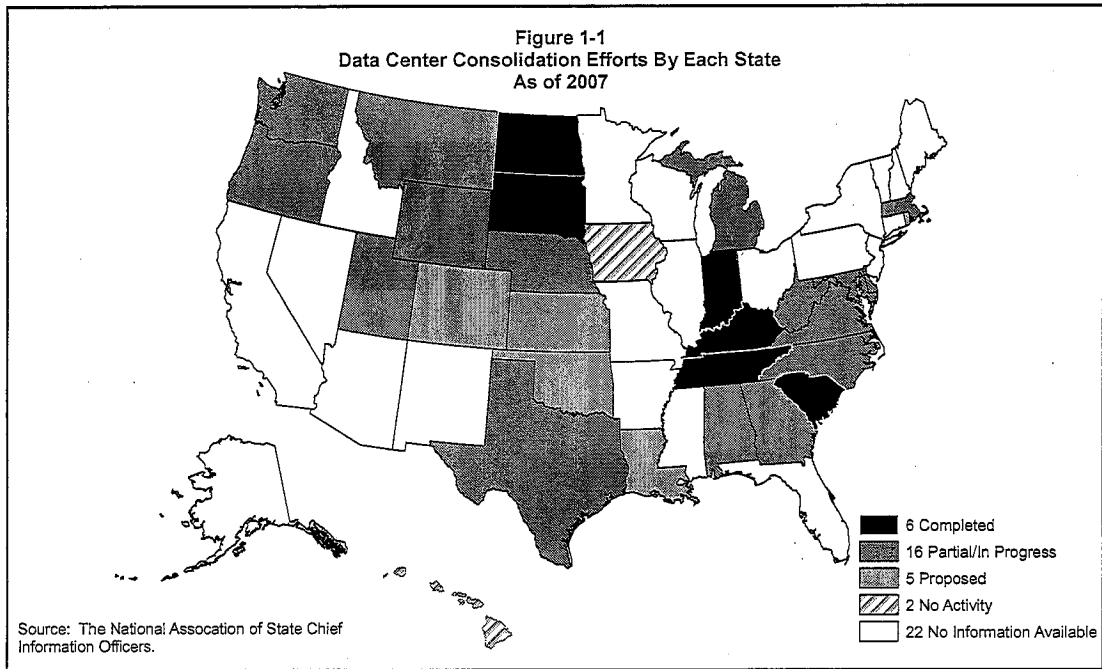
As the map shows, states were at different stages of consolidation as of 2007. At the time, 22 out of 29 states reported being further along than Kansas (which is only in the planning stage) in data center consolidation efforts. Officials from these 22 states reported either that they had completed data center consolidation or that they were progressing toward consolidation. NASCIO plans to conduct another survey in the near future which, when compared to the 2007 survey, will show what progress states have made.

Four of Five Nearby
States, As Well As
Kansas, Are Pursuing
Various Forms of Data
Center Consolidation

We selected five states and looked more closely at their consolidation efforts to get a more up-to-date and detailed understanding of what each state has done, or plans to do. Our summary of the five states and Kansas is presented in *Figure 1-2* on the next page.

As the figure shows, four of the five states are either working on or proposing to consolidate data centers.

Texas has consolidated most of its data centers, but has encountered significant problems. In 2007, the Texas Department of Information Resources contracted with IBM to provide data centers for the state. From 2007 to 2009, IBM moved servers for some of the largest 27 agencies into the IBM data centers.

Initially, Texas estimated it would save $25 million in fiscal year 2009 alone, and a total of $178 million over the 7-year contract. However, the savings have been significantly lower than estimated. From fiscal years 2007 to 2009, the realized savings were less than $10 million.

Texas has experienced several problems during the data center consolidation including:

● **IBM didn't back up all the server data**—In October 2008, the Texas governor suspended consolidation of agency equipment and data within the two state data centers because IBM failed to back up data for some state agencies.

● **IBM missed the consolidation deadlines**—IBM was required to consolidate all servers—in the selected 27 agencies—into IBM data centers by April 2009. Most of the agencies had moved some of their servers into an IBM data center but none of the agencies had moved <u>all</u> their servers.

● **IBM didn't develop an accurate billing method for agencies sharing hardware**—Six Texas agencies currently share server hardware in an IBM data center. However, IBM has had difficulty developing a billing method to divide the shared costs among the six agencies.

Kansas has investigated consolidating all servers into a Statewide data center, and is planning to study the issue further. As noted in the Overview, the State maintains three data centers that some agencies place their equipment in. However, most State agencies still house their own server equipment.

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			Figure 1-2		
		Data Center Consolidation Efforts of Kansas and Other States as of May 2010			
State	Brief Description of Consolidation Effort	Year Began	Data Center Consolidation Actual or Proposed	# Agencies Involved in Data Center Consolidation	Savings and Benefits
Colorado	Consolidated into statewide data centers. Colorado is also consolidating in other information technology areas such as purchasing and governance.	2008	Actual	16 of the largest executive agencies	$1.6 million as of November 2009 with an expected savings of $4 million for fiscal year 2010.
Texas	Contracted with IBM to provide statewide data centers.	2007	Actual	Largest 27 non-exempt executive agencies (a)	$9.7 million from fiscal years 2007 to 2009. Originally estimated $25 million in fiscal year 2009 alone.
Kansas	Kansas hasn't done any data center consolidation but has already consolidated some information technology services such as network and telecommunication systems. The accounting, payroll, and personnel systems also are consolidated. DISC currently is undertaking an information technology consolidation feasibility study which is scheduled to be done in 2011.	N/A	Proposed	N/A	N/A
Nebraska	Developing a plan to consolidate agency servers into statewide data centers. Nebraska has already consolidated some information technology services such as mainframe operations, telecommunication networks, and county automation of state functions.	N/A	Proposed	N/A	N/A
Oklahoma	The state chief information officer will submit an information technology consolidation plan, including data center consolidation, to the Legislature in December 2010.	N/A	Proposed	N/A	N/A
Missouri	No data center consolidation. Missouri has consolidated some information technology staff, equipment, and funding.	N/A	Not Proposed	N/A	N/A
(a) Some agencies were exempted by statute such as the universities and comptroller (similar to our Department of Revenue).					
Source: State officials and state-issued reports regarding the state's data center consolidation efforts.					

Kansas currently has most of the network needed to support a Statewide data center but doesn't have the physical buildings to house the servers. DISC estimated the cost of building two data centers— one to serve as the primary facility and the other to serve as a back-up facility. If Regents' institutions are excluded the cost estimate is between $31 and $77 million. The estimate increases to between $46 and $116 million to include Regents' institutions.

DISC's cost estimates are likely too high because they are based on the number of physical servers agencies currently have and don't factor in reductions in hardware through virtualization. Many agencies have worked to reduce the number of physical servers they currently operate and likely will continue their efforts. This should reduce the overall cost of a data center by reducing the number of physical servers to house. [Virtualization is discussed in more detail in *Question 2*.]

During the 2010 legislative session, the Legislature passed Senate Bill 572 which requires DISC to conduct a formal feasibility study examining the consolidation of several information technology areas including staff, disaster recovery operations, and data centers. The study results will be reported back to the Legislature during the 2011 session.

The conclusion and recommendations for this audit are presented on page 27.

Question 2: Could Individual Kansas Agencies Achieve Cost Savings By Virtualizing Their Own Servers?

Answer in Brief:	*Virtualization is an immediate step agencies can take to prepare for future consolidation and represents a large portion of the savings available through data center consolidation. Five agencies we selected already have virtualized many of their servers saving an estimated $600,000 to date, but additional savings are possible. However, several barriers can prevent or slow an agency's virtualization efforts. These include the fact that some servers can't be virtualized and that agency staff may resist the change. These and related findings are discussed in more detail in the sections that follow.*

Virtualization Is An Immediate Step Agencies Can Take To Prepare For Future Consolidation

As noted in the box in the Overview, a virtualized server is a software-only version of a server that operates inside of a host server. Many virtualized servers can be run on a single host server, yet operate independently of each other. *Figure 2-1* illustrates how virtualization reduces the number of necessary <u>physical</u> servers.

Figure 2-1
How Virtualization Reduces
The Number of Physical Servers Needed

1
Host Server

10 servers each operating on an independent physical piece of hardware become virtualized servers housed on a single host server.

10
Virtualized
Servers

Source: LPA example of virtualization reducing the number of <u>physical</u> servers needed.

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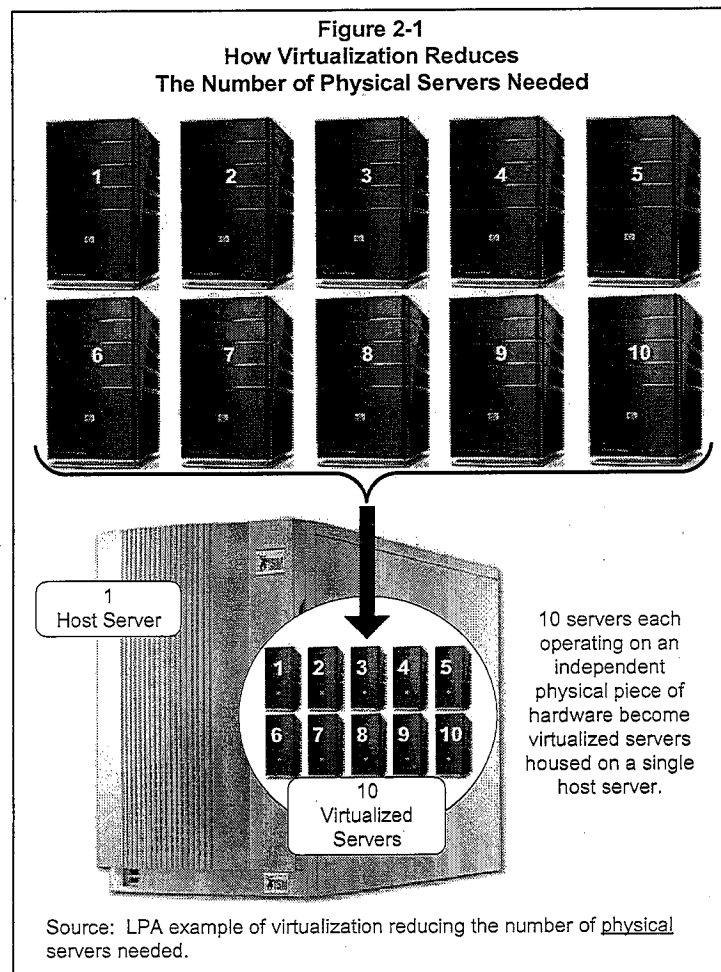
In this figure, 10 physical servers have been virtualized onto one host server. The figure is for illustrative purposes and the actual number of servers that can be run on one host vary widely depending on their size and what they're used for.

Server virtualization is a relatively new process that can yield cost savings and other benefits. Virtualization technology has been around a while but has really taken off in the public and private sectors in the last few years. Virtualization saves money primarily by reducing hardware replacement costs. Normally servers need to be replaced every 3-5 years. *Figure 2-2* on the next page illustrates how an agency needing to replace 50 old servers can save money by replacing their servers with five host servers running 10 virtualized servers each.

As the figure shows, if the agency <u>doesn't</u> virtualize its servers, the 50 old physical servers will eventually need to be replaced at an estimated cost of $250,000. If the agency <u>does</u> virtualize its servers, it will only need to purchase five host servers at an estimated cost of $110,000. Host servers are larger, more advanced, and cost more per unit but they are much more cost effective because far fewer servers are needed.

While the primary benefit of virtualization is hardware cost savings, agencies may also realize some smaller cost savings by reducing their air conditioning and electricity needs. Other non-financial benefits of virtualization include:

- **Freeing up space in the data center**—Reducing the number of physical servers decreases the space needed to store those servers.

- **Reducing the burden on the air conditioning system and electrical system**—Fewer physical servers results in less electricity consumed and less heat produced by the servers.

- **Increasing server flexibility**—Virtualization allows agency staff to create and get servers ready for use faster and more efficiently than buying and setting up physical servers.

- **Administering servers is easier**—Fewer physical servers reduces the amount of time information technology staff spend on server maintenance.

The Department of Agriculture has completed virtualization and has noted some financial and non-financial benifits, which are discussed in more detail in the box on page 16.

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Figure 2-2
Example of How Virtualization of Servers
Can Achieve Cost Savings

An agency has 50 servers which have reached the end of their useful life
and are ready to be replaced.

The agency has
two options

Don't Virtualize

The agency could replace the 50 old
servers with 50 new servers.

Virtualize

The agency could
virtualize the 50
servers onto 5
host servers.

The cost is $5,000 per server.

The cost is $22,000 per
host server.

Replacement Cost
Not Virtualizing
To replace the 50 servers
will cost $250,000.

Replacement Cost
If Virtualizing
To replace the 50 servers with 5 host
servers will cost $110,000.

Estimated Savings
By Virtualizing
By virtualizing, it is estimated the agency
will **save $140,000**.

Source: LPA example showing how virtualization can achieve cost savings.

Virtualizing the servers within an agency would be a logical first step toward consolidating data centers across agencies. As seen in the other states, statewide data center consolidation is a major undertaking that can take several years. Kansas officials can take a first step towards data center consolidation by virtualizing their physical servers. Virtualization reduces the number of physical servers and related hardware. This is a logical first step that would make data center consolidation easier and less expensive.

Not all servers can be virtualized. Agencies need to assess the feasibility of virtualizing each of their servers because several barriers prevent servers from being virtualized:

- **The current server uses all the available resources**—Some servers need to constantly move large amounts of information, which monopolizes the resources of the server's hardware. These servers can't be virtualized onto a host server with other servers because there wouldn't be enough hardware resources for them all to work properly.

- **Certain federal requirements prevent virtualization**—In some circumstances, federal requirements state that a server not be virtualized. Violation of the federal requirements could result in loss of federal funding.

- **Many companies that develop expensive, customized software for agencies won't provide technical support if the software is installed on a virtualized server**—Some companies that develop

software don't know how well their product will work if it's put on a virtualized server, so those companies refuse to provide technical support if the software is on a virtualized server.

Currently, these barriers can't be overcome but may be resolved within the future with advances in technology or changes in policy.

Virtualization is not an overnight process. Agencies would be reckless to attempt a large virtualization effort without proper planning and allowing an appropriate amount of time for testing and ongoing corrections to their process. Virtualization tends to be the most effective when agencies are able to do the following:

- **Virtualize incrementally**—Physical servers typically should be virtualized when they're scheduled for replacement; usually servers are replaced every three to five years.

- **House at least five virtualized servers on each host server**—Based on our calculations and assumptions, five virtualized servers is the lowest number of servers that can be run on one host server and still yield savings. The savings are even greater when more virtualized servers are placed on each host server.

- **Virtualize large numbers of servers**—Having a large number of servers means that the servers can be distributed across a number of host servers to maximize the efficient use of the hardware.

Five Agencies We Selected Already Have Virtualized Many of Their Servers, Saving an Estimated $600,000 to Date, But Additional Savings Are Possible

In the course of our work, we wanted to assess where State agencies were in terms of virtualizing their servers. We selected the five agencies in the State with the most physical servers—the Departments of Administration, Transportation, Revenue, Health and Environment, and Social and Rehabilitation Services. Based on the three-year information technology plan, these agencies collectively have almost 1,140 servers. This represents about half of the servers owned by State agencies—excluding the Regents' institutions. We asked agency officials to provide current lists of their servers using the following categories:

- servers that have been virtualized

- servers that can be virtualized but haven't

- servers that can't be virtualized.

So far, the five agencies we reviewed have virtualized about half the servers that can be virtualized, saving an estimated $600,000 to date. The number of servers already virtualized and the resulting savings is shown in *Figure 2-3* on the next page.

Figure 2-3
A Comparison of How Many Agency Servers Can Be Virtualized
And How Many of Those Servers Already Are Virtualized
(As of April 2010) (a)

Department of...	All Agency Servers			Servers That Can Be Virtualized						
	Total	# That Can't Be Virtualized	# That Can Be Virtualized	# That Have Been Virtualized			# That Haven't Been Virtualized		Total
				#	%	Estimated Savings (b)	#	%	
Social and Rehabilitation Services	278	44	234	72	31%	$101,200	162	69%	234
Revenue	296	219	77	35	45%	$67,200	42	55%	77
Transportation (c)	331	168	163	81	50%	($47,800)	82	50%	163
Administration	297	71	226	161	71%	$287,500	65	29%	226
Health and Environment	160	90	70	57	81%	$220,300	13	19%	70
Total	1,362	592	770	406	53%	$628,400	364	47%	770

(a) The number of servers in each agency may not match exactly with the information provided in the Overview because we collected more recent and detailed information for this analysis.
(b) Agencies haven't calculated savings from virtualization. Therefore, we estimated the saving using some assumptions including the cost of servers being replaced and the cost of new hardware.
(c) Based on our estimates and assumptions, KDOT is shown as losing money by virtualizing. For KDOT, as with all agencies in this analysis, specific information about the cost of the servers being replaced and the new physical hosts being purchased wasn't available. Therefore, we used some general assumptions to estimate the savings. Those assumptions, along with KDOT's current average of only four virtualized servers being put on one physical host, resulted in the estimated loss. However, this is only a rough estimate and KDOT's actual results may be slightly different.

Source: LPA analysis of server data received from agency officials.

As *Figure 2-3* shows, each of the agencies has virtualized many of its servers, but the agencies all have more physical servers that can be virtualized. Some of these servers are scheduled to be virtualized but most aren't. A more in-depth look at the agencies' virtualization status is discussed in a profile box on the next page.

Our savings estimates generally are based on the number of servers these agencies avoided replacing by virtualizing servers and are based upon some assumptions. Our estimates also factor in off-setting costs of virtualization software. The methodology and assumptions used in our calculations are discussed in more detail in *Appendix B*.

We estimate these five agencies could virtualize another 364 existing servers, saving an additional $400,000 to $1 million over the next three years. As mentioned earlier, the savings from virtualization depend largely on the number of virtualized servers that can be put on one host server, which will vary significantly between agencies depending on the servers being virtualized.

The Virtualization Status of Five Agencies

We reviewed the list of agency servers and spoke to agency officials regarding virtualization efforts. Below is a brief summary of what we found in five agencies.

● **Department of Administration (virtualized 71% of possible servers)**—The Department first used virtualization 30 years ago with its mainframe servers. In recent years, advances in technology have allowed the department to start virtualizing other types of servers. Of the 226 servers agency officials identified as good candidates for virtualization, 65 haven't been virtualized yet. Department officials think a couple more years are needed to virtualize these remaining servers. Also, server virtualization is an ongoing process, and department officials plan to look at any new server needed to determine if it is a good candidate for virtualization.

● **Department of Transportation (virtualized 50% of possible servers)**—The Department began using virtual servers three years ago as a way to cut down on the number of physical servers it needed. Of the 163 servers agency officials identified as good candidates for virtualization, 82 haven't been virtualized yet. Agency officials couldn't estimate when they'll be finished virtualizing the existing servers because they have other information technology projects competing with virtualization for staff time.

● **Department of Revenue (virtualized 45% of possible servers)**—Department officials began virtualizing about two years ago. Of the 77 servers agency officials identified as good candidates for virtualization, 42 haven't been virtualized yet. Department officials are cautious to virtualize servers because of high resource needs of most of their servers and federal security requirements on their data. Agency officials don't have plans to virtualize any more servers.

● **Department of Health and Environment (virtualized 81% of possible servers)**—The Department began virtualizing many of its servers about a year ago as a way of reducing the burden on the Department's power supply and air conditioning systems. Of the 70 servers agency officials identified as good candidates for virtualization, only 13 haven't been virtualized yet. Department officials think they should have the last of the servers virtualized by the end of calendar year 2010 that can be virtualized, and they intend to consider virtualization for all future projects.

● **Department of Social and Rehabilitation Services (virtualized 31% of possible servers)**—Over the past four years, SRS hasn't virtualized as much as the other agencies, mostly because agency officials have been focused on locating and centralizing the agency's servers under the control of its information technology staff. Of the 234 servers agency officials identified as good candidates for virtualization, 162 haven't been virtualized yet. As SRS moves forward with virtualization, agency officials are working with Dell to help determine what software applications can be virtualized and what the proper configuration should be. With the information Dell will be providing, agency officials are planning to analyze software, hardware, and network costs in addition to specific server requirements and virtualize whenever makes sense to do so.

The cost savings are shown in *Figure 2-4* on the next page and were estimated using two approaches:

● Using the <u>agency current average</u> number of virtualized servers running on one host server. As is seen in *Figure 2-3*, each of the five agencies is already virtualizing. This cost estimate assumes the agency will maintain their current average.

● Using a <u>general</u> average of 10 virtualized servers running on one host server. DISC officials told us 10 virtualized servers on one host is a very reasonable estimate. For several of our selected agencies, this average is a slight improvement over their current average and provides a reasonable estimate of savings that could be achieved through greater experience and efficiency.

As the figure shows, we estimate savings between $400,000 to $1 million over three years if these agencies could virtualize all remaining servers. The range depends on the number of virtualized servers put on each host server.

Several Barriers Can Prevent or Slow an Agency's Virtualization Efforts

As mentioned earlier, some servers can't be virtualized because of technical or policy reasons including the complexity of the servers, federal requirements, and the requirements of private companies that develop software purchased by State agencies.

Additionally, agency officials described a number of other barriers to virtualization. While the following barriers can be overcome, they often slow the process:

● **Staff resistance**—Information technology staff aren't as familiar with virtualization and may be resistant to change.

● **Reduced server availability**—If a host server needs to be restarted, all the virtualized servers on the host also become unavailable, instead of just one server.

● **Startup cost**—Initially, virtualization may cost agencies money. That's because host servers are more expensive than traditional servers, staff will need additional training, and the agency will need to purchase additional software licenses.

● **Competing information technology projects**—Virtualization often isn't the only project agency staff are involved in, and other projects may have a higher priority. For instance, before focusing on virtualizing servers, SRS officials told us they needed to update their networking infrastructure.

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Figure 2-4
Three-Year Estimated Savings Agencies Can Achieve Through Virtualization

Department of...	Average Number of Virtualized Servers Per Host Server	Cost of Current Physical Servers		Cost of Virtualized Servers (Current Average Virtualized Servers Per Host Server)			Cost of Virtualized Servers (10 Per Host Server)		
		# of Physical Servers That Could Be Virtualized	Estimated Replacement Cost if Not Virtualized (c)	# of Host Servers Needed	Estimated Replacement Cost if Virtualized (d)	Savings	# of Host Servers Needed	Estimated Replacement cost if Virtualized (d)	Savings
Administration	7	65	$325,000	10	$216,000	$109,000	7	$151,000	$174,000
Health and Environment (a)	19	13	$65,000	1	$22,000	$43,000	1	$22,000	$43,000
Revenue	7	42	$210,000	6	$129,000	$81,000	5	$108,000	$102,000
Social and Rehabilitation Services	6	162	$810,000	27	$582,000	$228,000	17	$367,000	$443,000
Transportation (b)	4	82	$410,000	22	$474,000	($64,000)	9	$194,000	$216,000
Total (e)	6	364	$1,820,000	66	$1,423,000	$397,000	39	$841,000	$979,000

(a) KDHE is already getting more than 10 virtual servers per physical host. Their savings were held constant from the current ratio.
(b) Based on our estimates and assumptions, KDOT is shown as losing money by virtualizing. For KDOT, as with all agencies in this analysis, specific information about the cost of the servers being replaced and the new physical hosts being purchased wasn't available. Therefore, we used some general assumptions to estimate the savings. Those assumptions, along with KDOT's current average of only four virtualized servers being put on one physical host, resulted in the estimated loss. However, this is only a rough estimate and KDOT's actual results may be slightly different.
(c) We assumed the cost of each physical server is $5,000.
(d) We assumed the cost of each physical host is almost $22,000.
(e) Totals may not add due to rounding.

Source: LPA analysis of agency server ratios and server costs.

Question 3: Could the State Achieve Cost Savings If DISC Leased Out Virtualized Servers To Small and Mid-Sized Agencies?

Answer in Brief:	*Beginning in fiscal year 2011, DISC plans to offer agencies the option of leasing virtualized servers in the DISC data center. We estimate the State potentially could save up to $1.3 million if agencies would lease space from DISC. However, these estimated savings depend entirely on the extent to which agencies are willing to lease the space. Agency officials are unlikely to lease server space from DISC unless the lease rates are low enough that they can save money. Officials also expressed a number of concerns about the quality of service provided by DISC. These and related findings are discussed in more detail in the sections that follow.*

Beginning in Fiscal Year 2011, DISC Plans To Offer Agencies the Option of Leasing Virtualized Servers in The DISC Data Center

DISC officials told us they currently have enough extra space on existing hardware for about 200 new virtualized servers in the Landon data center. Beginning early in fiscal year 2011, they plan to offer agencies the option of leasing virtualized server space on this existing, unused hardware. DISC officials listed the following benefits for agencies through this program:

- Use more up-to-date technology
- Reduce hardware cost by reducing the number of physical servers purchased
- Free up information technology staff time
- Increase data availability in the event of a disaster or other system failure
- Improve information technology security

DISC hasn't set lease rates yet, but officials say they will develop service level agreements with each agency and tailor the rates to the specific services the agency wants.

Currently four agencies have expressed an interest in leasing server space from DISC, but the cost savings can't be projected at this time. The four interested agencies are the Kansas Lottery, Attorney General, Secretary of State's Office and the Department of Transportation—the latter of which only plans to lease one virtualized server to test DISC's service before potentially committing more heavily to a lease. The savings from agencies leasing virtualized servers from DISC depends on several factors which haven't been decided yet, such as the number of servers each agency will lease and the price DISC will charge.

5-30

Similar to DISC's leasing program, private companies such as Amazon and Google are also beginning to lease virtualized servers to interested parties. This service is known as cloud computing. There are some key risks of cloud computing mainly concerning confidentiality of data entrusted to third-party vendors. Kansas doesn't currently have a policy on the use of cloud computing services but is working to develop one. Cloud computing is explained in more detail in the box below.

Cloud Computing Presents Potential Efficiencies, But Also Significant Risks

There's been a lot of discussion in the information technology community about "cloud computing." With cloud computing clients lease space on third-party servers—such as those owned by Google or Amazon—and access their data remotely through the Internet. Here are some examples of cloud services an agency might purchase:

- web-based email services
- a test server when developing agency applications
- data storage
- data backup
- spam filtering for the agency-administered email system
- on-line surveys

State agencies already make use of some cloud computing services. For example, Kansas State University contracts with Yahoo for email services, and several agencies use an online company called SurveyMonkey to administer online surveys.

Benefits—One of the greatest advantages cloud computing provides is that customer don't need to buy and administer the hardware or software, presumably resulting in lower costs. Further, customers are charged based on usage, so cloud computing can offer a cheap solution to a customer with short-term needs, or with needs that vary widely over time.

Risks—The key risks have to do with confidentiality, integrity, and availability. In cloud computing, data are entrusted to a third party. In effect, users give up control over their data. In the IT field, access to data and information needs to be highly reliable, and several large third-party providers such as Amazon have experienced unexpected outages in service. Also, concerns over security and privacy recently have prompted Yale University and the University of California to halt their move to cloud computing sources.

The State of Kansas Information Technology Executive Council (ITEC) hasn't adopted an official cloud computing policy for State government, but is currently working on drafting one.

The State Could Save Up to an Estimated $1.3 Million If Agencies Would Lease Virtualized Servers From DISC

As discussed in Question 2, the cost savings from virtualization is driven by the number of virtualized servers running on a host server—the more virtualized servers per host server the higher the cost savings. Smaller agencies with only a handful of servers would likely need to consolidate their servers with other agencies to maximize the cost savings. Because DISC has pursued the concept of agencies leasing virtual space and has available, unused space on its servers, we developed two scenarios to estimate the cost savings from such a consolidation effort.

5-3

From agency reported information in the three-year information technology plan, we identified 466 servers across many small and mid-sized agencies that could potentially be virtualized on servers in the DISC data center. Most state agencies were included in this analysis but some agencies were excluded such as:

- the five agencies we reviewed in Question 2

- eight agencies with highly sensitive data, including the Attorney General's Office and the Kansas Bureau of Investigation

- seven agencies that receive no General Fund moneys, such as the Board of Accountancy, the State Board of Healing Arts, and the Health Care Stabilization Board

- the Regents' institutions

To calculate the potential savings from virtualizing all these servers, we did the following:

- estimated savings from not having to replace the physical servers being virtualized

- estimated cost of purchasing additional host servers, software, data storage, and adding a staff person to help administer the virtualized servers

The potential cost savings for our two virtualization scenarios are summarized in *Figure 3-1* on the next page.

As shown in the figure:

- **If DISC was able to lease all its available server space to small or medium-sized agencies, the State could save more than $800,000 over three years.** There are some offsetting costs for additional information storage, but DISC currently has enough space in its data center to accommodate about 200 additional virtual servers.

- **If DISC expanded its data center to accommodate all small to medium-sized agencies, the State could save an additional $500,000 over three years—a total of $1.3 million in potential savings.** DISC currently doesn't have the resources needed to lease this much virtual server space. It would need to purchase about $650,000 in additional hardware and hire about $170,000 in additional support staff.

Figure 3-1
Estimated State Savings
By Leasing Virtual Servers From DISC

Scenario	# of servers that could be accommodated	Gross Savings	Offsetting Costs	Net Savings
Lease all the server space currently available in the DISC data center	203	$1,015,000	($190,000)	$825,000
Expand the DISC data center resources to accommodate all agencies	263 more	$1,314,000	($821,000)	$493,000
Total	466	$2,329,000	($1,011,000)	$1,318,000

Source: LPA analysis of information provided by DISC officials and the Three Year Information Technology Plan.

These Savings Depend On the Extent To Which Agencies Are Willing To Lease Server Space In The DISC Data Center

The success of the server leasing program depends on getting agencies to participate. Agencies aren't required to lease virtualized server space from DISC, but may do so voluntarily. However, agency officials expressed several concerns with DISC that may pose barriers to voluntary agency participation.

Agencies are unlikely to lease server space from DISC unless the lease rates are set low enough that agencies can save money. As noted earlier, the cost savings estimates are all cost savings for the State as the overall purchaser of the servers. Individual agencies could have a net savings or loss depending on the lease rate DISC charges. If the lease rate is higher than their current cost, agencies will lose money by leasing.

DISC officials haven't set the rates yet for the server leasing program. However, some officials told us they have concerns that DISC already charges too much for its current services. DISC officials said they calculate the rates for services based on federal requirement and guidelines, which allow them to recoup their operating costs.

No matter what the rate, the State still saves money because a lease payment is only a transfer of money between two agencies and doesn't affect total State savings. But if the cost of the leasing option is too high, agencies won't participate in this voluntary program and the savings to the State won't be realized.

Several agency officials also expressed concerns about the quality of service they get from DISC. Several agency officials we talked to had issues with the quality of service DISC provides.

● **Agency officials think that the DISC network is unavailable too often.** Network uptime is the percent of time the State network is working and available. We looked at the uptime for DISC's network and found that the network is down about four times as much as industry benchmarks—down 16 hours a year compared to the benchmark of 4 hours a year. DISC officials said they are in the process of redesigning the network to improve uptime.

   In addition, agency officials complained that DISC typically wouldn't guarantee a certain level of network uptime for agencies, such as through a service-level agreement. DISC officials said they've provided service-level agreements in the past but has not found them to be an effective means of improving customer satisfaction. Also being held to specific target uptimes only creates animosity and frustration for the customer and DISC staff.

● **Agency officials are concerned that DISC has too many bureaucratic layers, often making it difficult to find a staff member who can solve their problem.** DISC officials said each staff member is assigned a specific area and technology, which may make it seem difficult for the customer to find the right person to help. DISC officials soon plan to implement a single help desk to field and direct calls to the right staff member.

● **Agency officials also reported that DISC has poor customer service.** Officials told us that, at times, DISC staff have been disrespectful and argumentative in their communications with agency staff, and that DISC is unresponsive to agency needs and seemed to be understaffed. One agency official commented:

   "DISC has developed a bad reputation over the years. They've probably improved in the last couple years, but still have a bad reputation for low quality and slow service. DISC's response to problems can be very slow and frustrating. DISC would have to figure out some way to accomplish the speed that agencies have within their own staff. If it didn't, what incentive would agencies have to use the service?"

DISC officials have conducted customer satisfaction surveys in the past and said they plan to start them again soon to identify ways to improve their services and their relationship with agencies. DISC officials said they are training staff on how to improve customer service. Also, they plan to implement a new program that will tie customer service survey responses to specific staff members to provide direct feedback to staff about their customer service interactions.

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Conclusion:	While data center consolidation is a logical long-term goal to achieve cost savings, virtualizing servers is an immediate step agencies can take to achieve cost savings and prepare for future consolidation. We identified two options for State agencies to virtualize State servers and save money. Agencies with a lot of servers can virtualize internally and many already have started. Agencies with a smaller number of servers could pool servers together into one virtualized location—likely DISC—to generate saving through economies of scale. However, DISC officials likely will need to resolve concerns about the quality of their service before agency officials will consider voluntarily moving servers into DISC.

Recommendations For Executive Action:	1. To improve customer service, Division of Information Systems and Communications (DISC) officials should:
	
	   a) resume its practice of conducting regular customer service surveys.
	
	   b) analyze the survey results to identify weakness and areas for improvement.
	
	   c) change policies and procedures as necessary to address the identified weaknesses.
	
	2. To help keep the cost of leasing virtual servers low and to make the virtual server leasing program more attractive to State agencies, DISC officials should set its server leasing rates at the actual cost of providing the service.
	
	3. To fully realize the cost savings and other non-financial benefits from virtualizing servers, officials from each of the five agencies included in this audit—Departments of Administration, Health and Environment, Revenue, Social and Rehabilitation Services, and Transportation—should:
	
	   a) virtualize the remaining servers that can be virtualized but haven't been yet (as identified on page 21) over the next three years.
	
	   b) assess future server needs and determine if virtual servers can be created and used in lieu of purchasing new physical servers.

APPENDIX A

Scope Statement

This appendix contains the scope statement approved by the Legislative Post Audit Committee for this audit on November 18, 2008. This audit was requested by the Legislative Post Audit Committee.

Agency Data Centers: Assessing the Potential Savings of Consolidation

According to the most recent set of agency IT plans compiled by the Kansas Information Technology Office, executive branch agencies (excluding the Regents institutions) spent more than $111 million on IT services in fiscal year 2007. One of the major IT cost areas is the operation and maintenance of data servers. According to the IT plans, agencies currently operate four large mainframe systems and more than 2,100 smaller servers.

A 2005 report commissioned by the Department of Information Resources for the State of Texas estimated that Texas could cut the cost of operating mainframes and servers by almost 23% if they were consolidated into a single data center. Data center consolidations potentially create cost savings in areas such as staffing, hardware, software, maintenance, space, power consumption, and support contracts. According to proponents of data center consolidation, non-monetary benefits can include better security, reliability, and technology available to State agencies.

In 2007, the National Association of State Chief Information Officers (NASCIO) conducted a survey of the states to look at current trends in data center consolidations. Out of 29 states responding to the survey, four reported having completed a consolidation, 11 were in the process of consolidation, and seven indicated they were in the planning stages.

Legislators are interested in knowing whether there is potential for significant cost savings in Kansas from consolidating data centers, and what potential up-front costs would be incurred to achieve those savings.

A performance audit in this area would address the following question:

1. **Could State agency data centers in Kansas be combined to achieve cost savings?** To answer this question, we would talk to officials in other states that have undertaken data center consolidation to determine what information they have about savings and costs, and what pitfalls and benefits they have experienced with their data center consolidations. We would review the information technology plans compiled by the Kansas Information Technology Office and gather additional information from State agencies as needed to inventory the State's data servers and estimate the number of staff and other resources required to operate them. We would use industry benchmarks and work with DISC staff to estimate the cost of consolidating the State's servers into one data center, and compare those costs to current costs in order to estimate the potential savings. In addition, we would

determine what types of upfront costs the State would need to incur to consolidate the data centers into a single location. If needed, we would use consultants to help with our estimates. We would conduct additional work as needed.

Estimated completion time: 14-18 weeks

APPENDIX B

Audit Methodologies

This appendix contains the methodology of how we calculated the estimated savings of by virtualizing servers. The reader should keep in mind two things. First, our estimated savings are intended to illustrate how server virtualization can be cost-effective for State agencies. Second, our estimates are based on the following assumptions and should be interpreted as approximations, not absolute fact:

● We assume the cost of a traditional server is $5,000 over three years. To determine the cost of a traditional server we spoke with DISC officials about the hardware needs of a traditional server. In addition to the hardware costs, our estimate includes the cost of server maintenance for three years.

● We assume the cost of a host server is $22,000 over three years. To determine the cost of a host server we spoke with DISC officials about the hardware and software needs of a host server capable of running virtualized servers. The cost includes three years of maintenance and the special software needed to run the virtualized servers.

Estimated Savings Already Achieved By Server Virtualization:

We had the five agencies selected in Question 2 provide information about their existing servers, such as the number of physical servers, the number of virtualized servers, and the number of host servers they use to run the virtualized servers.

To calculate the estimated savings agencies have already achieved from their current virtualization efforts, we calculated an average of the number of servers each agency was able to virtualize onto a host server. Using these agency averages, and the costs of a traditional server and host server above, we were able to estimate savings achieved to-date for these agencies from virtualizing servers.

Estimated Savings That Could Be Achieved Through Further Virtualization:

We assume servers that don't have a statutory or software application reason that would prohibit virtualization can be virtualized. In addition to getting a listing of servers from each agency, we asked them to identify any statutory or software application reasons that would prohibit a server from being virtualized. We identified the servers that aren't already virtualized and didn't have a statutory or software application reason prohibiting virtualization.

For future server virtualization, we developed two scenarios to estimate savings. In one scenario, we assume the five agencies we reviewed would be able to maintain the same average number of servers virtualized onto each host server that they currently get. In the other scenario, we estimated the savings if the agencies averaged 10 servers virtualized onto each host server. We reviewed literature and spoke to DISC officials and determined that 10 virtualized servers per host server is a very reasonable estimate. Four of our five agencies, would have a slight increase by improving to an average of 10 virtualized servers per one host server.

5-38

To calculate the estimated savings agencies could achieve by virtualizing the remaining servers that can be virtualized, we used these two scenarios along with the cost a traditional server and host server from above.

APPENDIX C

Agency Responses

On June 10, 2010, we provided copies of the draft audit report to the Department of Administration. We also provided the Departments of Health and Environment, Revenue, Social and Rehabilitation Services, and Transportation sections of the draft audit report related to their agencies. Those agencies' responses are included in this Appendix as well

The agencies generally concurred with the report's findings, conclusions, and recommendations. Based on these agencies' review, we made minor changes to the report text, but these changes didn't affect the report's findings or conclusions. Their responses are included in this appendix.

5-40

KANSAS

Division of Information Systems and Communications

Mark Parkinson, Governor
Joe Hennes, Director

http://www.da.ks.gov/disc/

June 21, 2010

Barbara Hinton
Legislative Post Audit
800 SW Jackson Street
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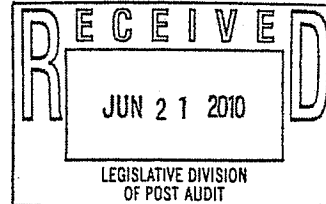
Dear Ms. Barbara Hinton,

Thank you for copying me on the letter and draft copy of Legislative Post Audit's completed performance audit, "Agency Data Centers: Assessing the Potential Savings of Consolidation" sent to Mr. Duane Goossen on June 10, 2010. I sincerely appreciate the opportunity to review this report and provide a response prior to its publication. Members of the DISC staff who participated in this study have reviewed the report and have provided numerous comments and suggested points of clarification. Those comments and suggestions have been summarized into the attached document. I again thank you for giving us this opportunity to review the report. If we can be of further service, please let me know.

Sincerely,

Joe Hennes
DISC Director

Enclosure

Cc: Mr. Duane Goossen, Secretary of Administration

June 21, 2010

The following comments are the result of DISC's review of the Draft copy of Legislative Post Audit's performance report "Agency Data Centers: Assessing the Potential Savings of Consolidation".

Page 12, first sentence: "Kansas currently has the network needed to support a statewide data center…"
And first sentence of 2nd paragraph: "DISC's cost estimates are likely too high…"
We should clarify that a new data center will require extensive networking and movement of communications lines, which account for some of the cost. Also, a new data center should be built with expansion capacity which was factored into the cost.

Page 22, first sentence in box: "Beginning in FY11, DISC plans to offer the option of *leasing* virtualized servers…"
Is the word leasing accurate for services to be provided under a custom SLA? Note the term "lease" is repeated throughout the document.

Page 26 Agency officials think that DISC network is unavailable too often:
DISC views network availability as a key resource to customer satisfaction. The new Kanwin network is designed to reduce downtime by focusing on redundancy, architecture, and standards based on industry best practices. Progress is being made in this area and we will strive to continue improvements. For each hour of availability that is achieved at this level there are exponential costs incurred. These costs provide additional redundancy, improved physical infrastructure, and resources required to monitor and analyze service disruptive events. To this end DISC performs a balancing act between providing the best possible service and controlling costs to the State of Kansas. DISC has requested clarification on the metrics measured to achieve an industry benchmark of 4 hours downtime per year. Without knowing specifically what network components are factored into this equation makes it difficult to establish an equal comparison to the metrics DISC provided.

Page 26, bullet one, paragraph two related to SLA's.
DISC has provided service level agreements in the past but have not found them to be an effective means of improving customer satisfaction. Being held to a statistic only creates animosity and frustration for both the customer and DISC. Customers perceive network availability based on what they experience at the edge of the network rather than at the core. Industry benchmarks of 4 hours per year most likely do not reflect the edge of the network but rather the core which survives most edge disruptions. We have found that most customers respond better to a case by case dialog in an overall best effort strategy toward customer service (but obviously not all). Being required by law to provide network services is similar to playing the role of the IRS. Most folks pay their taxes as required but they aren't required to like it. However, this doesn't mean that DISC should be complacent.in providing services. DISC is in the process of re-instating customer satisfaction surveys as a means to measure overall customer satisfaction and

to improve relationships with dissatisfied customers. Survey results from the Kanwin upgrade project have received positive comments. Here are a few examples:

- Thanks to all for making this a very easy upgrade from the vendor perspective!

- You guys are awesome! You have proven that when something needs to be done, it will be done quickly.

- Overall, how well would you say DISC did on your migration? Response: Excellent

- Overall, is DISC performance...Response: Getting much better.

- Overall, however, everyone from DISC and our staff performed very well, and the issues here Monday morning were not bad at all to handle. For the amount of change we made and the diverse systems involved, I think the project went very well. Thanks to everyone for making the project a success.

- Everyone did a great job, and we feel this was an outstanding team effort. We knew that there would be issues, but we also knew we had a team that could solve anything that came up. We had crashed switches and the usual assortment of typos in settings, but with solid collective organization we nuked every issue.

Page 26, regarding customer service and a customer satisfaction program; DISC will begin a comprehensive Customer Service training program beginning in July 2010. We have established a contract with the MindLeaders company that will provide web-based training for everyone in DISC. This will be a perpetual program with each staff member in some sort and level of training at all times. Annually, each DISC staffer will sign and pledge to certain Customer Service satisfaction levels. In conjunction with customer service training, DISC is rolling out a new Customer Satisfaction survey initiative also in July of this year. The surveys will, in part, be generated by our KIRMS system (Kansas Information Resource Management System). KIRMS is in place as a "trouble/work ticket" application so when customers desire work to be done it is logged in KIRMS. Technicians then perform and complete work done from those tickets. We wanted to integrate a customer satisfaction survey with the work/trouble ticket system. The surveys will be pushed to those who have submitted a trouble/work ticket. The information will direct them to Survey Monkey where the actual satisfaction survey will be completed. For some DISC staff, survey results will be included in annual employee performance evaluations.

Additionally, surveys are only one method of gauging customer satisfaction. DISC meets regularly with some of its larger customers and that face-to-face communication

results in the best possible relationship. For countless years these meetings have been taking place and DISC staff considers the meetings a priority.

Also page 26, regarding slow service: Some of the lag time for providing service is dictated by the standards that DISC adheres to. Conforming to rigorous change and configuration management disciplines and industry best practices regarding security and sound architecture design principles does add time to projects. DISC would like to be included in customer's initiatives as early in the planning process as possible to ensure timely implementation.

From the Conclusions in the Appendix:
Even though I cannot provide you metrics on the issue due to each agency having their own special situation, cost savings for virtualization should be handled very conservatively. A straight line from possible implementation of virtualization to cost savings is not realistic. Many agencies will be invested in servers that will require a three to five year depreciation period even though virtualization will be available to them. Most agencies will be forced to observe the depreciation period before moving to vm. This could potentially change savings for the enterprise downward.

KANSAS
DEPARTMENT OF REVENUE

June 16, 2010

R E C E I V E D
JUN 1 6 2010
LEGISLATIVE DIVISION
OF POST AUDIT

Barbara J. Hinton
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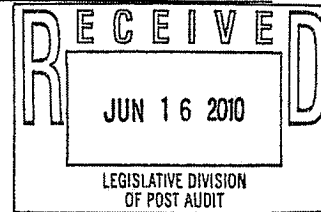
Dear Ms. Hinton:

As the Legislative Post Audit correctly noted KDOR began the process of virtualizing over 2 years ago and currently has 35 servers running in a virtual environment with an average virtual server to host ratio of 7. KDOR's efforts to continue virtualizing the remaining servers that can be virtualized have stalled due to lack of available funding to purchase the necessary host hardware and limited staff availability to perform the host setup and configuration and server to host migrations.

During the next 3 fiscal years, as funding becomes available, KDOR plans to complete the remaining virtualization of candidate servers. During the interim, KDOR does not plan to perform any server hardware refreshment for virtualization candidates. KDOR will simply delay hardware acquisition until such time as monies are available and will spend those monies to complete virtualization for the appropriate server candidates.

The completion of the DMV Modernization Project KDOR in January 2012 will also free up the staff time necessary to perform host configuration and server migration tasks.

KDOR expects to perform no server to host virtualizations during FY 2011 due to lack of funding and staff availability. During FY 2012 KDOR expects to complete host environment design specifications and pending available funding purchase the necessary hardware and software to complete KDOR virtualization. KDOR estimates these costs to be higher than the Legislative Post Audit estimate of $129,000 and be closer to $200,000 when the necessary data storage hardware and virtual server management hardware and software are included. KDOR still expects to achieve savings through improved reliability, scalability and efficiency. KDOR expects to complete virtualization during FY 2013 and if funding is available begin to refresh the host hardware and software currently in use by KDOR for virtualization.

Sincerely

Joan Wagnon,
Secretary of Revenue

KANSAS

Mark Parkinson, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

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LEGISLATIVE DIVISION
OF POST AUDIT
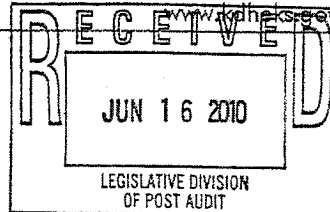
June 11, 2010

Rick Riggs, Administrative Auditor
Legislative Division of Post Audit
800 SW Jackson St., Suite 1200
Topeka, KS 66612-2212

Dear Mr. Riggs:

It is my pleasure to provide an update to the Legislative Post Audit Committee on the audit of the *Agency Data Centers: Assessing the Potential Savings of Consolidation.*

There were compelling cost and energy-saving reasons as to why KDHE virtualized some of our computing infrastructure. KDHE's virtualization project is an initiative by our outstanding I/T professionals to decrease costs, increase efficiency and productivity and launch a "green" conservation initiative.

Before any hardware was purchased to either support a new application or refresh a server (due to its age), an assessment and a test of the application running in a virtualized environment was conducted. More than 70 percent of the time, the application would operate in a virtualized environment; hence, KDHE's success with virtualizing 81 percent of our servers in a little over a year.

KDHE realized additional cost savings due to the avoidance with having to purchase physical servers. In the following example, to deploy a new application, physical server(s) require an I/T professional to determine hardware requirements, send the information to a purchasing agent, purchasing agent enters information into the financial system where a purchase order is generated, followed by sending of the purchase order to the vendor and then waiting two to three weeks for delivery. Upon receipt, I/T professional un-boxes, mounts the server in a rack, install the operating system, patches, hardens the system and then installs the application. Comparing this process to the virtualized process, if an application can be virtualized, an already hardened and patched image is duplicated and the application is installed. This typically can be done within a day with no impact on the rest of the agency's business processes.

KDHE, as well as, the state of Kansas has benefited greatly because of virtualizing technology. Through the use of virtualization, I/T staff spend less time on routine tasks having shifted their time and energy towards innovation. In addition, virtualization has allowed I/T to become more agile and respond quicker to business needs.

In response to the status of LPA's recommendations:
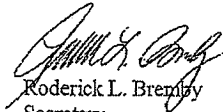
Recommendation 1: *virtualize the remaining servers that can be virtualized but haven't been yet (as identified on page 18) over the next three years.*
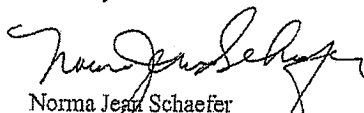
> KDHE has 13 remaining servers that have been determined through testing that can be virtualized. Barring disasters and unplanned mandated projects, it is KDHE's plan to virtualize these before January 1, 2011.

Recommendation 2: *assess future server needs and determine if virtual servers can be created and used in lieu of purchasing new physical servers.*

> KDHE has already assessed and determined that 70 existing servers can be virtualized. KDHE already reviews system requirements of all new applications before deploying to determine if the application will operate in a virtualized environment before purchasing any physical servers; KDHE will continue this practice.

Respectfully,

Roderick L. Bremby
Secretary

Norma Jean Schaefer
Information System Director

KANSAS
DEPARTMENT OF SOCIAL
AND REHABILITATION SERVICES

R E C E I V E D
JUN 1 8 2010
LEGISLATIVE DIVISION
OF POST AUDIT

Mark Parkinson, Governor
Don Jordan, Secretary

www.srs.ks.gov

June 17, 2010

Mr. Scott Frank
Interim Legislative Post Auditor
Legislative Division of Post Audit
800 SW Jackson Street, Suite 1200
Topeka, Kansas 66612-2212

Re: Draft Performance Audit Report: *Agency Data Centers: Assessing the Potential Savings of Consolidation*

Dear Mr. Frank:

Thank you for the opportunity to respond to the draft performance audit report - *Agency Data Centers: Assessing the Potential Savings of Consolidation.* We always appreciate the professionalism of your staff and their efforts to learn about the programs of SRS and the customers we serve.

SRS is in complete agreement with the recommendations of the audit and was already taking steps to develop a plan to "virtualize the remaining servers that can be virtualized but haven't been yet" to comply with the first recommendation of the audit (as documented on Page 19 of the report). The Dell Corporation is onsite and we have started our effort to transition our current physical servers that can be migrated to a virtual environment. We anticipate that the conversion of our current physical server environment to a virtualized environment will be executed in the most judicious way possible taking into account our limited yearly funding. In addition, we need to de-commission our current physical servers in a way to maximize our current investment. As a result, we believe that the cost savings for SRS at the end of the next three years should be about $200,000. This amount is less than the projected $443,000 in the report due to a staggered implementation schedule to the virtualized environment based on available funding during the 3 year period.

SRS also firmly agrees with the second recommendation of the audit to "assess future server needs and determine if virtual servers can be created and used in lieu of purchasing new physical servers." SRS has already begun implementing this recommendation by incorporating this requirement in our Request for Proposals (RFP's) for all current and future acquisitions. It is SRS's intentions to implement all possible solutions in a virtualized environment unless there is a legitimate business or technical reason that this would not be the most optimal configuration for the solution.

Should there be any further questions about Data Center Consolidation in SRS, please do not hesitate to contact Mr. Jeff Lewis at (785) 296-6505 for further clarification.

Sincerely,

Don Jordan
Secretary

cc: Jeff Lewis, Deputy Secretary, ITS
Mary S. Hoover, Chief Audit Executive/Director, SRS

OFFICE OF THE SECRETARY
Docking State Office Building, 915 SW Harrison, Street, 6th Floor, Topeka, Kansas 66612-1570
Voice: (785) 296-3271 • Fax: (785) 296-4685 • TTY (Hearing Impaired): (785) 296-3487

KANSAS

DEPARTMENT OF TRANSPORTATION

Mark Parkinson, Governor
Deb Miller, Secretary

http://www.ksdot.org

June 22, 2010

Barbara J. Hinton
Legislative Division of Post Audit
800 SW Jackson St, Suite 1200
Topeka, KS 66612-2212
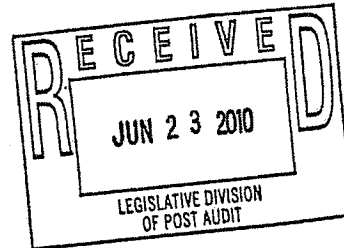
Subject: Performance Audit

Dear Ms. Hinton:

The Kansas Department of Transportation (KDOT) has received the draft copy of the portion of your completed performance audit, *Agency Data Centers: Assessing the Potential Savings of Consolidation* that pertains to KDOT. This letter constitutes our written response to the findings and recommendations set forth in that audit.

Footnote (c) to Figure 2-3 and Footnote (b) to Figure 2-4: Based on our estimates and assumptions, KDOT is shown as losing money by virtualizing. For KDOT, as with all agencies in this analysis, specific information about the cost of the servers being replaced and the new physical hosts being purchased wasn't available. Therefore, we used some general assumptions to estimate the savings. Those assumptions, along with KDOT's current average of only four virtualized servers being put on one physical host, resulted in the estimated loss. However, this is only a rough estimate and KDOT's actual results may be slightly different.

KDOT has been and remains a strong proponent and advocate for server virtualization. Virtualization has not only enabled us to reduce our capital expenditure costs through the purchase of fewer physical servers, but we have also experienced significant operational cost savings through simplifying the provisioning of servers, increased continuity of operation preparedness and a greater standardization of our infrastructure.

However, it is important to realize that the types of applications and the demand they place on system resources will largely govern how many virtualized servers can be effectively hosted on one VM host server. For example, as a result of performance based testing, the

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Barbara J. Hinton
Page 2
June 21, 2010

virtualization of our Comprehensive Program Management System and Data Warehouse requires 7 VM host servers to host the required 16 virtual servers.

It is also important to note that at the time of this audit, KDOT had just purchased 4 new VM host servers as part of our continuing plans and efforts to virtualize, to the extent possible, all new servers or replacement servers required as part of a hardware refresh cycle. These 4 new hosts were included in the count of our VM hosts and contributed to the low average of virtual servers per host.

Recommendation (a): Virtualize the remaining servers that can be virtualized but haven't been yet (as identified on page 18) over the next three years.
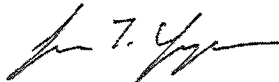
This recommendation is consistent with KDOT's current plan and process of evaluating each system and server for potential virtualization when the hardware requires upgrade or is due to be updated as part of a hardware refresh cycle.

Recommendation (b): Assess future server needs and determine if virtual servers can be created and used in lieu of purchasing new physical servers.

This recommendation is also consistent with KDOT's current plan and process of evaluating all requests for new servers for potential virtualization and to use virtual servers in lieu of physical servers whenever possible.

With regards to the Legislative Post Audit Committee meeting that is yet to be scheduled on this audit, Anthony Schlinsog, our Chief Information Officer, will be attending. If you need any additional clarification or information, please do not hesitate contacting myself or Anthony Schlinsog at 296-5220. Thank you.

Sincerely,

for Deb Miller
Secretary of Transportation

Information Technology Consolidation 3 CITO Recommendations
December 8, 2010 v-3

Background
Senate Bill 572 (see the Appendix for the relevant excerpt) charged the Chief Information
Technology Architect (CITA) of the State of Kansas to "evaluate the feasibility of information
technology consolidation opportunities." The focus of the IT consolidation evaluation was to
include "facilities, staff, applications, networks, disaster recovery operations, data centers, access
methods, and any other aspect of the state's information technology architecture."

From June 1, 2010 to October 1, 2010 the CITA facilitated meetings with state agency IT
leaders, administered a survey of state agencies on the IT consolidation topic, researched other
state governments' IT consolidation initiatives, and had discussions with IT experts Forrester and
Gartner on the topics of IT consolidation. The data obtained was analyzed and used to formulate
a set of consolidation strategies and recommendations

Note: The CITA study recommends the universities in Kansas, under the direction of the Board
of Regents, work to consolidate IT in each of their respective universities. Unless directly
mentioned, the recommendations laid out in the Study do not apply to the Regents universities.

Council of Chief Information Technology Officers' Recommendations
Senate Bill 572 states that "[I]f the council of chief information technology officers approves
any consolidation plan presented in the feasibility study, the council of chief information
technology officers shall develop recommendations for strategic initiatives, conduct a cost-
benefit analysis, calculate investment estimates and formulate implementation processes for such
consolidation plan."

The section below lists the recommendations that were provided to the council of Chief
Information Technology Officers – defined in S.B. 572 as consisting of "three members who are
the chief information technology officers for the executive, judicial and legislative branches of
the state" – by the Chief Information Technology Architect as required on October 1, 2010.

Each CITA recommendation is followed, in turn, by a recommended action prepared jointly by
the CITOs. In addition, further recommendations from the CITOs are included based on review
and analysis of the information presented in the feasibility study.

Attachment 6

JCIT 12-14-10

CITA RECOMMENDATION 1: DATA CENTERS

The State of Kansas should invest in two new data centers: a main data center located in the Topeka area and a second data center located on, or near, one of the regent institutions. Once the data centers are built, all state agencies should begin a transition into these new data centers and abandon their old data center space.

Recommended action by council of CITOs (for all branches)

1. Invite the Department of Health and Environment and the Judicial Branch to establish a disaster recovery bay at the existing Wichita data center. Encourage all other agencies to do the same.

2. Seek a planning appropriation of $175,000 to study the feasibility of turning part of the Aviation Research Center at WSU or part of another facility like the WSU Metro Center into a second consolidated data center for state agencies.

3. Use the results of the feasibility study to prepare a final Implementation Proposal for presentation to ITEC and JCIT by December 1, 2011.

4. Based on the Implementation Proposal, prepare a construction and funding plan for the Topeka Data Center and a consolidated second center so appropriations can be received by FY13 (July 1, 2012).

5. Create at least a 16,000 sq. ft. (pending expansion based on the results of the feasibility study) multi agency consolidated data center at Wichita State University ready for occupancy July 1, 2013.

6. Create a new Tier 3 Data Center in Topeka ready for occupancy July 1, 2015

7. Move the existing DISC leased space data center in Wichita to the new facility.

8. Initial Occupants of the newly created Wichita Data Center:
   i. Department of Administration
   ii. Social and Rehabilitation Services
   iii. Legislative Administrative Services
   iv. Department of Transportation
   v. Department of Labor

9. For the initial occupants develop a revenue stream of $250,000. The stream includes $125,000 from existing DISC fees and $125,000 from new occupants.

10. Invite all Regents institutions to join the new Wichita data center.

11. Create a consolidated funding pool strategy for constructing and implementing the consolidated data centers. The pool repositions current agency DR funds used today for offsite DR contracts.

CITA RECOMMENDATION 2: PHYSICAL SERVER LOCATION
All state agency computer equipment should be immediately moved into the new state primary and/or secondary data center(s) when the new data center facilities are operational.

Recommended action by council of CITOs (for all branches)
1. Given the provisioning of new data centers, a migration of physical servers should commence immediately. Presuming that staging of this move will be necessary, migration should begin with existing facilities that rank lowest in the data center tier structure.
2. Until provisioning of data centers is complete, only essential repairs or enhancements should be made to existing data centers

CITA RECOMMENDATION 3: SERVER VIRTUALIZATION
State agencies should continue to virtualize all appropriate servers. The Division of Information Systems and Communications (DISC) should aggressively move forward on the Server Virtualization service they have proposed. State agencies should begin utilizing the DISC virtualization service for all appropriate servers when current servers come to end of their life and/or a new server purchase is required. If new data center space is not invested in, small and medium sized agencies along with large agencies that have not begun server virtualization should be given first priority for utilizing this service.

Recommended action by council of CITOs (for all branches)
1. DISC should continue to virtualize servers in the Landon State Office Building and the Wichita Offsite Data Center.
2. Agencies already actively pursuing virtualization should continue those efforts as they will make migration to the new data centers easier.
3. All server acquisitions should be reviewed to determine if the function for which they are being purchased can be accomplished with a Virtual Server from the DISC offering. Accomplishment of this initiative may require additional statutory authority and reviewing capacity within the CITO staffs.

CITA RECOMMENDATION 4: STORAGE
The State should invest in at least two modernized Storage Area Networks (SAN) to host critical state data. The SAN architecture should be designed for redundancy to avoid outages similar to the ones that occurred in Kansas and Virginia in 2010. DISC will provide a storage service to all state agencies with multiple data tier levels offered to give agencies flexibility on their data storage requirements. All non-centralized storage investments should be frozen and all new storage projects and investments should use the centralized storage service.

Recommended action by council of CITOs (for all branches)
The Storage Area Networks established in each data center should be fully redundant. When these data centers are accomplished, migration from non-centralized storage investments can commence along with migration of the related servers. The SANs could be established before we build new data centers, and the migration can begin immediately if the SAN/server complex includes a build out of the transmission capability for agencies to reach the SAN/server complex. The CITOs note that Gartner recommends

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multiple tiers or types of storage in SAN Complexes. Gartner also recommends deployment of higher quality SANs than we presently use, and snapshot backup-capable SANs.

CITA RECOMMENDATION 5: ELECTRONIC MAIL
The State should consolidate into one email solution for all executive branch agencies. Legislative and Judicial branches of government should consider using the centralized e-mail solution once the executive branch is fully migrated to the new solution. This project should occur regardless of any other IT consolidation strategy.

See the recommended actions under Recommendation 7

CITA RECOMMENDATION 6: UNIFIED COMMUNICATION AND COLLABORATION
DISC should continue moving forward on their Unified Communication and Collaboration (UCC) project.

See the recommended actions under Recommendation 7

CITA RECOMMENDATION 7: IDENTITY MANAGEMENT
The State of Kansas should consolidate into one centralized Active Directory (AD) system for all executive branch state agencies. This solution should be architected to allow for agencies the ability to add, modify, and change their own employees. Legislative and Judicial branches of government should consider using the centralized AD solution once the executive branch is fully migrated to the new solution. This project should occur regardless of any other IT consolidation strategy.

Recommended action by council of CITOs (for all branches)
1. Seek a planning appropriation of $65,000 to prepare a full plan for implementing these initiatives on a cloud computing platform. That platform should either be owned by DISC or provided by an external hosting service and rated to the state agencies. The plan should address policy considerations, constraints and forecasted costs for the option chosen and be completed by December 1, 2011.

2. Create a consolidated funding strategy for implementing the initiative

3. Execute the plan so consolidated e-mail and Active Directory services for all state entities are completed by December 1, 2012.

4. CITOs recommend the following agencies as candidates for the initial implementation:
   a. Department of Administration
   b. Social and Rehabilitation Services
   c. Legislative Administrative Services
   d. Department of Transportation
   e. Department of Labor

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5. For initial pilot agencies develop a projected revenue stream based on a per seat benchmark by Gartner for hosted services. Use 10,000 plus users for the benchmark. The resulting revenue stream should be 10% less than the benchmark.

6. DISC should continue moving forward with UCC.

CITA RECOMMENDATION 8: OTHER MIDDLEWARE APPLICATIONS

The State of Kansas should develop a consolidation strategy and roadmap for all middleware applications used by state agencies. These applications include but are not limited to: Document Management, Workflow, Enterprise Service Buses, Business Intelligence, Call Center, Customer Relationship Management, Data Warehouse, and Master Data Management.

Recommended action by council of CITOs (for all branches)

The Council of CITOs accepts this recommendation and charges the Kansas Information Technology Office to prepare a road map and strategy for pursuit of this initiative by December, 2011. That roadmap would then be reflected in the Kansas Information Technology Architecture. That roadmap should include prioritizing which middleware solutions should be pursued first. As Projects in the state are pursued, the roadmap and strategy for middleware shall guide the choice and implementation of middleware as appropriate in the Projects.

CITA RECOMMENDATION 9: DESKTOP SUPPORT

The State of Kansas should move toward consolidation of the resources and support staff provide computing services to the state workforce. All devices and all products should be purchased centrally and deployed to all employees. A consistent upgrade and replacement model financed through FTE based cost recovery will provide a more stable and compatible technical environment for all workers. This approach will also bring more efficiencies to the purchasing process, reduced complexities to the technology components, and more effective support for all workers by using best practices and lessons learned once for the entire state. An advisory council should be established to guide the evolution of these resources, financial shift, and service levels to be delivered under consolidation.

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Recommended action by council of CITOs (for the Executive Branch)
Desktop support for medium-sized state agencies should be consolidated in DISC's
Bureau of Customer Services.

1   These agencies should enter into a DISC SLA for patch management, upgrades to
    3rd party software, security/virus protections, and platform refresh. The DISC
    services should include both Tier 1 and Tier 2 help desk support.
2   Tier 1 support includes 24X7 phone support. Support should be robust enough
    that all calls are answered within 2 minutes and such that 85% of all open tickets
    should be closed within 15 minutes. The support should be consistent with
    COBIT standards for incident reporting and change control.
3   Tier 2 support includes full root cause analysis for all open tickets. The analysis
    covers problem resolution and release management controls over updates.
    Acceptance testing should be shared between DISC and the SLA agencies.
4   Smaller agencies should be invited to join the desk top support initiative.

CITA RECOMMENDATION 10: NETWORK SUPPORT
The State of Kansas should continue with the successful strategy of network modernization of
core network to merge data and voice networks. In addition, the state should consider
consolidating all KANWIN and agency voice and data network technicians under DISC. In this
model, DISC would be responsible for the full network and component delivery in all non-regent
institution state facilities. The State should create a new Network Governance structure with two
levels. The top level, an Information Technology Executive Council (ITEC) subcommittee
would coordinate all state network efforts. This subcommittee would consist of representatives
from state and local government and the private sector. The next level, a KANWIN oversight
committee, will oversee the KANWIN roadmap, performance, and prioritization. The state
should also consider two network re-architecture efforts: an effort to allow more data and
application sharing within state government and an effort to allow counties to become more
efficient and to reduce cost.

Recommended action by council of CITOs (for all branches)
Network Support closely relates to the UCC activity. The whole technical structure for
communication will change in the future. An ITEC-chartered committee or council is
appropriate for governance of this area, as ITEC creates Policies for this area. The CITOs
note however that the Secretary of Administration has significant statutory authority in
this subject area for all of state government.

CITA RECOMMENDATION 11: AGENCY DEVELOPMENT STAFF
State agencies should always maintain their own unique development staff. Regardless of
consolidation strategies, it is best practice to leave developer, data owners, data administrators,
and business analysts as employees of each agency. These positions require intimate knowledge
of agency business processes. However, the development model will change under IT
consolidation in order to take advantage of consolidated services like enterprise service bus,

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document management, and workflow solutions. This changing development model will require very specific skill sets. It would be unfeasible for every agency to hire this type of specialized employee. DISC, working with all branches of government, should research the demand for a centralized pool of application developers hosted by DISC that could be available to state agencies and in all branches of government. Also, current application development staff should be adequately trained on advanced architecture and design skills in order to leverage the new technologies available to them in a consolidated IT environment.

Recommended action by council of CITOs (for all branches)
Studying this issue reasonably can occur as work is done on Recommendation #8 for Middleware.

OTHER ACTIONS RECOMMENDED BY THE COUNCIL OF CITOs BASED ON CITA STUDY RESULTS

Consolidation Initiatives for Legislative Branch and Data Center Application Consolidation and Data Center**.

1. Update the legislative strategic plan to include implementing redistricting and geocoding decision support analytics for all bills that have an economic impact on Senate and House Districts on the KLISS platform. The strategic plan should reference the initiative sponsored by DISC and the GIS Policy Board for creating a GIS shared hosting service as well as pooled software licensing.

2. Redistricting should use the existing KLISS cloud computing (VMware) hardware, software, and Wichita disaster recovery infrastructure. The cost for GIS licensing from the shared licensing pool is $150,000. This excludes $50,000 for training and installation services. After redistricting the same software can be used for geocoding bills. Prepare a ERSI grant request to use their redistricting product suite as a demonstration of e-democracy NIEM federal standards. ESRI is open to giving the grant provided the software is consolidated in KLISS for geocoding bills. NIEM board has requested a KLISS presentation. Arrangements are being made to secure federal innovations grant funding for implementing the NIEM e-democracy domain standard. INK Board grant request has been filed to obtain funding for researching and creating the standard.

3. Consolidate the redistricting data center with the existing KLISS data centers in Wichita and Topeka. Savings approximates $75,000.

4. Consolidate the redistricting IT staff in the proposed Legislative Office of Information Technology. Saving approximates $67,000.

5. Establish an 18 FTE consolidated IT staff in a new Office of Information Technology as proposed in the October 2010 KLISS Implementation Plan. Consolidation of staff will reduce professional services budget by $132,000 and staffing will fund the consolidation initiative.

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Consolidation Initiative for the Judicial Branch

1. Application E-filing

   A. Create a consolidated initiative for filing court cases, fees, and related documents electronically for district and appellate courts.

   B. Integrate E-filing with the existing consolidated Full Court system

   C. Enterprise Full Court system feasibility study for data center consolidation across all courts in the state of Kansas. The feasibility study will explore policy advantages and disadvantages. Also the study will discuss cost/benefits.

Other Consolidation initiatives identified by the Council of CITOs (for all branches):

Single Payment Portal

   a. The state should inventory all current payment portals used by the state
   b. The state should develop a migration plan to move outlying payment portals to INK
   c. The state should implement and test the migration plan
   d. Migration of all outlying portals should be completed by December, 2011

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APPENDIX

IT Consolidation Study excerpt from S.B. 572:

In addition to the other purposes for which expenditures may be made by the department of administration from moneys appropriated from the state general fund or any special revenue fund or funds for fiscal year 2011 for the department of administration, as authorized by this or other appropriation act of the 2010 regular session of the legislature, expenditures shall be made for fiscal year 2011 to conduct a study by the chief information technology architect to evaluate the feasibility of information technology consolidation opportunities for the information technology architecture of the state: *Provided,* That the feasibility study shall examine the possible consolidation of facilities, staff, applications, networks, disaster recovery operations, data centers, access methods and any other aspect of the state's information technology architecture that may be consolidated: *Provided further,* That, on or before October 1, 2010, the chief information technology architect shall submit the feasibility study to the council of chief information technology officers, which consists of three members who are the chief information technology officers for the executive, judicial and legislative branches of the state: *And provided further,* That, if the council of chief information technology officers approves any consolidation plan presented in the feasibility study, the council of chief information technology officers shall develop recommendations for strategic initiatives, conduct a cost-benefit analysis, calculate investment estimates and formulate implementation processes for such consolidation plan: *And provided further,* That, on or before November 1, 2010, the council of chief information technology officers shall submit any recommended consolidation plan, along with all other materials prepared pursuant to this subsection to the information technology executive council: *And provided further,* That the chief information technology architect shall prepare and present the feasibility study, any consolidation plan recommended by the council of chief information technology officers and any consolidation plan approved by the information technology executive council to the house appropriations committee and the senate committee on ways and means during the 2011 regular session of the legislature.

6-9

KANSAS

INFORMATION TECHNOLOGY CONSOLIDATION FEASIBILITY STUDY

Prepared by

The Office of the Chief Information Technology Architect

October 2010

http://da.ks.gov/kito/cita

Attachment 7
JCIT 12-14-10

TABLE OF CONTENTS

7-2

I. EXECUTIVE SUMMARY

Senate Bill 572 authorized the Chief Information Technology Architect (CITA) of the State of Kansas to "evaluate the feasibility of information technology consolidation opportunities." The focus of the IT consolidation evaluation is to include "facilities, staff, applications, networks, disaster recovery operations, data centers, access methods, and any other aspect of the state's information technology architecture."

From June 1, 2010 to October 1, 2010 the CITA facilitated meetings with state agency IT leaders, administered a survey of state agencies on the IT consolidation topic, researched other state governments' IT consolidation initiatives, and had discussions with IT experts Forrester and Gartner on the topics of IT consolidation. The data obtained was analyzed and used to formulate the following consolidation strategies and recommendations[1]:

> **DATA CENTERS:** The State of Kansas should invest in two new data centers: a primary data center located in the Topeka area and a secondary data center located on, or near, one of the regent institutions. Once the data centers are built, all state agencies should begin a transition into these new data centers and abandon their old data center space.

> **PHYSICAL SERVER LOCATION:** All state agency computer equipment should be immediately moved into the new state primary and/or secondary data center(s) when the new data center facilities are operational.

> **SERVER VIRTUALIZATION:** State agencies should continue to virtualize all appropriate servers. The Division of Information Systems and Communication (DISC) should aggressively move forward on the Server Virtualization service they have proposed. State agencies should begin utilizing the DISC virtualization service for all appropriate servers when current servers come to end of their life and/or a new server purchase is required. If new data center space is not invested in, small and medium sized agencies along with large agencies that have not begun server virtualization should be given first priority for utilizing this service.

> **STORAGE:** The State should invest in at least two modernized Storage Area Networks (SAN) to host critical state data. The SAN architecture should be designed for redundancy to avoid outages similar to the ones that occurred in Kansas and Virginia in 2010. DISC will provide a storage service to all state agencies with multiple data tier levels offered to give agencies flexibility on their data storage requirements. All non-centralized storage investments should be frozen and all new storage projects and investments should use the centralized storage service.

> **ELECTRONIC MAIL:** The State should consolidate into one email solution for all executive branch agencies. Legislative and Judicial branches of government should consider using the centralized email solution once the executive branch is fully migrated to the new solution. This project should occur regardless of any other IT consolidation strategy.

> **UNIFIED COMMUNICATION AND COLLABORATION:** DISC should continue moving forward on their Unified Communication and Collaboration (UCC) project.

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[1] This study recommends that the universities in Kansas, under the direction of the Board of Regents, work to consolidate IT in each of their respective Universities. Unless directly mentioned, the recommendations laid out in this Study do not apply to the Regent Universities.

IDENTITY MANAGEMENT: The State of Kansas should consolidate into one centralized Active Directory (AD) system for all executive branch state agencies. This solution should be architected to allow for agencies the ability to add, modify, and change their own employees. Legislative and Judicial branches of government should consider using the centralized AD solution once the executive branch is fully migrated to the new solution. This project should occur regardless of any other IT consolidation strategy.

OTHER MIDDLEWARE APPLICATIONS: The State of Kansas should develop a consolidation strategy and roadmap for all middleware applications used by state agencies. These applications include but are not limited to: Document Management, Workflow, Enterprise Service Buses, Business Intelligence, Call Center, Customer Relationship Management, Data Warehouse, and Master Data Management.

DESKTOP SUPPORT: The State of Kansas should move toward consolidation of the resources and support staff provide computing services to the state workforce. All devices and all products should be purchased centrally and deployed to all employees. A consistent upgrade and replacement model financed through FTE based cost recovery will provide a more stable and compatible technical environment for all workers. This approach will also bring more efficiencies to the purchasing process, reduced complexities to the technology components, and more effective support for all workers by using best practices and lessons learned once for the entire state. An advisory council should be established to guide the evolution of these resources, financial shift, and service levels to be delivered under consolidation.

NETWORK SUPPORT: The State of Kansas should continue with the successful strategy of network modernization of core network to merge data and voice networks. In addition, the state should consider consolidating all KANWIN and agency voice and data network technicians under DISC. In this model, DISC would be responsible for the full network and component delivery in all non-regent institution state facilities. The State should create a new Network Governance structure with two levels. The top level, an Information Technology Executive Council (ITEC) subcommittee would coordinate all state network efforts. This subcommittee would consist of representatives from state and local government and the private sector. The next level, a KANWIN oversight committee, will oversee the KANWIN roadmap, performance, and prioritization. The state should also consider two network re-architecture efforts: an effort to allow more data and application sharing within state government and an effort to allow counties to become more efficient and to reduce cost.

AGENCY DEVELOPMENT STAFF: State agencies should always maintain their own unique development staff. Regardless of consolidation strategies, it is best practice to leave developer, data owners, data administrators, and business analysts as employees of each agency. These positions require intimate knowledge of agency business processes. However, the development model will change under IT consolidation in order to take advantage of consolidated services like enterprise service bus, document management, and workflow solutions. This changing development model will require very specific skill sets. It would be unfeasible for every agency to hire this type of specialized employee. DISC, working with all branches of government, should research the demand for a centralized pool of application developers hosted by DISC that could be available to state agencies and in all branches of government. Also, current application development staff should be adequately trained on advanced architecture and design skills in order to leverage the new technologies available to them in a consolidated IT environment.

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While obtaining the data for this study there were a number of non-technology concerns articulated by industry experts, technology leaders from other state governments, and our own state IT leaders. These concerns and risks must be solved or mitigated before IT consolidation in Kansas could be successful:

LEADERSHIP AND GOVERNANCE: IT consolidation projects fail without proper executive leadership. The Governor of Kansas should sign an executive order mandating IT consolidation for executive branch agencies in Kansas. The Governor's leadership role is foundational for IT consolidation success. In addition, the role of the Executive branch Chief Information Technology Officer (CITO) should be expanded. All current responsibilities of the CITO would remain, but the role would expand to include approval authority on all Information Technology purchases by state executive branch agencies, and to provide direction and coordination of the statewide shared services outlined in this Study. Other states have shown that a properly empowered CITO shifts the discussion of IT towards business driven initiatives and project coordination. States with the most IT consolidation success have the executive branch CITO as a cabinet position. This shift allows Kansas to focus on project prioritization, financial shifts and to better serve our citizens and businesses. A cabinet level CITO is recommended but not required for success if the CITO is given appropriate authority and has the support of the Governor.

DISC'S ABILITY TO EXECUTE: Under these IT consolidation strategies, DISC would retain and expand its role as the central IT agency for Kansas. IT consolidation's success will be predicated on DISC's success. Historically, DISC is a leader in providing state IT services, and has a successful track record with previous IT consolidation projects. Under the recommendations outlined in this study, DISC would expand its role in providing IT services for the state. Agencies are concerned the quality of received services will diminish when they are provided through a consolidated model and that direct loss of control of resources will make services less responsive to agency business needs. To address these concerns, DISC must work hard to maintain and build the confidence of other state agencies. DISC must foster a culture of collaboration and facilitation with state agencies. DISC should renew its focus on outstanding customer service, communication, and complete transparency. Finally, DISC must have the resources needed to deliver high quality and reliable services under a consolidated model. Expecting DISC to operate a much larger equipment base in the existing physical facilities with their constrained environmental attributes will place the entire state at significant risk. In addition, expecting DISC to take responsibility for the increased tasks inherent in a consolidated model without a significant staffing increase will only result in the worst agency fears being realized.

SECURITY: State IT leaders are concerned that the unique requirements each agency has to secure their data and computer equipment will be marginalized in a consolidated IT environment. While security requirements are complex and vary by agency, other state's IT consolidation projects have found these complexities can be managed with a combination of organizational, policy, and governance changes.

ORGANIZATIONAL CHANGES: The State of Kansas needs several preparatory activities in order to manage the proposed consolidation efforts outlined in this study. These activities deal with enhancing the tools, processes, and skills DISC and agencies will leverage to provision, manage, and administrate consolidated IT services. DISC should be the central coordinator for the deployment of these tools, processes, and skills. Also, it should develop consistent training programs to support the evolution in each consolidation effort. DISC and state agencies must participate and engage in conversations for each consolidation effort and identify

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the combination of best practices that should be used by the State of Kansas. DISC's organization will change dramatically in size and scope of activities. It is believed that in order to absorb this dramatic change in size and complexity that significant reorganization will need to occur to make DISC more effective and efficient. The reorganization will be a multiyear multi-step process, but will be critical for IT consolidation success.

BUY-IN: IT consolidation is not a universally popular notion across state agencies. The status quo gives them the flexibility to solve their own problems in the way that makes sense for their individual agencies, but allows for redundant, siloed, and incompatible solutions. In a consolidated IT environment many of our IT employee's roles will change. The possibility of change leads to uncertainty. Other states have told us this uncertainty can slow down, and even destroy, consolidation activities. The human factors associated with IT consolidation must be accounted for and mitigated if there is any hope for successful consolidation. These strategies revolve around an empowered executive branch CITO, an effective and responsive central IT organization, a focus on customer service and communication, and preparing state IT employees for their new roles and giving them adequate training.

If the IT consolidation strategies and recommendations are implemented successfully, the benefits for Kansas will include:

IMPROVED GOVERNMENT EFFICIENCY AND EMPLOYEE PRODUCTIVITY: The State of Kansas has an exceptional employee base. Efforts to consolidate and streamline IT will enable them to be more productive. Instead of having redundant agency IT teams all performing the same duties, there could be one single team maintaining consolidated solutions. All state employees need basic capabilities in order to achieve maximum efficiency. Successful IT consolidation projects involving email, identity, data sharing, and unified communications and collaboration have the ability to revolutionize the way state employees perform their jobs. In a consolidated environment employees will have modernized tools and capabilities allowing them to perform their jobs better, more accurately, and more effectively.

IMPROVED GOVERNMENT INTERACTION WITH BUSINESS AND CITIZENS: Kansas is underutilizing its ability to support businesses and individuals in Kansas. Agencies develop their own unique ways to communicate, regulate, license, and support their customers. IT consolidation projects can help with this transition. Currently there is no easy way to share data across agencies. With a common identity solution and a modern enterprise data bus, it will be easier to share data and communicate between state agencies. Having these foundational components in place will allow for the next generation of business applications to be developed that utilize this enhanced functionality.

IMPROVED INFORMATION ACCESS AND DESCISION MAKING: The State of Kansas has outstanding information available to its workforce. However, in almost all cases, the access to this information access is limited to a small set of agency workers. If information access was improved between agencies the state workforce could make better decisions and more effectively support Kansas citizens and businesses.

MODERNIZED TECHNOLOGY AND SUPPORT INFRASTRUCTURE: The investments in IT solutions that have occurred over the last several decades are mostly still in use today. These "legacy" infrastructures require specialized knowledge, tools, and vender support. Kansas constantly adds on and expands these legacy systems without removing or modifying the old portions of

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the system. With the Kansas Information Technology Architecture (KITA) and agency IT architects, Kansas has the opportunity to design and implement solutions statewide. The commitment to an enterprise set of architecture options can be achieved if agencies are not allowed to "opt out" of statewide solutions. KITA can deliver a solid set of targets and solutions that agencies can use that would lead to a dramatic decrease in the cost and complexity associated with the current technical architecture, while still giving agency choices. This modernized infrastructure will bring several benefits in the area of reduced energy costs, decreased carbon footprint for IT data centers, ability to support agency continuity of operation plans, and ability to recover from disaster.

REDUCED COST OF IT OPERATIONS WITH MORE FUNCTIONALITY: The cost of information technology in Kansas has grown at roughly 3% a year for the last ten years. In 2002, Kansas spent $192 million on IT. In 2010, Kansas spent $248 million. If the current trend of 3% growth remains stable, in 2020 Kansas will spend $335 million. The rapid growth of consultant expenses and the growth of host systems are the major contributors to this growth trend. The IT consolidation projects outlined in this study have the potential to help stabilize this growth curve. With the proper leadership, authority, and facilities other states have proven that there can be a substantial cost savings by mandating IT consolidation. If the State of Kansas takes the necessary steps to make IT consolidation successful it could conservatively avoid spending $350 million dollars in the next 10 years.

Now is the right time for the State of Kansas to pursue IT consolidation. In 2007, the National Association of State Chief Information Officers (NASCIO) contended that 62% of the states are pursuing some type of IT consolidation[2]. Recent conversations with NASCIO and State CIOs lead us to believe the number of states pursuing IT consolidation is now greater. Missouri began consolidation in 2006 by creating a state CIO in charge of all IT in the state. Nebraska began consolidation in 2007 with a Governor's mandate to centralize email and identity. Indiana began consolidation in 2005 with a customer centric service philosophy and has reduced its cost to provide IT services by 31.7% in five years. California is in the beginning stages of IT consolidation and is focused on the same recommendations this study outlines: data centers, server virtualization, and email.

IT Consolidation is not new in Kansas. This state has a long and successful history of IT consolidation. It began in the 1970's with the KAN-SAN telephone system, it continued in the 1980's with mainframe and network consolidation, and in the 1990's and 2000's with limited data center consolidation, and centralized Human Resource and Accounting systems. The Judicial Branch's Full Court system and Legislative Branch's KLISS application are additional recent successes in consolidating critical applications. Executing the recommendations of this study can help write another successful chapter of IT consolidation in Kansas.

Kansas should begin its next major IT consolidation project by moving towards a common electronic mail and identity solution. As other states have proven, this project is relatively simple to execute and sets the stage for future consolidation projects. A common statewide email solution achieves significant cost savings, reduces needless technology complexity, and makes communication and collaboration within state government easier.

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[2] "Enterprise Data Center Consolidation in the States: Strategies and Business Justification" National Association of State Chief Information Officers. August 2007. Available at: http://www.nascio.org/publications/documents/NASCIO-EnterpriseDataCenterConsolidation.pdf

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At the same time, two new state-of-the-art data centers should be invested in. It is estimated that the cost of these facilities will be from $58 to $96 million. A complete engineering study on data center needs must be completed to get more accurate cost estimates. When the data center facilities are running, the state should aggressively move all computer equipment to these locations using virtualized servers and shared storage whenever possible. With this centralized infrastructure in place, more aggressive IT consolidation strategies like middleware application consolidation can be obtained.

If done successfully, IT consolidation can make the State of Kansas' government run more efficiently, and at the same time serve Kansas' citizens more effectively.

Strategy	Value To Kansas	Upfront Cost	Cost Savings	Employee Impact	Recommendation
Invest in new Data Centers	High	High $55-95 million	Neutral	Low	Begin Immediately
Server and Storage Virtualization	Medium-High	Medium	Moderate	Medium Some FTE shift to DISC	Continue Agency Server Virtualization Move to DISC centralized service when new Data Centers completed
Electronic Mail and Identity	Medium-High	Medium	Moderate	Medium Some FTE shift to DISC	Begin Immediately Does not require new Data Centers completed
Unified Communications	Medium-High	High	Neutral	Low	DISC continue to move forward on this project
Middleware	Medium	Medium	Moderate	Medium Some FTE shift to DISC	Each solution needs to be planned for, architected, and a road map developed
Desktop Support	High	Low	High	Large Major FTE shift to DISC	Begin Immediately
Network Support	Medium	Low	Low	Some FTE shift	Begin Immediately
Application Development	N/A	None	None	None	Retain Status Quo
Governance	Medium-High	Medium	Low	2-5 new FTE	Begin Immediately

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II. HISTORY AND BACKGROUND

Senate Bill 572 authorized the Chief Information Technology Architect (CITA) of the State of Kansas to "evaluate the feasibility of information technology consolidation opportunities." The focus of the Information Technology (IT) consolidation evaluation is to include "facilities, staff, applications, networks, disaster recovery operations, data centers, access methods, and any other aspect of the state's information technology architecture."

Beginning in June of 2010, the CITA facilitated a series of meetings with the IT leaders from state agencies, local governments, and regent institutions[3]. The goal of these meetings was to get an understanding of the IT landscape in Kansas. As a result, three surveys were developed and sent to state agencies to build on the understanding gained from the facilitated meetings.

During the same timeframe, the CITA also communicated with IT leaders in Missouri, Iowa, Indiana, and Nebraska to learn about their consolidation projects. In addition, they reviewed strategies and recommendations from consolidation activities in other states. Discussions also took place with Gartner and Forrester -- two IT focused research firms – to get a greater understanding of industry best practices. Finally, discussions with leading technology companies occurred to evaluate their product lines, compare capabilities, and learn about past involvement they have had with other IT consolidation efforts.

The data received from state agencies, the lessons learned from other states, and the research from Forrester and Gartner were analyzed and recommendations for IT Consolidation in Kansas were developed.

The recommendations for IT Consolidations are broken down into the following ten functional areas:

- Data Center
- Servers
- Storage
- Electronic Mail
- Unified Communications and Collaboration
- Identity Management
- Desktop Support
- Network Support
- Other Middleware Applications
- Agency Development Staff

In the following pages, a detailed explanation of each functional area will be articulated. This explanation will include an overview, problems associated with the status quo, scenarios for consideration, and recommendations.

There are many dependencies associated with the different recommendations outlined in this study. The ten functional areas should not be considered ten different, unique, and distinct projects. Scope documents for these projects will be available in the appendix section of this document. Many of the project and initiatives outlined in this study are dependent on each other and for one functional area to have success one or more other functional areas must be completed. These dependences will be

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[3] A list of the facilitated meetings is available in appendix B.

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discussed when appropriate throughout this study. The following chart is a high level roadmap of the projects explained in this study:

CY 2011	CY 2012	CY 2013	CY 2014	CY 2015

Data Center: Planning | Primary Data Center Build | Physical Server Consolidation

Finish KanWIN 2.0 | Network Support Staff | Secondary Data Center Build

E-Mail and Identity

Unified Communication and Collaboration

Agency continue Virtual Servers | Storage Consolidation

Agencies Transition to DISC Virtual Server Service

Call Center Planning | Call Center Implementation

Middleware: Service/Data Bus | Content Management Planning | Content Management Implement

Middleware: Data Warehouse

Middleware: Master Data MGMT

IT Desktop Support Staff Consolidation | Citizen Portal | Business Portal

Employee portal-collaboration

Enterprise Portfolio Management | Enterprise IT Asset Management

The scope of this document is focused on all three branches or government and the regents' institutions. This scope is unique. Other states that have begun consolidation started only with executive branch agencies. The study attempts to outline consolidation that can happen in all three branches and the regents' institutions, but many of the initial strategies, projects, and recommendations only focus on the executive branch.

It is the recommendation of this study that the Judicial and Legislative branches of Kansas government continue to consolidate IT inside their respective branches. The Judicial branch's Full Court application consolidation and the Legislative Branch's KLISS application consolidation are successful consolidation activities and should continue to be built upon. It is also recommended that the Legislative and Judicial branches are active participants in the requirements and design phases of all executive branch consolidation activities happening as a result of this study, with the intention to use the state-wide services when appropriate. Kansas will get the most return on investment when all three branches of government are utilizing statewide shared services.

This study recommends that the universities in Kansas, under the direction of the Board of Regents, work to consolidate IT in each of their respective Universities. Also, universities should continue to pursue collaborative projects with each other.

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III. IT CONSOLIDATION STRATEGIES AND RECOMMENDATIONS

From June 1, 2010 to October 1, 2010 the CITA facilitated meetings with state agency IT leaders, administered a survey of state agencies on the IT consolidation topic, researched other state governments' IT consolidation initiatives, and had discussions with IT experts Forrester and Gartner on the topics of IT consolidation. The data obtained was analyzed and used to formulize the following consolidation strategies and recommendations:

DATA CENTERS

Overview and Status Quo: The State of Kansas has its computer infrastructure hosted in a wide variety of locations with varying levels of security, redundancy, and environmental conditions. This variety ranges from highly controlled data centers to standard office space. According to a survey of all state agencies, 53,000 square feet of space is used to host computer equipment in Kansas.

This space is broken down into the following categories:

Type of Space	Number of Facilities	Square Feet	Confidence Factor[4]
Data Centers	21	45,476	80%
Server Rooms	16	4,538	70%
Wiring Closets	11	837	50%
Other	44	1,228	40%
Total	92	~53,000	70%

Data Center[5] space is considered the most secure and reliable space for computer equipment because it is specially designed space for the sole purpose of hosting computer equipment. Server Rooms are spaces constructed for computer equipment, but lack the robust infrastructure of data center space. Wiring closets and others spaces are areas in the office that were never intended to host advanced computer systems and pose a large risk to the organization.

Not all data centers are the same. The Uptime Institute, an organization that provides education, consulting, certifications, and leadership for the enterprise data center industry ,has developed a tier system for ranking the level of data centers. These tiers take into consideration the amount of uptime the data center can provide. Uptime "is a measure of the time a machine has been up without any downtime."[6] Higher uptime requires redundancy in the infrastructure of the data center. These components include the network, power, heating, and cooling of the facility. The Uptime Institute's definitions of data center tiers are:

Tier Level	Definition
One	Single path for power and cooling distribution with no redundant components. 99.671% availability. ~$450 per square foot.
Two	Single path for power and cooling distribution with redundant components.

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[4] Confidence Factor is calculated because several agencies did not respond to the IT consolidation surveys and some other agencies did not provide complete responses. A detailed description of the survey data and respondents is available in Appendix C.

[5] "Data Center" Wikipedia. Accessed October 5, 2010. Available at: http://en.wikipedia.org/wiki/Data_center

[6] "Uptime" Wikipedia. Accessed October 5, 2010. Available at: http://en.wikipedia.org/wiki/Uptime

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Tier Level	Definition
	99.741% availability. ~$600 per square foot.
Three	Multiple power and cooling distribution paths. These data centers only have one active path with redundant components. ~$900 per square foot.
Four	Multiple active power and cooling distribution paths, redundant components and fault tolerance. 99.995% availability. ~$1,100 per square foot.[7]

State agencies reported in a 2010 survey that there are 21 data centers in State government taking up 45,476 square feet of space. Using the Uptime Institute's Tier ranking those data centers are broken down as follows:

Tier Level	Locations	Square Feet
Four	0	0
Three	0[8]	0
Two	1[9]	13396
One	20	28262

The current IT infrastructure of the State of Kansas is split between multiple locations with varying access control and support levels.

Problems associated with Status Quo:

Having the State's IT infrastructure spread across many different locations provides a number of problems.

Data centers are not cheap to operate and maintain. In the middle of a recession, capital improvements and investments to data centers are often not a high priority. Maintaining many agency run data centers dilutes the already small amount of money for data center improvements. Money would be more efficiently spent to maintain a smaller number of data centers. This capital improvement issue has been illustrated in the past year in the following two visible events:

- The State's primary Topeka data center had to be powered down last December for required maintenance to the buildings electrical system. Best practice would be to have multiple electrical feeds into the building to avoid the need for the entire data center to be powered down.
- Both the State's primary and secondary Topeka data Centers' uninterruptable power systems (UPS) are running at maximum capacity. These UPS's provide power to equipment if the electricity to the building fails. An agency recently needed to put more equipment in one of those data centers, and before they could install the equipment a $400,000 upgrade to the UPS had to take place.

[7] "Data Center Site Infrastructure Tier Standard: Topology" Uptime Institute, LLC. 2010.
[8] Four data centers were self classified as Tier 3 in surveys, but do not meet Uptime Institute's definition of a Tier 3 data center.
[9] Four data centers were self classified as Tier 2 in surveys, but do not meet Uptime Institute's definition of a Tier 2 data center.

These two events expose risks in the current IT infrastructure. First, no state data center is fully redundant. Every data center has at least one single point of failure. If a failure occurs in one of those points, the entire data center could go down. State data centers are primarily in facilities that were never built with the intention of being data centers. Second, there are duplicated purchases and maintenance occurring in our infrastructure. Third, staffing 21 different data centers leads to redundant and distributed employees scattered across different agencies and physical locations.

The high cost and maintenance of data centers leads some agencies to use non-data center space to host critical computer systems. These areas can be dedicated "server rooms", "wiring closets", or even normal office space. Having critical computer equipment in non-data center areas can lead to a greater risk of service interruption and compromise.

In a 2010 survey conducted for this report, state agencies provided information on the state of their data centers and associated infrastructure. This survey showed the data center infrastructure in the state is aging:

Equipment[10]	Number	Average Age	# >9 years old	Maximum Age
PDU	44	13.3 years	9	40+
UPS	69	5 years	4	18
Generators	18	10.6 years	6	40
Air Handlers	64[11]	16.7 years	13	35

Consolidation Options:

When examining the possibilities for Data Center consolidation these are the different options to consider:

Centralized State data center operation in two facilities

Kansas could look at investing in two data center facilities that could provide the production and backup environments for state agency's computer equipment. These data centers could be built, leased, or bought. This option builds upon the past success that DISC has achieved in consolidating data centers and providing centralized data services. This option should be sized to include the capabilities that are necessary to cover all branches, all agencies, and all hosted solutions for Kansas.

DISC was asked to provide a rough estimate on the size of any new data centers in 2010 by the Legislative Post Audit. Using a methodology that included looking at current computer equipment, industry trends, and other state facilities DISC determined new data center space requirements are estimated to be:

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[10] What is not shown in this table is that the core electrical infrastructure in many of these facilities is greater than fifty years old. This limits the expandability to support modern electrical demands as the core infrastructure and wiring is not able to support these demands.

[11] Note that 20 of these 64 air handlers were listed as "unknown" by agency responses.

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PRIMARY CENTER		SECONDARY CENTER	
RAISED	14,176	RAISED	11,600
MECHANICAL	3,544	MECHANICAL	2,900
STAFF	4,000	STAFF	2,000
Total sq ft	21,720	Total sq ft	16,500

Determining actual size necessary will require a further study, but this number is a good estimation of data center space needed.

DISC also provided a cost estimate for these new facilities. The cost of this new data center investment is based upon pricing models from various past building projects of this type and scope. These numbers should only be considered estimates.

	Low	Mid	High
Primary	$17,011,758	$32,024,634	$42,529,395
Secondary	$13,918,711	$26,201,973	$34,796,777
TOTAL	$30,930,469	$58,226,607	$77,326,172

There is significant difference between the proposed floor space needed (25,776 square feet) and the current floor space being utilized (53,000 square feet). The difference can be contributed to the following areas:

- Reduction in physical space needed by using best practice server and storage technology
- Reduction in floor space needed by using updated power and cooling technology
- This proposal does not include Regents institutions.

An architectural and engineering analysis of data center needs must occur to get more accurate requirements and cost. There are many unknown issues in the current legacy data center environments, these legacy requirements will need to be taken into account when scoping out the data center project.

Centralized State data center operation in two facilities, regents DR capable

This option is exactly the same as the option presented above but it extends the data center to accommodate the regents institutions using one or both of the data centers as their disaster recovery site[12].

DISC was asked to provide a rough estimate on the size of any new data centers in 2010 by the Legislative Post Audit. Using a methodology that included looking at current computer

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[12] This option could also extend to local governments and school districts. In both cases, the actual size of a data center to provide this service is unknown. Further study would be necessary to determine the requirements, feasibility of this option, and if DISC could provide these services legally. What is known is there is support for local government and school districts for this option.

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equipment, industry trends, and other state facilities DISC determined that new data centers should be the following sizes:

PRIMARY CENTER		SECONDARY CENTER	
RAISED	21,265	RAISED	17,398
MECHANICAL	5,316	MECHANICAL	4,350
STAFF	4,000	STAFF	2,000
Total sq ft	30,581	Total sq ft	23,748

DISC also provided a cost estimate for these new facilities. The cost of this new data center investment is based upon pricing models from various past building projects of this type and scope. These numbers should only be considered estimates:

	Low	Mid	High
Primary	$25,517,637	$48,036,951	$63,794,092
Secondary	$20,878,066	$39,302,960	$52,195,166
TOTAL	$46,395,703	$87,339,911	$115,989,258

An architectural and engineering analysis of data center needs must occur to get more accurate requirements and cost.

The Regents could also use each other's current data centers as recovery sites. This is a valid alternative since they are all connected using the KanREN network and some universities have available space to host more computer equipment.

Upgrade existing DISC data centers

DISC currently provides data center space in three locations (two in Topeka, one in Wichita). If a data center and server consolidation strategy wanted to leverage the current data center space there would be required upgrades to the Topeka data centers. In order to understand the upgrades required, you must look at the following critical infrastructure areas:

Data Center	Electrical	Floor Space	Air Handling
Topeka I	Upgrade needed to UPS	800 square feet available, with current architecture	Upgrade not needed
Topeka II	Upgrade needed to USP	No space available	Upgrade needed to handle more equipment
Wichita	Upgrade currently not needed	2500 square feet available	Upgrade not needed

There would be a considerable investment needed to fully utilize the unused floor space in the Topeka I data center. Topeka II data center was never built to be a functional "hot-site" data center, but it has evolved over time to be utilized in that fashion and it is currently at capacity. The Wichita data center could be used right now to host more state computer equipment, but hosting primary agency computer equipment in a remote location without onsite staffing leads to administrative challenges when physical maintenance needs to occur to that equipment.

With upgrades to the electrical and UPS systems in the Topeka I data center, there could be opportunities for limited data center and server consolidation. Another option would be to have DISC use the Eisenhower State Office Building data center space for additional limited consolidation opportunities. In a 2010 audit, the Legislative Post Audit agency suggested that DISC use the extra space in the Topeka I data center to build a server virtualization service that small and medium sized agencies could subscribe to. This service could be a beginning step to eliminating some data centers and server rooms. More information on server virtualization will be discussed later in this study.

DISC could also use extra data center space in Topeka I data center to host centralized applications such as eMail for all state agencies to use. This service could be a beginning step to eliminate the redundant eMail systems in state government. More information on eMail and shared application consolidation will be discussed later in this study.

None of these strategies can be fully implemented without upgrades to the existing data center infrastructure. An engineering study on current data centers would be required to determine exact cost of these upgrade. The estimated cost of an UPS upgrade to Topeka I data center would be at least $500,000. This number is based on a current project to upgrade the UPS system at Topeka II data center.

Outsource the operation of State data centers

A growing trend in IT is to outsource the operations of data centers to third party providers. Many states and private companies are moving to this strategy. According to our research, the successes of these strategies are mixed. While there are some groups claiming significant cost saving associated with outsourcing data center operations, the management of the contracts and cultural complexity makes the management and administration of this solution a huge barrier. Forrester Research recommends that organizations first understand the cost complexities in their current environment before outsourcing.[13] In most cases, the expected savings are not as great as the actual savings; and in some cases cost more.

There is also resistance to this strategy by state agencies. In a data center survey conducted for this study, outsourcing of state data centers was the least favorable scenario. This is due to the uncertainly of where servers would be hosted in this scenario, and the increased perceived risk of outages, decreased service levels, and security compromises.

Outsourcing of IT is continuing to grow in popularity in the industry. Kansas should not look at outsourcing data center operation at this time due to the reluctance of state agency leaders and the mixed level of success from other states. It is anticipated that data center outsourcing's maturity will continue to grow in the future. When that happens, its feasibility should be reevaluated.

Continue Status Quo

Agencies currently have the option to host their computer equipment in any fashion they wish. This has led to over 100 unique places where computer equipment is being hosted. This strategy could be continued.

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[13] "Best Practices In IT Financial Management" <u>Forrester Research</u>. September 15, 2010.

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This option's benefit is that it allows state agencies the most flexibility in determining their needs for their computer equipment. If they want to assume the risk of not having computer equipment in a data center, or if they would rather build their own data center agencies have that option.

Continuing the status quo leads to redundant investments, staffing, and infrastructure. There is no standardization across agencies and it makes visibility on IT investment difficult. As discussed earlier, the current data center and server room makeup in the state has ageing support infrastructure and most of the spaces were never architected to provide critical redundancy. Equipment is nearing its end of life and to continue the approach a considerable amount of money will need to be invested in each agency data center in the near future.

While this strategy is the easiest to manage and administer, continuing on this strategy increases the Kansas' risk to outage.

Recommendations:

The State of Kansas' data center infrastructure is aging, decentralized, and uncoordinated. Multiple unique facilities each with their own staffing, maintenance, and support poses a great risk to Kansas. Continuing the status quo significantly increases the likelihood of major IT system failure.

The current data center infrastructure is not conducive to a robust IT consolidation strategy. The buildings that host our data centers were not constructed with the unique needs of a data center in mind. All current facilities have one or more single point of failure. Many of the key components are aging and will need to be replaced.

The State of Kansas should invest in two new data centers: One primary data center located in the Topeka area, and one secondary data center located on or near one of our universities. Once the data centers are built, all state agencies should begin a transition into these new data centers and abandon their old data center space. Estimated investment needed is approximately $58 to $96 million.

The Regent's Universities should consolidate their data center needs into one primary data center per university. They should use other university's data center facilities as disaster recovery locations. Before the statewide secondary data center is architected and designed an investigation should be done with universities, local government and school districts to determine if there is interest for these groups to use a statewide secondary data center. Because of the unique business relationship between the regents institutions, the regents should not be mandated to consolidate in the statewide primary data center.

The upfront cost associated with building, buying, or leasing a data center will be high. This cost will be difficult to justify in the current economic conditions, but having a centralized facility is the cornerstone to more robust IT consolidation initiative. In the current data center infrastructure there is limited capacity to consolidate servers, storage, and applications. The State's current primary data center does not have the UPS capacity to support more equipment, and there are issues with the amount of weight the floors of the data center can handle. The State's current secondary data center does not have the electrical capacity or the floor space to support additional equipment.

Without statewide data centers that have the proper capacity and architecture, it is unlikely that efficiencies and savings could be realized by consolidating servers, storage, and applications. Some

steps toward consolidation could occur without new data centers[14], but the opportunities will be limited and cost savings will be minimal. Providing Kansas with adequate data center space a critical step to achieve consolidation of IT.

SERVERS

Overview and Status Quo:

Servers are pieces of computer equipment that run applications to provide access to essential services[15]. The State of Kansas has 4252[16] servers. They are broken down as follows:

Branch	# doing virtual	Planning	# servers	Locations
Executive	17	7	1953	76
Judicial	0	0	12	1
Legislative	1	0	25	2
Regents	6	1	1409	27

There are many different classes of servers. Servers come in all shapes and sizes. The biggest servers are called "mainframe computers". Mainframe computers are "powerful computers used mainly by large organizations for critical applications"[17]. The State of Kansas has one mainframe computer hosted by DISC in Topeka that all state agencies that require mainframe computing use. This consolidation happened in the 1990, resulting in a standard platform, reduced FTE cost, and reduced cost for mainframe services.

Midrange computers are "a class of computer systems which fall in between mainframe computers and microcomputers"[18]. The State of Kansas still has many servers that fall into the midrange category. The numbers of midrange servers are not increasing in the state's current environment. The low cost of microcomputers and blades along with the trends of purchasing off the shelf software and utilizing server virtualization has stunted midrange growth.

Microcomputer servers are high powered computers that resemble what most people will consider a personal computer. They have the same type of construction and components. Blade servers are a type of microcomputer server that removes the physical storage on the server to decrease the physical size of the server. The storage requirement of a blade server is centralized into a Storage Area Network (SAN). Blade servers are often used in server virtualization strategies.

Most of the current growth of servers in Kansas is due to rapid escalation of microcomputer servers and blade servers. The number of servers in state government has grown at a rate of 13% over the last nine years. The following chart shows this growth:

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[14] These initiatives include Server Virtualization, Email Consolidation, Identity Management Consolidation, and all enterprise procurement strategies.

[15] "Server (computing)" Wikipedia. Accessed October 5, 2010. Available at: http://en.wikipedia.org/wiki/Server_(computing)

[16] "Annual Summary of Three-Year IT Management and Budget Plans" Kansas Information Technology Office. January 2010. Available at: http://da.ks.gov/kito/cita/itmbp/3YR_ITPlans/FY10-12PlanSumm.pdf.

[17] "Mainframe Computer" Wikipedia. Accessed October 5, 2010. Available at http://en.wikipedia.org/wiki/Mainframe_computer.

[18] "Midrange Computer" Wikipedia. Accessed October 5, 2010. Available at http://en.wikipedia.org/wiki/Midrange_computer.

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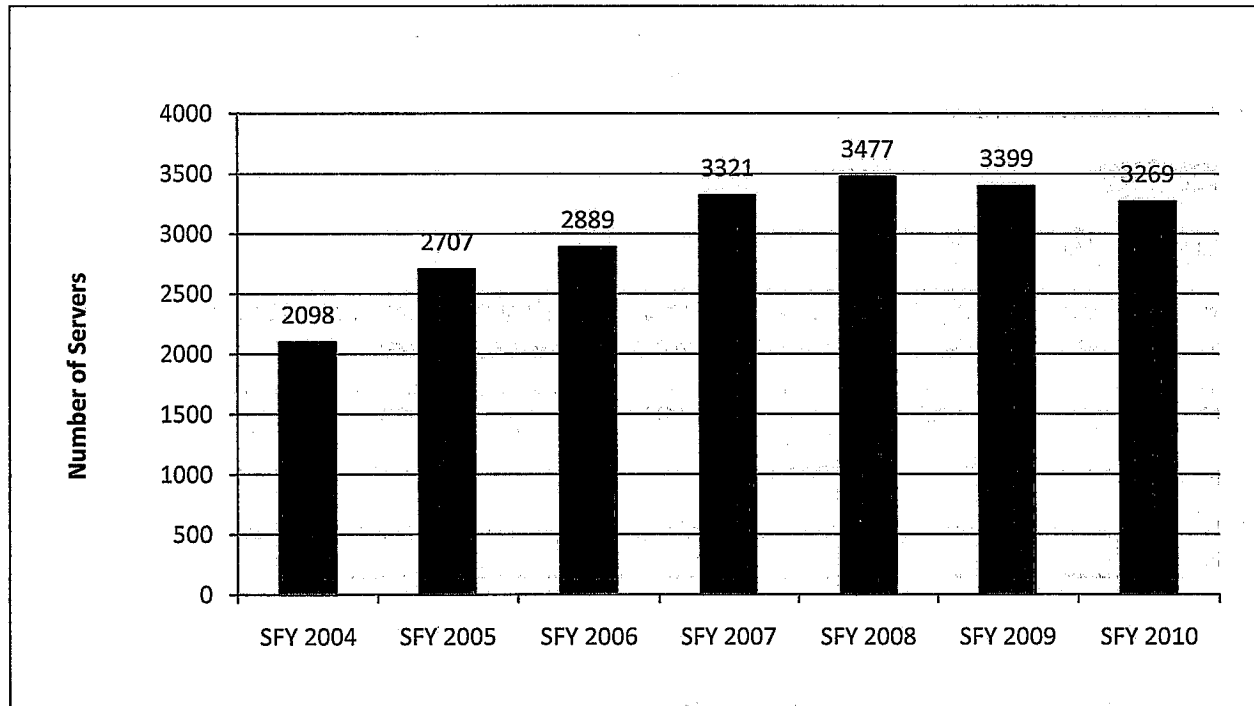
This rapid escalation in server numbers is due, in part, to three major trends in the IT industry. First, the cost of computer equipment continues to decrease, making it more cost effective to deploy servers. Second, the number of server based applications and services have increased dramatically. This increase requires more servers to run the applications. Third, there has been an industry wide transition away from mainframe computing and midlevel computing. All of these trends lead to more utilization of microcomputer servers and blade servers.

As a way to solve the proliferation of new servers, a new server deployment model called server virtualization has been growing in popularity. When you use server virtualization, you use one physical server and divide it into multiple virtual servers. In the last three years the State of Kansas has seen the number of virtualized servers grow from 168 to 983.

You cannot virtualize every server. Servers that run application with high input/output, like database servers are not usually seen as candidates for virtualization. Some purchased applications do not support their products in a virtualized environment. Domain controllers are also not recommended for virtualization. As virtualization becomes a more mature technology, it is expected that some – if not all – of these issues will be resolved and the majority of microcomputer based servers could run on a virtualized platform.

Problems Associated with Status Quo:

Demand for servers will continue to increase over time. Over the past nine years, servers have grown 13% per year on average. This trend is likely to continue. Virtualization holds some benefits that will allow keeping the cost curve flatter than the server growth curve for a few years. If agencies continue to virtualize their servers at their current rate there will be a point of diminishing return happening in

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[19] "Annual Summary of Three-Year IT Management and Budget Plans" Kansas Information Technology Office. January 2010. Available at: http://da.ks.gov/kito/cita/itmbp/3YR_ITPlans/FY10-12PlanSumm.pdf.

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FY2014. At this point, the virtualization strategy will reach a saturation point and costs for servers in agencies will begin to escalate without a larger IT consolidation strategy. In short, virtualization currently keeps the cost of server growth in check by allowing for more computing power to be gained from less physical servers, but the demand for servers will outstrip the ability to virtualize servers by FY2014. The following chart shows this curve:
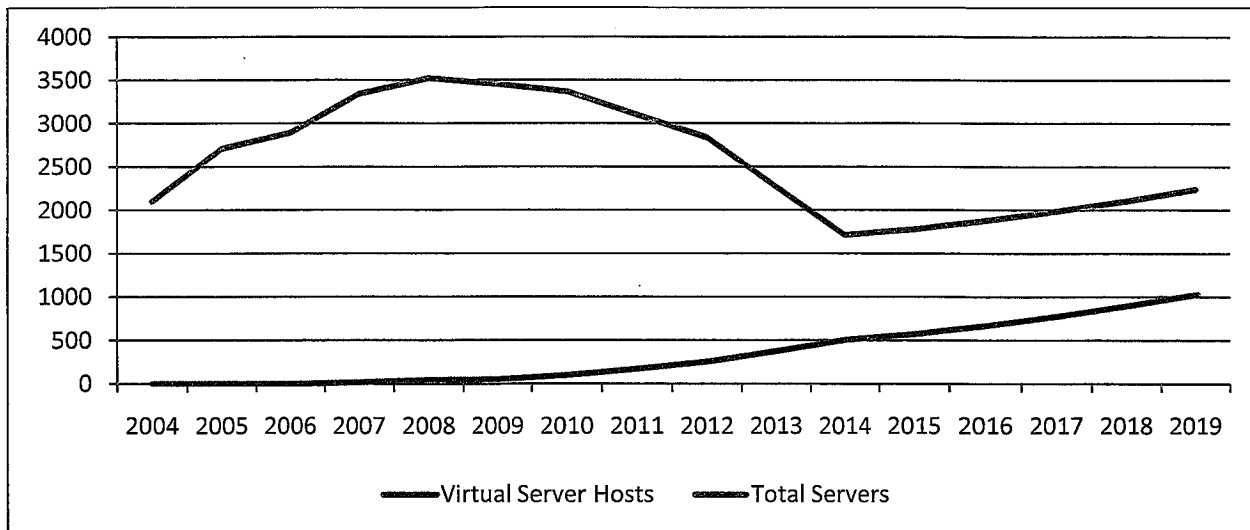
The current server deployment model is not as efficient as it could be. State agencies are hosting their 4252[20] servers at over 100 different locations. Administration and maintenance of these servers is distributed across all these agencies. 38 agencies are actively pursuing server virtualization. There are considerable upfront costs associated with virtualization. Specific hardware is required, and personnel need to be trained to effectively utilize virtualization. Having this hardware and personnel spread across many different state agencies is inefficiently using state resources.

Allowing each agency to purchase and deploy their own servers lead to no uniformity in what servers are being run in Kansas. In addition, the state is not leveraging its buying power when purchasing servers. Agencies procure servers in isolation.

Consolidation Options:

Consolidation options for servers fall into one of three categories. The first category is on the location of the physical servers. The second category is on server virtualization. The third category deals with the procurement of servers and could start happening immediately. The location of physical servers option depends entirely on the availability of data center space. Robust centralization of physical servers will require increased data center availability in Kansas. Server virtualization strategies can take place without new data center space and could start happening immediately. When examining the possibilities for Data Center consolidation these are the different options to consider:

Agencies continue to virtualize servers

Virtualization has been a continuing trend in state agencies for the last three years. In that time, virtual servers have grown from 168 to 983. The 2010 audit report from the Legislative Post

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[20] "Annual Summary of Three-Year IT Management and Budget Plans" <u>Kansas Information Technology Office</u>. January 2010. Available at: <u>http://da.ks.gov/kito/cita</u>.

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Audit agency estimated $600,000 in savings have been achieved from server virtualization, and an additional $979,000 to $1,300,000 in additional savings could be realized from more server virtualization. Additional benefits from server virtualization include reduced data center space needed to host computer equipment, decreased power consumption, decreased hardware costs, and increased flexibility and agility.

One consolidation option would be for agencies to continue to virtualize all appropriate servers. Agencies that have not begun virtualization could develop a strategy to begin virtualizing all appropriate servers.

DISC provides a Virtual Server service for state agencies to use

In March of 2010, DISC presented to the Information Technology Advisory Board its plans to offer a virtual server service for agencies to use. After this presentation, there were four state agencies that immediately inquired about using the service. At this time DISC has not finalized the service, but they are making steps to start providing this service to agencies soon. DISC has the hardware and software required to provide this service purchased. DISC can begin providing virtual servers to agencies as soon as the service offering is finalized.

When DISC finalizes this service, agencies that have not begun server virtualization could begin to take advantage of this service. This would save state agencies on the upfront costs associated with hardware and software purchases along with the costs associated with training staff on virtualization. Agencies that have started virtualization could look at transitioning to the DISC service when their virtualization hardware is at end of life, or when new investments are needed to their virtualization infrastructure.

All Physical Servers moved immediately to DISC hosted data center

All state agencies could move their servicers into statewide data centers if the State of Kansas invest in new modernized data center facilities. This would allow for the current 21 data centers, 16 server rooms, and 55 other sites to be eliminated in a short amount of time. It would also be the only way to make investments in the new data centers economically viable. Having massive amounts of extra space in the new data center, while agencies are paying for inferior data center or server room space elsewhere would be redundant and inefficient use of state resources.

Physical Servers moved incrementally to DISC data center

Another option for physical server consolidation would be to move physical servers and computer equipment incrementally. Once the data centers are running, DISC could develop a roadmap for agencies to transition their servers into the new environment. The most logical time would be when current servers hosted in the agency data center are scheduled for a technology refresh. Instead of installing new servers into the old agency run data centers and server rooms, the servers would be installed in the new centralized data centers.

This option ensures that the old agency server rooms and data centers will be operational for at least five years past the construction of the new statewide data centers. A strategy that prolongs the usage of these aging facilities is not in the best interest of Kansas. The slow transfer of servers to the new data center also causes financial problems in recovering the costs of the new data centers. A large initial customer base is needed to keep rates low for everyone.

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Recommendations:

The recommendations for server consolidation are three-fold:

First, agencies should continue to virtualize their servers. The Legislative Post Audit report from 2010 estimates that agencies could save $979,000 dollars if they continued to virtualize all appropriate servers. This recommendation can and should begin regardless of the state investing in new data center space.

Second, DISC should finalize their Server Virtualization Service as soon as possible. Once finalized, all agencies that have not begun virtualizing their appropriate servers should develop a strategy to utilize the DISC service as soon as possible. When the DISC service is available, all new agency investments in server virtualization hardware and software should be frozen without a waiver from the appropriate branch CITO, and those agencies should transition to the DISC virtual server service. The same LPA report estimated a potential costs savings of $1,300,000 if agencies used DISC's proposed virtual server service. This recommendation can initially occur regardless of the state investing in new data center space, but will not be able to be fully completed without either upgrades to the current state data centers or investments made into new data centers.

Third, all state agency computer equipment should be immediately moved into the new state primary and/or secondary data centers when they are completed. Individual agency data centers and server rooms should be phased out. No new agency investments should be made in agency data center and server rooms without a waiver from the appropriate branch CITO. This recommendation assumes that the state invests in new modernized data centers as outlined in this study.

STORAGE

Overview and Status Quo:

The storage capabilities in Kansas are similar to other public and private sector organizations. When Kansas was primarily operating mainframe-based solutions, storage was primarily disk and tape directly attached to the mainframe. Backup solutions were tape-based, and the backup tapes were sent off site for storage. Recovery was accomplished by sending the tapes to alternative mainframe sites and used to reinstall applications and data.

When agencies started moving toward server-based architectures, storage was kept very close to the server. It was either physically a part of the server or in the same rack. This closeness was due, in part, to vendor capabilities and performance benefits. Networks, at that time, provided the biggest bottleneck.

Storage demands continued to grow steadily, and as servers ran out of locally attached storage there was a transition to Network Attached Storage (NAS) and Storage Area Networks (SAN). This transition helped minimize the escalating cost of storage upgrades. Backups occur using tape, but can also be accomplished by replicating the data in the SAN or NAS in another location. SAN environments are expensive, require specialized skills to manage, and need a large server base to make economically viable.

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The State of Kansas owns a huge amount of data. Overall, there is in excess of 1.2 petabytes[21] of data in state government. Agencies are estimating that data is growing between 10% and 40% per year in their agencies. Forrester is seeing 30% to 50% percent growth across all organizations.[22] If this growth pattern continues the state will be responsible for 5 to 8 petabytes of data in 2015, with the majority of that data being unstructured content.

These 1.2 petabytes[23] of data are stored in a wide variety of solutions. State agencies reported over 68 different unique storage devices running in the current environment. Due to incomplete survey results and participation, it is estimated that the actual number of storage devices running is over 200 and over 2 petabytes of total storage capability.

The following is a breakdown of the amount of data stored in state government:

Branch	Terabytes of Data	# units	Average age
Executive	832	45	2.5
Judicial	5	2	5
Legislative	85	6	3.5
Regents	344	15	2

Agencies have reported that nine different vendors are providing 66 different SAN environments in Kansas. Agencies have also reported that they are seven different vendors providing nine different NAS solutions. Additionally, there are eighteen different tape backup solutions. Each agency has a their own storage and backup environment. They vary in size, capacity, and age.[24] It is unknown how many FTE are involved in the management and administration of these redundant storage environments. The perception exists that most large and many medium sized agencies have dedicated staff assigned to storage management and administration. The smaller agencies either use partial FTEs or outsource their storage administration.

Storage Types / Manufacturer	# of	Raw Capacity (TB) - reported
NETWORK ATTACHED STORAGE (NAS)		
Buffalo	1	4
EMC	1	
Lacie	1	1
Microtech	1	1.4
NetGear	2	8
SUN	1	2.314
Data Domain	2	32
STORAGE AREA NETWORKS (SAN)		
Dell	15	205.15
DNF	2	26
ecologic	1	5

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[21] A petabyte is 1,000 terabytes or 1,000,000 gigabytes.
[22] Andrew Reichman. "How Efficient Is Your Storage Environment?" Forrester Research. October 22, 2009.
[23] This number does not include tape backup systems.
[24] See Appendix C for details.

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Storage Types / Manufacturer	# of	Raw Capacity (TB) - reported
EMC	14	218.6
EqualLogic	3	80
HP	2	15
SUN	9	71.314
Xiotech	18	530.609
Cisco	2	
Virtual Library System		
HP	1	59.98

DISC has the ability to provide data as a service to state agencies. They host a SAN in Topeka which has 48 terabytes of capacity. In addition to the raw storage capability, DISC also has a data de-duplication service and a backup management solution. They can replicate data and storage environments between all three DISC managed data centers. The cost of fully managed storage is $0.002 per megabyte per month.

Problems associated with Status Quo:

There are problems that arise when multiple agencies are all involved in purchasing, deploying, managing, and administering the same technical solution. Maintaining compatibility between devices is a constant battle in these situations. Recovery capability must be developed and tested for each of the solutions. Duplicated effort concerning patch management and firmware upgrades happen. Growth must be accounted for in each environment leading to the right size for each individual solution, but this leads to dramatic overbuild in the enterprise. Bandwidth needs are increased to accommodate each agency's backup and recovery solution.

The current system allows for a duplication of talent and skills across state agencies. Each vendor-supplied solution requires different training, management tools, and hardware. So investments are being duplicated by agencies to get their agency to a level of maturity necessary to provide NAS and SAN solutions for their agencies. Also, each independent storage solution requires skills to utilize it properly in the different environments running in agencies. The different technical components of the state's architecture (operating systems, databases, networks, and security solutions) add complexity to the environment that require great knowledge. Keeping all the components up to date and synced over time is a constant challenge. Critical staff attrition is a huge risk in these agency-by-agency models. If the agency expert on storage leaves the agency, there is a high likelihood of service interruption.

Kansas currently has a significant number of products deployed for storage. When agencies purchase products in isolation the state does not leverage its buying power in the most effective manner. Joint purchases between agencies do happen, but this practice is an exception rather than the norm. New technology purchases are often linked to a new application or a new IT project. Some applications and solutions work better with certain vendors' storage equipment. As a result, line of business application and the storage infrastructure are sometimes packaged together. This is how multiple storage solutions can be present in the same agency. Allowing these purchases to be done individually by agencies is more expensive to the state over time.

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Agency purchases of SAN and NAS solutions also lead to duplicated equipment. For SAN and NAS to be most effective, recoverable, and secure there needs to be a mirrored deployment of the equipment. This means there must be two identical SANs: one primary SAN and one secondary SAN at a remote location. If one fails, you have a replicated second SAN that can be used. Most agencies are not able to have a fully redundant SAN environment. They are running a single storage solution and depend on tape backup for recovery. In this environment, recovering from a failure is a long and hard process. It takes time for the new SAN to be shipped, installed, configured, and loaded. After this happens restoring applications and data can begin. Unique devices in agencies put the enterprise at more risk for downtime.

Consolidation Options:

Consolidation options for storage are highly dependent on server strategy and network capability. It is possible to consolidate storage independently of consolidating servers if the network is capable of handling the traffic demands of servers running in one location and the storage running in another location. While possible, this is not a best practice and should be avoided. Servers should be hosted in the same data center that is providing storage for those servers.

Continue State Quo

Agencies can continue to find the best storage strategy for their technical architecture and negotiate for tools and products as necessary. Retaining the status quo allows the greatest flexibility for agency initiatives. Agencies perceive this as the option with the least amount of risk. But agency demands for data often outstrips the budget available for increased storage. This puts into place an unsustainable storage architecture that will need increased expenditures to maintain. If agencies fail to adequately fund the storage expansion there will be a risk of data outages, loss, and/or compromise. A more economical storage solution is needed.

The increased agency flexibility of the status quo leads to uncoordinated backup and recovery processes, provides integration challenges due to the wide variety of often incompatible solutions, and knowledge that cannot be transferred from one agency to another.

Purchasing storage in smaller units will keep storage costs high, and will not provide the economies of scale that an enterprise deployment could bring. Small and medium sized agencies will continue to have a hard time justifying the purchase of their own SAN technology and the ones that do will continue to have a difficult time keeping the technology maintained and up to date.

Even with the KITA establishing targets for storage components, agency approaches likely will not change in the status quo.

DISC provide central SAN access

DISC has a history of providing storage and integrating storage solutions to agency applications and technical architecture. They currently provide SAN storage to three agencies. But, the amount of storage that will be needed in a consolidated environment is at least ten times greater than what DISC is currently managing. This massive increase in storage capacity will require dedicated skills and more staff dedicated to storage management. However, consolidating storage will allow the state to leverage its full buying power and should drive

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down the overall cost of storage. Other states have seen up to a 50% drop in storage costs over a five year period in a consolidated environment.

The biggest challenge under this approach will be connecting the consolidated storage environment to the current application portfolio that exists in Kansas. These applications are running on servers distributed across 100 different locations in Kansas. Storage consolidation strategies go hand-in-hand with physical server consolidation and virtual server projects. When servers are moved into the centralized data center they should be considered candidates for using the consolidated storage environment.

IT employees that are experienced at managing storage exist in state government today. The expertise is spread out across many of our agencies. These experienced employees must be brought together as a single team and leveraged to deploy and manage storage for the enterprise.

Purchasing and contracting to leverage buying power

The state could establish upgrade and replacement cycles based upon the agencies aging storage devices and funded replacements. This could be the basis of storage product purchasing and negotiations and could be successful if agencies agreed to utilize the agreed upon solutions. But, if those solutions would have to be implementable within technical architecture in the different agencies. The current approach of using the products under contract only as an option will not get the best pricing and product scale that is needed to make this approach viable.

Recommendations:

DISC should provide central SAN access for all state agencies. This solutions should be architected with multiples tiers of storage to give agencies choices. Storage services should be provided from more than one vendor to avoid lock in.[25] The solution should be redundant and replicated to eliminate failure risks. All agency investments on SANs (including new purchases and expansions) should be frozen when DISC is ready to roll out this expanded storage solution. Agencies should be allowed to continue to run their current storage environment until it becomes end of life or a new investment is required. At that time, agencies should transition to the consolidated storage solution. Storage management professionals and technicians should be transferred to DISC when the agency is transitioning to the consolidated service.

It is recommended that this service has a governance body created to oversee the requirements, development, and pricing of the service and to manage the service's growth and evolution.

It is important to note that some agencies have storage uniquely configured to support a specific application or line of business[26]. Often this is due to specific funding sources and federal guidelines. However, other states have found that with a combination of policies, procedures, and transparency that all of these issues can be solved.

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[25] Andrew Reichman. "How Efficient Is Your Storage Environment?" Forrester Research. October 22, 2009.
[26] For example, Public Safety, Health, Education.

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ELECTRONIC MAIL

Overview and Status Quo:

Electronic mail is the most popular way of inter and intra office communication. Gartner contends that email and other types of unstructured content will continue to grow.[27]

The email in Kansas is currently managed in multiple different environments. There are at least 32 different email environments being operated in Kansas government. Agencies reported that 13 to 20 employees serve as email administrators across Kansas. The annual cost to maintain these environments is unknown.

Microsoft Exchange is the most popular email server. 23 agencies are using Exchange and 2 agencies have current or planned projects to move toward Exchange. 2 agencies are using Lotus Notes and 3 agencies are using Novell GroupWise. GroupWise and Notes are considered "twilight" products according to the most current Kansas Information Technology Architecture[28]. This means GroupWise and Notes should be considered end of life and no new investments should be made on those products. Six agencies are using other email platforms. Finally, there are two agencies that have a company outside of state government hosting their email in a "cloud" service.

DISC currently hosts 27 agencies' email. They are one of the agencies using Microsoft Exchange. DISC's email customers are mostly small agencies who do not want to take on the task of maintaining their own email environment. Most medium and large sized agencies host their own email services. In the last couple of years, some state agencies have considered using "cloud" based email services offered by companies like Microsoft and Google. Agencies no longer have to worry about maintaining their email environment. Google, Microsoft and/or other companies do that for them. DISC had never considered hosting medium and larger agencies emails, but they are now currently building the infrastructure to be able to provide this service to all state agencies.

Problems Associated with Status Quo:

Running separate agency email systems leads to redundant purchases, duplicated staffing, and inefficient communication.

Maintaining an email system is costly. A survey of state agencies conducted in 2010 concluded that what email is costing to the state is unknown, but it takes at least 9 to 20 employees to maintain. Cost is unknown due to not having specific guidelines for cost determination, including hardware, software, employee, and vendor costs. These costs include hardware and software that is being purchased for each agency system to provide the email service and also other additional applications to enhance security, provide email archiving, and other protection against spam and anti-virus. There is no uniformity in product choices between agencies and this adds unneeded complexity to the state email environment.

In 2003, Governor Sibelius wanted to send an email to all state employees. This was not possible with all the different email systems. DISC started a project to make a common email directory so the

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[27] "2009 U.S. Data Center Polling Results: How Users Are Evaluating and Deploying Emerging Storage Architectures and Technologies". Gartner Research. March 9, 2010.
[28] "Kansas Information Technology Architecture Version 11.2" Kansas Information Technology Office. July 2009. Available at: http://da.ks.gov/kito/cita/documents/KITA_Ver11.2_Final4.pdf.

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governor could send an all-state employee email. Because the current email environment is federated and spread out in all agencies this was a difficult project. Even as of today the initial vision has not been accomplished.

In 2007 the Governor of Nebraska, Dave Heineman, realized that having multiple agency email systems was a problem. Not having a uniform naming convention for all state employee in Nebraska caused confusion when citizens and businesses wanted to email employees. For instance, Kansas Department of Administration's emails addresses are firstname.lastname@da.ks.gov while the Kansas Secretary of State's email addresses are firstname@kssos.org and the Kansas Department of Transportation emails are firstnamelastinitial@ksdot.org. This was also a big issue in Nebraska. Governor Heineman wanted all emails for state employees to be firstname.lastname@nebraska.gov because when you interacted with a state employee you were dealing with the State of Nebraska not an individual agency.

Consolidation Options:

Continue Status Quo

The State of Kansas could continue to provide email on an agency-by-agency basis. This allows the greatest flexibility to agencies. They can determine what features are important to them and they can control their environments.

Email systems are getting more expensive to run due to the increased requirements of email, including e-discovery, anti-spam, and anti-virus needs. These requirements need dedicated staff and dedicated hardware. The increased overhead associated with running email is causing more agencies to consider moving to a cloud based outsourced email model. Continuing the status quo will see more agencies moving to cloud based or hosted services for email.

If the status quo is maintained, DISC needs to develop a per-mailbox email service for all state agencies to utilize. DISC needs to give agencies an additional option to third-party organizations cloud based email services.

Centralize all e-mail

The State of Kansas could centralize all email into one primary and one secondary email environment maintained and managed by DISC. It would require proper architecture, governance, and policies. Other states have proven that this can be a successful project. The issues related to centralized email have been overcome.

Outsource state email

The State of Kansas could outsource all state email. This would require contracting with a company like Microsoft or Google to maintain and manage all aspects of the email environment. Leveraging the size and economies of scale of the outsourcing organizations help to drive down the cost per mailbox of supporting email. This makes outsourcing email a low cost, attractive option. On the other hand, outsourcing opens a number of possible problems. First, state email will be stored in multiple locations around the country, rather than in Kansas. Second, it is uncertain how responsive cloud email providers will be if a legal hold is put on state email via an e-discovery request. Third, the migration from federated email to cloud email will be a substantial challenge. Each agency would have to migrate their systems.

Recommendations:

The State of Kansas should consolidate all executive branch email systems into one centrally managed system. DISC should build the infrastructure necessary to support one statewide email system. This includes the email servers, spam filters, e-discovery software, and all other necessary core infrastructure. The solution should be designed to allow for state agency personnel flexibility in provisioning their own email accounts and other lightweight email administration. Executive branch agencies should be the first agencies transitioned to the centralized email system. After successful migration of executive branch agencies, the legislative and judicial branches should evaluate using the centralized system.

The first consolidation project that Nebraska, Missouri, and Indiana underwent was to centralize their email systems. It took Nebraska 18 months to complete this project. Nebraska moved to two environments (one primary and one secondary). They run the new centralized email environments with five full time employees. Technical and financial benefits of email consolidation in Nebraska include:

- Moving from multiple platforms to one standard platform
- Technical staff no longer spending time resolving conflicts stemming from linking multiple independent systems
- Backup, security, and disaster recovery capabilities handled as a daily function of business and no longer dependent on agency-by-agency policies.
- Easier restoration and recovery of email
- Avoiding costly replacement of old agency email systems
- Consolidate purchases to ensure favorable pricing
- Decreasing total number of FTE used to administer email
- Fewer servers to run email and a smaller carbon footprint[29]

Indiana and Missouri have similar success stories with email consolidation. Email consolidation was a high profile, but relatively simple first step towards consolidation. Having a quick consolidation success helped gain buy-in from state agencies, and gave the central IT organizations knowledge and experience on how to conduct consolidation projects.

All three states illustrate that this is a feasible project that should be done for cost savings and increased citizen access to government. Like the other three states, Kansas' first IT consolidation project should be to centralized email. This project can happen without any other IT consolidation activities.

UNIFED COMMUNICATION AND COLABORATION

Overview and Status Quo:

The State of Kansas has a centralized phone system for the Topeka campus provided by DISC, all other government locations must obtain their phone service from local providers. This model has a chance to change with a current project to move the state to a unified communications and collaboration platform (UCC). UCC is a set of technologies that work together to integrate real time communication and non-real time communication. UCC is not a single product, but a set of products that provides a consistent unified user interface and user experience across multiple devices and media types. The following chart from Gartner shows what technologies are usually included in UCC discussions:

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[29] "Enterprise Exchange Email" Nebraska Office of the Chief Information Officer.

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Alternate Analysis
UC Reference Architecture: Functional View
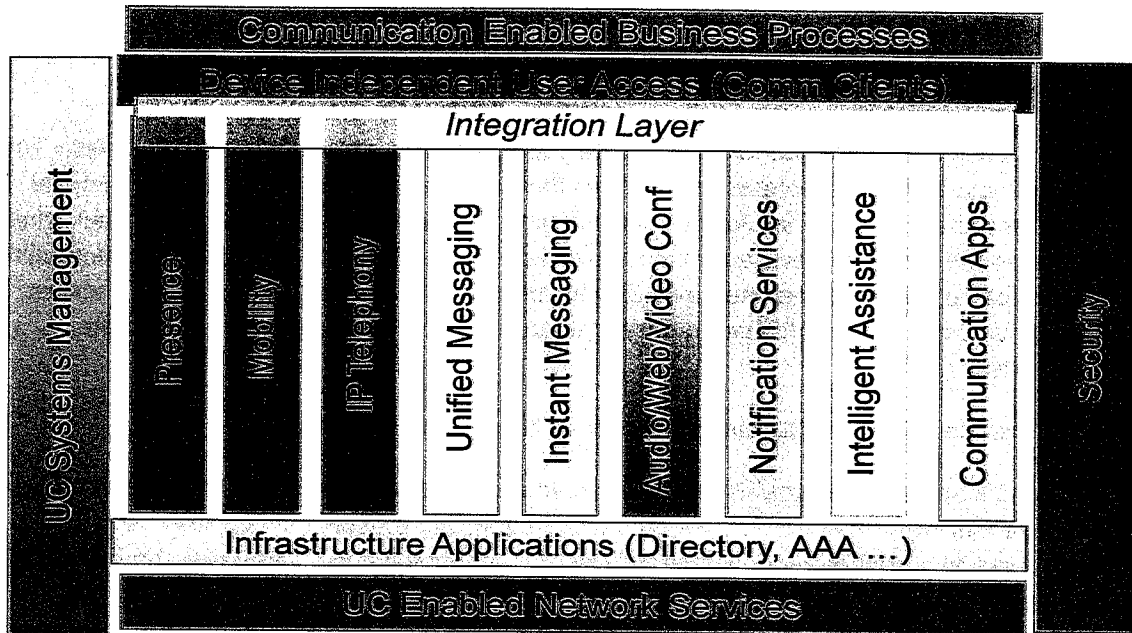
A number of drivers aided movement toward UCC. First, analog phone systems were being replaced by digital phone systems. Second, PBX and voice mail systems were nearing end-of-life. Third, employees and citizens were demanding better tools for communication and collaboration.

Some state agencies have been deploying solutions that would be considered UCC technology. There are even some agencies that have built mature practices around UCC technologies. For instance, the use of web meetings and conference calling has saved the state tremendous amounts of money on travel expenses. Voice Over IP (VOIP) has been installed in our universities which has saved money on phone support. Using Instant Messaging (IM) in the office environment has helped speed up communication and has aided cross-agency decision making.

In early 2010, DISC partnered with the Kansas Department of Social and Rehabilitation Services (SRS) to deploy an enterprise pilot of UCC. A multiagency advisory committee comprised of all three branches of government has guided this effort. The goal of this pilot project is to create a UCC service that can be rolled out to all of Kansas government.

Problems Associated with Status Quo:

The status quo allows each agency to deploy various UCC technologies independently. It would then fall on DISC to integrate all the different products together to ensure seamless cross agency collaboration and communication. These complexities would be expensive to manage. Allowing multiple different UCC technologies in Kansas would be of no benefit to the enterprise. While agencies may get a cost effective solution for their agency, the cost to integrate these federated systems would lead to a higher overall price for the enterprise.

Many agencies are facing a critical point because current PBX equipment is becoming end-of-life which will require them to upgrade to a new solution. If these upgrade investments are made in isolation there is a high likelihood they will not be compatible with the state's UCC deployment.

Consolidation Options:

Allow Every Agency and/or Facility to Choose own Solutions

Each agency could continue to use separate phone and data networks in their facilities. This would allow them to get the exact functionality they need at hopefully an attractive price. Some facilities costs to provide service to their customers and employees will be lower than others based on their requirements and the competition that exists in the local market. Since each UCC technology usually requires their own servers and infrastructure, having multiple agencies deploy UCC solutions could lead to major redundancy and more overall servers in the enterprise.

DISC Provide Common UCC technology for all Kansas Government

Under this option, DISC would be the lead agency in developing a solution that could be used by all of Kansas Government. DISC would build, deploy, and support this solution. When supported by a solid network infrastructure, UCC technologies can easily scale to the volume and geographic needs of the state work force. Bringing all of these solutions in together by one central organization will make them easier to support, and less costly to maintain. Kansas will avoid interconnection and incompatibility challenges associated with using multiple UCC vendors. This consistent UCC architecture can be leveraged to expand on other enterprise applications like Customer Relationship Management and call center solutions. A single, redundant, and recoverable UCC solution would be the most cost effective and most reliable option for Kansas.

Contract with third party vendors to provide UCC solutions to state agencies

If DISC does not provide the UCC solution for all agencies, at very least there must be some common solutions used by state government entities. This standardization will make seamless communication and collaboration between agencies more possible. This option should be constantly revalued and researched. Industry best practice is to bring your enterprise together on a single common solution, but after a common solution is used by the enterprise, organizations can then look at alternative solutions and support models.

Recommendations:

The state should move forward with DISC's current UCC project. The project's goal is to provide common UCC technologies for all state agencies. This common solution gives the state a tremendous foundation to build additional services on. Agencies will be able to collaborate better with each other, reduce overall communication costs, and integrate traditional voice services with other communication offerings. All of these benefits will revolutionize the way state government interacts with each other and with its businesses and citizens. This capability will enable a new generation of employees to be the most effective and efficient.

In order for this recommendation to be successful other components of this feasibility study also must be accomplished. KANWIN must complete its upgrade in order to support UCC. The state must also

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develop a common identity management framework that can identify and authorize employees access to UCC technologies. Email consolidation would make the integration of voice, voice mail, mobile devices, and email easier to accomplish.

Pilot projects are needed in these areas before they can be deployed to the enterprise. The skills and knowledge needed to support this type of solution will require additional training. Architecture and engineering work must continue to occur, and the state needs to stay up to date on where the industry is evolving. Skill development needs to be a priority.

IDENTITY

Overview and Status Quo: Agencies have gone through several generations of identity management technologies over the decades. The first generation occurred on the Mainframe, and many of these solutions are still running in Kansas. The next generation occurred with servers and server databases that all had unique identification requirements. Software licensing models included "named" users. The third generation occurred with the evolution of the personal computer and the ability for users to connect to larger networks. Novell Netware and Active Directory were the popular directory services used in this environment.

Today, a mix of all these identity technologies exists in Kansas. The Kansas Information Technology Architecture show that Microsoft Active Directory and LDAP are the most popular identification technologies in the state, but there are many other products being used:

38. Definition: Authentication / Single Sign-On refers to a method that provides users with the ability to log in one time, getting authenticated access to all their applications and resources Authentication / Single Sign-On Products

	Twilight	Current	Emerging	Target	Don't Know	Response Count
LDAP	5.9% (1)	82.4% (14)	11.8% (2)	17.6% (3)	0.0% (0)	17
Active Directory	5.0% (1)	80.0% (16)	5.0% (1)	20.0% (4)	10.0% (2)	20
Sungard CPIP	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	91.7% (11)	12
Sun LDAP	0.0% (0)	30.8% (4)	0.0% (0)	0.0% (0)	69.2% (9)	13
Central Authentication Service (CAS)	0.0% (0)	38.5% (5)	0.0% (0)	0.0% (0)	61.5% (8)	13
SharePoint SSO	0.0% (0)	38.5% (5)	7.7% (1)	7.7% (1)	53.8% (7)	13
Stone Ware Web Network	0.0% (0)	15.4% (2)	0.0% (0)	0.0% (0)	84.6% (11)	13
RSA SecurID	0.0% (0)	53.3% (8)	0.0% (0)	0.0% (0)	46.7% (7)	15
Microsoft NAS and CAVU e-license	0.0% (0)	15.4% (2)	7.7% (1)	7.7% (1)	84.6% (11)	13
Novell Servers	71.4% (10)	21.4% (3)	0.0% (0)	0.0% (0)	14.3% (2)	14

The focus of many of these authentication and Identification systems is to provide directory services. The following is the results of KITA survey on Directory integration products:

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43. Directory Integration Products

	Twilight	Current	Emerging	Target	Don't Know	Response Count
LM	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	90.0% (9)	10
Microsoft Windows Server 2003	35.3% (6)	47.1% (8)	5.9% (1)	5.9% (1)	17.6% (3)	17
Oracle OID	0.0% (0)	36.4% (4)	0.0% (0)	0.0% (0)	63.6% (7)	11
Microsoft Windows Active Directory	0.0% (0)	82.4% (14)	5.9% (1)	29.4% (5)	11.8% (2)	17
Sun iPlanet	11.1% (1)	11.1% (1)	0.0% (0)	0.0% (0)	77.8% (7)	9
LDAP	0.0% (0)	73.3% (11)	6.7% (1)	6.7% (1)	20.0% (3)	15
Open LDAP Directory	0.0% (0)	61.5% (8)	0.0% (0)	0.0% (0)	38.5% (5)	13
Novell eDirectory	54.5% (6)	36.4% (4)	0.0% (0)	0.0% (0)	18.2% (2)	11
Novell Identity Manager	45.5% (5)	18.2% (2)	0.0% (0)	0.0% (0)	36.4% (4)	11
Oracle Internet Directory	9.1% (1)	27.3% (3)	0.0% (0)	0.0% (0)	63.6% (7)	11
Novell OES 1 Netware 6.5	70.0% (7)	10.0% (1)	0.0% (0)	0.0% (0)	30.0% (3)	10
Microsoft Exchange	5.9% (1)	70.6% (12)	5.9% (1)	11.8% (2)	23.5% (4)	17
Other (please specify)						0
answered question						19

Forrester contends that AD has remained the backbone of identity infrastructure for the last decade[30] and it has grown to be an enterprise-class directory used by many organizations as their primary directory.[31]

Agencies that are using Active Directory each have their own Active Directory implementation to authenticate its users. This AD implementation may include agency staff, contractors, temporary staff, business partners, and/or clients. There are several dozen AD implementations running in Kansas today.

Kansas has an official governance committee dedicated to identity management. The Information Technology Identity Management Workgroup (ITIMG) is chartered by the ITEC and is chaired by the Secretary of State's Office. This group has implemented one specific identity management technology, called Public Key Infrastructure (PKI), which is used in Kansas government. PKI is a technology that uses digital signatures and certificates to provide high level of trust in communication. Kansas PKI has been authorized to work with the Federal Government's PKI system, and can be used as a bridge to communication with any other PKI system that is also authorized to communicate with the Federal Government's PKI system. Kansas PKI has been recommended by the Kansas eHealth Advisory Council (eHAC) for use as the identity management technology for the Kansas Health Information Exchange project.

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[30] "Active Directory Q&A: Demand Rises" Forrester Research. August 11, 2009.
[31] "The Forrester Wave: Active Directory Management Solutions, Q4 2007" Forrester Research. December 6, 2007

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Problems Associated with Status Quo:

Active Directory environments in agencies lack a consistent approach. This makes data exchange between agencies difficult. This difficulty became apparent when the state attempted to extract data from agency AD environments to load email information into the statewide Human Resources system. If an employee needs information from five different agencies, it will require five different user accounts on each system to get the needed access. Making this task even harder is each agency has different username standards, password policies, timeouts, and restrictions. The National Association of State CIOs identified authentication as a major problem in government information sharing in a 2004 report[32].

Since cross agency information sharing must still take place, manual methods for employees to share information become commonplace. This often happens by one agency copying its data to another agency. It then becomes the second agency's task to ensure the data is accessed properly and is secured. This not only creates a security risk, but also creates redundant information, increased costs due to data replication and movement, and inconsistent reporting due to data extraction differences.

The scope of the identity issue encompasses four main entities:

- Employees of state government
- Businesses that do business in Kansas
- Citizens that interact with state government
- Other governmental entities (federal, other states, local)

Every agency is charged to implement their own identity management, with no standards or strategies on a statewide level. This means there is no connection between centralized applications (like human resources and accounting) and agency domain access. There are different usernames and passwords in both environments. Also, there is no connection between physical facility access and digital access. State of Kansas employees have a myriad of different usernames and passwords to manage and remember.

This lack of identity management also has an effect on businesses in Kansas. Since every agency and -- often times – applications have different identity management mechanisms a single business can have over a dozen different identities in state systems. These are systems they access throughout the year for different reasons. The Secretary of State and the Department of Revenue are using the statewide PKI service to help decrease this complexity to businesses by standardizing on a single identity solution. Use of this service is not widespread and should be considered exceptions, not the rule in Kansas.

Individuals have access with state agencies and have the same identity issues of employees and businesses. If an individual has multiple interactions with state services, they probably have multiple identities associated with them in state applications.

Local government employees have the same challenge as state employees since they work on State systems. Replicating all of these identity management capabilities across all of the local government entities in Kansas is costly and ineffective. It leaves the local government with a greater risk for fraud and abuse.

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[32] "Who Are You? I Really Wanna Know: E-Authentication and its Privacy Implications" National Association of State Chief Information Officers. December 2004.

Having different identity solutions in individual agencies causes confusion to our employees, businesses, and citizens. In 2007, the Chief Information Technology Architect conducted focus groups with citizens, business leaders, and IT leaders in Hays, Liberal, Overland Park, and Wichita for the Strategic Information Management Plan[33]. In those discussions, the participants commented that the multiple different connection points into state government was troubling. It made dealing with the state more complex, more frustrating, and slow. This causes them to reenter the same information multiple times for multiple agencies. This causes confusion to our citizens trying to get services, redundant entry of data, multiple identities, and decreased level services to our citizens[34].

Consolidation Options:

Continue Status Quo

Agencies would be responsible for their own identity management. This option gives agencies the full flexibility to solve their own identity issues. It also allows all the existing problems of the status quo to continue. Innovation will occur at the agency level. Cost over time will be greater in this option.

Cloud Based Identity Solution

Use a third-party identity solution hosted in the "cloud". This option would hand off the administration and management of the identity management for Kansas to a vendor. It would leverage their expertise, and Kansas would only have to subscribe to the service. At this time these hosted or cloud-based identity solutions are not perceived to be stable enough for statewide adoption. This option should be revisited in three to five years.

One Statewide Identity Management Solution for Employees

Kansas could move to one statewide identity management solution[35]. This could be done in a number of ways using different technologies. Establishing a oversight group to assist with this transformation and to define the enterprise role model structure for information sharing would be essential to this option.

One Statewide Identity Management Solution for Businesses

Leverage the knowledge that exists with the Kansas Business Center and develop a roadmap to accomplish their vision of a collaborative business portal. This option will support an enterprise view of documentation and reduce the complexity and silos that exist in the current support of Kansas businesses. The ITIMG should continue to develop their risk matrix and determine a limited set of identity solutions that all agencies should use for government to business interactions.

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[33] "Strategic Information Management Plan" Kansas Information Technology Office. January 2008. Available at: http://da.ks.gov/kito/cita/simpln/SIMPLAN_2008_Final.pdf.
[34] "Who Are You? I Really Wanna Know: E-Authentication and its Privacy Implications" National Association of State Chief Information Officers. December 2004.
[35] While it is perceived that the solution described above will support all employees, it is recommended that the oversight group conduct various pilot projects and do full analysis to develop a holistic State Employee identity management plan and product roadmap.

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Expand all Statewide Identity Management Solutions to Local Government

This option would require Kansas to implement a common identity management solution. It could them be extended to the local government entities in Kansas. If this option is preferable, local government should be included in the requirements and design phases of the statewide identity management solution.

One Statewide Identity Management Solution for Individuals and Citizens

This is not a new concept. The Federal government's REAL-ID program is an example of a nationwide identity management solution. Like the other identity management solutions, there should be a statewide direction, and the ITIMG should oversee the development of this solution.

Recommendations:

The State of Kansas should consolidate into one centralized Active Directory (AD) system for all executive branch state agencies. This solution should be architected to allow for agencies the ability to add, modify, and change their own employees. This centralized AD architecture is a Gartner recommendation and industry best practice.[36] Regent Universities, Legislative, and Judicial branches of government should consider using the centralized AD solution once the executive branch is fully migrated to the new solution. This project should occur regardless of any other IT consolidation strategy. All state exchanges with local government, business, individuals and federal government should use the Kansas PKI solution.

The State should move toward a HSPD 12- type of model for all employees, contractors, temporary staffing and contract employees. Kansas should also establish a strategy and roadmap for single-sign on and other application authorization topics. The ITIMG should lead both of these projects.

The State should charge the Kansas Business Center and the IT Identity Management Workgroup to create a roadmap outlining a common approach to government-to-business exchanges including how to share a common identity between systems. This roadmap should guide all system investments, upgrades, and enhancements. This will make Kansas more attractive to businesses because there will be less cost and effort involved to start up and conduct business in Kansas.

The State should develop an identity management strategy for citizens and other individuals. The ITIMG along with broad agency representation should develop a risk and solution matrix to help guild agencies on what identity solutions are needed for agency applications. An identity management roadmap outlining a common approach for identifying individuals should be developed. This roadmap should guide all system investments, upgrades, and enhancements. This will make Kansas government easier to work with, reduce complexity of government, and provide a simple, yet secure approach to work with state and local government.

The State should not extend an identity management capability to the local government entities at this time. Kansas must first develop its own internal identity management system. However, Kansas should engage local government's business and technical professionals in the requirements gathering and design of the statewide identity management system so it could be leveraged by them at a later time.

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[36] Andrew Walls. "Q&A: Consolidation of AD Forests and Domains" Gartner Group. June 17, 2010.

DESKTOP SUPPORT

Overview and Status Quo:

The State of Kansas has to support over 25,000 employees in locations all over the state[37]. This support includes providing desktop computers, desktop productivity applications, and security and protection solutions. As the State enables more employees with the ability to work mobile, there will also be a requirement to support more devices that are mobile, provide technology to synchronize mobile and desktop devices, and provide advance networking and security practices for mobile computing.

The innovations occurring at the agency level have kept the expenses for desktop almost flat for many years.

10-Year Trend of Microcomputer Expense
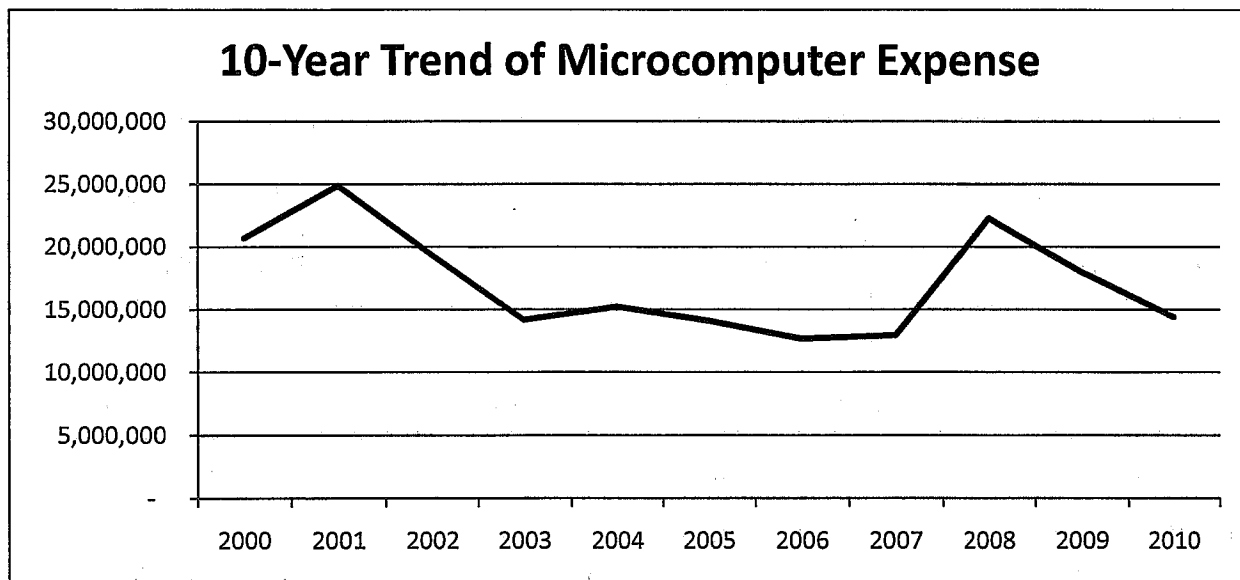
The collection of these expenses brings the average overall support costs to $17,139,662[38] over the last three years. If that cost is spread out evenly across all 25,000 state employees, the annual cost to provide IT support to a state employee is $685/year.[39] The state has done an effective job of providing enterprise contracts to enable agency purchases and that has allowed some desktop deployment cost to be reduced. Some small agencies are already working under a consolidation support arrangement with DISC providing desktop support services.

Problems associated with Status Quo:

Today each major agency provides and supports its work force in isolation. Inside those agencies, best practices are being developed and innovation is occurring. However, since this innovation is occurring in isolation the benefits are also isolated to each agency. This federation leads to significant differences across agencies. Different products are being used, different support methodologies are being used,

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[37] This number does not include Regent Institutions.
[38] This number does not factor in IT employee support cost.
[39] This is also an area where agencies are bringing in Vo-Tech and university graduates as interns and temporary staff technicians to get them real world experience. This is a great training ground to make people aware of the agencies business practices and organization structure and culture.

and different financial and procurement strategies are being used. All these differences lead to a wasteful and inefficient enterprise, even though many agencies are running very efficiently in isolation.

Solution	# products	Target
Desktop VPN	11	No clear target
SSI	9	No clear target
Desktop productivity	unclear	Microsoft Office
Encryption	15	No clear target
Authentication/SSO	10	Active Directory and LDAP
Directory Services	12	Active Directory
File Transfer	12	No clear target
Desktop Operating systems	4	Microsoft Windows XP and 7
Digital Signatures	6	VeriSign PKI
Anti-Virus & Desktop Protection	13	No clear target
Patch Management	10	Microsoft Systems Center
Workstation policy Management	7	No clear target
Spam	16	No clear target

An example of this duplication is shown in the following chart of desktop protection products[40]:

Product	Agencies	Users
CA eTrust	1	250
ESET (Nod32)	1	310
Kaspersky	1	50
McAfee	7	10,000+
MS Forefront	1	350
Norton Antivirus	1	8000
Sophos	5	37,000+
Sunbelt Vipre	1	135
Symantec	7	2,000+
Trend Micro	7	1,200+

In order to support large quantities of desktop computers, a trouble ticket and problem resolution system is required. During the survey of agencies for this study, agencies identified 16 different trouble ticket systems in operation. No single solution is deployed by more than two agencies. Since these solutions normally require microcomputer server based deployments there are functionally different support systems running in every agency. This leads to no ability to share problems, solutions, and/or best practices across agencies.

Microsoft Office is the primary desktop productivity application used in Kansas. All agencies submitting surveys for this report indicated they use the Microsoft Office suite. Even though Microsoft Office is the de facto desktop productivity standard, there is no common purchasing, budgeting, or upgrade cycle happening in state agencies. Some agencies budget to upgrade every 3-5 years, forcing them to stay on old versions until budgets for upgrades are approved. Versions of Microsoft Office running currently in

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[40] This chart does not include all Regent Institution information

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state government include: Office XP, Office 2000, Office 2002, Office 2007, and Office 2010. The different versions have caused compatibility issues; increased support cost, and are a security vulnerability.

Kansas is not leveraging its complete buying power to achieve positive cost externalities. Each agency and branch is negotiating and purchasing common solutions separately. Rather than using the complete buying power of 25,000 users, we are negotiating on smaller packages per agency. Missouri realized significant cost savings when they started negotiating and purchasing as a state, rather than by individual agency. For example, in an interview with the CITA's office they noted an annual savings of around $1 million on centralized procurement of antivirus software.

How each desktop is being managed and kept up to date also varies among agencies. The more mature agencies can easily distribute software updates automatically to thousands of devices daily. Other agencies need a member of the IT staff to manually install software updates on desktop computers to keep them updated. Some agencies have set policies and procedures on how they do updates, other agencies do updates randomly without a set procedure. The lack of uniformity increases the chances of malicious attacks due to security vulnerabilities. Communication on upgrades and updates are also done in many different ways. Some agencies communicate well on changes and pilot efforts, other agencies only communicate to end users during crisis events.

It is unclear how many FTE are providing in desktop support in agencies. But, it is known that there is significant overlap between those doing desktop deployment and support with those providing middleware solutions, network and security solutions. In several agencies, rather than using authorized FTE to do desktop support, agencies use temporary staff and interns. States that have consolidated desktop and mobile support have seen staffing for these areas decrease up to 50%. To achieve this reduction states had to gain a very clear understanding of support. Staff must know their responsibilities, escalations processes, and have outstanding customer service skills. Kansas has the employee skill base and the process maturity to handle this type of shift.

How agencies deal with the energy issues surrounding desktop computing is variable between agencies. Some agencies have innovative best practices being used daily. For instance, machines can be shut off at night automatically and automatically wake up in the morning to perform security updates and software installations before the user comes into the office. The energy savings that can be gained from leveraging these agency best practices across the entire 25,000 desktop computers in the state would be significant. However, most current energy savings initiatives today are user driven. Moving to a common automated solution could dramatically increase energy savings.

Consolidation Options:

The State of Kansas has several viable options to pursue in the desktop and mobile support areas.

Continue Status Quo

This options will allow the agencies to continue to be innovative in delivering solutions to each employee within their agency. This will allow the maximum flexibility for agencies to move forward.

Continuing the status quo will also allow budgeting and support to continue agency-by-agency, leading to a wider range of versions of products deployed across the enterprise. This diversification brings higher support and integration costs. It makes sharing documents, files

and processes substantially more difficult and impossible in some cases. It allows multiple versions of the same products to be used, increasing the possible security vulnerabilities. This also requires agencies to continue to justify basic desktop support and upgrades as significant budget issues.

Standardize all desktop products and support areas

Standardizing all desktop products leads to smaller set of technologies in the state, and makes deployment and support of these solutions easier. The Kansas Information Technology Architecture could publish these desktop standards and targets.

Even with standards and targets, not all agencies will comply. Standard setting will also not help with cross-agency support. Multiple trouble ticket solutions will still be used and agency technical support will continue to occur in isolation. Thus, the enterprise will still continue to relearn the same problems and resolutions multiple times in each agency.

Consolidate all purchasing at the enterprise level for all Hardware and Software

Getting visibility and oversight on all desktop purchasing activities is the only way that Kansas can continue to bring down the cost of desktop support without full desktop support consolidation. Negotiating for the entire state is the only approach that allows coordination of the desktop suite and other solutions to be considered as part of procurement process. This is also the only approach that fully engages the vendors. When agencies have the ability to opt out of preapproved contracts and do separate negotiations the faith of the negotiation is compromised. By using the statewide purchasing power, other states have seen significant cost savings in providing desktop hardware and software to its employees.

Consolidate all IT support for desktop

This option brings together a centralized and dedicated desktop support team that can support all desktop computing in Kansas government. This includes desktop deployment, software deployment, hardware and software upgrades, incident troubleshooting and resolution, and security resolution.

Coordination of the consolidated desktop support team would decrease the overall cost of IT support. While most problems can be handled through a well trained help desk and proper collaboration and support tools, hands on resolution is often necessary. A distributed support team, working in parallel with a centralized support structure would minimize this problem.

It is also recommended that if IT support is consolidated then a Desktop and Mobile Device governance team should be created to ensure that the centralized desktop support team is providing the appropriate services and is integrating effectively with other enterprise solutions and agency specific needs.

Recommendations:

The State of Kansas should consolidate all IT support into one centrally managed team. This team would be responsible for the purchasing of all hardware and software and integration of these products into other enterprise solutions and agency products. This team would be centrally managed but would require a geographically distributed support model where technicians would be distributed across the state to support all state agency locations. The field technicians would leverage a centralized help desk

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and trouble ticket system to better support the enterprise. A central software distribution solution should be deployed and used for all state devices.

This central team should do the purchasing of all desktop and mobile products. It is also recommended that the state move to standard products and solutions architecture identified by the KITA and deployed to the enterprise. Missouri found that it could provide less than 20 unique configurations to support entire workforce. They initially started out with several thousand.

It is further recommended that the State of Kansas move to an FTE-based financial support model. This model would move away from agencies budgeting and purchasing individual products annually or specific budget request to support agency update cycles. DISC would provide default catalog of services with costs based per FTE. All employees need a basic computing device (desktop or mobile), productivity software, and desktop protection. Additional software and services could be subscribed to for additional cost. The overall cost of desktop support would be same or less than agencies are spending now, while also building in hardware and software refreshes. This new financial model provides stability in funding. Periodic updates can be built into the rate and be more predictable. Desktop and mobile options must be made available, and additional services could be subscribed to al-a-cart for power user needs.

To enable these recommendations access across agency networks, collaboration capabilities by the team is essential.[41] Best practice software distribution, support solutions, and processes should be identified in individual agencies and those best practices should be scaled to the enterprise. Developing proper rates and complete transparency of those rates are critical. The governance team should be in charge of oversight of those rates.

The overall cost of providing desktop support to state employees should be reduced dramatically. Hardware and software will cost less to deploy and support with fewer FTE. In addition, there will be less redundant solutions and less complexity across the enterprise.

NETWORK SUPPORT

Overview and Status Quo:

The need to communicate within and between state agencies, local government, private partners, and citizens is continuing to increase. The State of Kansas approach to support that need is being handled with many different data networks. The following is a short summary of various network capabilities the State uses.

Network[42]	Purpose	Oversight
KANWIN	Kansas Wide Area Information Network for data movement primarily between agencies but is also extended to counties.	DISC
KANSAN	Kansas Voice network	DISC
KanEd	connection to Higher Education, K-12, Libraries	KBOR

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[41] See Network and UCC recommendations

[42] Note that there are several connections to the federal government and national safety and military that are not covered in this section. While these and connections to other states will increasingly become a focus, there was not sufficient time or information to formulate any recommendations in these areas.

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Network[42]	Purpose	Oversight
	and Hospitals. Managed by KanREN	
KanREN	K-12,Higher Education, Public Hospitals, Other non-profit, libraries.	KanREN Board
800 MHZ Radio	Public Safety, KDOT, KHP, other agencies, local government public safety.	KDOT
Fiber Backbone	State agency Data exchange	KDOT
KSOS –County Election	Election officials	KSOS
KDOR- County	County Treasures, tax, Property	KDOR
KCJIS-	Public Safety, Law, Courts, Jails	KBI
KDOT ITS	Highway Intelligent transportation Services	KDOT
911- NG911	911 services	Local managed today

Each of these networks were initiated for good reasons and based upon the best practices at the time. However, each individual network has a different management team, brings different best practices, scalability, and approaches to operational management. Each of these networks is a success story of past consolidation efforts in Kansas.

Over the years, each of these networks has undergone significant upgrades. KanWIN is upgrading currently to a new network architecture. KanED has upgrade much of its core recently. KanREN has plans to upgrade its core in the near future. Next Generation 911 (NG911) will require an expanded network capability as 911 contact centers are beginning to collect information from many sources besides telephones.

Networks demands are constantly growing. Contributors to this increase in demand are increased use of streaming video and audio, virtualization of desktops, and shared workspace collaboration. These trends could possibly increase network traffic by over 100% in the next five years.

Problems associated with Status Quo:

Kansas does not have a clear, comprehensive understanding of the networks the state is currently running. Individual network managers understand their unique networks and have some knowledge of other networks. Nevertheless, there is not one group that truly knows everything about the state networks. This includes assets, state and local network connections, licenses, ect. This leads to redundant connections and single points of failures. The Broadband Task Force has determined these issues are causing a direct impact on the state's ability to provide efficient network services to businesses and citizens. Under the status quo, Kansas does not have enough data and oversight necessary to streamline these connections and investments.

This does not mean that Kansas is lacking in expertise to provide network solutions. Each network described below has excellent staff and approaches. Some networks are even working together to provide the best service possible. For instance, KanREN supports the KanED network. Also, KanWIN, KanREN and KanED all partner with KDOT to use its fiber backbone. Finally, KanED and KanWIN peer their networks for seamless handoff of traffic. There is a spirit of collaboration and partnership between all the networks.

One major area where collaboration and partnership can be improved is in the network connections in county government facilities. These connections occur between county agencies and state agencies. For instance, Kansas Department of Revenue connects with county treasurer's offices. Secretary of

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State connects with county clerks. Kansas Highway Patrol connects with local law enforcement. A substantial number of these connections are point-to-point, and require a separate connection for each agency interaction. Having redundant connections between state and local government units increases connection cost to the local government units. It also takes more staff time at both the state and local level to manage these connections. Since these connections are point-to-point between the county and the state it has eliminated the ability for counties to work together, share solutions, share data and support each other. These bifurcated networks came into existence at a time when data security in communication lines was not mature. Advances have been made in data security that makes this bifurcation unnecessary.

Almost every state agency has a virtual network within the KanWIN network, and between these virtual networks are agency run firewalls to protect those agency virtual networks. This makes sharing data between agencies difficult to accomplish. Other resources that could be leveraged between agencies (servers, storage, printers, and video conferencing systems) also cannot be easily shared. Agencies express concerns over security and a lack of trust in other agency environments as reason for these agency by agency restrictions. This concern is legitimate, but could be mitigated with the proper leadership, policy, and governance models.

There are many major initiatives occurring in Kansas today. Many of these initiatives are happening because of the American Recovery and Reinvestment Act (ARRA). These initiatives need a cohesive state-wide response by all levels of government. Included in these initiatives are NG911, Broadband expansion, health care reform, and Health Information Exchange. Currently, these initiatives are all driven by separate focus groups. Since many of these activities overlap, a concerted effort is needed to make sure the initiatives stay in alignment, so Kansas uses ARRA grant moneys in the most effective way.

Consolidation options:

Continue Status Quo

This brings greatest flexibility to each network to evolve and scale based upon its own individual demands, but also leaves all problems associated with status quo in place.

Consolidate all networks and network support and management under one

This option is impossible to accomplish today. The size of the organization needed to manage all the networks would be huge. There are different network design, business plans, governance models, and delivery mechanisms involved. Even though this option, in a perfect world, would be the most efficient there is not transition mechanism in place currently that could execute this type of consolidation.

Create Governance group to oversee all network roadmaps and accomplishments

Information Technology Executive Council (ITEC) could charter a Network Operations Governance Group to give clarity and oversight to all the state networks. This group could be asked to indentify current network assets, availability, accomplishments, and provide a consolidated and coordinated 3-10 year roadmap for each network. It is expected that if any consolidation opportunities appear that this group would be the first to see that overlap, and develop a strategy to execute those opportunities.

The status quo of multiple networks does not have that many problems, but biggest problem is that every network is its own empires, that are continuing to grow. Some partnering and coordination is happening, but more could occur. An officially chartered group would be a logical first step to engage in more partnerships. Since our customer base for these networks is wide, it is recommended that the group consists of a membership similar to ITEC and other statewide governance groups. State government, local government, education, and the private sector should all have membership in this group.

Consolidate some Networks or network support areas:

There are over 180 FTE currently classified as network technicians in Kansas government. A consolidation option is to centralized all the staff working on voice and data networking to DISC. This is an option that has been popular in other states. The typical results of a network support staff consolidation is a continuous reduction in network support costs, more consistent deploying of equipment, better support, and a more available network.

This effort would be a significant change in Kansas because for years the state has allowed agencies the option of supporting their own complete networks in their facilities. It is estimated there are 180 FTE doing network support, but the actual number is unknown due to partial FTE assignments in facilities, and incomplete data on unclassified staff. States that have undergone this consolidation have seen a reduction or reallocation of network support FTE from 10% to 50% over time.

Re-architect all connections between state and counties

Local government IT managers suggested that a re-architecting of all network connections between state and local governments would be beneficial. They identified this task would allow them to leverage their investments more wisely, reduce network support costs, enable collaboration between counties, and increase county network capabilities. The separation of logical networks by line-of-business/agency is an old model that is not appropriate any more. Re-architecting will save money by decreasing operational costs to agencies and lowering support costs. While there is not valid data to predict these savings, local government IT leaders believe there is a significant opportunity to reduce costs.

Recommendation:

Even though it is obvious there is redundancy and overlap in the existing data networks, there is not clear data that suggests they should be combined. Each network serves a specific population with specific needs. But, the State of Kansas should have a better understanding and knowledge of the networks. This includes an inventory of assets, current and planned projects, and future expansions. The Calence Network consolidation study identified various recommendations for state data networks. These recommendations included standardization, some network circuit consolidation, shared services, and common communication[43]. Gartner contends that networking costs can be reduced by 25% if their network cost management methodology is fully implemented[44]. Missouri and Nebraska did consolidate

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[43] "State of Kansas Network Consolidation Feasibility Study" Calence. March 2007.
[44] Jay Pultz. "How to Significantly Reduce Networking Costs" Gartner Research. March 2, 2010.

all data networks and staffing, but with the current incomplete picture of network capabilities in Kansas moving towards data network consolidation would create more risk[45] than potential value.

The recommendations that follow are governance, staffing, and preparation work that needs to happen before further Network consolidation discussion should take place. If these recommendations are implemented, network consolidation should be revisited in three to five years.

There should be a dedicated effort to establish a state of Kansas network Governance structure. The Network Support Governance Group should:

- Provide oversight over Kanwin, KanEd, KanRen, Wireless, 800 MHZ, Fiber network, NG911 and logical networks for KCJIS, KDOR & KSOS county networks, and KDOT ITS network, broadband expansion, Health Information Exchange network.
- Be chartered under ITEC with specific responsibilities, memberships to include agency, local and private sector directors and network specialists.
- Acquire the current asset inventory, connections, backbone capabilities, past accomplishments, future roadmap, and financials.
- Focus on strategies, standards, leveraging investments and management capabilities.
- Develop common architecture and strategies on to support a mobile workforce.
- Develop reporting criteria to ITEC on a yearly basis for each network, focusing on current year activities, and the three-year future strategies.

The State of Kansas should continue to modernized it's infrastructure. This includes continuing with the KanWIN modernization project. The full implementation of KanWIN 2.0 will bring Kansas to a new level of capability needed to build the next generation of web-based, customer centric, government services. This modernization includes the "core" network infrastructure and the VOIP/UCC rollout to consolidate the voice and data networks.

To support this effort there should be a KanWIN advisory board established to provide the oversight and prioritization for all network activities The KanWIN Advisory Board should:

- Identify the strategies for KanWIN.
- Determine KanWIN financial and cost recovery model.
- Determine and monitor network performance and service level agreements.
- Determine and guide mobile workforce strategies as it relates to KANWIN
- Identify and initiate policy and guidelines around network issues and usage
- Redesign the KANWIN network to allow for more application and data sharing across agencies and the enterprise.

KanWIN should focus on consolidation of activities and resources related to its network connections. Kansas should transfer all agency network technicians to DISC. Many of these individuals will remain in the physical location they are currently but will be DISC employees rather than that agency. Along with this shift, a more sophisticated project and task management system will need to be created to support statewide network management. It is estimated this employee shift will be around 100 FTE and should

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[45] Part of the complexity and risk comes from the ability of dedicated network managers to get federal grants, Kansas Universal Service funds, and research regulations. Any change in the network support model has to support this complexity.

be done incrementally over at least three years. Other states have identified 10% to 50% cost efficiencies in this area.

The benefits to the state can occur in multiple areas:

- Core network support efficiencies by a better managed workforce
- Centralization of core technology to one platform
- Consolidated purchasing of network solutions
- Reallocation and/or retraining of workforce to reduce consultant dependency
- Reduced complexity in the core network
- Reduction in internal barriers of information sharing in the enterprise
- Redesign KanWIN to support mobile workforce in more efficient approaches.

Kansas should also focus an effort to reduce or eliminate agency virtual networks. These virtual networks are causing design and traffic issues and are slowing down our ability to use modern technology, such as AVPN, and are reducing our ability to share resources between agencies. They are no longer needed for security.

Network connections with local government entities should be re-architected to use circuits more effectively. There are significant opportunities for larger counties to share, host, or support other smaller counties if the network allows it. This was articulated as a significant opportunity in the Texas consolidation plan and in conversations with Nebraska. The benefits to the state can occur in multiple areas:

- Reduction in number of circuits used to support unique line of business demands.
- Sharing of network infrastructure procurement contracts
- Reduction of long distance costs to local government
- Guide the evolution of NG911 with a common backbone
- Ability for counties to work together in a dramatically different model than exists today
- Easier to share information with other counties and the state
- Share solutions with other counties and reduce support costs
- Bring a higher level of solutions and skills to smaller counties

OTHER MIDDLEWARE APPLICATIONS

Overview and Status Quo:

As articulated in other sections of this study, individual agencies are responsible for delivering technology solutions for their agency. Included in this technology stack are middleware applications. Middleware applications are defined as: "computer software that connects software components or some people and their applications"[46]. Traditionally, middleware is limited to technologies like enterprise service buss (ESB), but for the sake of this report, the definition of middleware will be extended to other enterprise technologies that are used by applications to give additional functionality to applications.

In mainframe computing, all applications were running on one operating system and all agencies using that mainframe used a common set of products. This meant one transaction engine and database.

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[46] "Middleware" Wikipedia. Available at: http://en.wikipedia.org/wiki/Middleware. Accessed October 4, 2010.

While monolithic, mainframe computing worked well because all of the applications on the mainframe shared a common set of services. As agencies moved to distributed solutions there was a need for the same type of common services. These common services are commonly referred to as middleware.

Middleware solutions are often deployed with major IT projects and then were reused with other applications. Agencies find particular middleware solutions that fit within their agency's technical architecture. No common middleware solutions have been pursued statewide. This forces each agency to purchase, deploy, support, and maintain their own middleware solutions. When you multiply these solutions across many agencies the result is many redundant and often incompatible capabilities across the state.

Middleware solutions are continuing to grow in maturity. There now exists a class of middleware services that are scalable to an enterprise the size of Kansas. The following is a representative sample of the middleware solutions used in agencies today and the current target middleware technologies:

Middleware Technology	Number of Products	Target
Internet, Intranet, Portals	11+	IIS
Document Management, Imaging, and Scanning	11+	None
Work Flow	14	None
Business Intelligence	Multiple	None
Enterprise Service/Data Bus	0	None
Data Warehouse	8	Oracle
Business Rules		
Forms		
Electronic / Digital Signature		VeriSign
Search		
Customer Relationship Management	2	Microsoft and Siebel

Problems Associated with Status Quo:

Middleware has exploded in recent years. Each major vendor with a presence in Kansas has a suite of products that cover most of the popular middleware solutions. It is common place to see many different solutions in each of the middleware areas. For instance, a survey conducted by the CITA for the Joint Committee on Information Technology (JCIT) in 2009 found twenty different document management systems from ten different vendors running in Kansas. Each one of these document management systems were purchased separately, have their own staff to support the system, and are managed independently.

Most of the deployments of middleware occurred in large agencies to help support large IT projects. DISC could not justify developing enterprise solutions for middleware applications because it could never reach a critical mass of support to justify the startup costs and staffing. Most small and medium sized agencies could never afford these solutions.

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Consolidation Options:

Continue with State quo:

Large agencies could continue to install middleware applications to support their agency missions in a vacuum, and small agencies would be unable to afford these services. This is not a recommended option. Kansas cannot continue to support middleware applications agency by agency. It increases needless complexity in our technical architecture and puts us on an unsustainable server growth curve. Servers will proliferate in this option.

Having agency-by-agency middleware solutions also makes sharing information between agencies unnecessarily difficult. Installing middleware in isolation increases the potential of incompatibility between agencies. With cross-agency collaboration becoming more common, Kansas should be looking towards common technology solutions that enable those collaborations. It will help us serve our customers, businesses, and citizens more effectively and efficiently.

DISC hosted Middleware Applications for Small and Medium Agencies

DISC, in partnership with small and medium sized state agencies, could develop a strategy and roadmap to deploy middleware applications for state agencies that cannot afford to deploy them alone. Leveraging centralized middleware applications will increase the service agency IT professionals can provide their agencies. It brings to them best of breed solutions without having to invest the upfront costs to develop the infrastructure, since they will share the cost with other subscribing agencies.

The problem with this option is getting consensus on the hosted middleware applications. Also, not having the large agencies using the service could still make the middleware applications too expensive for small agencies to afford

DISC hosted Middleware Applications for all state Agencies

DISC could develop a strategy and roadmap to deploy middleware applications for all state agencies. This option, over time, would consolidate all middleware applications into a small, manageable number of solutions in each category.[47] Agencies would need to shift some of their middleware support staff to DISC in order to accomplish this option.

Enterprise negotiations on middleware applications would help drive the cost to deploy these solutions down. Enterprise deployment would decrease the amount of servers and staff required to maintain and administer the middleware. The end result would be a best of bread solution set for Kansas that all state agencies could use.

The cost of fully implemented middleware applications is hard to predict. Each technology area will need its own study to determine the cost, benefits, and return on investment. The cost to agencies to convert to a new middleware solution could be very costly. But when the current technologies are becoming obsolete, conversion to the new version of the same solution could be just as costly as conversion to the statewide solution.

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[47] Two or three options for each middleware area would be a good target. One options limits flexibility. More than three solutions are tough to support and would not be cost effective to run.

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Recommendations:

Kansas should move forward on middleware application consolidation by developing a strategy and roadmap for each middleware technology area. This will be a multi-year effort and will involve multiple independent projects.

A clear target architecture should be created by the Chief Information Technology Architect (CITA) and the Kansas Technical Architecture Review Board. Agencies should begin moving towards that target architecture. Any investment in middleware applications not leveraging the established KITA targets should be reviewed by the CITA and the branch Chief Information Technology Officers (CITO) to determine if the target middleware solution can be utilized.

DISC should be the lead agency in the deployment of middleware applications. These applications include but are not limited to: Document Management, Workflow, Enterprise Service Buses, Business Intelligence, Call Center, Customer Relationship Management, Data Warehouse, and Master Data Management, SharePoint Intranet portals.

Enterprise Service/Data Bus (ESB) is the first middleware application Kansas should develop a strategy and roadmap for. Kansas has a pent up demand to share and exchange data in real time across applications. Multiple cross-agency collaborative teams have expressed need for this type of investment, and there are currently a number of projects under consideration that are looking at ESB investment. A clear strategy is needed so multiple agency ran ESBs are not deployed in Kansas.

Customer Relationship Management (CRM), Master Data Management (MDM) and Data Warehousing (DW) look to be the next logical areas of focus for a comprehensive consolidation strategy and roadmap. They would increase our ability give a consistent and statewide view of our customers, businesses, and citizens to our employees and decision makers. In order to support an enhanced relationship, Kansas must share information between agencies.

Being able to achieve middleware consolidation will require a state of the art data network, and all security concerns to be solved or mitigated. KanWIN must finish its upgrade to the core network. Identity management for the enterprise is required to facilitate cross agency data sharing. Agency development staff will need training to learn how to best leverage the centralized middleware solutions.

AGENCY APPLICATION DEVELOPERS

Overview and Status Quo:

The State of Kansas has excellent IT development staff. These teams of agency application developers understand the agency they work for, its business processes, data architecture, and customer expectations. As IT has evolved the skill sets of developers has evolved with it. New skills including business analysis, data management, and new tools for application customization and development are required. These skills make it possible to continually improve IT application, thus helping the organization complete its mission.

The Kansas Project Management Methodology (PMM) was created in the 1990's and has given focus, direction, consistency, and oversight over large IT projects. But, projects that do not reach this large project threshold still are managed using a wide array of approaches. No projects under this $250,000 threshold is visible outside of the agency.

If a project are a greater effort than agencies can support internally then the outside consultants are used. This has allowed Kansas to remain current on leading each technology while keeping FTE levels for development staff stable. This consultant spend was kept manageable because at the core of our IT employee base was a critical mass of long time personnel. As those core staff members retire or change jobs Kansas has become increasingly reliant on consultants, especially in the difficult to find areas of project managers, business analysts, IT architects, and data experts.

The solutions used today are constantly changing. More state solutions are packaged products that are bought off the shelf. Configuring these off the self packages is important, but also is very expensive to develop, manage, and maintain. When upgrades to the software are provided by the vendor, often times the customized interfaces and modifications will also need to be changed.

Problems Associated with Status Quo:

Most agencies are satisfied with the solutions delivered today in the status quo. However they recognize the cost to support a larger legacy IT application base is growing and minimizing that growth would be advantageous over time. Development teams are closely aligned and understands the agency's business needs. Sometimes this alignment it to the detriment of the agency, as developers lose sight of opportunities that are available in other agencies.

The mainframe provided a single set of libraries for all source code needed to run applications. With the advent of more distributed computing the number of tools available to developers proliferated. Source code is scattered all over the place. It is quite likely that no agency really knows were all its code is today.

Because of the variety of locations and solutions that data is stored in today, it is very challenging to identify all data in an agency, and to understand how it is all related. Few agencies are working on projects for metadata management or data catalogs. This need will continue to grow as cross-agency collaboration and data sharing become more popular.

Kansas has a solid set of developer staff today, but some of the skills in emerging areas is not sufficient to support many of the complex requirements that exist in our systems. With the shortage of staff, and the loss of key personnel the State of Kansas has not kept pace with advanced skill development of our current development staff. Also, other critical areas like Project Management, Business Analyst, IT Architecture, Engineers and data experts.

Consolidation Options:

Continue Status Quo:

Continuing our current path is viable option since it is currently successful. The problem with this option arise because technology continues to evolve, but training and skill development of our development staff cannot keep up. With a limited staff, it is hard to keep up with all the different skills that are required. This problem is magnified even more in smaller agencies. They have the same complex business requirements and needs as the larger agencies, but have less staff and less budget to complete those missions. In a budget time when adding staff is almost impossible, though decisions have to be made on what development expertise is retained in each agency.

Consolidate all developers:

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Consolidating all development staff into one organization has been an option taken by other states. However, most of the states that have done this have left the developers physically located close to the agency they are supporting. In these models they work for the centralized IT organization, but do development work for another agency. Business knowledge is critically important to development staff success. As a result, it is not recommended that all development staff should be consolidated. Agencies that naturally work together may find a limited developer consolidation to be advantageous, but widespread development staff consolidation is not recommended for Kansas.

Pool of Developers for Small and Medium Sized Agencies

Kansas has many small and medium sized agencies. These agencies have unique missions, but often have limited IT staff. In some cases many of these agencies perform similar tasks (licensing, permitting, and regulatory monitoring). However, each of these agencies need IT solutions to support their agency missions. They need the same level of expertise in business analytics, IT architecture, and project management as the large agencies, but these skills are difficult to fund with their limited budgets. DISC could employ a team of developers, business, analysts, project managers, and IT architects to help small and medium sized agencies develop solutions. Real process analysis and solution architecture even in these small agencies will result in increase citizen and business relationship.

Consolidate all Data base professionals

This option is similar to consolidating all developers. Since data administrators needs to be close to the business needs and developers it is not feasible in most agencies to consolidate this area.

Common tools for data catalogs and metadata management

Data catalogs and meta data management is something that every agency needs to do. While a limited number of agencies are working on these areas, there is no solution or strategy available for the enterprise. A focused group of data professionals could come together and develop a strategy and roadmap for the enterprise to solve this problem. Master Data Management and data catalogs are essential tools for cross-agency data sharing and consistent security controls. It is also essential for search in intelligent applications to find the appropriate information in the context of application usage.

Recommendations:

State agencies should always maintain their own unique development staff. Regardless of consolidation strategies, it is best practice to leave developer, data owners, data administrators, and business analysts as employees of each agency. These positions require intimate knowledge of agency business processes.

However, the development model will change under IT consolidation in order to take advantage of consolidated services like enterprise service bus, document management, and workflow solutions. This changing development model will require very specific skill sets. It would be unfeasible for every agency to hire this type of specialized employee.

- Large agencies should work with DISC and bring advanced training to support these skills into our workforce. Current application development staff should be adequately trained on

advanced architecture and design skills in order to leverage the new technologies available to them in an consolidated IT environment. This will reduce the dependency on consultant or contract expertise.

- DISC, working with all branches of government, should research the demand for a centralized pool of application developers, business analysts, project managers and IT architects hosted by DISC that could be available to state agencies and in all branches of government.

DISC should support a common repository for developed source code. This should allow agency developers to develop and deploy their own solutions but they do not have to maintain the actual repository itself. Existing agency repositories should be migrated to this central repository. This along with an employee collaboration environment will enable cross agency development efforts and sharing solutions and expertise between agencies.

DISC should invest in a robust IT project and portfolio management environment. All work efforts should be identified for all levels of government. The ability to have cross agency teams scheduled and coordinated in a consolidated environment is essential to success.

While data administrators and data owners should remain in their respective agencies, it could be beneficial to support all database engines centrally. It would provide reduced licensing costs, ensure more predictable backups, increase stability, and reduce the amount of support staff required. Further research and a pilot effort, led by the CITO's, should be initiated to verify the appropriate changes in processes and job duties this type of change would require. When the new data centers are available the database engines will all be in one place and a central team to support them is feasible.

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VI. NON-IT ISSUES RELATED TO IT CONSOLIDATION

While obtaining the data for this study there were a number of non-technology concerns articulated by industry experts, technology leaders from other state governments, and our own state IT leaders. These concerns and risks must be solved or mitigated before IT consolidation in Kansas could be successful.

LEADERSHIP AND GOVERNANCE

IT consolidation projects fail without proper executive leadership.

The Governor of Kansas should sign an executive order mandating IT consolidation for executive branch agencies in Kansas. The Governor's leadership role is foundational for IT consolidation success. Legislative and Judicial branches, while not explicitly mandated to participate in IT consolidation, should be active members in all phases of the IT consolidation project. There is a hope that both of those branches, at some point in time, would also use the consolidated services provided for the Executive Branch.

The role of the Executive branch Chief Information Technology Officer (CITO) should be expanded. All current responsibilities of the CITO would remain, but the role would increase to include approval authority on all Information Technology purchases by state executive branch agencies, and to provide direction and coordination of the statewide shared services outlined above. Often the CITO is a cabinet level position. Other states governments that have had success consolidating have elevated the role of the CITO to a cabinet level because the cabinet-level CITO shifts the discussion of IT towards business driven initiatives and project coordination. This shift allows Kansas to focus on project prioritization, financial shifts and to better serve our citizens and businesses. This recommendation is not a pre-requisite for IT consolidation success, but while conducting research on other states, a common trend of success followed in states that elevated the CITO to a cabinet-level position and should be strongly considered.

Approval on all IT purchases give the State CITO the ability to shape the technical architecture of the state. The State CIO in this capacity would work closely with the Chief Information Technology Architect to ensure compliance with the Kansas Information Technology Architecture (KITA), and would lessen the chance that duplicative technology solutions are deployed in the state. Currently, the branch CITOs only have approval power on IT projects that are over $250,000. This threshold must be lowered to give the State CIO a complete view into all IT purchases. In addition, Legislative and Judicial branch CITOs should also have similar approval authority for their respective branches. Another pre-requisite for success is for the KITA to continue its evolution to becoming a target-based architecture. Without targets, the CIOs purchasing approval does not have proper criteria to base a decision on. The next revision of the KITA should have targets assigned for all technology areas as outlined in the 2009 Strategic Information Management Plan.

The CITO should also provide direction, project identification, and coordination on all statewide-shared services. This duty would include responsibility for requirements gathering, solution design, coordinating funding and budgets, prioritization of enterprise projects, and marketing the solutions. Also, the CITO should find solutions that leverage the best practices and innovation that is occurring in state agencies. Existing solutions that can be scaled to the enterprise level, and meet the needs of the customers should always be preferred over entirely new solutions. The benefit to this direction and coordination are having a clear roadmap and enterprise prioritization, ability to share investments

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across the entire state, reduce redundancy and needless complexity, and expand the number critical services and solutions that are available to every state agency.

IT consolidation will require adequate levels of resources to achieve maximum success. As outlined in the Strategies and Recommendations, new modernized data center space will be necessary to complete all of IT consolidation recommendations. Other upfront costs will also exist, but will not be nearly as great as the investment in new data center space. There will also be an IT staffing rearrangement under IT consolidation. Agencies will no longer need many of the IT support staff they currently are authorized, but DISC will require more employees to provide new and expanded services to all state agencies. The Governor and Legislature must adequately support and fund DISC in order for them to succeed in this new, expanded role. This support will require budgeted money. Two new data centers will need to be invested in. The cost for these two new data centers will be an estimated $58 to $95 million. DISC will need more employees to support the increased role of enterprise IT service provider. Some agency IT staff will need to be shifted to DISC, and other specialized staff will need to be hired. This support will also require policy and statute changes as outlined above.

Branch CITO's must serve as an advocate for IT consolidation and do everything in their power to gain support, buy-in, and participation from their constituents. State agency heads and IT leaders must work in partnership with DISC to develop services that meet agency business needs, and to help with the transition of employees from specific agencies to DISC.

Finally, while the Legislative and Judicial branches of government would not be affected by a Governor's IT consolidation executive order, their participation in IT consolidation strategies should be encouraged. The Legislative and Judicial branches both serve, in many regards, as DISC does for the Executive branch. They are a shared service provider to their respective branch of government. There would be great benefit to their branches to participate in the IT consolidation strategies outlined in this report. Leveraging the DISC shared services, when appropriate, would decrease Legislative and Judicial branches' cost to provide IT services and would remove the burden of supporting these services, thus allowing for more time spent on line-of-business specific tasks. Due to the possible benefits to be gained, the Legislative and Judicial branches should be encouraged to participate in all discussions, requirement gatherings, and the design of all DISC shared services with the understanding that their use of these services is desired and recommended.

Having strong executive leadership is critical for IT consolidation. States without Governor support failed more often than they succeeded. States without an empowered CIO had a difficult time gaining the active participation of state agencies. States without a robust and target-based technical architecture did not successfully consolidate solutions. States that attempted to consolidate without proper funding and facilities did not gain the full benefits of IT consolidation. Governor support, CIO empowerment, target-based architecture maturity, and adequate resources are all key leadership and governance components to IT consolidation and should be considered paramount issues to address.

DISC'S ABILITY TO EXECUTE

Under these IT consolidation strategies, the Division of Information Systems and Communications (DISC) would retain and expand the role of the central IT agency for Kansas. DISC would be the agency to provide the shared services outlined in the Strategies and Recommendations section of this report. DISC would manage the new data centers, provide the server virtualization service, manage the statewide email system, along with all the other recommendations. This would greatly expand DISC's role in

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providing IT services in Kansas. As a result, IT consolidation's success will be predicated on DISC's success.

Historically, DISC has proven itself a leader in providing state IT services, and has a successful record of accomplishment with previous IT consolidation projects. DISC was created in 1972 with the consolidation of Highway Department, Revenue, and Accounts and Reports data centers. DISC was then authorized to provide centralized telephone support in 1974. In 1984, DISC and the Office of Telecommunications were consolidated creating what is the current day DISC. In 1990, the statewide financial system (STARS) was implemented for all agencies to use. The statewide human resource system (SHaRP) followed in 1995.

Today DISC provides many consolidated services to state agencies. Those include state-wide data and phone network administration, computer services (Mainframe, UNIX, and Windows environments), a centralized backup management system, virtualized servers and storage, data center administration, enterprise application support, IT governance support, security infrastructure and administration, and small agency IT support.

The recommendations proposed in this report ask for a dramatic change to the way Kansas provides IT service to agencies. Whenever a dramatic change is proposed, there is always a natural fear for the unknown. Agencies are concerned the quality of received services will diminish when they are provided through a consolidated model and that direct loss of control of resources will make services less responsive to agency business needs. Employees become fearful that their jobs will be dramatically changed, downgraded, or even eliminated. Business leaders worry that their needs will not be dealt with in the same responsive fashion when IT is provided by another agency. IT consolidation has not been successful in every state. The horrors of unreliability, increased costs, and decreased performance have become reality in many state governments. However, there are many states that have positive and successful stories of IT consolidation. A common theme for successful IT consolidation in state government is a responsive, effective, and adequately funded central IT organization that has the trust of its customers.

To address these concerns, DISC must work hard to maintain and build the confidence of other state agencies. DISC must foster a culture of collaboration and facilitation with state agencies rather than a culture of dictation. Some agencies perceive that DISC develops solutions and services in isolation, instead of actively engaging users of the solution in the design and development. Mandated IT consolidation efforts will make collaboration with agencies more important. Agencies will be required to use the statewide service DISC is providing, so agency participation in the requirements of the solution is critical. The state agencies are unique and all have different requirements. Incorporating all those unique characteristics into statewide shared services is absolutely necessary.

DISC must renew its focus on outstanding customer service, communication, and complete transparency. Consolidated services rely on customer trust and a responsive customer service culture. They focus on shared services – rather than centralized services – to achieve this level of trust and responsiveness. DISC should proactively monitor its customer satisfaction and service performance. These responses should be open and available to customers. They should continue to emphasize the importance of communication by training employees on customer service and communication.

Finally, DISC must have the resources needed to deliver high quality, reliable services under a consolidated model. For example, expecting DISC to operate a much larger equipment base in the existing physical facilities with their constrained environmental attributes will place the entire state at

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significant risk. In addition, expecting DISC to take responsibility for the increased tasks inherent in a consolidated model without a significant staffing increase will only result in the worst agency fears being realized.

SECURITY

During the facilitated discussions with state IT leaders one of the major trends in those conversations was the issue of security. State IT leaders worry that in a consolidated environment, unique agency security requirements will be ignored. Ignoring these requirements would not only put agency data at risk, it could also have ripple effects with federal grant dollars. For instance, the Kansas Bureau of Investigation has very strict requirements on how they handle data. These requirements are driven by the Federal Government and must be adhered to. Other agencies such as the Kansas Lottery, KPERS, Department of Revenue, and Department of Health and Environment have federal mandates on how their data and computer equipment is secured.

Other States have also found this to be one of the challenging points of consolidation strategies. They note specifically that law enforcement agencies have the most challenging requirements, but those requirements can be met. The State of Indiana said that law enforcement agencies should not be pressured to be the first agencies to move into the consolidated environments as they do have many complex requirements, but those requirements should also be considered and planned for. It is possible to consolidate law enforcement agencies, but to focus on other agencies first.

Every state that was interviewed for this study said that the security challenges posed by IT consolidation can be solved by a combination of trust, policy changes, leadership, and governance.

ORGANIZATIONAL CHANGES

The State of Kansas needs several preparatory activities in order to understand and manage the proposed consolidation efforts outlined in this study. These activities deal with enhancing the tools, processes, and skills DISC and agencies will leverage to provision, manage, and administrate consolidated IT services. Each effort may be a rather sizable project, but they will be necessary to get the State of Kansas a level of maturity it needs to succeed in IT consolidation. To help support the business cases for these projects DISC will need some additional tools and capabilities. These tools and capabilities include:

TOOLS
Asset Management
Service Catalog
Enterprise Project and Portfolio Management
Virtual Server and Storage Menu and Streamlined Billing
Business Intelligence and Performance Dashboards
End-to-End Support Tools

PROCESSES
Procurement Management Processes
Advance Planning Processes
Transparency Processes

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SKILL DEVELOPMENT[48]
Enterprise, Application, Solution, Data and Infrastructure Architects
Business Processes, Reengineering, and Optimization
Facilitations, Customer Service, Communication, Negotiation
Business Intelligence, Data Modeling, Performance Management, Financial modeling
Organizational Change Management, ITIL Service Management

DISC should be the central coordinator for the deployment of these tools, processes, and skills. Also, it should develop consistent training programs to support the evolution in each consolidation effort.

DISC and the state agencies must participate and engage in conversations for each consolidation effort and identify the combination of best practices that should be used by the State of Kansas. It is recommended that a disinterested third party lead these discussions. It is normal human nature to assume the way things are done currently are the best practice. There are some cutting edge activities, that are closely aligned with industry best practices, in many of the agencies. This provides a solid foundation for successful IT consolidation.

DISC's organization will change dramatically in size and scope of activities. It is believed that in order to absorb this dramatic change in size and complexity that serious reorganization will need to occur to make DISC the most effective and efficient. The reorganization will be a multi-year multi-step process, but will be critical for IT consolidation success.

BUY-IN

IT Consolidation is not universally popular notion across state agencies. For the reasons outlined above, there is considerable trepidation amongst state agency personnel. The status quo gives them the flexibility to solve their own problems in the way that makes sense for their individual agencies. When looked at in isolation their position is correct, but at the same time this flexibility leads to redundant, siloed and incompatible solutions. This duplicated effort is not the most efficient usage of personnel or resources. Governing Magazine points out that the human component is a critical, yet often unspoken, factor in IT Consolidation success:

> The spate of announcements concerning consolidation have focused relentlessly on numbers: cost savings, reductions in physical space and energy consumption, and roll-ups of e-mail systems, indicating a substantial shrinkage of what was once a bewildering array of IT systems. Left unsaid, for the most part, is the human factor: How will consolidation impact the IT workers and agency CIOs, many of whom have been working in government for decades? And how will they respond to the vast re-engineering of their jobs? At one time, these professionals provided the e-mail, networking and data services that each agency needed. Now they must think of themselves as customers of these newly centralized services.[49]

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[48] Note these skills are in existence in some agencies but as an enterprise consideration needs to be given to raise the level in some areas to support the consolidated infrastructure at this scale.

[49] "Merging IT Systems Causes Problems for States and Localities" Governing Magazine. September 2010.

The human factors associated to IT consolidation must be accounted for if there is any hope for successful consolidation. Past state consolidation efforts outline the following possible human related issues:

- Agency belief that their unique situation exempts them from IT consolidation
- Change resistant CIO's and IT staff slowing down and/or attempting to sabotage consolidation activities
- Small agencies beliefs that their needs will be overshadowed by larger agencies
- Agency fear that service levels will decrease and their cost to provide IT will increase
- Agency IT employee fear of job uncertainty in consolidated environment

All of these issues can be solved with proper mitigation strategies. These strategies revolve around an empowered State CIO, an effective and responsive central IT organization, a focus on customer service and communication, and preparing state IT employees for their new roles and giving them adequate training.

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V. IT CONSOLIDATION BENIFITS

If the IT consolidation strategies and recommendations are implemented successfully the benefits for Kansas will include:

IMPROVED GOVERNMENT AND EMPLOYEE PRODUCTIVITY

The State of Kansas has an exceptional employee base. Efforts to consolidate and streamline IT will enable employees to be more productive.

State agencies have tremendous expertise in all technical areas that could be leveraged to create leading class technical support structures for all the consolidation options outlined above. Instead of having redundant agency IT teams all performing the same duties, there could be one single team maintaining the consolidated solutions.

With a single way to identify all state employees, data sharing between agencies will be more common. The authorization process will be simple with common employee identification that can be completed quickly. Data sharing will no longer be a significant effort, which often requires system modification and long amounts of time. This will allow employees to leverage information across multiple agencies leading to better decision-making capabilities. With an ever-increasing number of cross-agency support groups being created[50] having state information available for use across these groups will make Kansas government more efficient. Included in this common identity system, a common email solution for all state employees will be more cost effective and easier to support and administer than the 20 uniquely hosted email solutions that exist today.

The Unified Communication and Collaboration project will enable our leading class employees to serve our citizens more efficiently. Cross-agency collaboration will be simple and easy. Employees from different agencies will be able to share a common workspace and collaborate seamlessly on projects. Project sites can be created so project managers can make available their project details, documents, efforts, and tasks to all participating agencies. A State of Kansas Intranet will allow state agencies to share solutions with all other agencies. Agency staff will have access to information appropriate to their job functions without having to replicate that information in each agency.

All state employees need basic capabilities in order to achieve maximum efficiency. This basic capability is needed regardless of agency size. Enterprise solutions should be put into place to allow common computing capabilities to be used by all state employees. Common computing solutions for all employees would enable a highly efficient workforce with better tools, and better access to needed information. These solutions could open up the possibility for mobile or remote computing when the demands of the job require it. Agencies would not have to attempt to solve these issues in isolation. They would be available for the enterprise, ceasing to allow an agency technology gap to exist.

Successful IT consolidation projects involving email, identity, data sharing, and unified communications and collaboration have the ability to revolutionize the way state employees perform their jobs. They will have modernized tools and capabilities allowing them to perform their jobs better, more accurately, and more effectively.

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[50] Example of cross-agency support groups: Kansas Criminal Justice Information System, Kansas Reentry Commission, Kansas Business Center, PK-30 effort, ect

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While the above efforts will enable all workers to become more efficient, additional investments in the state workforce will allow for continuous efficiencies to occur and reduce our dependence on consultants. The IT employees of Kansas should be trained in IT architecture, system design, requirement gathering, and data administration. Additionally, all managers should be trained in business process and performance management. There is demand for this type of training. Over 300 state employees have completed an introductory training on business processes or data modeling developed and provided by the Chief Information Technology Architect over the past year. Training programs, like the ones mentioned above, will give state employees the necessary skills needed help transform government by improving how the state does business at the same time increasing citizen satisfaction and reducing risk.

IMPROVED GOVERNMENT INTERACTION WITH BUSINESSES AND CITIZENS

Kansas is underutilizing its ability to support the businesses and individuals in Kansas. Agencies develop their own unique ways to communicate, regulate, license, and support their customers. The Kansas Business Center helps reduce this federation by having a common website that business owners can use to find information and documentation. But having a common website for business interaction is only a beginning step. Businesses and individuals want to be able to go to one place to fill out their information, check on their status, and receive updates. They want to fill out their information once, and have it be used by every agency in Kansas. In order to achieve this vision, agency business processes need to be integrated and information needs to be shared across agencies.

IT consolidation projects can occur to help with this transition. Currently there is no easy way to share data across agencies. With a common identity solution and a modern enterprise service/data bus, it will be easier for cross-agency communication and data sharing. Having these foundational components in place will allow for the next generation of business applications to be developed to utilize this enhanced functionality.

Individuals working with state government also have many of the same needs as businesses. They want to be able to work with the State of Kansas, not one hundred unique agencies. Also, they want to have a place they can find all state services they are eligible to receive, enroll in those services, and get updates and status on their services.

Not having a common enterprise eligibility and enrollment service limits Kansas' ability to propose the correct services to our citizens. This can be done better. It will take considerable effort and will not be easy. The same technology needed for enhanced business interaction can be used and a building block for better citizen interaction. Agency leaders will need to work together and make the necessary changes to see this to fruition.

IMPROVED INFORMATION ACCESS AND DESCISION MAKING

The State of Kansas has outstanding information available to its workforce. However in almost all cases this information access is limited to a small set of agency workers. Most government line of business areas[51] have specifically identified data and content across many different agencies. If this data was

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[51] Examples include public safety, human services, education, and economic development.

assembled properly and easily available to the broader workforce there would be quicker and more reliable decisions made, since the decisions are being made with real-time data.

Better access to information, more consistent views of information, uniform tools to access information, and standardized tools to deliver performance reports can all be enabled with IT consolidation strategies around storage, data sharing, identity management, and common security models.

The benefits of improved information access and decision making by the state work force can be realized with all state servers and data being in common locations, with centralized administration and oversight. Agencies will still be able to administer the data, assign data access roles, and security profiles, but the centralization can allow for standardization on data catalogs and formats. Information will be more available and easier to share and access. The current state-wide Geographical Information System data sharing project coordinated by the DASC in Lawrence is the best example of how to accomplish statewide data sharing.

IT consolidation strategies will allow for Kansas to modernize the way data is used and consumed in the state. Data as a Service, master data management, and data exchange standards can all be developed in this consolidated environment.

Data access and sharing has traditionally been within agency's application development domain, but there are certain sets of data and capability that must be expanded to the enterprise. The spectrums of maturity between agencies is wide and varied. Some agencies have significant accomplishments with data collection and sharing, and others are lacking the skills and maturity. Using common tools for business reporting and data access can help solve this maturity gap. Kansas has great best practices occurring in state agencies that should be expanded and scaled statewide. Mandating use of industry standard data standards and information exchange models, such as the National Information Exchange Model, in all new IT projects will help make the information more available and accessible to all users of the data.

MODERNIZED TECHNOLOGY AND SUPPORT INFRASTRUCTURE

The investments in IT solutions that have occurred over the last several decades are mostly still in use today. These "legacy" infrastructures require specialized knowledge, tools, and vender support. We constantly add on and expand these legacy systems without removing or modifying the old portions of the system. Imagine this practice occurring in building architecture, where a building that once started as a wood shack is now a towering skyscraper, yet the wood shack foundation is still the cornerstone of the structure. Many of the IT systems in Kansas are modern day skyscrapers, but have the foundation of a wood shack. This load of legacy solutions increases our risk, makes it more costly to support, and more difficult to recover and maintain. Many systems today are supported by the last person who knows how to run the system. When that person leaves, the agency will be in a crisis.

With the maturity of the KITA and the agency architects, Kansas has the opportunity to design and implement solutions statewide. The commitment to an enterprise set of architecture options can be achieved if agencies cannot "opt out" for convenience sake. Kansas IT Architecture can deliver a solid set of solutions that agencies can use to design, build and/or buy for that would be a dramatic decrease in the cost and complexity associated with the current set product interdependencies.

This will still allow for agency choices. There would be two or three common approaches for server hosting, data and content storage, storage and common ways to move and share data that will drive

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down the cost to develop and deploy systems significantly. When this common solution architecture is hosted in the two proposed data centers Kansas will deliver increased stability, reduced risk, reduced cost of systems, and a more effective IT support staff. It will also allow the IT community to leverage skills learned in one agency when they move to other agencies.

These solutions, in most cases, already exist in one or more agencies. These solutions can scale up for enterprise use with IT consolidation. Other technologies can be twilighted at end of life, and the statewide system can used.

This modernized infrastructure will bring several benefits in the area of reduced energy costs, decreased carbon footprint for IT data centers, ability to support agency continuity of operation plans, and ability to recover from disaster.

In order to move towards a modernized technology and support infrastructure several activities need to occur:

- Bring visibility to the State CIO on all IT purchases and work efforts.
- Develop Kansas Information Technology Architecture (KITA) targets for all new system development.
- Develop KITA-based deployment models for standardized IT procurement and RFP development.
- Determine what technologies and systems to twilight, retire, and/or convert

REDUCED COST OF IT OPERATIONS WITH MORE FUNCTIONALITY

The cost of information technology in Kansas has grown at roughly 3% a year for the last ten years. Efforts to streamline procurement and contracting, instituting IT governance and project management, and ad hoc agency collaboration have helped maintain this modest growth. The following chart shows the slow growth of IT expenditures in Kansas:

Total IT Expendatures
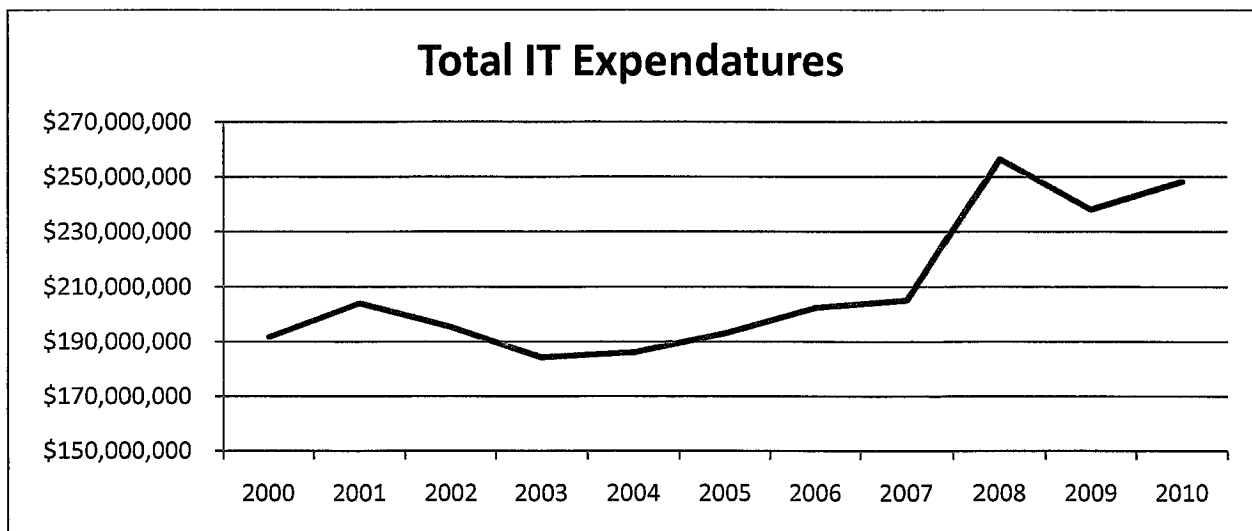
If left unchecked, the IT expenditures in Kansas will dramatically increase. In 2002 Kansas spent $192 million on IT. In 2010 Kansas spent $248 million. If the current trend of 3% growth remains stable, in 2020 Kansas will spend $335 million.

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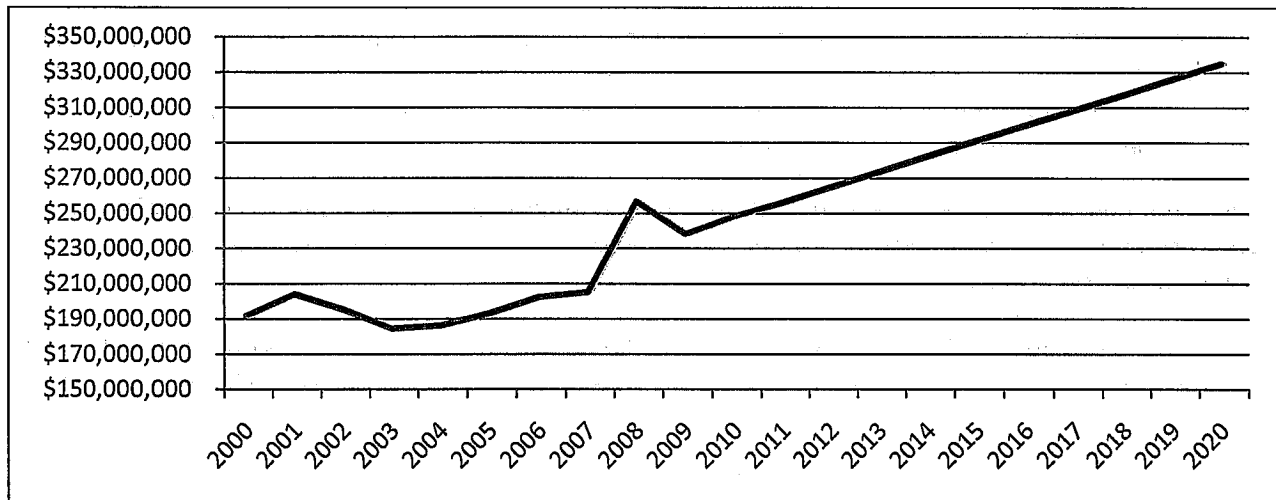
But the total IT expenditures only shows a part of the cost equation of IT in Kansas. The two major, and related, trends have occurred in the last eight years that have accounted for this increase in IT expenditures: The rapid growth of consultant expenses and the growth of host systems.

Expenditures on IT employees have remained flat, while expenditures on consultants have increased dramatically. In the past eight-years, classified IT employee expense has decreased from $55 million in 2002 to $50 million in 2010. In the same timeframe, IT consulting expenditures have increased from $16 million in 2002 to $42 million in 2010. The following chart illustrates this trend:
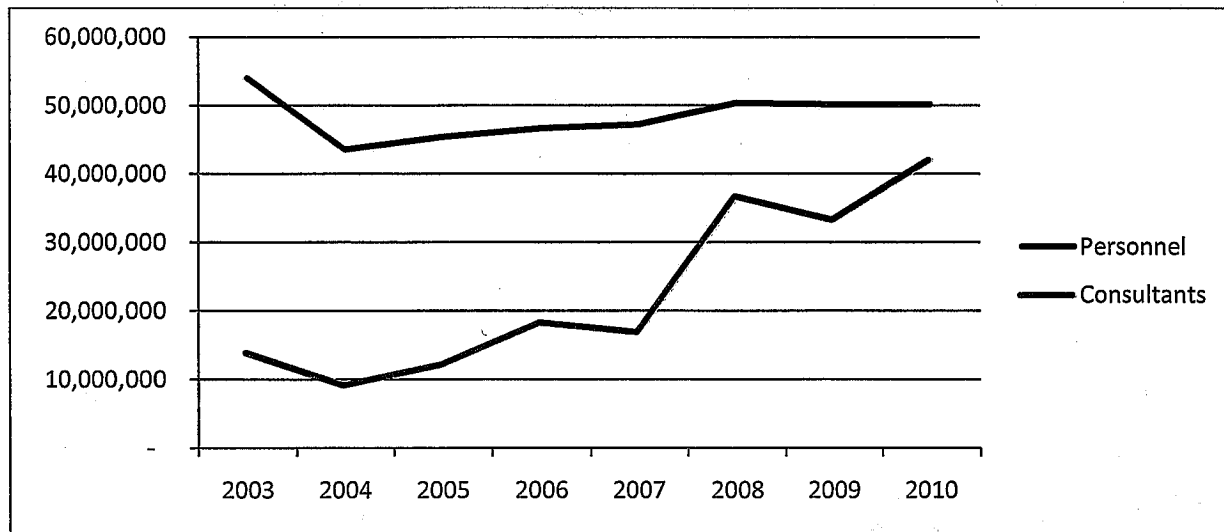
As personnel costs were held relatively constant during the last eight years, there was a dramatic increase in consultant expenses. This trend is not unlike the consolidation that happened in the Federal government[52]. Demand for IT services will only increase over the next ten years. More government services will be available on the Internet, as our citizens demand government access and transparency of government online. Assuming this cost trend continues in a linear fashion, the IT expenses for IT personnel and consultants will look like this:

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[52] "IT Key Metrics Data 2010: Key Industry Measures: Government Analysis: Current Year" Gartner Research. 2010.

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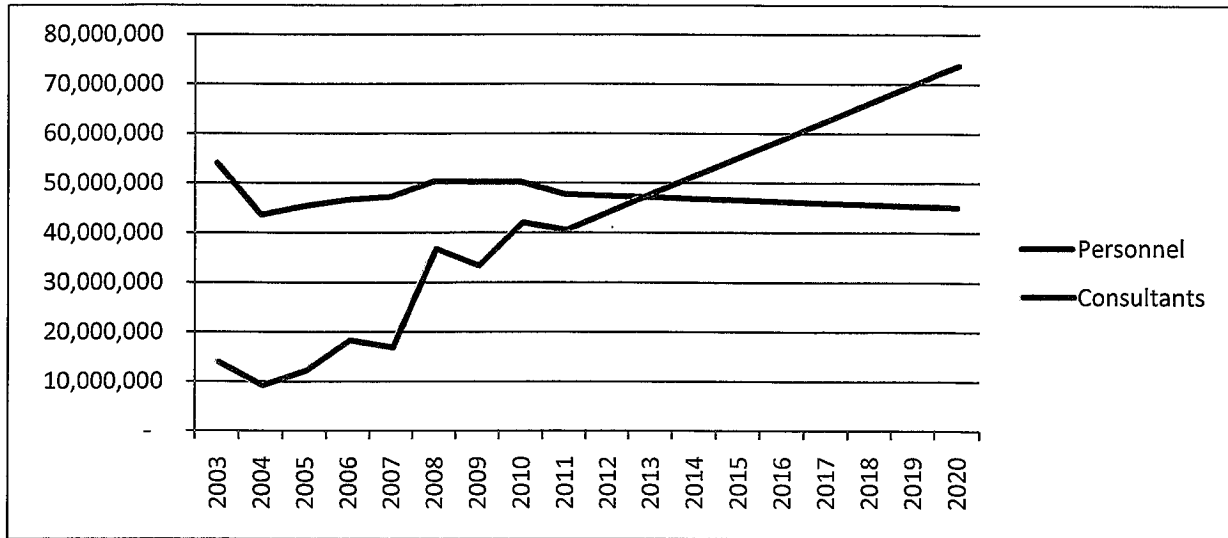
One of the important goals of IT consolidation strategies will be to minimize this consultant growth. The following IT consolidation strategies could help stabilize this growth curve:

- Decrease the unneeded complexity that exists currently. IT consolidation will decrease the number of products that exist in the application portfolio in Kansas. This will decrease the cost of support, and the cost installation.
- Middleware solutions will be deployed centrally rather than multiple times across agencies.
- Training state IT staff appropriately and adequately

The second trend in IT expenditures in the last eight years is the growth of host systems. Host systems are defined as "any networked computer that provides services to other systems or users." As explained earlier, the last decade has seen a transition away from mainframe computing and towards using server based computing. In those eight years host system expenditures have increased by $19 million as expressed in the following graph:
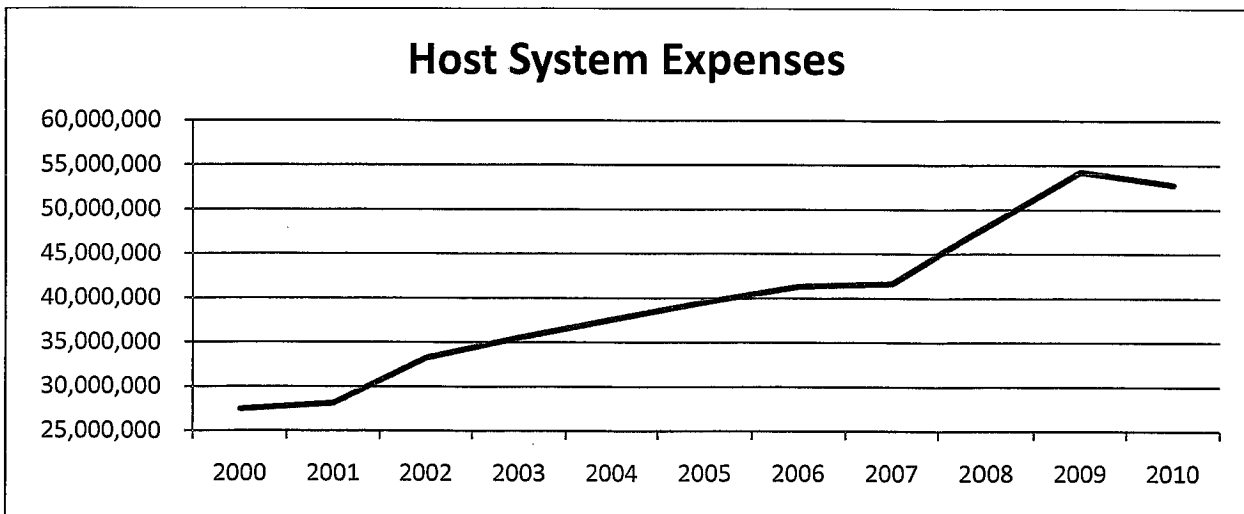
This increase in expense over time is directly proportionate to the escalation of servers in Kansas. If you compare the rate of server expansion to host system expenses, you get the following results:

7-64
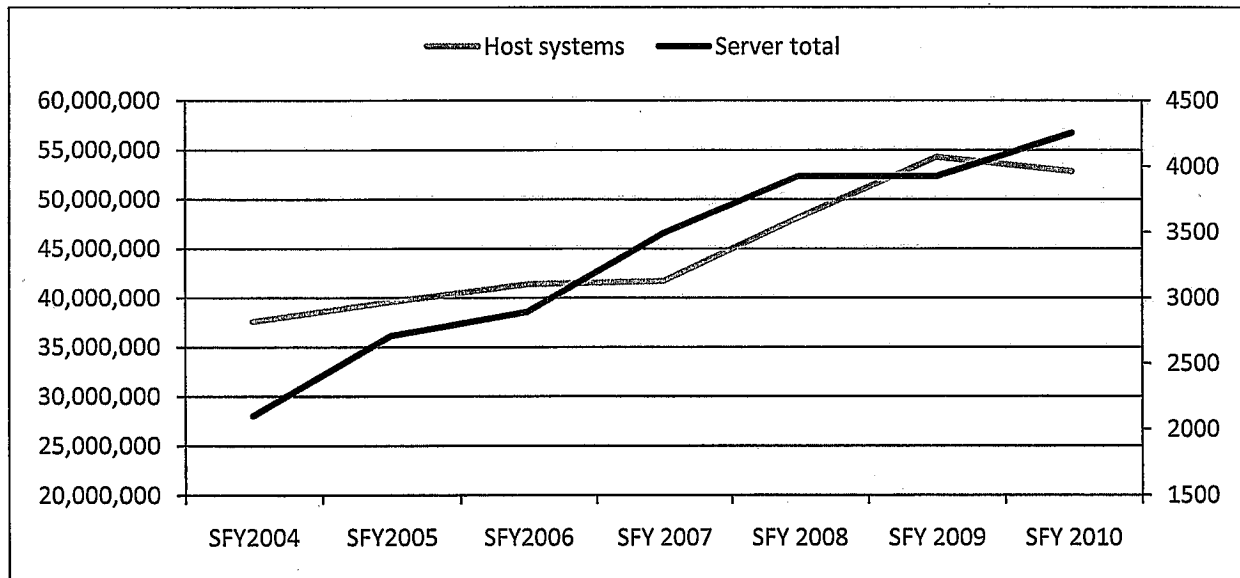
The demand for IT and thus the demand for more computing power is expected to continue to grow. It is also expected that the cost of maintaining those host systems will continue to grow at the same level. Many of the IT Consolidation strategies outlined above could help stabilize the cost of host systems:

- Server virtualization can decrease the hardware cost associated with provisioning new servers
- Data center consolidation has the potential to decrease the cost associated with hosting servers in redundant facilities
- Consolidated and shared applications (identity, email, other middleware applications) and services can reduce the number of servers because duplicated environments are eliminated

Over the past ten years, Kansas has seen a modest annual increase in IT expenses. Those increases come from an increase in money spent on consultants and host systems. If left unchecked, it is projected the state's IT budget could grow to $335 million by 2020. That would be an $86 million growth from 2010. The IT consolidation strategies outlined in this report, if completed successfully can lead to a stabilization of IT expenditure growth while at the same time provide more and better services to state employees, citizens, and businesses.

Other states' consolidation projects have proven that it is possible to hold IT costs steady while actively pursuing consolidation activities. In order to achieve this goal, a few critical components must be in place:

Strong executive support: Usually through an executive order, the governor must give authority to IT leadership to lead a consolidation effort and give a mandate to state agencies to engage and participate in the consolidation project. Having the ability for agencies to opt-out of consolidation increases the likelihood for failure. In many cases, most – if not all – agencies need to participate in order to achieve the economies of scale that makes IT consolidation attractive financially.

Cabinet level CIO: The IT consolidation executive order must also elevate the role of the state CIO to a cabinet level position. In this new role, the CIO needs to have approval over all IT expenditures in state government and give direction for shared services. States have various thresholds for this approval level ranging from any expense to upwards of $100,000. In the

states with the most success the threshold for approval was low and gave the CIO the necessary power to force consolidation.

Adequate data center facilities: Without proper data center facilities IT consolidation projects can only go so far. The State will need to fund investment into two new data centers that can adequately host all state computer equipment. Upfront investment in data centers is necessary to achieve the most long-term cost savings.

Other states have proven that if these prerequisites are met there can be a substantial cost savings in a consolidated IT environment. Moving towards consolidation should, at very least, be able to stabilize the IT expenditures at its current levels. To hold IT expenses constant with consolidation, it would only require 3% annual efficiency gains from IT consolidation projects. This rate of increased efficiency is realistic when considering Indiana's consolidation has achieved almost double that return annually since 2005.

To examine the potential savings over time if IT consolidation achieved budget stabilization the following two scenarios were ran.

- Current trend of IT expenditures levels were forecasted for the next 10 years at the past 10-year growth rate of 3%.
- Stabilized IT expenditures at FY2010 levels with an additional 10 million dollar annual appropriation included to fund acquiring two new data centers as outlined in Section II.

The following charts illustrate this forecasting:
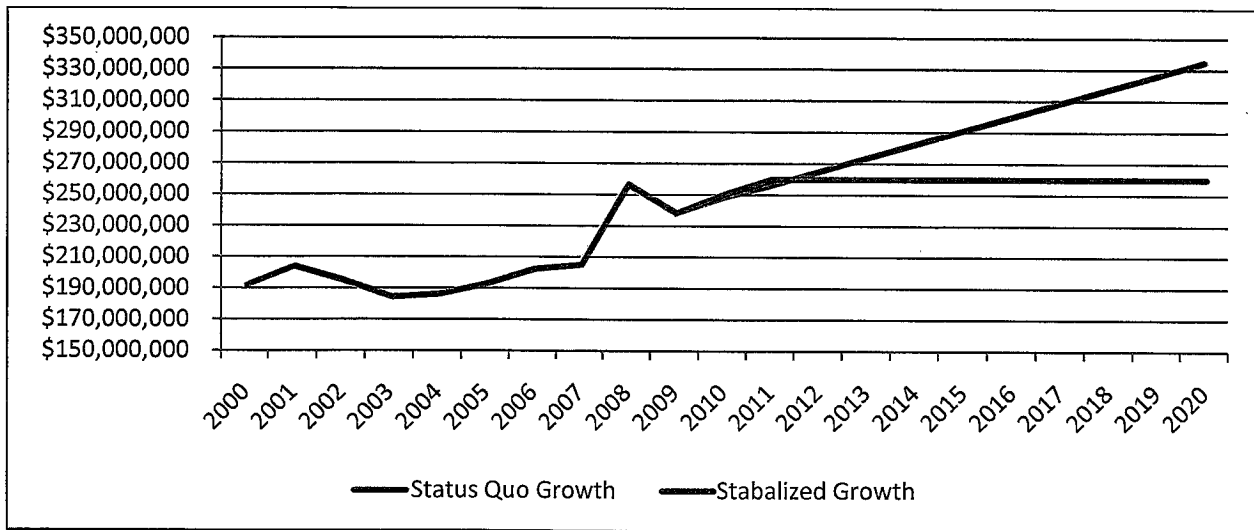
Year	Status Quo Growth	Stabilized Growth	Yearly Savings	Cumulative Savings
2010	$248,263,436	250,266,816		
2011	$255,933,944	259,701,000	-$3,767,056	(3,767,056)
2012	$264,702,897	259,701,000	$5,001,897	1,234,840
2013	$273,471,850	259,701,000	$13,770,850	15,005,690
2014	$282,240,803	259,701,000	$22,539,803	37,545,493
2015	$291,009,756	259,701,000	$31,308,756	68,854,249
2016	$299,778,709	259,701,000	$40,077,709	108,931,958

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Year	Status Quo Growth	Stabilized Growth	Yearly Savings	Cumulative Savings
2017	$308,547,662	259,701,000	$48,846,662	157,778,620
2018	$317,316,615	259,701,000	$57,615,615	215,394,235
2019	$326,085,568	259,701,000	$66,384,568	281,778,803
2020	$334,854,521	259,701,000	$75,153,521	356,932,324

If the State of Kansas takes the necessary steps to make IT consolidation successful it could conservatively avoid spending $357 million dollars in the next 10 years. Achieving this savings can only occur with strong leadership, large-scale acceptance, and proper facilities.

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VI. CONCLUSION

Now is the right time for the State of Kansas to purse IT consolidation. The National Association of State Chief Information Officers (NASCIO) contends that 62% of the states are pursuing some type of IT consolidation. Since other states have begun consolidating IT before Kansas, we can learn from both the successful and not as successful states when developing their IT consolidation. For example:

- Missouri began consolidation in 2006 by creating a state CIO in charge of all IT in the state.
- Nebraska began consolidation in 2007 with a Governor's mandate to centralize email and identity. 18 months later the state is running on one email platform. Due to the success of that consolidation, Nebraska embarked on a more comprehensive plan to consolidate IT.
- Indiana began consolidation in 2005 with a focusing on creating a top-notch central IT organization demanding outstanding customer service and support. As a result, it has saved over $15 million dollars annually, and continues to drive down the cost to provide IT to its agencies.

While Missouri, Nebraska and Indiana can be looked at as states that have successfully consolidated IT, many states have not been as successful as they had wanted:

- Texas outsourced their entire IT infrastructure. Cost savings associated with this strategy have not come to fruition.
- Virginia also outsourced their entire IT infrastructure. Cost savings are currently unknown, but they have learned that managing an outsourced IT infrastructure requires management skills and an organizational culture that is dramatically different than required in normal IT operations.
- Colorado has made many positive steps, but have fallen short on the savings they projected in their initial consolidation plans.

California is in the beginning stages of IT consolidation and is focused on the same recommendations this study outlines: data centers, server virtualization, and email.

IT Consolidation is not new in Kansas. This state has a long and successful history of IT consolidation. It began in the 1970's with the KAN-SAN telephone system, it continued in the 1980's with mainframe consolidation, and in the 1990's and 2000's with limited data center consolidation, and centralized Human Resource and Accounting systems. Executing the recommendations of this study can help write another successful chapter of IT consolidation in Kansas.

IT consolidation is also occurring in the other branches of Kansas government. The Judicial branch's Full Court application consolidation and the Legislative Branch's KLISS application consolidation are successful consolidation activities. Both applications reduced the number of siloed applications and put into place a complete and robust system that is driving the judicial and legislative activities in Kansas. The benefits of these consolidations include reduced cost by sharing IT infrastructure staff, services, software, and data center space.

Kansas should begin its next major IT consolidation project by moving towards a common electronic mail and identity solution. As other states have proven before, this project is relatively simple to execute and sets the stage for future consolidation projects. A common statewide email solution achieves significant cost savings, reduces needless technology complexity, and makes communication and collaboration with state government easier.

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At the same time, two new state-of-the-art data centers should be invested in. When the data center facilities are running, the state should aggressively move all computer equipment to these locations using virtualized servers and shared storage whenever possible. With this centralized infrastructure in place more aggressive IT consolidation strategies, like middleware application consolidation can be obtained.

If done successfully, IT consolidation can make State of Kansas government run more efficiently, and at the same time serve Kansas' citizens more effectively.

MEMO

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DATE: December 14, 2010

TO: Members of the Joint Committee on Information Technology

FROM: Carole Jordan *Carole Jordan*

RE: Information request regarding Kansas Broadband Mapping and Planning project

Thank you for the opportunity to provide more information on the Broadband Mapping and Planning project that the Department of Commerce is managing through the state's designee, Connected Nation, a non-profit organization. Through grant dollars made available through the American Recovery and Reinvestment Act of 2009, each state in the nation is required to collect specific data to create a map of broadband Internet access. All 50 states, five territories, and the District of Columbia, or their designees, were required to collect and verify statewide data about the availability, speed, and location of broadband Internet. These state maps will go into a nationwide map to be released in February 2011.

Attached is information you requested, including:

- State Broadband Data and Development (SBDD) Summary and information on the national map.

- SBDD Notice of Funds Availability—detailed requirements for mapping and planning.

- Request for proposal language and RFP notice from Kansas purchasing program.

- List of states for which Connected Nation is developing and maintaining maps.

Attachment 8
JCIT 12-15-10

State Broadband Data and Development Program

Launched in 2009, NTIA's State Broadband Data and Development (SBDD) Program implements the joint purposes of the Recovery Act and the Broadband Data Improvement Act, which envisioned a comprehensive program, led by state entities or non-profit organizations working at their direction, to facilitate the integration of broadband and information technology into state and local economies. Economic development, energy efficiency, and advances in education and health care rely not only on broadband infrastructure, but also on the knowledge and tools to leverage that infrastructure.

Since the program's inception, NTIA has awarded a total of $293 million to 56 grantees, one each from the 50 states, 5 territories, and the District of Columbia, or their designees. Grantees will use this funding to support the efficient and creative use of broadband technology to better compete in the digital economy. These state-created efforts vary depending on local needs but include programs to assist small businesses and community institutions in using technology more effectively, research to investigate barriers to broadband adoption, innovative applications that increase access to government services and information, and state and local task forces to expand broadband access and adoption.

Since accurate data is critical for broadband planning, another purpose of the SBDD program is to assist states in gathering data twice a year on the availability, speed, and location of broadband services, as well as the broadband services that community institutions, such as schools, libraries and hospitals, use. This data will be used by NTIA to update a public searchable, interactive national broadband map once it is completed by the agency by February 17, 2011.

additional copy of those comments on diskette.

Any interested party may request a hearing within 30 days of publication of this notice. *See* 19 CFR 351.310(c). Hearing requests should contain the following information: (1) the party's name, address, and telephone number; (2) the number of participants; and (3) a list of the issues to be discussed. Oral presentations will be limited to issues raised in the briefs. If a request for a hearing is made, parties will be notified of the time and date for the hearing to be held at the U.S. Department of Commerce, 14th Street and Constitution Avenue, NW, Washington, DC 20230. *See* 19 CFR 351.310(d).

The Department will issue the final results of this administrative review, which will include the results of its analysis of issues raised in any such comments, within 120 days of publication of these preliminary results, pursuant to section 751(a)(3)(A) of the Act.

Assessment Rates

The Department will determine, and CBP shall assess, antidumping duties on all appropriate entries of subject merchandise in accordance with the final results of this review. For assessment purposes, we calculated exporter/importer- (or customer) -specific assessment rates for merchandise subject to this review. Where appropriate, we calculated an *ad valorem* rate for each importer (or customer) by dividing the total dumping margins for reviewed sales to that party by the total entered values associated with those transactions. For duty-assessment rates calculated on this basis, we will direct CBP to assess the resulting *ad valorem* rate against the entered customs values for the subject merchandise. Where appropriate, we calculated a per-unit rate for each importer (or customer) by dividing the total dumping margins for reviewed sales to that party by the total sales quantity associated with those transactions. For duty-assessment rates calculated on this basis, we will direct CBP to assess the resulting per-unit rate against the entered quantity of the subject merchandise. Where an importer- (or customer) -specific assessment rate is *de minimis (i.e.,* less than 0.50 percent), the Department will instruct CBP to assess that importer (or customer's) entries of subject merchandise without regard to antidumping duties. We intend to instruct CBP to liquidate entries containing subject merchandise exported by the PRC–wide entity at the PRC–wide rate we determine in the final

results of this review. The Department intends to issue appropriate assessment instructions directly to CBP 15 days after publication of the final results of this review.

Cash–Deposit Requirements

The following cash–deposit requirements will be effective upon publication of the final results of this administrative review for all shipments of the subject merchandise from the PRC entered, or withdrawn from warehouse, for consumption on or after the publication date, as provided by section 751(a)(2)(C) of the Act: (1) for CPZ, the cash deposit rate will be that established in the final results of this review, except if the rate is zero or *de minimis* no cash deposit will be required; (2) for previously investigated or reviewed PRC and non–PRC exporters not listed above that have separate rates, the cash deposit rate will continue to be the exporter–specific rate published for the most recent period; (3) for all PRC exporters of subject merchandise which have not been found to be entitled to a separate rate, the cash deposit rate will be the PRC–wide rate of 92.84 percent; and (4) for all non–PRC exporters of subject merchandise which have not received their own rate, the cash deposit rate will be the rate applicable to the PRC exporters that supplied that non–PRC exporter. These deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Importers

This notice also serves as a preliminary reminder to importers of their responsibility under 19 CFR 351.402(f) to file a certificate regarding the reimbursement of antidumping duties prior to liquidation of the relevant entries during this review period. Failure to comply with this requirement could result in the Secretary's presumption that reimbursement of antidumping duties occurred and the subsequent assessment of double antidumping duties.

We are issuing and publishing these preliminary results of review in accordance with sections 751(a)(2)(B) and 777(i)(1) of the Act, and 19 CFR 351.221(b).

Dated: June 30, 2009.

John M. Andersen,

Acting Deputy Assistant Secretary for Antidumping and Countervailing Duty Operations.

[FR Doc. E9–16096 Filed 7–7–09; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

National Telecommunications and Information Administration

RIN 0660–ZA29

State Broadband Data and Development Grant Program

AGENCY: The National Telecommunications and Information Administration, U.S. Department of Commerce.

ACTION: Notice of funds availability (Notice) and solicitation of applications.

SUMMARY: The National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce, publishes this Notice to announce the availability of funds pursuant to the American Recovery and Reinvestment Act of 2009 (Recovery Act), Public Law 111–5 (Feb. 17, 2009), and the Broadband Data Improvement Act (BDIA), Title I of Public Law 110–385, 122 Stat. 4096 (Oct. 10, 2008) and to provide guidelines for the State Broadband Data and Development Grant Program (State Broadband Data Program or Program). The State Broadband Data Program is a competitive, merit-based matching grant program that effects the joint purposes of the Recovery Act and the BDIA by funding projects that collect comprehensive and accurate State-level broadband mapping data, develop State-level broadband maps, aid in the development and maintenance of a national broadband map, and fund statewide initiatives directed at broadband planning.

DATES: Applications will be accepted from July 14, 2009 at 8 a.m. Eastern Time (ET) until August 14, 2009 at 11:59 p.m. ET.

ADDRESSES: All applications must be submitted through the online Grants.gov system no later than 11:59 p.m. ET on August 14, 2009, as more fully described in the section entitled "Request for Application Package" below. Failure to properly register and apply for State Broadband Data Program funds by the deadlines may result in forfeiture of the grant opportunity. Applications are accepted until the deadline and processed as received. Applications submitted by hand delivery, mail, email or facsimile will not be accepted.

FOR FURTHER INFORMATION CONTACT: For general inquiries regarding the State Broadband Data Program, applicants may contact Edward "Smitty" Smith, Program Director, State Broadband Data and Development Grant Program,

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National Telecommunications and Information Administration, U.S. Department of Commerce, 1401 Constitution Avenue, NW., Room 4898, Washington, DC 20230; by telephone at 202–482–4949 or via electronic mail at *broadbandmapping@ntia.doc.gov.* Information about the State Broadband Data Program can also be obtained electronically via the Internet at *http://www.ntia.doc.gov/broadbandgrants.*

SUPPLEMENTARY INFORMATION: Catalog of Federal Domestic Assistance (CFDA) Number: 11.558.

Additional Items in **SUPPLEMENTARY INFORMATION:**

I. *Overview:* Describes the statutory origin of the broadband mapping requirement under the Recovery Act, the applicability of the BDIA, the structure of the Program and the public comment process.

II. *Funding Opportunity Description:* Provides a more thorough description of the Program, including a description of mapping and planning priorities, and the application review process.

III. *Definitions:* Sets forth the key terms and other terms used in this Notice.

IV. *Award Information:* Describes funding availability and other award information.

V. *Eligibility Information:* Discusses eligibility criteria, including the 20 percent match, confidentiality requirements, and funding restrictions.

VI. *Application and Submission Information:* Provides information about how to apply, application materials, and the application process.

VII. *Application Review Information:* Establishes the scoring criteria for evaluating applications.

VIII. *Anticipated Award Dates:* Identifies the initial award announcement and award dates for Program awards.

IX. *Award Administration Information:* Provides award notice information, administrative requirements, terms and conditions, and other reporting requirements for award recipients.

X. *Other Information:* Sets forth guidance on funding, compliance with various laws, regulations and other such requirements.

I. Overview

A. *The Recovery Act:* Section 6001(l) of the Recovery Act requires the Assistant Secretary to develop and maintain a comprehensive, interactive, and searchable nationwide inventory map of existing broadband service capability and availability in the United States that depicts the geographic extent to which broadband service capability is deployed and available from a commercial or public provider throughout each State.[1] The Recovery Act requires the Assistant Secretary to make the national broadband map

[1] Recovery Act section 6001(l), 123 Stat. at 516. See Section IV for the definition of "State" and other relevant definitions.

accessible by the public on an NTIA Web site no later than February 17, 2011.[2] The Recovery Act authorizes NTIA to expend up to $350 million pursuant to the BDIA and for the purposes of developing and maintaining a broadband inventory map.[3] Implementation of the BDIA is useful to fulfill Congress' intent to develop a national broadband map as expressed and funded under the Recovery Act.

B. *The BDIA:* The BDIA is intended to improve data on the deployment and adoption of broadband service to assist in the extension of broadband technology across all regions of the United States.[4] Section 106 of the BDIA directs the Secretary of Commerce to establish the State Broadband Data Program and to award grants to eligible entities to develop and implement statewide initiatives to identify and track the adoption and availability of broadband services within each State.[5] In effecting this purpose, the BDIA provides several eligible uses for grant funds, including uses related to the gathering of broadband-related data at the State level and the development of statewide broadband maps.[6]

C. *The State Broadband Data Program:* In keeping with the Recovery Act's direction that NTIA develop and maintain a comprehensive and interactive national broadband map and the requirements of the BDIA, NTIA has established this grant program. Awardees under this Program will

[2] *Id.*

[3] Recovery Act, Title II, Div. A, 123 Stat. at 123 (to be codified at 47 U.S.C. 1301).

[4] BDIA § 102, 122 Stat. at 4096.

[5] BDIA § 106(b), 122 Stat. at 4099. The Secretary delegated his authority to meet the obligations of Section 106 of the BDIA to the Assistant Secretary for Communications and Information (Assistant Secretary) on April 9, 2009.

[6] The BDIA authorizes the Secretary to make grants to eligible entities for the following eligible uses: (1) To develop and provide a baseline assessment of broadband deployment in each State; (2) to identify and track the areas with low levels of deployment, the rate at which residential and business users adopt broadband service and other related information technology services, and possible suppliers of such services; (3) to identify barriers to the adoption of broadband service and information technology services; (4) to identify the available speeds for broadband connection; (5) to create and facilitate by county or designated region in a State, local technology planning teams; (6) to collaborate with broadband service providers and information technology companies to encourage deployment and use; (7) to establish computer ownership and Internet access programs in unserved and areas with lower than average penetration on a national basis; (8) to collect and analyze detailed market data concerning use and demand for broadband service; (9) to facilitate information exchange regarding use and demand for broadband services between public and private sector users; and (10) to create within each State a geographic inventory map of broadband service. BDIA § 106(e), 122 Stat. at 4100–4101.

receive grants to fund their collection of broadband-related data as well as funding for planning programs at the State level. Awardees will use the broadband-related data that they collect to develop statewide broadband maps, which will be linked to a Department of Commerce Web page. In addition, the awardees will submit all of their collected data to NTIA for use by NTIA and the Federal Communications Commission (FCC) in developing and maintaining the national broadband map, which will be displayed on an NTIA Web page before February 17, 2011.

NTIA's decisions are based on the statutory requirements of the Recovery Act and are informed by NTIA's own expertise, the expertise of other Federal agencies, including the FCC, and public comment.

D. *Public Comment:* On March 10, 2009, NTIA, the FCC, and the U.S. Department of Agriculture's Rural Utilities Service (RUS) cosponsored a public meeting to initiate public outreach about the current availability of broadband service in the United States and ways in which the availability of broadband service could be expanded.[7] The March 10th meeting was followed by the release of a Request for Information (RFI) and six days of additional public meetings and field hearings during March.[8] The RFI requested the submission of information on a broad range of topics including topics related to broadband mapping, the Recovery Act and the BDIA. The meetings and hearings included nearly 120 panelists with representatives from consumer and public interest groups, State and local governments, tribal governments, minority and vulnerable populations, industry, academia and other institutions.

In response to the RFI and the public meetings, NTIA received over 1,000 comments from institutions and individuals on the broadband initiatives funded by the Recovery Act.[9] With regard to the issues surrounding the State Broadband Data Program and the national broadband map that NTIA is

[7] *See* Notice: American Recovery and Reinvestment Act of 2009 Broadband Initiatives, 74 FR 8914 (Feb. 27, 2009).

[8] *See* Notice: American Recovery and Reinvestment Act of 2009 Broadband Initiatives, 74 FR 10716 (March 12, 2009). Agendas, transcripts and presentations from each meeting are available on NTIA's Web site at *http://www.ntia.doc.gov/broadbandgrants/meetings.html.*

[9] Agendas, transcripts, and presentations from each meeting are available on NTIA's Web site at *http://www.ntia.doc.gov/broadbandgrants/meetings.html.* All public comments in Docket No. 090309298–9299–01 are on file with NTIA and may be viewed on NTIA's Web site at *http://www.ntia.doc.gov/broadbandgrants/comments.cfm.*

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required to prepare under Section 6001(l) of the Recovery Act, NTIA received more than 200 comments, many of which played a role in formulating the structure of this Program. For further discussion and explanation of the policy decisions involved in establishing this program, see the attached *Policy Justification Appendix*.

II. Funding Opportunity Description

A. *Program Description:* The State Broadband Data Program is a competitive, merit-based matching grant program that implements the joint purposes of the Recovery Act and the BDIA through the award of grants. This Program is designed to fund projects that gather comprehensive and accurate State-level broadband mapping data, develop State-level broadband maps, aid in the development and maintenance of a national broadband map, and fund statewide initiatives for broadband planning.

While the BDIA mandates that each State may have only a single eligible entity, each applicant will be carefully evaluated against a program standard. Any applicant that fails to meet the program standard will not receive grant funding; therefore, the efficient fulfillment of the goals of the Recovery Act and the BDIA will be advanced by the submission of a qualifying application from each State highly responsive to the review criteria contained in this Notice. In the event that a State fails to produce a grant awardee, NTIA reserves the right to perform the necessary broadband data collection.

1. *Use of Collected Broadband Data by Awardees.* Awardees may use the data collected under this Program for any lawful use consistent with the requirements of this Program, including the confidentiality restrictions contained herein, and existing agreements between the awardee, the State, and broadband service providers. It is expected, however, that, in addition to providing all collected data to NTIA, applicants will use the data to develop and maintain a statewide broadband map that will be separate and distinct from the national broadband map and will be tailored to suit the needs of the particular State. Though it will be separate and distinct from the national broadband map, applicants must provide NTIA with a hypertext link to the State maps for display on a Web page on the Department of Commerce Web site.

2. *Use of Collected Broadband Data by NTIA and the FCC.* The data collected under this Program will be used for public purposes and also utilized by governmental entities. For example, because of its value in identifying appropriate areas for broadband investment and economic stimulus, the collected data will inform NTIA's grant-making decisions under the Broadband Technology Opportunities Program (BTOP). The national broadband map that will be developed and maintained using these and other data will publicly display the following information about broadband service available from a public or private provider:

(a) Geographic areas in which broadband service is available;

(b) The technologies used to provide broadband service in such areas;

(c) The spectrum used for the provision of wireless broadband service in such areas;

(d) The speeds at which broadband service is available in such areas; and

(e) Broadband service availability at public schools, libraries, hospitals, colleges and universities and all public buildings owned or leased by agencies or instrumentalities of the States or municipalities or other subdivisions of the States and their respective agencies or instrumentalities.

The national map will also be searchable by address. To the greatest extent possible, at every address, the type and speed of broadband service will be provided. For providers of wireless broadband service, the spectrum used for the provision of service will be provided. If the applicable broadband service provider so chooses, the provider's identity will also be available, otherwise the map will simply display that an anonymous provider utilizing a particular type of technology is providing service to a location. Furthermore, to the extent possible, the service areas of individual providers will be aggregated with other providers of the same technology type.

Though collected under this Program, data concerning the Average Revenue Per User (ARPU) and data regarding the type, technical specification, or location of infrastructure owned, leased, or used by a broadband service provider will not be displayed on the public national broadband map.[10] The above paragraphs notwithstanding, if provider consent is granted, NTIA may display the above provider-specific information on the national broadband map.

In addition to the above broadband-related information, the national broadband map may display a wide

[10] However, NTIA is considering methods for displaying some pricing data that will be collected through other avenues.

range of additional, economic, and demographic data derived from other sources. Such data, however, are not the subject of this Notice.

B. *Program Priorities:*

1. *Broadband Mapping.* With respect to this Program, NTIA's highest priority is the development and maintenance of a national broadband map. Therefore, NTIA intends to fund high-quality projects that are designed to gather data at the address-level on broadband availability, technology, speed, infrastructure, ARPU, and, in the case of wireless broadband, the spectrum used, across the project areas. NTIA has determined that the BDIA's eligible uses regarding State-specific data collection and geographic inventory broadband mapping activities are encompassed within the broadband mapping grant guidelines described herein. Successful projects must propose: (a) To provide comprehensive and verifiable data meeting the Program standards as published in this Notice, such data will be accessible and clearly presented to NTIA, the public, and State and local governments without unduly compromising data or the protection of Confidential Information as defined in this notice; (b) a workable and sustainable framework for repeated updating of data; (c) a plan for collaboration with State-level agencies, local authorities, and other constituencies, as well as a proposal for planning projects designed to identify and address broadband challenges in the State; (d) feasible projects as demonstrated by a reasonable and cost-efficient budget, and a showing of applicant capacity, knowledge and experience; and (e) a timeline for expedient data delivery.

2. *Broadband Planning.* Only applications that meet the broadband mapping purposes set forth in the above paragraph will be considered for planning funding, and mapping proposals do not need to include a planning component. However, applicants may propose projects or award uses that relate to an enumerated BDIA purpose described in Section I of this Notice that addresses a need in their State. Any proposed use of funds that is not directed towards the collection of data for, or the development and maintenance of, the State or national broadband map will be considered a planning use. There is a presumption that the BDIA purposes involving the identification of barriers to the adoption of broadband service and information technology services, the creation and facilitation of local technology planning teams, and the establishment of computer ownership

and Internet access programs are not mapping-related and therefore are only eligible for broadband planning funding. However, applicants may demonstrate in their applications how a use under such categories will inform the collection of broadband data or development of State and national broadband maps. Broadband planning funds will be limited, and broadband planning-related uses under any grant application budget may not exceed $500,000.

C. *Review and Selection Processes:*
The review process involves the three stages outlined below. NTIA anticipates that the processing and selection of applications for funding will require one (1) month from the date of submission.

1. *Eligibility.* Upon receipt, NTIA will screen applications for factors determining eligibility as described in the section entitled "Eligibility Information" below. In the case that NTIA determines that an application fails to address adequately any eligibility criteria before the application deadline, NTIA may alert the applicant of such deficiency and the applicant may revise such application before the application deadline to comply with Program requirements. However, NTIA has no affirmative obligation to notify applicants of a deficient application and will not be held responsible for any deficiencies that are not remedied in a timely manner.

2. *Technical Review.* Each eligible application will be reviewed by a panel of at least three peer/expert reviewers who have demonstrated expertise in both the programmatic and technological aspects of the Program. The peer/expert review panel members will individually evaluate applications according to the review criteria provided in Section VII of this Notice and provide ratings to the Program staff. Each peer/expert reviewer will be required to sign and submit a nondisclosure and confidentiality form to prevent the dissemination of Confidential Information, and to prevent financial and other conflicts of interest.

3. *Programmatic Review and Revision Process.* Following the Technical Review, each eligible application will be reviewed by Program staff for policy determinations and conformity with programmatic goals. Program staff will analyze applications considered for award to assess: (a) Whether a proposed project meets the Program's funding constraints; (b) the eligibility of costs and matching funds included in an application's budget; and (c) the extent to which an application complements or duplicates projects previously funded or

under consideration by NTIA or other Federal programs. Following this programmatic review, Program staff may contact an eligible applicant to discuss any recommended adjustments or revisions to their applications necessary to better meet Program goals. Revisions are intended to resolve any differences that exist between the applicant's original request and what the State Broadband Data Program proposes to fund and, if necessary, to clarify items in the application. Staff may also request additional corroborating documentation from applicants. These documents will be reviewed by Program staff with the support of external engineering, design, information technology, geographic information systems, broadband, and other subject-matter experts to evaluate the consistency of the applications with the supporting documents and ensure that applications merit State Broadband Data Program awards.

Upon the conclusion of the programmatic review and revision process, each application will continue through the selection process. The Program Director will prepare and present a slate of recommended grant awards to the Associate Administrator for review and approval. The Program Director's recommendations and the Associate Administrator's review and approval of those recommendations will take into account the selection factors listed below.

Upon approval by the Associate Administrator, the Program Director's recommendations will be presented to the Selecting Official, the Assistant Secretary. The Assistant Secretary selects the applications for grant award, taking into consideration the Program Director's recommendations and the degree to which the slate of applications, taken as a whole, satisfies the selection factors described below and the Program's stated purposes as set forth in the section entitled "Program Description."

The Selecting Official will issue awards after considering the following selection factors:
(a) The evaluations of the peer/expert reviewers;
(b) The analysis of Program staff;
(c) The degree to which the proposed grants meet the Program's purpose as described in this Notice;
(d) Avoidance of redundancy and conflicts with the initiatives of other Federal agencies; and
(e) The availability of funds.

III. Definitions

For the purposes of this Program, NTIA has adopted the following

definitions for the State Broadband Data Program, many of which were developed for BTOP, pursuant to Recovery Act Section 6001(a). Applicants for these grants should refer to the following definitions when completing their applications:

Applicant. An entity requesting approval for an award under this Notice.

ARPU. Average Revenue Per User. Average Revenue Per User for this Program is as defined in the *Technical Appendix.*

Assistant Secretary. The Assistant Secretary for Communications and Information, National Telecommunications and Information Administration, Department of Commerce, or the Assistant Secretary's designee.

Associate Administrator. The Associate Administrator of the National Telecommunications and Information Administration, Department of Commerce/the Director of the Office of Telecommunications and Information Applications, or the Associate Administrator's designee.

Available. Broadband service is "available" to an end user at an address if a broadband service provider does, or could, within a typical service interval (7 to 10 business days) without an extraordinary commitment of resources, provision two-way data transmission to and from the Internet with advertised speeds of at least 768 kilobits per second (kbps) downstream and at least 200 kbps upstream to the end user at the address.

Award. A grant made under this Notice by NTIA.

Awardee. A recipient of an Award under this Notice; a grantee.

Broadband. Data transmission technology that provides two-way data transmission to and from the Internet with advertised speeds of at least 768 kilobits per second (kbps) downstream and at least 200 kbps upstream to end users, or providing sufficient capacity in a middle mile project to support the provision of broadband service to end users within the project area.

Broadband Service. The provision of broadband on either a commercial or non-commercial basis.

BTOP. The Broadband Technology Opportunities Program, administered by NTIA, under Section 6001 of the Recovery Act.

Community Anchor Institutions. Schools, libraries, medical and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and entities.

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Confidential Information. Any information, including trade secrets, or commercial or financial information, submitted under this Program that: (1) Identifies the type and technical specification of infrastructure owned, leased, or used by a specific broadband service provider; (2) identifies the average revenue per user (ARPU) for a specific broadband service provider; or (3) explicitly identifies a broadband service provider in relation to its specific Service Area or at a specific Service Location. For example, a broadband service provider's specific service "footprint", as identified with such provider, will be considered Confidential Information for the purposes of this Program and will either (a) be aggregated with other available providers of the same technology type before being published in the national broadband map, in which case the map would only display the aggregated list of providers that have consented to have their names displayed for such service area; or (b) in the absence of other providers of the same technology type with which a provider's specific service "footprint" can be aggregated, be displayed without providing the provider's identity, unless the provider gives its consent. NTIA and the FCC may otherwise aggregate, combine or mask broadband service provider data, and take other steps so as to make such data suitable for public release.

Notwithstanding the foregoing, Confidential Information, as defined herein and as provided as part of a project funded under this Program, will not be made publicly available, pursuant to the limitations set forth in the BDIA, except as required by applicable law or judicial or administrative action or proceeding, including the Freedom of Information Act requirements.[11]

Data. Statistics, figures, descriptions, maps, geographic coordinates, or other such information relating to the provision of broadband services.

End User. A residential or business party, institution or State or local government entity, including a Community Anchor Institution, that may use broadband service for its own purposes and that does not resell such service to other entities or incorporate such service into retail Internet-access services. Internet Service Providers (ISPs) are not "end users" for this purpose.

In-Kind Contribution. Qualifying non-cash donations, including third-party in-kind contributions, of property, goods or services, which benefit a

Federally assisted project, and which may count toward satisfying the non-Federal matching requirement. See the section entitled "Eligibility Information" below for a full discussion of the Program's treatment of in-kind contributions and the Federal structure for determining when a contribution qualifies.

Pre-Award Costs. Reasonable costs incurred after the enactment of the Recovery Act (February 17, 2009) but prior to the effective date of the award directly pursuant to and in anticipation of the award where such costs are necessary to comply with the proposed delivery schedule or period of performance. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the award, and only with the written approval of NTIA.

Recovery Act. The American Recovery and Reinvestment Act of 2009, Public Law 111–5, 123 Stat. 115 (2009).

Rural Area. Any area, as confirmed by the latest decennial census of the Bureau of the Census, which is not located within: (i) A city, town, or incorporated area that has a population of greater than 20,000 inhabitants; or (ii) an urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants. For purposes of the definition of rural area, an urbanized area means a densely populated territory as defined in the latest decennial census of the U.S. Census Bureau.

Secretary. The Secretary of Commerce.

Service Area. The entire area within which an existing service provider offers broadband service.

Service Location. The specific geographic point or location at which a service provider offers broadband service, such as a specific residence or business.

State. A State, the District of Columbia, or a territory or possession of the United States. For the purposes of the designation of an eligible entity, the term "State" will be interpreted to mean the Governor or in the absence of a designation by the Governor, the Legislature, officer, or executive agency within the State that the Governor or State Constitution authorizes to take binding action for the State. In the case State, the District of Columbia, or a territory or possession of the United States, the terms Governor, Legislature or State Constitution shall mean their respective functional equivalents.

Substantially Complete Data Set. A data set is substantially complete when it contains data on broadband services

provided by (a) 70 percent of broadband service providers in a State; (b) to 80 percent of households in a State; (c) to 90 percent of households in rural areas of the State; and (d) to 95 percent of public Community Anchor Institutions.

Underserved Area. An area composed of one or more contiguous census blocks meeting certain criteria that measure the availability of broadband service and the level of advertised broadband speeds.[12] Specifically, an area is underserved if at least one of the following factors is met, though the presumption will be that more than one factor is present: (i) No more than 50 percent of households in the service area have access to facilities-based terrestrial broadband service at greater than the minimum broadband transmission speed (set forth in the definition of broadband above); (ii) no fixed or mobile broadband service provider advertises broadband transmission speeds of at least three megabits per second ("mbps") downstream in the area; or (iii) the rate of broadband subscribership for the area is 40 percent of households or less.[13] A household has access to broadband service if the household can readily subscribe to that service upon request.

Unserved Area. An area composed of one or more contiguous census blocks where at least 90 percent of households in the service area lack access to facilities-based terrestrial broadband service, either fixed or mobile, at the minimum broadband transmission speed (set forth in the definition of broadband above). A household has access to broadband service if the household can readily subscribe to that service upon request.

IV. Award Information

A. *Funding Availability and Estimated Funding:* The Recovery Act authorizes NTIA to expend up to $350 million for the purposes of developing and maintaining a broadband inventory map and pursuant to the BDIA.[14] NTIA expects grant awards to range between $1.9 million and $3.8 million per State for the mapping portion of each project,

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[11] BDIA § 106(h), 122 Stat. at 4101.

[12] Census blocks are the smallest geographic areas for which the U.S. Bureau of the Census collects and tabulates decennial census data. Census blocks are formed by streets, roads, railroads, streams and other bodies of water, other visible physical and cultural features, and the legal boundaries shown on Census Bureau maps. Census data at this level serve as a valuable source for small-area geographic studies. See the Census Bureau's Web site at *http://www.census.gov* for more detailed information on its data gathering methodology.

[13] These criteria conform to the two distinct components of the BIP and BTOP categories of eligible projects—Last Mile and Middle Mile.

[14] Recovery Act, Title II, Div. A. 123 Stat. at 128.

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and up to $500,000 for the planning portion of each project. The exact size of any award will depend on the specifics of each project, the quality of each project as determined in NTIA's review, as well as demographic and geographic features unique to each State. Project budgets will be carefully reviewed to ensure that they are appropriate given the specifics of the project and the project State. Fiscally irresponsible budgets will be detrimental to an application. Any funds not expended under this Program will be reallocated to BTOP purposes.

Publication of this Notice does not obligate NTIA to award any specific project or obligate all or any parts of any available funds.

B. *Award Period:* All awards under this Program must be made no later than September 30, 2010. The period of performance will be five (5) years from the date of award.

C. *Type of Funding Instrument:* Grant.

V. Eligibility Information

A. *Eligible Applicants:* Pursuant to the BDIA, eligible recipients of State Broadband Data Program grants are:

(a) Entities that are either (i) an agency or instrumentality of a State, or a municipality or other subdivision (or agency or instrumentality of a municipality or other subdivision) of a State; (ii) a nonprofit organization that is described in Section 501(c)(3) of the Internal Revenue Code of 1986 and that is exempt from taxation under Section 501(a) of such Code; or (iii) an independent agency or commission in which an office of a State is a member on behalf of the State; and

(b) The single eligible entity in the State that has been designated by the State to receive a grant under this section.[15]

Matching Funds and Cost Sharing Requirements: Awardees under this Program will be required to provide and document at least 20 percent non-Federal matching funds toward the total eligible project cost.[16] Applicants must document their capacity to provide matching funds. Matching funds may be in the form of either cash or in-kind contributions consistent with 15 CFR 14.23, 24.3, and 24.24. Certain pre-award costs may be credited towards an applicant's matching funds requirements. As provided in 48 U.S.C. 1469a, the requirement for local matching funds under $200,000 (including in-kind contributions) is waived for the Territorial governments in Guam, American Samoa, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands. Grant funds under this Program will be released in direct proportion to the documented expenditure of matching funds.

In-Kind Contributions. In-kind contributions, which include third-party in-kind contributions, are non-cash donations of property, goods or services, which benefit a Federally assisted project, and which may count toward satisfying the non-Federal matching requirement when they meet certain criteria.[17] The rules governing allowable in-kind contributions are very detailed and encompass a wide range of properties and services. NTIA encourages grant applicants to consider thoroughly potential sources of in-kind contributions which, depending on the particular property or service and the cost principles applicable to the applicants' organization type, could include: employee or volunteer services; equipment; supplies; indirect costs;[18] computer hardware and software; use of facilities; expenditures for existing programs presented as part of the project proposal under this Program. In addition, applicants may propose as in-kind contributions the ascertainable fair market value of data previously collected and related to the BDIA-eligible uses under this Program. If data previously collected is to be claimed as an in-kind contribution, applicants must provide a basis for estimating fair market value, including but not limited to the documented costs incurred for data collection. NTIA reserves the right at its discretion to provide in-kind credit for an amount different than that claimed by the applicant.

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[15] BDIA § 106(i)(2)(B), 122 Stat. at 4102.

[16] BDIA § 106(c)(2), 122 Stat. at 4099. Generally, Federal funds may not be used as matching funds except as provided by Federal statute. *See* "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, Other Non-profit, and Commercial Organizations," 15 CFR 14.23(a)(5); *see also* "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," 15 CFR 24.24(b)(1).

[17] 15 CFR 14.23, 24.3, 24.22, 24.24. *See also* OMB Circular A–87, "Cost Principles for State, Local and Indian Tribal Governments" (Rev. May 10, 2004), OMB Circular A–122, Cost Principles for Non-Profit Organizations (Rev. May 10, 2004), and 48 CFR pt. 31, "Contract Cost Principles and Procedures."

[18] Reasonable indirect costs may be included as part of cost sharing or matching only with the prior approval of NTIA. The amount of indirect charges allocated to the budget is based on an applicant's indirect cost rate. An applicant may already have an indirect cost rate negotiated with a Federal agency; in which case, that rate may be applied to the applicant's grant if it is current. If it is not current, the applicant will need to update it. If an applicant does not have a negotiated rate, but would like to include indirect costs, the applicant will need to establish a rate with the Department of Commerce.

B. *Confidentiality Requirements:* The BDIA requires that to be eligible to receive a grant under this Program, entities must agree to treat any matter that is a trade secret, commercial or financial information, or privileged or confidential, as a record not subject to public disclosure except as otherwise mutually agreed to by the broadband service provider and the entity.[19] As a condition of grant funding under this Program, awardees may not agree to a more restrictive definition of Confidential Information than the definition adopted by this Program.

Nondisclosure Agreements. As a measure to protect the confidential or proprietary nature of the information received from broadband service providers and other organizations during the data collection phase, awardees may execute nondisclosure agreements (consistent with applicable law) that require the awardees to treat any matter that is a trade secret, commercial or financial information, or privileged or confidential, as a record not subject to public disclosure except where mutually agreed upon by the information provider and the awardee, *provided, however,* that any such nondisclosure restriction (a) will not restrict the providing of all data collected under this Program to NTIA, nor (b) restrict NTIA's use of such data as contemplated under this Notice (including sharing such data with the FCC or other Federal agencies).

To the extent required by law, NTIA agrees that it will not publicly disclose any Confidential Information, as defined herein, provided to it by an applicant or awardee under this Program. Providing Confidential Information to the FCC, or other Federal agencies as necessary, shall not constitute public disclosure. In any disclosure to the FCC or other Federal agencies, NTIA will request that such agency make no further disclosure of the Confidential Information except as required by applicable law or judicial or administrative action or proceeding.[20]

C. *Information Provided:* In order to be eligible for a grant under this Program, each applicant must agree to provide NTIA with broadband data, of

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[19] BDIA §§ 106(c)(3) and 106(h)(2), 122 Stat. at 4101–2 (This requirement applies only to information submitted by the FCC or a broadband provider to carry out the provisions of the BDIA and shall not otherwise limit or affect the rules governing public disclosure of information collected by any Federal or State entity under any other Federal or State law or regulation).

[20] The provisions of this section notwithstanding, all information submitted by an applicant or awardee to NTIA for the purposes of this Program will be subject to Freedom of Information Act requirements under 5 U.S.C. 552.

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the type and in the format provided in the *Technical Appendix,* from all commercial or public providers of broadband service in their respective States, including, but not limited to, commercial or public providers of broadband service to Indian tribes (as defined in Section 4 of the Indian Self-Determination and Education Assistance Act [21]), Native Hawaiian organizations, Community Anchor Institutions or agencies or instrumentalities of the States, or municipalities or other subdivisions of the States and their respective agencies or instrumentalities.

In no case, however, are applicants required to propose collecting data on broadband service provided by the Federal government or any agencies or instrumentalities of the Federal government or broadband service provided on property owned or leased by the Federal government or any agencies, or instrumentalities of the Federal government.

Failure to agree to collect the required data will render an applicant ineligible for funding under this Program.

D. *Participation Limit:* This is a new program and no activities have been funded under it as of the date of this Notice. BDIA stipulates that no State-designated entity may receive a grant under this Program to fund activities described above if that entity, or another entity designated by that State, obtained prior grant awards under this section to fund the same activities in that State in each of the previous four (4) consecutive years.[22] Because the Recovery Act requires the obligation of all funds by September 30, 2010, NTIA does not anticipate any situations where a violation of this provision could occur.

E. *Funding Restrictions:*

1. *Eligible Costs.* Grant funds must be used only to pay for eligible costs. Under this Notice, eligible costs are governed by the Federal cost principles identified in the applicable OMB circulars and in the Program's authorizing legislation.[23] In addition,

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[21] 25 U.S.C. 450(b).
[22] BDIA § 106(f), 122 Stat. at 4101.
[23] The government has established a set of Federal principles for determining eligible or allowable costs. Allowability of costs will be determined in accordance with the cost principles applicable to the entity incurring the costs. Thus, allowability of costs incurred by State, local or Federally-recognized Indian tribal governments is determined in accordance with the provisions of OMB Circular A–87, "Cost Principles for State, Local and Indian Tribal Governments." The allowability of costs incurred by non-profit organizations is determined in accordance with the provisions of OMB Circular A–122, "Cost Principles for Non-Profit Organizations." The allowability of costs incurred by institutions of higher education is determined in accordance with the provisions of OMB Circular A–

costs must be reasonable, allocable, necessary to the project, and comply with the funding statute requirements. Neither mapping nor planning projects may include any construction costs.

2. *Recovery Act-Specific Restrictions.* The Recovery Act imposes an additional limitation on the use of funds expended or obligated from appropriations made pursuant to its provisions. Specifically, for purposes of this Notice, none of the funds appropriated or otherwise made available under the Recovery Act may be used by any State or local government, or any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course, or swimming pool.[24]

VI. Application and Submission Information

A. *Address To Request Application Package:* To ensure a successful submission, applicants must apply for State Broadband Data Program funding through the online Grants.gov system through the Authorized Organization Representative (AOR). Grants.gov, an e-Government initiative, is a "storefront" that provides a unified process for all seekers of Federal grants to find funding opportunities and apply for funding. If applicants have previously used Grants.gov, the existing account may be used for the State Broadband Data Program. States that have not previously submitted an application through Grants.gov are strongly encouraged to initiate the registration process as soon as possible. Instructions are available on the Grants.gov Web site (*http:// www.grants.gov*). Application forms and instructions are also available at Grants.gov. To access these materials, go to *http://www.grants.gov,* select "Apply for Grants," and then select "Download Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this announcement. Select "Download Application Package," and then follow the prompts. To download the instructions, go to "Download Application Package" and select "Instructions." Applicants should visit Grants.gov prior to filing their

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[21] "Cost Principles for Educational Institutions." The allowability of costs incurred by hospitals is determined in accordance with the provisions of Appendix E of 45 CFR pt. 74, "Principles for Determining Costs Applicable to Research and Development under Grants and Contracts with Hospitals." The allowability of costs incurred by commercial organizations and those non-profit organizations listed in Attachment C to Circular A–122 is determined in accordance with the provisions of the Federal Acquisition Regulation (FAR) at 48 CFR pt. 31. *See* 15 CFR 14.27, 24.22 (governing the Department of Commerce's implementation of OMB requirements).
[24] Recovery Act § 1604, 123 Stat. at 303.

applications so that they fully understand the process and requirements. Failure to properly register and apply for State Broadband Data Program funds by the deadlines may result in forfeiture of the grant opportunity. Applications are accepted until the deadline and processed as received. Applications submitted by hand delivery, mail, e-mail or facsimile will not be accepted.

B. *Registration:*

1. *DUNS Number.*—All applicants must supply a Dun and Bradstreet Data Universal Numbering System (DUNS) number. Applicants can receive a DUNS number at no cost by calling the dedicated toll-free DUNS number request line at 1–866–705–5711 or via the Internet at *http:// www.dunandbradstreet.com.*

2. *Central Contractor Registration (CCR).* All applicants must provide a CCR (CAGE) number evidencing current registration in the Central Contractor Registration (CCR) database. If the applicant does not have a current CCR (CAGE) number, the applicant must register in the CCR system available at: *http://www.ccr.gov/ StartRegistration.aspx.*

C. *Content and Form of Application Submitted Through Grants.gov:* The following is a list of required application forms:

• Standard Form 424, Program Abstract/Program Narrative;

• Standard Form 424, Application for Federal Assistance;

• Standard Form 424A, Budget Information—Non-Construction Programs;

• Standard Form 424B, Assurances—Non-Construction Programs;

• Standard Form LLL, Disclosure of Lobbying Activities;

• CD–511 Certification Regarding Lobbying; and

• Letter of State Designation.

Program Narrative. The applicant must complete a Program Narrative including responses to the five review criteria listed in Section VII (A) and listed below.

The Narrative should begin with an introduction that serves as an Executive Summary of the project. It should be a brief, straightforward statement of what the application proposes to accomplish.

The Narrative should also include a description of all unserved and underserved areas in their State as defined herein, to the extent they are known, and a prioritization for the allocation of grant funds within that

State for projects in or affecting the State.[25]

The Narrative should then address the five review criteria in separate sections of the Narrative. Applicants should address the five criteria in the following order and each section should be labeled with the name of the criterion being discussed to help the reviewers who evaluate the application. Any exhibits, maps, timelines, or spreadsheets should be placed within the appropriate section of the narrative.

1. *Data:*

(a) *Data Gathering.* Applicants must provide a comprehensive description of how the applicant plans to obtain all data required under the *Technical Appendix* from commercial or public providers, as applicable (such description should identify general or specific methods, or legal authorities upon which applicants will rely to obtain the required data). Applicants should refer to specific data elements in the Technical Appendix when appropriate as part of their narrative.

(b) *Accuracy and Verification.* Applicants must provide a description of what methods the applicant intends to employ to verify data accuracy.

(c) *Accessibility.* Applicants must provide a description of how the State's broadband data will be publicly accessible, clearly presented, and easily understood by the public, government and the research community. Applicants must also describe the applicant's proposed State-level map.

(d) *Security and Confidentiality.* Applicants must provide a description of what methods the applicant intends to employ to ensure both transparency of process and protection of collected data, including Confidential Information as defined herein.

2. *Project Feasibility:*

(a) *Applicant Capabilities.* Applicants must provide a detailed budget narrative providing detailed description of proposed project costs (including a detailed description of any proposed expenditures for the purchase of computer hardware, software, other information systems or the compensation of information technology personnel that will be used to collect and store all required data) and describing any proposed sources of in-kind match. The budget narrative must provide sufficient explanation of each budget category in order to establish the need for the funds in each category, and the basis for figures used. The budget narrative must be accompanied by a

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[25] Applicants may illustrate such known unserved areas through submission of a map.

spreadsheet supporting how the budget request was calculated.

Applicants that include requests for Broadband Planning activities within their application must provide a separate budget narrative and spreadsheet for the planning portion of their request.

All applicants must demonstrate that they have the ability to secure the funding necessary to meet the required 20 percent non-Federal matching contribution.

(b) *Applicant Capacity, Knowledge and Experience.* Applicants must provide a description of applicant qualifications, including knowledge and experience of the applicant and the associated project personnel with conducting projects of similar scope and scale, including dealing with broadband or telecommunications technology, overseeing the projects that collect broadband or telecommunications-related data, or Geographic Information System (GIS) data.

3. *Expedient Data Delivery:*

Applicants must provide a timeline for major project goals, including anticipated dates of data delivery. This timeline should be ambitious and designed to facilitate the delivery of all data required by the *Technical Appendix.* NTIA will have a preference for the provision of a substantially complete set of availability data by November 1, 2009. Applicants that cannot provide a substantially complete set of availability data by November 1, 2009, may propose to provide an alternative data set by that date. Applicants must demonstrate that they have the ability to complete the project requirements within the proposed timeline, including the requirements to provide a substantially complete set of all broadband mapping data on or before February 1, 2010 and to complete such data collection by March 1, 2010. All data provided in the first collection should be accurate as of June 30, 2009.

4. *Process for Repeated Data Updating:*

Applicants must provide a description of what methods the applicant intends to use to provide for repeated updating of data on at least a semi-annual basis continuing for at least five (5) years after the date of the initial collection.[26]

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[26] Broadband mapping data should be updated at least on March 1 of each year (by submitting data as of December 31 of the previous year) and at least September 1 of each year (by submitting data as of June 30 of that year). Because the initial data collection is due on February 1, 2010, the next update will be due on September 1, 2010 but should include data accurate as of both December 31, 2009 and June 30, 2010, after which, the

5. *Planning and Collaboration:*

Applicants must provide a description of how the applicant intends to collaborate with State-level agencies and local authorities in carrying out the mapping effort. Applicants that include a planning component must provide a description and justification on how well the proposed planning process will address one or more of the projects identified earlier in the BDIA.

The narrative should be no longer than forty (40) pages in length, single spaced in 12 point Times New Roman font (or equivalent).

Letter of State Designation. This letter, signed by the Governor or equivalent chief executive of the State, or his duly authorized designee, affirms that the applicant is the single eligible entity in the State that has been designated by the State to receive a grant under this Program.

D. *Submission Dates and Times:* All applications must be submitted between July 14, 2009 at 8 a.m. ET and 11:59 p.m. ET on August 14, 2009. The electronic application system at Grants.gov will provide a date and time stamped confirmation number that will serve as proof of submission.

E. *Material Representations:* The application, including certifications, and all forms submitted as part of the application will be treated as a material representation of fact upon which NTIA will rely in awarding grants.

F. *Material Revisions:* No material revision will be permitted for any applicant after the submission deadline.

VII. Application Review Information

A. *Evaluation Criteria:* NTIA will evaluate applications for Mapping Grants on the basis of the following criteria. The relative weight of each criterion is identified in parenthesis.

1. *Data. (30%)*—All applicants will be evaluated based on the data they propose to provide to NTIA. As provided above in the section entitled "Eligibility Information", each applicant must agree to provide NTIA with broadband data, of the type and in the format provided in the *Technical Appendix,* from all commercial or public providers of broadband service in their respective States, including, but not limited to, commercial or public providers of broadband service to Indian tribes (as defined in Section 4 of the Indian Self-Determination and

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collections will follow the specified schedule. For the purposes of this program, an update will be deemed to be a verification of existing data and a collection of any additional data reflecting the expansion or contraction of broadband availability since the previous data collection or update.

Education Assistance Act), Native Hawaiian organizations, Community Anchor Institutions or agencies or instrumentalities of the States, or municipalities or other subdivisions of the States and their respective agencies or instrumentalities. Failure to agree to collect such data will render an applicant ineligible for funding under this Program. In no case, however, are applicants required to propose collecting data on broadband service provided by the Federal government or any agencies or instrumentalities of the Federal government or broadband service provided on property owned or leased by the Federal government or any agencies, or instrumentalities of the Federal government.

Reviewers will consider the following factors in scoring this criterion:

(a) Accuracy and Verification. Data accuracy is extremely important and, while NTIA recognizes that 100 percent accuracy is not possible, reviewers will carefully consider an applicant's proposed methods for verifying data.[27] Also, proposed data collection methods that do not provide more than one way to determine the accuracy of availability data at any given location will not receive high scores.

(b) Accessibility. Applicants will be evaluated based on how the data are accessible to, clearly presented to, and easily understood by the public, including members of the research community, and local and State government, excluding any data considered to be Confidential Information, as defined in this Notice.

(c) Security and Confidentiality. Some data collected under the Program may be considered highly sensitive or confidential. Therefore, applicants must demonstrate and will be evaluated based on how well the applicant proposes to protect collected data, including Confidential Information as defined herein, while fulfilling the other criteria provided in this section.

2. *Project Feasibility (30%)*—

(a) *Budget*. This criterion evaluates whether the applicant presents a budget that is both reasonable and cost efficient, considering the full nature and scope of the project. Reviewers will also consider whether the applicant has demonstrated ability to secure the

[27] For example, a project should propose to collect availability data by address, as required by the *Technical Appendix*, and should cross-check that data for accuracy by using at least one other metric (*e.g.*, the location and capability of local infrastructure and whether such infrastructure could realistically serve a supposed service address, on-the-ground verification or telephone survey. Each method should be used to check a statistically significant sample of all addresses, and a statistically significant sample of rural addresses).

funding necessary to meet the required 20 percent non-Federal matching contribution.

(b) Applicant Capacity, Knowledge, and Experience. Reviewers also will assess whether the applicant possesses the necessary qualifications to complete the proposed project within Program standards. In performing this assessment reviewers will consider the capacity and relevant subject matter specific knowledge and experience of the applicant and the associated project personnel with conducting projects of similar scope and scale. Reviewers will assess the qualifications and past experience of the project leaders and/or partners in dealing with broadband or telecommunications technology and in designing, implementing, and effectively managing and overseeing the projects that collect broadband or telecommunications-related data, and utilize and manage Geographic Information System (GIS) data.

3. *Expedient Data Delivery (20%)*— Applicants will be reviewed based on the timeline on which they project delivery of the initial submission of a substantially complete set of broadband mapping data. This timeline should be ambitious and designed to facilitate the delivery of all data required by the *Technical Appendix*. NTIA will have a preference for the provision of a substantially complete set of availability data by November 1, 2009. Applicants that cannot provide a substantially complete set of availability data by November 1, 2009, may propose to provide an alternative data set by that date. Applicants must demonstrate that they have the ability to complete the project requirements within the proposed timeline, including the requirements to provide a substantially complete set of all broadband mapping data on or before February 1, 2010 and to and to complete such data collection by March 1, 2010. All data provided in the first collection should be accurate as of June 30, 2009.

4. *Process for Repeated Data Updating (10%)*—The broadband landscape is rapidly changing, and both the State broadband maps and national broadband map must be able to reflect these changes. All applicants will be evaluated based on their ability to update the data at least semi-annually and on a continuing basis. Because the initial data collection is due on February 1, 2010, the next update will be due on September 1, 2010 but will collect data as of both December 31, 2009 and June 30, 2010. For all subsequent data updates, data should be updated at least on March 1 of each year (by submitting data as of December 31

of the previous year) and at least September 1 of each year (by submitting data as of June 30 of that year), so as to coincide with the Federal Communications Commission's Form 477 data collections. Applicants are expected to propose to update data for at least five (5) years from the date of award. Applicants are encouraged to consider methods of automated or direct-from-provider data input, while also considering Data Accuracy and Verification needs.

5. *Planning and Collaboration (10%)*—

(a) Collaboration. Collaboration with State-level agencies, local authorities, businesses and non-profit organizations will be a critical component of any successful data collection or mapping effort. Reviewers will carefully consider the transparency and inclusiveness of the process used to plan and execute data collection and State-level broadband mapping. Reviewers will also examine the existing relationships and proposed collaborations with necessary parties, including broadband service providers, information technology companies, mapping companies, State and local governments, geographic information agencies and councils, Community Anchor Institutions, consumer and public interest groups, Indian tribes (as defined in Section 4 of the Indian Self-Determination and Education Assistance Act), Native Hawaiian organizations, minority and vulnerable populations, industry, and other such parties and institutions.

If applicable, any applications that do not include the collection of data from Indian tribes (as defined in Section 4 of the Indian Self-Determination and Education Assistance Act), tribal lands, or Native Hawaiian organizations will not be eligible for grants.

(b) Planning. In addition to inclusiveness and collaboration, proposals including planning components will be evaluated based on how well the proposed planning process will identify service availability and gaps, analyze problems and opportunities related to broadband deployment, and determine priorities as well as resolve conflicting priorities. Planning proposals must present the following: (1) The BDIA-related purpose as listed footnote 6; (2) the problem(s) to be addressed; (3) the proposed solution; (4) the anticipated outcomes of the project; and (5) the cost of such proposal in light of the previous factors.

VIII. Anticipated Award Dates

NTIA will announce the awards starting on or about September 15, 2009.

NTIA will make award documents available to successful applicants within thirty (30) calendar days of the award announcement. NTIA expects compliance with all applicable documentation requirements from successful applicants within sixty (60) calendar days of award announcement.

IX. Award Administration Information

A. *Award Notices:* Applicants will be notified by the Department of Commerce's Grants Officer if their applications are selected for an award. If the application is selected for funding, the Department of Commerce's Grants Officer will issue the grant award (Form CD–450), which is the authorizing financial assistance award document. By signing the Form CD–450, the awardee agrees to comply with all award provisions. NTIA will provide the Form CD–450 by mail or overnight delivery to the appropriate business office of the recipient's organization. The awardee must sign and return the Form CD–450 without modification within thirty (30) calendar days of receipt.

If an applicant is awarded funding, neither the Department of Commerce nor NTIA is under any obligation to provide any additional future funding in connection with that award or to make any future award(s). Amendment or renewal of an award to increase funding or to extend the period of performance is at the discretion of the Department of Commerce and of NTIA.

B. *Award Terms and Conditions:*

1. *Scope.* Awardees, including all contractors and subcontractors, are required to comply with the obligations set forth in the Recovery Act and the requirements established herein. Any obligation that applies to the awardee shall extend for the life of the Federally-funded facilities.

2. *Access to Records for Audits, Site Visits, Monitoring and Law Enforcement Purposes.* The Inspector General of the Department of Commerce, or any of his or her duly authorized representatives, and NTIA representatives, or any of their duly authorized representatives, shall have access to and the right to inspect any property or documents funded by the grant, or relating to the grant funding, of the parties to a grant, including their subsidiaries, if any, whether written, printed, recorded, produced, or reproduced by any electronic, mechanical, magnetic or other process or medium, in order to make audits, inspections, site visits, excerpts, transcripts, copies, or other examinations as authorized by law. An audit of an award may be conducted at any time.

C. *Award Conditions:* Awardees are required to comply with the Department of Commerce Financial Assistance Standard Terms and Conditions (March 8, 2008), the Department of Commerce American Recovery and Reinvestment Act Award Terms (April 9, 2009), and any Special Award Terms and Conditions that are included by the Grants Officer in the award.

X. Other Information

A. *Discretionary Awards:* The Federal Government is not obligated to make any award as a result of this announcement, and will fund only projects that are deemed likely to achieve the Program's goals and for which funds are available.

B. *Third Party Beneficiaries:* The State Broadband Data Program is a discretionary grant program that is not intended to and does not create any rights enforceable by third party beneficiaries.

C. *Recovery Act Logo:* As provided above in the section entitled "Funding Restrictions," neither mapping nor planning projects may include construction costs. However, all projects that are funded by the Recovery Act, including projects under this Program, shall display signage that features the Primary Emblem throughout the construction phase. The signage should be displayed in a prominent location on site. Some exclusions may apply. The Primary Emblem should not be displayed at a size less than 6 inches in diameter.

D. *Environmental and National Historic Preservation Requirements:* All applicants seeking Federal funding may be required to provide adequate environmental information and gather information from Federal and State regulatory agencies, including the designated State Historic Preservation Officer and Indian tribes, as appropriate. Applications must comply with the National Environmental Policy Act of 1969, as amended (NEPA), and Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and may require the submission of additional information early in the application process. Applicants will also be required to cooperate with NTIA in identifying feasible measures to reduce or avoid any identified adverse environmental impacts of their proposal. The failure to do so shall be grounds for not selecting an application. In some cases if additional information is required after an application is selected, funds can be withheld by the Grants Officer under a special award condition requiring the recipient to submit additional

environmental compliance information sufficient to enable NTIA to make an assessment on any impacts that a project may have on the environment.

NEPA's implementing regulations require NTIA to provide, as appropriate, public notice of the availability of project-specific environmental documents. Detailed information on NTIA compliance with NEPA can be found at the following NOAA NEPA Web site: *http://www.nepa.noaa.gov/ procedures.html* under "Department of Commerce Categorical Exclusions and Administrative Record" and the "NTIA Broadband Technology Opportunity Program Categorical Exclusions and Administrative Record." Written requests for a hard copy should be submitted to: Steve Kokkinakis, National Oceanic and Atmospheric Administration, Office of Program Planning & Integration, SSMC3, Room 15723, 1315 East-West Highway, Silver Spring, MD 20910.

E. *Davis-Bacon Wage Requirements:* Pursuant to section 1606 of the Recovery Act, any project using Recovery Act funds requires the payment of not less than the prevailing wages for "all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government." [28]

F. *Buy America:* None of the funds appropriated or otherwise made available by the Recovery Act may be used for the construction, alteration, maintenance, or repair of a public building or public work (as such terms are defined in 2 CFR 176.140) unless all of the iron, steel, and manufacturing goods used in the project are produced in the United States. [29]

G. *Financial and Audit Requirements:* To maximize the transparency and accountability of funds authorized under the Recovery Act, all applicants are required to comply with the applicable regulations set forth in OMB's Interim Final Guidance for Federal Financial Assistance. [30]

Recipients that expend $500,000 or more of Federal funds during their fiscal year are required to submit an organization-wide financial and compliance audit report. The audit must be performed in accordance with the U.S. General Accountability Office, Government Auditing Standards, located at *http://www.gao.gov/govaud/*

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[28] Recovery Act § 1606, 123 Stat. at 303.

[29] Recovery Act, § 1605, 123 Stat. at 303.

[30] *See* Requirements for Implementing Sections 1512, 1605, and 1606 of the American Recovery and Reinvestment Act of 2009 for Financial Assistance Awards, 74 FR 18, 449 (Apr. 23, 2009).

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ybk01.htm, and OMB Circular A–133, Audits of States, Local Governments, and Non-Profit Organizations, located at *http://www.whitehouse.gov/omb/ circulars/a133/a133.html.* Awardees are responsible for ensuring that sub-recipient audit reports are received and for resolving any audit findings.

H. *Deobligation:* NTIA reserves the right to deobligate awards to recipients under this Notice that demonstrate an insufficient level of performance, or wasteful or fraudulent spending, and award these funds competitively to new or existing applicants.

I. *Disposition of Unsuccessful Applications:* Unsuccessful applications accepted for review for the Fiscal Year 2009 the State Broadband Data Program will be retained for two years, after which they will be destroyed.

J. *Compliance with Applicable Laws and Administrative Requirements:* Any recipient and subrecipient of funds under this Notice shall be required to comply with all applicable obligations set forth in the Recovery Act and all Federal and State laws. Administrative and national policy requirements for State Broadband Data Program funding, *inter alia,* are contained in the DOC American Recovery and Reinvestment Act Award Terms (Apr. 9, 2009) and *Pre-Award Notification Requirements for Grants and Cooperative Agreements* (DOC Pre-Award Notice), published in the **Federal Register** on February 11, 2008 (73 FR 7696), as amended. This notice may be accessed by entering the **Federal Register** volume and page number provided in the previous sentence at the following Internet Web site: *http://www.gpoaccess.gov/fr/ index.html.* All State Broadband Data Program applicants are required to comply with all applicable provisions set forth in the DOC Pre-Award Notice.

Note that section 1515 of the Recovery Act authorizes the Inspector General to examine records and interview officers and employees of the grantee and other entities regarding the award of funds.[31]

K. *Waiver Authority:* It is the general intent of NTIA not to waive any of the provisions set forth in this Notice. However, under extraordinary circumstances and when it is in the best interests of the Federal government, NTIA, upon its own initiative or when requested, may waive the provisions in this Notice. Waivers may only be granted for requirements that are discretionary and not mandated by statute or other applicable law. Any request for a waiver must set forth the extraordinary circumstances for the request and be included in the

application or sent to the address provided in "NTIA Contacts" above.

L. *Limitation of Liability:* Under no circumstances will NTIA or the Department of Commerce be responsible for proposal preparation costs if this Program fails to receive funding or is canceled because of other NTIA priorities. Publication of this announcement does not oblige NTIA to award any specific project or to obligate any available funds.

M. *Cooperation with NTIA and FCC National Broadband Mapping Efforts:*

Cooperation. In addition to the other requirements provided in this Notice, all awardees agree to cooperate with NTIA and the FCC's national broadband mapping efforts. In particular, awardees agree that, to the extent necessary, they will coordinate with and lend reasonable assistance to NTIA and the FCC, or the employees, agents, representatives, contractors, vendors or consultants of each, in such parties' efforts to assist the recipients with their data collection or to collect broadband mapping related data directly in the States.

In the case that an application on behalf of a State fails to satisfy the requirements of this Program, NTIA reserves the right to collect broadband mapping data relating to such State directly or through NTIA's authorized agent, contractor or representative, using whatever means are within its legal authority.[32]

FCC Authority. Insofar as awardees are unwilling or unable to obtain requested data, NTIA reserves the right to request that the FCC exercise its authority to compel data production from any broadband service provider subject to its jurisdiction.

N. *Administrative Procedure Act and Regulatory Flexibility Act Statement:* This Notice is being issued without prior notice or public comment. The Administrative Procedure Act (APA), 5 U.S.C. 553, has several exemptions to rulemaking requirements. Among them is an exemption for "good cause" found at 5 U.S.C. 553(b)(B), which allows effective government action without rulemaking procedures where withholding the action would be "impracticable, unnecessary, or contrary to the public interest."

Commerce has determined, consistent with the APA, that making these funds available under this Notice for broadband development, as mandated by the Recovery Act, is in the public

interest. Given the emergency nature of the Recovery Act and the extremely short time period within which all funds must be obligated, withholding this Notice to provide for public notice and comment would unduly delay the provision of benefits associated with these broadband initiatives and be contrary to the public interest.

For the same reasons, Commerce finds good cause under 5 U.S.C. 553(d)(3) to waive the 30-day delay in effectiveness for this action. Because notice and opportunity for comment are not required pursuant to 5 U.S.C. 553(d)(3) or any other law, the analytical requirements of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) are inapplicable. Therefore, a regulatory flexibility analysis is not required and has not been prepared.

O. *Congressional Review of Act:* NTIA has submitted this Notice to the Congress and the Government Accountability Office under the Congressional Review of Agency Rulemaking Act, 5 U.S.C. 801 *et seq.* This Notice is a "major rule" within the meaning of the Act because it will result in an annual effect on the economy of $100,000,000 or more. This Notice sets out the administrative procedures for making grants to State, local, tribal and other State approved organizations for the development and implementation of statewide initiatives to identify and track the availability and adoption of broadband services within each State through the State Broadband Data Program.

With funds made available through the Recovery Act, the State Broadband Data Program will provide approximately $240 million in grants to assist eligible entities, including States, in developing State-specific data on the deployment levels and adoption rates of broadband services. All grant funds must be obligated by September 30, 2010. The State-specific data collected through this Program will help to determine those areas of the United States that are "unserved" or "underserved" and so inform the award of grants under BTOP, which grants also must be awarded no later than September 30, 2010. The data will also be used in the development of the national broadband map that NTIA is required to create and make publicly available by February 2011 under Section 6001(l) of the Recovery Act. A 60-day delay in implementing this Notice would hamper NTIA's mission to expeditiously provide assistance to eligible entities for the development of this key State-specific data on broadband deployment levels and adoption rates as well as hinder NTIA's

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[31] Recovery Act § 1515, 123 Stat. at 289.

[32] Recovery Act § 6001(l), 123 Stat. at 516 requires that NTIA develop and maintain a comprehensive nationwide inventory map of existing broadband service capability and availability in the United States.

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ability to meet the purposes of the BTOP and national broadband map development in a timely fashion.

Thus, in compliance with Section 808(2) of the Congressional Review of Agency Rulemaking Act, 5 U.S.C. 808(2), for good cause, NTIA finds that notice and public comment on this Notice is impracticable and contrary to the public interest. This finding is consistent with the objectives of the Recovery Act, which specifically provides clear preferences for rapid agency action and quick-start activities designed to spur job creation and economic benefit.[33] Accordingly, this Notice shall take effect upon publication in the **Federal Register**.

P. Paperwork Reduction Act: This notice contains an information collection requirement subject to the requirements of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). Applicants have been requested to submit applications using Standard Form 424, Program Abstract/Program Narrative; Standard Form 424, Application for Federal Assistance; Standard Form 424A, Budget Information—Non-Construction Programs; Standard Form 424B, Assurances—Non-Construction Programs; and Standard Form LLL, Disclosure of Lobbying Activities, all of which have been approved by OMB under the respective control numbers 4040–0003, 4040–0004, 4040–0006, 4040–0007 and 0348–0046.

Copies of all forms, regulations, and instructions referenced in this Notice may be obtained from NTIA. Data furnished by the applicants will be used to determine eligibility for Program benefits. Furnishing the data is voluntary; however, the failure to provide data could result in Program benefits being withheld or denied.

The collection of information is vital to NTIA to ensure compliance with the provisions of this Notice and to fulfill the requirements of the Recovery Act. In summary, the collection of broadband data, as required under the *Technical Appendix*, is necessary in order to implement this Program.

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the Paperwork Reduction Act unless that collection displays a currently valid OMB Control Number.

1. *General Recovery Act and BDIA Reporting Requirements*
(a) *OMB Reporting Requirements Implementing the Recovery Act.* Any

grant awarded under this Notice shall be subject to the applicable regulations and statutes regarding reporting on Recovery Act funds. For specific Recovery Act requirements, *see* 2 CFR part 176.[34]

(b) *Accounting.* If Recovery Act funds are combined with other funds to fund or complete projects and activities, Recovery Act funds must be accounted for separately from other funds and reported to NTIA or any Federal Web site established for Recovery Act reporting purposes. Moreover, recipients of funds under this Notice must also comply with the accounting requirements as established or referred to in this Notice.

(c) *Required Data Elements.* The awardee and each contractor engaged by the awardee must submit the following information to NTIA:
i. The total amount of Recovery Act funds received;
ii. The amount of Recovery Act funds received that were expended or obligated to projects or activities;
iii. A detailed list of all projects or activities for which Recovery Act funds were expended or obligated, including (a) the name of the project or activity; (b) a description of the project or activity; (c) an evaluation of the completion status of the project or activity; (d) an estimate of the number of jobs created and the number of jobs retained by the project or activity; and
iv. Detailed information on any subcontracts or subgrants awarded by the awardee to include the data elements required to comply with the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. 102–282), allowing aggregate reporting on awards below $25,000 or to individuals.[35]

2. *Reporting Deadlines.* Recovery Act reports are due to NTIA ten (10) calendar days after the quarter in which the award was issued ends and, unless otherwise noted, each quarter thereafter until a final report is made at the end of five (5) years. The final report should summarize the awardee's quarterly filings and state whether the project goals have been satisfied. Pursuant to OMB Guidelines, reports should be submitted electronically to *http://www.federalreporting.gov.* If the awardee fails to submit an acceptable quarterly report or audited financial

statement within the timeframe designated in the grant or loan award, NTIA may suspend further payments until the awardee complies with the reporting requirements. Additional information regarding reporting requirements will also be specified at the time the award is issued.

3. *State Broadband Data Program Reporting Requirements.* All awardees under this Program will provide quarterly reports on:
(a) Achievement of project goals, objectives, and milestones (*e.g.,* collection of a "substantially complete data set"; completion of data review or quality control process) as set forth by the applicant in their application timeline:
i. Expenditure of grant funds and how much of the award remains;
ii. Amount of non-Federal cash or in-kind investment that is being added to complete the project; and
iii. Whether the awardee is on schedule to provide broadband-related data in accordance with the mapping project timeline.

Upon completion of its State-level broadband map, each awardee will provide NTIA with a hypertext link to such map for display on a Web page on the Department of Commerce Web site.

Q. Payment of Federal Funds: NTIA will not make any payment under an award until the grantee has returned the signed CD–450 accepting the award and unless and until the recipient complies with all relevant requirements.

R. Executive Order 12372 (Intergovernmental Review): Applications under this Program are not subject to Executive Order (EO) 12372, "Intergovernmental Review of Federal Programs."

S. Executive Order 12866: This notice has been determined to be Economically Significant under Executive Order 12866. The Secretary of Commerce was authorized by the Recovery Act to fund the BDIA and implement the State Broadband Data Program. This Program will make approximately $240 million in funds available for eligible entities to develop and implement statewide initiatives to identify and track the availability and adoption of broadband services within each State. This is a one-time grant program in which funds will be awarded no later than September 30, 2010.

T. Executive Order 13132 (Federalism): It has been determined that this Notice does not contain policies with Federalism implications as that term is defined in E.O. 13132.

U. Recovery Act: Additional information about the Recovery Act is available at *http://www.Recovery.gov.*

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[33] *See, e.g.,* Recovery Act § 1602, 123 Stat. at 302.

[34] *See also* OMB Memorandum M–09–21, Implementing Guidance for the Reports on Use of Funds Pursuant to the American Recovery and Reinvestment Act of 2009, June 22, 2009 (OMB Implementing Guidance). For additional Recovery Act Implementation Guidance applicable to recipients, see OMB Implementing Guidance at 6–7.

[35] Recovery Act § 1512(c), 123 Stat. at 287.

Authority: Title II, Division A of the American Recovery and Reinvestment Act of 2009, Public Law 111–5, 123 Stat. 115 (Feb. 17, 2009); Broadband Data Improvement Act, Title I of Public Law 110–385, 122 Stat. 4096 (Oct. 10, 2008).

Dated: July 2, 2009.

Lawrence E. Strickling,

Assistant Secretary for Communications and Information.

Appendix A: Technical Appendix

Awardees shall provide the following information to NTIA in the format specified via ftp to *sftp.ntia.doc.gov* or CD/DVD to Edward "Smitty" Smith, Program Director, State Broadband Data Program, National Telecommunications and Information Administration, U.S. Department of Commerce, 1401 Constitution Avenue, NW., Room 4898, Washington, DC 20230 no later than February 1, 2010. *All data should be accurate as of June 30, 2009, unless otherwise indicated.* Questions about the data content or formats should be addressed to Your Name at *broadbandmapping@ntia.doc.gov.*

1. Broadband Service Availability in Provider's Service Area

(a) Availability by Service Address-Service Associated With Specific Addresses

For each facilities-based provider of broadband service to specified end-user locations in their State, awardees shall provide NTIA with a list of all addresses at which broadband service is available to end users in the provider's service area, along with the associated service characteristics identified below.

For this purpose, "broadband service" is the provision, on either a commercial or non-commercial basis, of data transmission technology that provides two-way data transmission to and from the Internet with advertised speeds of at least 768 kilobits per second (kbps) downstream and greater than 200 kbps upstream to end users, or providing sufficient capacity in a middle mile project to support the provision of broadband service to end-users within the project area.

For this purpose, an "end user" of broadband service is a residential or business party, institution or State or local government entity that may use broadband service for its own purposes and that does not resell such service to

other entities or incorporate such service into retail Internet-access services. Internet Service Providers (ISPs) are not "end users" for this purpose. An entity is a "facilities-based" provider of broadband service connections to end user locations if any of the following conditions are met: (1) It owns the portion of the physical facility that terminates at the end user location; (2) it obtains unbundled network elements (UNEs), special access lines, or other leased facilities that terminate at the end user location and provisions/equips them as broadband; or (3) it provisions/equips a broadband wireless channel to the end user location over licensed or unlicensed spectrum.

For this purpose, "broadband service" is "available" at an address if the provider does, or could, within a typical service interval (7 to 10 business days) without an extraordinary commitment of resources, provision two-way data transmission to and from the Internet with advertised speeds of at least 768 kilobits per second (kbps) downstream and greater than 200 kbps upstream to end-users at that address. The list of addresses shall be submitted to NTIA as a tab-delimited text file in which each record has the following format:

RECORD FORMAT FOR ADDRESS DATA FOR EACH PROVIDER

Field	Description	Type	Example
Provider Identification Data:			
Provider Name	Provider Name	Text	ABC Co.
DBA Name	"Doing-business-as" name	Text	Superfone, Inc.
FRN	Provider FCC Registration Number	Integer	8402202.
ID	Sequential record number	Integer	1.
End User location/Service Data:			
End-User Address	Complete address	Text	1401 Constitution Ave., NW., Washington, DC 20230.
End-User Building Number	Building number	Text	1401.
End-User Prefix Direction	Prefix direction	Text.	
End-User Street	Street name	Text	Constitution.
End-User Street Type	Street type	Text	Ave.
End-User Suffix Direction	Suffix direction	Text	NW.
End-User City	City	Text	Washington.
End-User State Abbreviation.	Two-letter State postal abbreviation	Text	DC.
End-User ZIP Code	5-digit ZIP code (with leading zeros)	Text	20230.
End-User ZIP Plus 4	4-digit add-on code (with leading zeros)	Text	0005.
Category of End User	Category of End User Served at Address (see details below for codes).	Integer	3.
Technology of Transmission.	Category of technology available for the provision of service at the address (see details below for codes).	Integer	50.
Maximum Advertised Downstream Speed.	Speed tier code for the maximum advertised downstream speed available at the address (see details below for codes).	Integer	8.
Maximum Advertised Upstream Speed.	Speed tier code for the maximum advertised upstream speed that is offered with the above maximum advertised downstream speed available at the address (see details below for codes).	Integer	8.

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RECORD FORMAT FOR ADDRESS DATA FOR EACH PROVIDER—Continued

Field	Description	Type	Example
Typical Downstream Speed.	Speed tier code for the downstream data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed (above) can achieve consistently during expected periods of heavy network usage (see details below for codes).	Integer	8
Typical Upstream Speed ..	Speed tier code for the upstream data transfer throughput rate that most subscribers to service at the maximum advertised upstream speed (above) can achieve consistently during expected periods of heavy network usage (see details below for codes).	Integer	8.

Address Record Format Details:

1. All fields are required.

2. Instructions for providers needing to obtain a FRN can be accessed at *https://fjallfoss.fcc.gov/coresWeb/publicHome.do.*

3. The ID field is a sequential integer ranging from 1 to the total number of addresses.

4. Address data fields should be space-delimited in standardized Postal Service form. See *http://pe.usps.gov/cpim/ftp/pubs/Pub28/pub28.pdf.*

5. Categories of end users should be entered as integers based on the following reference:

END USER CODES

End user category code	End user category	Description
1	Residential	Address denotes a residential living unit, individual living unit in institutional settings such as college dormitories and nursing homes and other locations designed primarily for residential use at which broadband service is available.
2	Governmental	Address denotes a State or local government location at which broadband service is available.
3	Small Business	Address denotes the location of a small business.
4	Medium or Large Enterprise	Address denotes the location of a medium or large enterprise.
5	Other	Address denotes a location not meeting any of the above descriptions.

6. For reporting the technology of transmission, report the technology used by the portion of the connection that terminates at the end-user location. If different technologies are used in the two directions of information transfer ("downstream" and "upstream"), report the connection in the technology category for the downstream direction. The technology of transmission should be entered as an integer based on the following reference:

TECHNOLOGY OF TRANSMISSION CODES

Technology code	Description	Details
10	Asymmetric xDSL.	
20	Symmetric xDSL.	
30	Other Copper Wireline	All copper-wire based technologies other than xDSL (Ethernet over copper and T–1 are examples).
40	Cable Modem—DOCSIS 3.0.	
41	Cable Modem—Other.	
50	Optical Carrier/Fiber to the End User	Fiber to the home or business end user (does not include "fiber to the curb").
60	Satellite.	
70	Terrestrial Fixed Wireless—Unlicensed.	
71	Terrestrial Fixed Wireless—Licensed.	
80	Terrestrial Mobile Wireless.	
90	Electric Power Line.	
0	All Other	Any specific technology not listed above.

7. Speed tiers should be entered as integers based on the following reference:

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SPEED TIER CODES

Upload speed tier	Download speed tier	Description
1	....	Less than or equal to 200 kbps.
2	....	Greater than 200 kbps and less than 768 kbps.
3	3	Greater than or equal to 768 kbps and less than 1.5 mbps.
4	4	Greater than or equal to 1.5 mbps and less than 3 mbps.
5	5	Greater than or equal to 3 mbps and less than 6 mbps.
6	6	Greater than or equal to 6 mbps and less than 10 mbps.
7	7	Greater than or equal to 10 mbps and less than 25 mbps.
8	8	Greater than or equal to 25 mbps and less than 50 mbps.
9	9	Greater than or equal to 50 mbps and less than 100 mbps.
10	10	Greater than or equal to 100 mbps and less than 1 gbps.
11	11	Greater than or equal to 1 gbps.

8. Data for the entire State or territory should be submitted as a single, tab-delimited plain text file named "address_availability_XX.txt" where XX is the two-letter postal abbreviation for the State or territory.

(b) Availability by Shapefile—Wireless Services not Provided to a Specific Address

For those facilities-based providers of wireless broadband service that is not address specific (e.g., nomadic, terrestrial mobile wireless, or satellite), awardees may alternatively provide NTIA with GIS-compatible map layers depicting areas in which broadband service is available to end users.

For this purpose, an "end user" of broadband service is a residential or business party, institution, or State or local government entity that may use broadband service for its own purposes and that does not resell such service to other entities or incorporate such service into retail Internet-access service. Internet Service Providers (ISPs) are not "end users" for this purpose. An entity is a "facilities-based" provider of broadband service connections to end user locations if any of the following conditions are met: (1) It owns the portion of the physical facility that terminates at the end user location; (2) it obtains unbundled network elements (UNEs), special access lines, or other leased facilities that terminate at the end user location and provisions/equips them as broadband; or (3) it provisions/ equips a broadband wireless channel to the end user location over licensed or unlicensed spectrum.

For this purpose, "broadband service" is "available" at a location if the provider does, or could, within a typical service interval (7 to 10 business days) without an extraordinary commitment of resources, provision two-way data transmission with advertised speeds of at least 768 kilobits per second (kbps) downstream and greater than 200 kbps upstream to end-users at that location. The data shall be submitted to NTIA as an ESRI Shapefile such that the associated data contains the following fields:

RECORD FORMAT FOR AVAILABILITY AREA DATA FOR EACH PROVIDER—USE ONLY IN CONNECTION WITH WIRELESS SERVICES NOT PROVIDED TO A SPECIFIC ADDRESS

Field	Description	Type	Example
Provider Name	Provider Name	Text	ABC Co.
DBA Name	"Doing-business-as" name	Text	Superfone, Inc.
FRN	Provider FCC Registration Number	Integer	8402202.
Technology of Transmission	Category of technology for the provision of service (see details following Part 1(a) for codes).	Integer	41.
Spectrum Used	If technology of transmission is wireless, is Cellular spectrum (824–849 MHz; 862–869) used to provide service (Y/N)?	Text	Y.
Spectrum Used	If technology of transmission is wireless, is 700 MHz spectrum (698–758 MHz; 775–788 MHz; 805–806 MHz) used to provide service (Y/N)?	Text	Y.
Spectrum Used	If technology of transmission is wireless, is Broadband Personal Communications Services spectrum (1850–1915 MHz; 1930–1995) used to provide service (Y/N)?	Text	Y.
Spectrum Used	If technology of transmission is wireless, is Advanced Wireless Services spectrum (1710–1755 MHz; 2100–2155) used to provide service (Y/N)?	Text	N.
Spectrum Used	If technology of transmission is wireless, is Broadband Radio Service/Educational Broadband Service spectrum (2496–2690 MHz) used to provide service (Y/N)?	Text	N.
Spectrum Used	If technology of transmission is wireless, is Unlicensed (including broadcast television "white spaces") spectrum used to provide service (Y/N)?	Text	N.

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RECORD FORMAT FOR AVAILABILITY AREA DATA FOR EACH PROVIDER—USE ONLY IN CONNECTION WITH WIRELESS SERVICES NOT PROVIDED TO A SPECIFIC ADDRESS—Continued

Field	Description	Type	Example
Spectrum Used	If technology of transmission is wireless, but the spectrum used to provide service is not listed above, please identify as one of the following: Specialized Mobile Radio Service (SMR) (817–824 MHz; 862–869 MHz; 896–901 MHz; 935–940 MHz), Wireless Communications Service (WCS) spectrum (2305–2320 MHz; 2345–2360 MHz), 3650–3700 MHz, Satellite (L-band, Big LEO, Little LEO, 2 GHz).	Text	SMR.
Maximum Advertised Downstream Speed	Speed tier code for the maximum advertised downstream speed available (see details following Part 1(a) for codes).	Integer	8.
Maximum Advertised Upstream Speed	Speed tier code for the maximum advertised upstream speed that is offered with the above maximum advertised downstream speed available (see details following Part 1(a) for codes).	Integer	8.
Typical Downstream Speed	Speed tier code for the downstream data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed (above) can achieve consistently during expected periods of heavy network usage (see details following Part 1(a) for codes).	Integer	8.
Typical Upstream Speed	Speed tier code for the upstream data transfer throughput rate that most subscribers to service at the maximum advertised upstream speed (above) can achieve consistently during expected periods of heavy network usage (see details following Part 1(a) for codes).	Integer	8.

Availability Area Shapefile Details:

1. Instructions for providers needing to obtain a FRN can be accessed at *https://fjallfoss.fcc.gov/coresWeb/publicHome.do*.

2. All map areas must be closed, non-overlapping polygons with a single, unique identifier.

3. Any variation in any of the required fields necessitates the creation of a separate closed, non-overlapping polygon.

4. In the area covered by each polygon, subscribers must have broadband service with the speed characteristics shown in the data record 95% of the time to within 50 feet of the polygon's boundary.

5. The technology of transmission should be entered as an integer based on the coding scheme shown in Part 1(a) above.

6. The speed tiers should be entered as integers according to the reference in Part 1(a) above.

7. The data must be expressed using the WGS 1984 geographic coordinate system.

8. Maps must be accompanied by metadata or a plain text "readme" file that contains a comprehensive explanation of the methodology employed to generate the map layer including any necessary assumptions and an assessment of the accuracy of the finished product.

9. Since ESRI Shapefiles typically consist of 5 to 7 individual files including the associated metadata and geodatabase, data for the entire State or territory should be submitted as a single, zipped file containing all the component files. The file should be named "area_availability_XX.zip" where XX is the two-letter postal abbreviation for the State or territory.

2. Residential Broadband Service Pricing in Provider's Service Area

(a) Average Revenue per End User and Weighted Average Speed

For each broadband service provider in the State, awardees shall provide NTIA with (1) average revenue per end user (ARPU) associated with residential subscribers in the month for which other data is reported (*i.e.*, June or December, as applicable) by county, and (2) subscriber-weighted nominal speed (blended average rate).

For this purpose, a "residential subscriber" of broadband service is any end user assigned to Category 1, in Part 1.(a), above.

For this purpose, "broadband service" is the provision to end users of two-way data transmission to and from the Internet with advertised speeds of at least 768 kilobits per second (kbps) downstream and greater than 200 kbps upstream.

These data shall be submitted to NTIA as a tab-delimited text file in which each record has the following format:

RECORD FORMAT FOR RESIDENTIAL BROADBAND SERVICE PRICING AND SPEED CHARACTERISTICS BY COUNTY FOR EACH PROVIDER

Field	Description	Type	Example
Record Identifiers:			
Provider Name	Provider Name	Text	ABC Co.
DBA Name	"Doing-business-as" name	Text	Superfone, Inc.
FRN	Provider FCC Registration Number	Integer	8402202.

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RECORD FORMAT FOR RESIDENTIAL BROADBAND SERVICE PRICING AND SPEED CHARACTERISTICS BY COUNTY FOR EACH PROVIDER—Continued

Field	Description	Type	Example
County	3-digit County ANSI (FIPS) Code	Integer	560.
State	2-digit State ANSI (FIPS) Code	Integer	51.
Technology of Transmission	Category of technology used in the provision of service (see details following Part 1(a) for codes).	Integer	2.
ARPU, All Advertised Speed Offerings	Average monthly revenue per residential user for the county (see details below for methodology).	Float	34.45.
Subscriber-Weighted Nominal Speed	Subscriber-weighted nominal speed (blended average rate in kbps) (see details below for methodology).	Float	2753.3.

Service Plan Record Detail:

1. Instructions for providers needing to obtain a FRN can be accessed at *https://fjallfoss.fcc.gov/coresWeb/publicHome.do.*

2. Use the set of counties that best approximate each market area of the provider. County ANSI (formerly FIPS) codes may be accessed at *http://www.census.gov/geo/www/ansi/ansi.html.*

3. For each county in the provider's broadband Internet service area, all applicable fields must be populated.

4. For reporting the technology of transmission, report the technology used by the portion of the connection that terminates at the end-user location. If different technologies are used in the two directions of information transfer ("downstream" and "upstream"), report the connection in the technology category for the downstream direction. The technology of transmission should be entered as an integer based on the coding scheme shown in Part 1(a) above.

5. The speed tiers should be entered as integers according to the reference in Part 1(a) above.

6. As an example, for June 2009, a provider's ARPU should be calculated by dividing the provider's total monthly residential broadband service revenue for the county by its average monthly residential broadband subscribers.

(a). The ARPU entered in the record format above must be the monthly ARPU for June 2009 calculated by dividing (i) total monthly residential broadband service revenue by (ii) average monthly residential broadband subscribers.

i. *Numerator:* Total monthly residential broadband service revenue must be calculated as total revenue for the month (monthly data access fees including discounts, overage charges and service or connection fees, but excluding all taxes, fees and surcharges paid to government programs, e.g., E911) attributable to the provision of broadband service to billed residential subscribers in the county for June 2009.

ii. *Denominator:* Average monthly residential broadband subscribers must be calculated as the simple average of beginning-of-month and end-of-month counts of billed residential subscribers to broadband service in the county for June 2009.

7. A provider's subscriber-weighted nominal speed (in kbps) should be calculated as the sum of the products of the provider's advertised maximum download data transmission rate (in kbps) for each residential rate tier advertised by the provider in the county, times the average monthly number of residential subscribers receiving the advertised download transmission rate tier for the relevant reporting month (*i.e.,* June or December, as applicable), divided by the average total number of residential subscribers for all the included data transmission rate tiers in the county for that month. This is expressed in the following formula:

$$\frac{(\text{speed tier-1 in kbps} \times \text{no. of tier-1 subscribers}) + (\text{speed tier-2 in kbps} \times \text{no. of tier-2 subscribers}) + \dots}{\text{total average monthly subscribers}}$$

For example, if the service provider offers two tiers of service with advertised maximum download speeds of 1500 kbps and 6000 kbps, calculate the product of 1500 kbps times the average monthly number of residential subscribers to the 1500 kbps speed tier plus the product of 6000 kbps times the average monthly number of residential subscribers to the 6000 kbps speed tier and divide the sum by the sum (or total) of the average monthly number of residential subscribers in both tiers.

8. Data for the entire State or territory should be submitted as a single, tab-delimited plain text file named "pricing_XX.txt" where XX is the two-letter postal abbreviation for the State or territory.

3. Broadband Service Infrastructure in Provider's Service Area

(a) Last-Mile Connection Points

Awardees shall provide NTIA with a list of the locations of the first points of aggregation in the networks (serving facilities) used by facilities-based providers to provide broadband service to end users.

For this purpose, an "end user" of broadband service is a residential or business party, institution, or State or local government entity that may use broadband service for its own purposes and that does not resell such service to other entities or incorporate such service into retail Internet-access service. Internet Service Providers (ISPs) are not "end users" for this purpose. An

entity is a "facilities-based" provider of broadband service connections to end user locations if any of the following conditions are met: (1) It owns the portion of the physical facility that terminates at the end user location; (2) it obtains unbundled network elements (UNEs), special access lines, or other leased facilities that terminate at the end user location and provisions/equips them as broadband; or (3) it provisions/equips a broadband wireless channel to the end user location over licensed or unlicensed spectrum.

"Last-mile" infrastructure consists of facilities used to provide broadband service between end-user (including residences, businesses, community anchor institutions, etc.) equipment and the appropriate access point, router or

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first significant aggregation point in the broadband network. Examples of such facilities include, among other things: For broadband service provided by incumbent local exchange carriers, connections between end users and the central office or remote terminal; for cable modem service, connections between end users and the cable headend or fiber node; for wireless broadband service, connections between the wireless end-user device or customer premises equipment and the wireless tower or base station; for WiFi broadband service, connections between end users and the WiFi access point; or the analogous portion of the facilities of other providers of broadband services. The first points of aggregation in this context are therefore the central office, remote terminal, cable headend, wireless tower or base station, or the like.

For this purpose, "broadband service" is the provision of two-way data transmission with advertised speeds of at least 768 kilobits per second (kbps) downstream and greater than 200 kbps upstream to end users. These data shall be submitted to NTIA as a tab-delimited text file in which each record has the following format:

RECORD FORMAT FOR LAST-MILE CONNECTION POINTS DATA FOR EACH PROVIDER

Field	Description	Type	Example
Provider Name	Provider Name	Text	ABC Co.
DBA Name	"Doing-business-as" name	Text	Superfone, Inc.
FRN	FCC Registration Number	Integer	8402202.
Technology of Transmission	Category of technology for the provision of service (see details following Part 1(a) for codes).	Integer	10.
Serving Facility Backhaul Capacity	Upstream capacity of the serving facility (see details below).	Integer	1.
Serving Facility Backhaul Type	Type of upstream transport facility (1=Fiber; 2=Copper; 3=Hybrid Fiber Coax (HFC); 4=Wireless).	Integer	1.
End-users served	Count of end users served from this point of aggregation.	Integer	24.
Latitude	Latitude in decimal degrees of facility	Float	38.884560.
Longitude	Longitude in decimal degrees of facility	Float	−77.028123.
Elevation	Elevation relative to grade to the nearest foot (positive integers indicate above grade, negative below grade).	Integer	2.

Connections to Last-Mile Infrastructure Record Detail:

1. Instructions for providers needing to obtain a FRN can be accessed at *https://fjallfoss.fcc.gov/coresWeb/publicHome.do.*

2. The technology of transmission should be entered as an integer based on the coding scheme shown in Part 1(a) above.

3. The capacity of the serving facility should represent the capacity as currently configured and be expressed according to the following reference:

SERVING FACILITY CODES

Data rate code	Data rate
1	Less than 1.5 mbps.
2	Greater than or equal to 1.5 mbps and less than 3 mbps.
3	Greater than or equal to 3 mbps and less than 6 mbps.
4	Greater than or equal to 6 mbps and less than 10 mbps.
5	Greater than or equal to 10 mbps and less than 25 mbps.

SERVING FACILITY CODES—Continued

Data rate code	Data rate
6	Greater than or equal to 25 mbps and less than 50 mbps.
7	Greater than or equal to 50 mbps and less than 100 mbps.
8	Greater than or equal to 100 mbps and less than 1 gbps.
9	Greater than or equal to 1 gbps.

4. Coordinates must be expressed using the WGS 1984 geographic coordinate system.

5. Data for the entire State or territory should be submitted as a single, tab-delimited plain text file named "lastmile_XX.txt" where XX is the two-letter postal abbreviation for the State or territory.

(b) Middle-Mile and Backbone Interconnection Points

In addition to the information shown in the tables above, awardees shall provide NTIA with a list of interconnection points of facilities in their State that provide connectivity between (a) a service provider's network elements (or segments) or (b) between a service provider's network and another provider's network, including the Internet backbone. (Collectively, (a) and (b) are "middle-mile and backbone interconnection points").

Middle-mile and backbone interconnection points typically enable relatively fast data rates, are built to handle substantial capacities, and may be service-quality assured.

Examples might include: points of interconnection enabling communications between an incumbent local exchange carrier central office and the Internet, between a cable aggregation point (headend) and the Internet, or between a wireless base station and the provider's core network elements that connect to other networks including the Internet.

These data shall be submitted to NTIA as a tab-delimited text file in which each record has the following format:

RECORD FORMAT FOR MIDDLE-MILE AND INTERNET BACKHAUL CONNECTION POINTS DATA FOR EACH PROVIDER

Field	Description	Type	Example
Provider Name	Provider Name	Text	ABC Co.
DBA Name	Doing-business-as name	Text	Superfone, Inc.
FRN	FCC Registration Number	Integer	8402202.
Ownership	Is the facility owned (0) or leased (1)?	Integer	0.

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RECORD FORMAT FOR MIDDLE-MILE AND INTERNET BACKHAUL CONNECTION POINTS DATA FOR EACH PROVIDER—Continued

Field	Description	Type	Example
Serving Facility Capacity.	Serving capacity of transport facility (see details below)	Integer	1.
Serving Facility Type	Type of transport facility (1=Fiber; 2=Copper; 3=Hybrid Fiber Coax (HFC); 4=Wireless).	Integer	1.
Latitude	Latitude in decimal degrees	Float	38.884560.
Longitude	Longitude in decimal degrees	Float	−77.028123.
Elevation	Elevation relative to grade to the nearest foot (positive integers indicate above grade, negative below grade).	Integer	−10.

Connections Record Detail:

1. Instructions for providers needing to obtain a FRN can be accessed at *https://fjallfoss.fcc.gov/coresWeb/publicHome.do.*

The capacity of the serving facility should represent the capacity as currently configured and be expressed according to the following reference:

SERVING FACILITY CODES

Data rate code	Interconnection point data rate
1	Multiple T1s and less than 40 .mbps.
2	Greater than 40 mbps and less than 150 mbps.

SERVING FACILITY CODES—Continued

Data rate code	Interconnection point data rate
3	Greater than 150 mbps and less than 600 mbps.
4	Greater than or equal to 600 mbps and less than.2.4 gbps.
5	Greater than or equal to 2.4 gbps and less than 10 gbps.
6	Greater than or equal to 10 gbps.

2. Coordinates must be expressed using the WGS 1984 geographic coordinate system.

3. Data for the entire State or territory should be submitted as a single, tab-delimited plain text file named

"middlemile_XX.txt" where XX is the two-letter postal abbreviation for the State or territory.

4. *Community Anchor Institutions*

Awardees shall provide NTIA with a list of community anchor institutions in their State, along with the associated information described below.

"Community Anchor Institutions" consist of schools, libraries, medical and healthcare providers, *public safety entities,* community colleges and other institutions of higher education, and other community support organizations and entities.

The list shall be submitted to NTIA as a tab-delimited text file in which each record has the following format:

RECORD FORMAT FOR COMMUNITY ANCHOR INSTITUTIONS

Field	Description	Type	Example
Name	Institution Name	Text	John Smith Community Center.
Address	Complete address of institution	Text	1401 Constitution Ave., NW., Washington DC 20230
Latitude	Latitude in decimal degrees of institution	Float	38.884560.
Longitude	Longitude in decimal degrees of institution	Float	−77.028123.
Category	Category of institution (see details below for category codes)	Integer	2.
Broadband Service?	Does institution subscribe to broadband service at location?	Text	Y.
Technology of Transmission.	Category of technology used for the provision of broadband service to the institution (see details following Part 1(a) for codes).	Integer	10.
Advertised Downstream Service Speed.	Speed tier code for the downstream advertised data transfer throughput rate associated with the service that the institution receives (see details following Part 1(a) for codes).	Integer	8.
Advertised Upstream Service Speed.	Speed tier code for the upstream data transfer throughput rate associated with the service that the institution receives (see details following Part 1(a) for codes).	Integer	8.

The category of each Community Anchor Institution should be expressed according to the following reference:

COMMUNITY ANCHOR INSTITUTION CATEGORY CODES

Category code	Category
1	School—K through 12.
2	Library.
3	Medical/healthcare.
4	Public safety.

COMMUNITY ANCHOR INSTITUTION CATEGORY CODES—Continued

Category code	Category
5	University, college, other post-secondary.
6	Other community support—government.
7	Other community support—non-governmental.

Appendix B: Policy Justification

As discussed in the Notice of Funds Availability (Notice) for the State Broadband Data Program, dated July 1, 2009, NTIA, the FCC, and the RUS cosponsored a series of public meetings and released a Request for Information (RFI) to initiate public outreach about the current availability of broadband service in the United States and ways in

8-2/

which the availability of broadband service could be expanded.[36]

The RFI requested the submission of information on a broad range of topics including topics related to broadband mapping, the American Recovery and Reinvestment Act (Recovery Act) and the Broadband Data Improvement Act (BDIA). In response to the RFI and the public meetings, NTIA received over 1,000 comments from institutions and individuals on the broadband initiatives funded by the Recovery Act and over 200 comments relating to broadband mapping.[37]

The comments relating to broadband mapping included comments regarding: (1) The information that should be included on the national broadband map; (2) the level of geographic or other granularity the national broadband map should provide; (3) whether there are State or other mapping programs that provide models for the statewide inventory grants; (4) the information States should collect as conditions of receiving statewide inventory grants; and (5) the technical specifications that should be required of grantees to ensure that statewide inventory maps can be efficiently included in a national broadband map.

Map Information. In the RFI, NTIA requested additional information regarding the elements that the national broadband map should include.[38] NTIA also examined mapping methodologies employed at the State level and consulted with the Federal Communications Commission (FCC) to determine what data elements should be included in a national standard that would be applied to the collection of broadband mapping related data by awardees under this Program so as to better ensure comprehensiveness, cohesiveness and uniformity in the national broadband map.[39]

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[36] *See* Notice: American Recovery and Reinvestment Act of 2009 Broadband Initiatives, 74 FR 8914 (Feb. 27, 2009).

[37] Agendas, transcripts, and presentations from each meeting are available on NTIA's Web site at *http://www.ntia.doc.gov/broadbandgrants/ meetings.html.* All public comments in Docket No. 090309298–9299–01 are on file with NTIA and may be viewed on NTIA's Web site at *http:// www.ntia.doc.gov/broadbandgrants/comments.*

[38] 74 FR at 10718.

[39] Commenters offered a range of comments about what data the map should include: State of North Dakota at 9 (Apr. 14, 2009) (types of technology used by providers); National Association of Telecommunications Officers and Advisors (NATOA) at 24 (Apr. 13, 2009) (actual and offered speeds and prices for a particular area); Joint Comments of Massachusetts Broadband Institute, Massachusetts Department of Telecommunications and Cable, and Vermont Department of Public Service (Joint Comments) at 7 (Apr. 14, 2009) (current availability of service, adoption rates, and service provider identity); The Telecommunications

Industry Association (TIA) at 19 (Apr. 10, 2009) (location of infrastructure points); Pennsylvania Governor's Office of Administration (Apr. 13, 2009) (location of water and cell towers); Big Think Strategies at 9 (Apr. 13, 2009) (location of "meet-me-backbone-points"); University of Nebraska at 4 (Apr. 13, 2009) (both dark and lit fiber); FiberTower Corporation at 13 (Apr. 13, 2009) (locations of broadband enabled buildings); County Office of Economic Development, Garrett County, MD at 13 (trunking locations/nodes); Wireless Internet Service Providers Associations (WISPA) at 13 (Apr. 13, 2009) (point-of-presence locations); Public Interest Spectrum Coalition at 10 (Apr. 13, 2009) (spectrum frequency/signal strength by time of year/day); ZeroDivide at 13 (Apr. 13, 2009) (adoption rates in new broadband deployment areas); RF Check, Inc. at 1 (GPS mapping); City of Boston at 9 (Apr. 13, 2009) (data transfer rates); Association of Public Safety Communications Officials (APCO) at 13 (Apr. 13, 2009) (network interoperability); FiberTower Corporation at 4–6 (Apr. 14, 2009) (bandwidth availability for backhaul); CostQuest/LinkAmerica Alliance at 10 (RF propagation and antennae direction); FiberTower Corporation at 10 (middle and last mile bandwidth capacity); CostQuest/LinkAmerica Alliance at 12 (topography features and location of facilities); Rural Internet and Broadband Policy Group at 9, 10 (traffic network architecture); CostQuest/LinkAmerica Alliance at 10 (social demographic data); National Organization of Black County Officials (NCBM *et al.*) at 3 (Apr. 14, 2009) (race); NCBM *et al.* at 3 (gender, income, age, education, and difference in language(s)); Rural and Tribal Systems Development (RTSD) at 17 (Apr. 14, 2009) (political subdivisions); NCBM *et al.* at 3 (employment status); Space Data at 6 (economically disadvantaged areas); FirstMile.US at 14 (Apr. 10, 2009) (physical and financial accessibility); CostQuest/LinkAmerica Alliance at 10 (location of public technology access and learning centers (schools); Level 3 Communications at 15 (Apr. 13, 2009) (population trends); The People of the State of California and Governor Arnold Schwarzenegger at 42, 46, 48 (Apr. 13, 2009) (subscriber data); CostQuest/LinkAmerica Alliance at 10 (customer class); National Emergency Number Association (NENA) at 16–18 (Apr. 13, 2009) (public safety broadband availability); Intrado Inc. and Intrado Communications Inc. (Intrado) at 10 (Apr. 10, 2009) (PSAP locations); Apex CoVantage at 4 (road segments); Joint Comments at 7 (Apr. 14, 2009) (broadband availability type); CostQuest/ LinkAmerica Alliance at 10 (locations of public libraries); Pennsylvania Governor's Office of Administration at 6, 7 (broadband stimulus fund projects); State of Iowa at 7 (Apr. 13, 2009) (rights-of-way); National Association of County and City Health Officials (NACCHO) at 3 (Apr. 13, 2009) (health care facilities); Rural Internet and Broadband Policy Group at 4 (Apr. 13, 2009) (voice and data connectivity rates in tribal areas); Broadpoint Inc. at 3 (Apr. 13, 2009) (offshore economic and business hubs); Stratsoft LLC at 1 (Mar. 23, 2009) (frequency of electrical outages, electrical currents for radios, and usage data).

NTIA finds that the data elements contained in the *Technical Appendix* attached to the Notice must be collected by each awardee under this Program and that such data must be provided to NTIA pursuant to the terms of the Notice. To the greatest extent possible, at every address, the type and speed of broadband service will be provided. For providers of wireless broadband service, the spectrum used for the provision of service will be provided. If the applicable broadband service provider so chooses, the provider's identity will

also be available, otherwise the map will simply display that an anonymous provider utilizing a particular type of technology is providing service to a location. Furthermore, to the extent possible, the service areas of individual providers will be aggregated with other providers of the same technology type. NTIA has made this determination based on its review of the comments, an examination of mapping methodologies employed at the State level, and consultation with the FCC.

Though collected under this Program, data concerning the Average Revenue Per User (ARPU) and data regarding the type, technical specification, or location of infrastructure owned, leased, or used by a broadband service provider will not be displayed on the public national broadband map.[40] The above paragraphs notwithstanding, if provider consent is granted, NTIA may display the above provider-specific information on the national broadband map.

In addition to the above broadband-related information, the national broadband map may display a wide range of additional, economic, and demographic data derived from other sources. Such data, however, are not the subject of the Notice.

State broadband maps developed pursuant to awards under this Program should display, at a minimum, technology type and speed, subject to the restrictions contained herein, including those within the section entitled "Confidential Information" of the Notice. Nothing in the Notice, however, is intended to otherwise limit the data elements that States may include in their State broadband maps or the format that they use to display such data elements, and States are encouraged to adapt their maps to fit their individual State needs.[41]

Level of Granularity. NTIA's RFI included a question regarding the level of geographic or other granularity at which the national broadband map should display information on broadband service.[42] Commenters presented a range of suggestions for the appropriate level of granularity.[43]

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[40] However, NTIA is considering methods for displaying some pricing data that will be collected through other avenues.

[41] The fact that some data elements have not been included in the technical requirements for the national broadband map, or not made publicly available, does not indicate that those elements may not be useful for individual State purposes.

[42] 74 FR at 10718.

[43] The majority of commenters supported street address level granularity. *See, e.g.,* Vermont Center for Geographical Information (VCGI) at 2 (Mar. 24, 2009). There was also support for data collection at lower levels of granularity. *See, e.g.,* City of Beverly Hills at 3 (Apr. 10, 2009) (census block); Lehigh

Based on its review of the comments, examination of mapping methodologies currently employed at the State level, and consultation with the FCC, NTIA finds that data at the address level, or as close to the address level as practicable considering the technology type being employed, as set out in the *Technical Appendix*, should be collected by each awardee under this Program and that such data must be provided to NTIA pursuant to the terms of the Notice. State broadband maps developed pursuant to awards under this Program should display data at the address level, or as close to the address level as practicable considering the technology type being employed and as provided more fully in the *Technical Appendix*.

State Models. NTIA has gathered information from a variety of sources, including mapping experts from many States. Additionally, commenters provided suggestions on what maps NTIA should use as models for the national broadband map.[44] After careful consideration and consultation with the FCC and other agencies, determined that none of the suggested State map models contain all of the data sets necessary for the national broadband map, but may prove to be instructive and the source of valuable ideas. The information required under the Notice and *Technical Appendix*, however, is the principal source of information for the national map and guidance for applicants under this Program.

State Collection of Mapping Information. State participation is critical to the national broadband mapping effort. Commenters expressed a range of opinions on the information that States should be required to collect as a condition of receiving statewide inventory grants.[45] In order to promote

the efficient creation of the State and national broadband maps, NTIA and RUS will require that broadband internet service providers that apply for infrastructure grants under BTOP and RUS' Broadband Initiatives Program (BIP) agree to provide the data that awardees under this Program are required to collect pursuant to the *Technical Appendix*. NTIA and RUS find that the BIP/BTOP program's incentive structure should complement the goals of the State and national mapping efforts and this requirement will further facilitate data collection.

Technical Specifications of State Maps. The BDIA is silent on the technical specifications that should be included in each State map. NTIA sought comment in the RFI on the specifications that should be required of State Broadband Data Program grantees to ensure that the data collected at the State level can be efficiently incorporated into the national broadband map.[46] As stated above, NTIA also consulted with the FCC and examined mapping methodologies currently employed at the State level, regarding the technical specifications with which awardees should comply in composing their maps with program funds.

In response to the RFI, commenters provided varying insights on the data sets that should be displayed,[47] and the technical format of the information

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Valley Cooperative Telephone Association at 6 (Apr. 13, 2009) (census tract level per FCC form 477 data collection); Traverse Technologies, Inc. at 2 (Mar. 25, 2009) (providers' customer service areas).

[44] *See, e.g.,* CostQuest/LinkAmerica Alliance at 17 (Alabama map); State of Arizona Government Information Technology Agency at 9 (Arizona Map); City and County of San Francisco at 25 (Apr. 13, 2009) (California Map); State of Iowa at 7 (Hawaii map); Oakland County, Michigan at 7 (Illinois Map); ConnectKentucky at 3 (Kentucky Map); Joint Comments at 8, 13 (Massachusetts Map); Diane Wells at 1, 2 (Apr. 13, 2009) (Minnesota Map); State of Iowa at 7 (Missouri Map); Joint Response of the New York State CIO *et al.* at 4 (New York Map); Pennsylvania Governor's Office of Administration at 8 (North Carolina Map); Pennsylvania Governor's Office of Administration at 8 (Pennsylvania Map); Scott County Mayor Ricky A. Keeton at 1 (Apr. 13, 2009) (Tennessee Map); Stratrum Broadband at 19 (Mar. 31, 2009) (Vermont Map); City of Boston at 9 (Virginia Tech Map); ViaStat, Inc. at 14, 15 (Apr. 13, 2009) (Australia Map); City of Boston at 9 (New Zealand Map).

[45] The RFI included a question regarding the specific information the States should collect as

conditions of receiving statewide inventory grants (74 FR 10718). Most commenters agreed that States should collect information. *See, e.g.,* WISPA at 13. There was disagreement over whether State data collection should be a condition to qualify for grants. *See, e.g.,* Windstream Communications, Inc. at 27. Some commenters did not think providers should be required to provide mapping data. *See, e.g.,* Independent Telephone and Telecommunications Alliance at 35. Some commenters recommended that providers be required to submit data. *See, e.g.,* State of Missouri/ Missouri Public Services Commission at 12.

[46] 74 FR at 10718.

[47] NTIA received comments on the technical specifications of the map including the following: Triangle J Council of Governments Cable Broadband Consortium at 15 (Apr. 13, 2009) (NTIA should establish a standard template, such as a database directory, by which information is submitted); CostQuest/LinkAmerica Alliance at 18 (NTIA should clearly define certain data sets such as: Coverage areas, speed and service attributes, quality of service data, technologies, infrastructure elements, demand and demographic data price, deployment costs); The People of the State of California and Governor Arnold Schwarzenegger at 46 (NTIA should establish definitions for address); National Tribal Telecommunications Association at 3, 4 (NTIA should show customer class (residential, business, etc.); Joint Response of the New York State CIO *et al.* at 11 (data should allow for multiple demographic overlays); Apex CoVantage at 4 (link the customer database to the provider database and link the political data to census data); SEDA— Council of Governments at 6 (searchable by address and display in graphical rather than tabular format).

provided.[48] NTIA has determined to require that data be collected as specified in the *Technical Appendix* attached hereto.

[FR Doc. E9–16103 Filed 7–7–09; 8:45 am]
BILLING CODE 3510–60–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XQ00

Taking and Importing Marine Mammals: Taking Marine Mammals Incidental to Harbor Activities Related to the Delta IV/Evolved Expendable Launch Vehicle at Vandenberg Air Force Base, CA

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received an application from United Launch Alliance (ULA) for an Incidental Harassment Authorization (IHA) to take small numbers of marine mammals, by harassment, incidental to conducting *Delta Mariner* operations, cargo unloading activities, harbor maintenance dredging, and kelp habitat mitigation activities related to the Delta IV/Evolved Expendable Launch Vehicle (Delta IV/EELV) at south Vandenberg Air Force Base, CA (VAFB). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS requests comments on its proposal to authorize ULA to take, by Level B harassment only, small numbers of two species of pinnipeds at south VAFB beginning August, 2009.

DATES: Comments and information must be received no later than August 7, 2009.

ADDRESSES: Comments on the application should be addressed to

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[48] Link America Alliance at 17 (NTIA should follow Federal Geospatial Data Content standards that included geographic and topographic information); University of Nebraska at 4 (NTIA should require GIS software compatibility); The People of the State of California and Governor Arnold Schwarzenegger at 47 (NTIA should create Metadata (data about the data) according to Federal Geospatial Data Content (FGDC) standards to be generated after geo-coding); State of Arizona Government Information Technology Agency at 9 (NTIA should create Metadata (data about the data) according to ESRI mapping standards); CostQuest/ Link America Alliance at 18, 19 (maps and features (data layers) should be collected in accordance with Open Geospatial Consortium (OGC) standards for geospatial data).

8-23

Broadband mapping information requested

FOR IMMEDIATE RELEASE

July 21, 2009

TOPEKA -- The Kansas Department of Commerce is leading an initiative to increase broadband Internet access throughout rural Kansas. The initiative is funded primarily by the federal American Recovery and Reinvestment Act (ARRA), which has invested $7.2 billion to help states expand broadband access to underserved communities. The investment will go toward 1) helping states map their current broadband capacity and plan for the future, and 2) providing federal grants and loans to qualified organizations involved in expanding broadband to rural areas.

The State Broadband Data and Development Grant Program allows the state to designate an entity to receive grant dollars to fulfill the requirements for mapping and planning under the program. Mapping has begun in Kansas under an earlier contract with the non-profit organization, Connected Nation, funded by grants from the Information Network of Kansas and Kansas Farm Bureau. The state is currently seeking input from interested parties with ideas for further mapping required by ARRA rules and planning efforts under the grant program.

<u>Requirements for the mapping of broadband service (State Broadband Data and Development Grant Program) are available here.</u>

Interested parties should provide input on how work contained in the Notice of Funding Availability (NOFA) linked above should be performed. In addition to details on mapping, a key part of the project will be an outline of how the state should use up to $500,000 to perform one or more of the following actions as listed in the NOFA:

1. Identification of barriers to the adoption of broadband service and information technology services;
2. Creation and facilitation of local technology planning teams; and
3. Establishment of computer ownership and Internet access programs.

The state considers four sectors – distance learning, economic development, e-government and telemedicine – key to efforts relating to broadband planning in Kansas. Input should show a connection with these sectors.

Parties requesting to be named the State's designee under the NOFA must prove their ability to submit a complete professional and competitive application on the State's behalf to the federal government for funding under the NOFA. The deadline for receipt of this application to the federal government is Aug. 14, 2009.

In addition, parties requesting to be named the State's designee must meet the requirements listed in the NOFA regarding organizational structure:

Entities that are either (i) an agency or instrumentality of a state, or a municipality or other subdivision (or agency or instrumentality of a municipality or other subdivision) of a state; (ii) a nonprofit organization that is described in Section 501(c)(3) of the Internal Revenue Code of 1986 and that is exempt from taxation under Section 501(a) of such Code; or (iii) an independent agency or commission in which an office of a State is a member on behalf of the State...

<u>Due to time constraints as dictated by Federal guidelines, input will be accepted for five business days, and the input period will close Tuesday, July 28 at 5 p.m. Central Standard Time.</u>

Input should be sent electronically to Carole Jordan, Director of the Rural Development Division, at cjordan@kansascommerce.com.

8-24

Connected Nation Broadband Maps

Through Mapping and Planning Grants from NTIA, U.S. Dept. of Commerce

- Alaska
- Florida
- Illinois
- Iowa
- Kansas
- Michigan
- Minnesota
- Nevada
- Ohio
- Puerto Rico
- South Carolina
- Tennessee
- Texas

8-25

Attachment 9
JCIT 12- 15-10

Update on the K-MED Project

Joint Committee On Information Technology

December 15, 2010

Andy Allison, Executive Director, KHPA

Assessing Kansas' Readiness for the Medicaid Eligibility Challenge

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KANSAS HEALTH POLICY AUTHORITY

- Combined "system" for Medicaid, cash assistance, food stamps, and child care often doesn't speak with itself
- Aging mainframe system has "hardening of the arteries"
  - Programs written in a dead language
  - Paper applications are required: mail-in or hand carry
  - Labor-intensive reviews and work-flow management
  - Off-system calculations and "work-arounds"
- Very difficult to support additional eligibility categories
- Lack of a simple consumer interface limits outreach
- Can support on-line electronic adjudication of eligibility for neither Medicaid nor for subsidies in the exchange
- "Scalable" neither in the complexity nor the size of programs it can support
- Tens of thousands of un-enrolled eligible individuals

3

Implementing the Affordable Care Act: The Eligibility Challenge

- **Twice the scale.** The state needs an on-line real-time system to support eligibility determinations for 33% larger Medicaid population and another Medicaid-sized exchange population receiving at least $600 million in income-based premium subsidies annually.

- **One-third the time.** Business processes must support concentrated enrollment of the expanded population in an annual "open enrollment period" beginning October 2013.

- **Perfectly integrated.** The state needs a single, integrated eligibility process for health insurance provided through Medicaid and the exchange, which communicates in real time with a consolidated federal information portal, and also needs to maintain or improve integration with the human service eligibility process.

- **Ready in less than three years.** The new system must be operational between July and October 2013.

4

New Federal Guidance for Medicaid and ACA Information Technology

- In early November, the Department of Health and Human Services (HHS) issued a proposed regulation that will, for the first time, provide 90% funding for Medicaid eligibility systems. Requirements include:
  - the use of a modular, flexible approach to systems development; the separation of business rules form core programming; integration of eligibility systems with Medicaid management information systems (MMIS)
  - sharing, leverage, and reuse of technologies and systems within and among states

- CMS requirements for enhanced funding match K-MED RFP specifications

- HHS requirements for IS investments in the new health insurance exchanges were issued at the same time. Federal funding will be provided through the same leveraged approach.

- On November 23, HHS and the Department of Agriculture (USDA) issued a joint letter to state health and human service agency heads to ensure full statewide participation in these Medicaid and health reform-related funding opportunities.

5

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KANSAS HEALTH POLICY AUTHORITY

Planned Eligibility System for Health Insurance Coverage

HRSA State Health Access Program (SHAP) grant objectives

- Create fully integrated eligibility system for Medicaid, including any expansions
- Create online application for Medicaid/CHIP and Presumptive Eligibility tool for community partners
- Use full electronic adjudication to reduce error and increase the number and speed of determinations

Additional benefits and design criteria

- Provide a system that can serve as a single point of entry for health insurance exchanges and provide seamless eligibility determinations between all medical programs, including subsidies and tax credits under the ACA
- Provide platform that can be used as a building block for the future Medicaid Management Information System (MMIS) – appr. 2015
- Work together with other agencies to create a flexible platform that can be leveraged across organizations that perform similar functions

6

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KANSAS HEALTH POLICY AUTHORITY

Procurement Schedule

K-MED PROCUREMENT SCHEDULE	
Event	Date
1. State Released K-MED RFP	October 7, 2010
2. Pre-bid Vendor Conference	October 14, 2010
3. Proposals From Vendors Due	January 4, 2011
4. Contract Award	May 20, 2011
5. Online Application/PE Tool Go-live	March 31, 2012
6. Full System Testing	Spring-Summer, 2013
7. Full K-MED System Go-live	October 1, 2013

Procurement Hierarchy
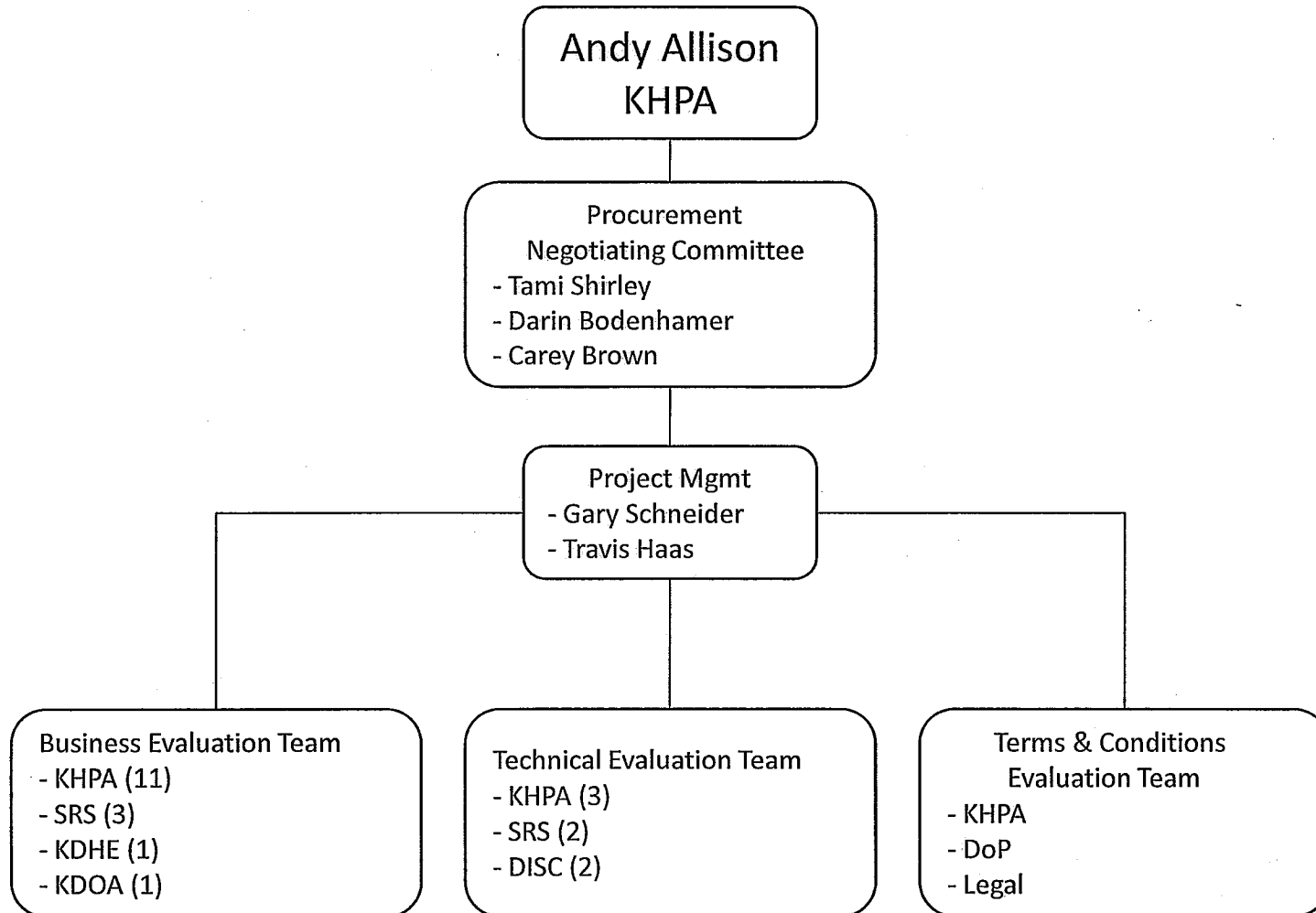
Andy Allison
KHPA

Procurement
Negotiating Committee
- Tami Shirley
- Darin Bodenhamer
- Carey Brown

Project Mgmt
- Gary Schneider
- Travis Haas

Business Evaluation Team
- KHPA (11)
- SRS (3)
- KDHE (1)
- KDOA (1)

Technical Evaluation Team
- KHPA (3)
- SRS (2)
- DISC (2)

Terms & Conditions
Evaluation Team
- KHPA
- DoP
- Legal

Darin Bodenhamer
Director, Medicaid Eligibility
& KATCH Project Sponsor

Coordinating health & health care for a thriving Kansas

KHPA™
KANSAS HEALTH POLICY AUTHORITY

- K-MED provides technology solution to modernize business processes.
  - Reduces administrative overhead for state.
  - More rapid response for customer and more positive experience.

- Leverage this investment to integrate across health care delivery system.
  - Less fragmentation.
  - Better purchasing strategies through modular design.

- Provide impetus for foundation for collaboration across agencies.
  - Using SOA principles to simplify integrating and federating applications and data across multiple organizations for more holistic approach to serving citizens.
  - Working to bring SOA learning and experience to move state in this direction—worked with CITO/CITA to start the SOA task force.

- Set stage for seamless enrollment into health insurance exchange without duplicating investments.

Coordinating health & health care
for a thriving Kansas

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KANSAS HEALTH POLICY AUTHORITY

Streamlining and Improving Customer Experience

New Model

Current Model

SRS Office

OR

Mainframe System

Centralized Clearinghouse

Figure 1

Community Based
Organization--Assisted

SRS Office

Document
Management
Servers

Presumptive
Eligibility

Out Stationed
Workers—on site
Determinations

Clinics/
Hospitals/
Health
Centers

Web Based
System

Centralized Clearinghouse

Home

Public Computer

Figure 2

11

Integration

Integrate: To form, coordinate, or blend into a functioning or unified whole.

(Merriam-Webster Online)

12

SOA Platform

Coordinating health & health care for a thriving Kansas

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KANSAS HEALTH POLICY AUTHORITY

Questions / Closing:

http://www.khpa.ks.gov/katch/default.htm

K A N S A S

DEPARTMENT OF SOCIAL
AND REHABILITATION SERVICES

Testimony to the

Joint Committee on Information Technology

December 15, 2010

Avenues Project

Jeff Lewis, Deputy Secretary and Chief Information Officer

1

K A N S A S

DEPARTMENT OF SOCIAL
AND REHABILITATION SERVICES

Agenda

1. Provide a brief overview of the Avenues Project

2. Review the Timeline for Avenues

3. Review the Funding for Avenues

4. K-Med Project and SRS

5. Questions

2

Attachment 10

JCIT 12-15-10

1

KANSAS
DEPARTMENT OF SOCIAL
AND REHABILITATION SERVICES

Mark Parkinson, Governor
Laura Howard, Acting Secretary

www.srs.ks.gov

Avenues

Overview

The scope of the Avenues project is to implement a new **Integrated** Eligibility and Case Management system for individuals and families for the following means tested Federal or State assistance programs: TANF Cash Assistance, Food Assistance, Foster Care and Adoption Support Payments, Refugee Cash Assistance, General Assistance, Funeral Assistance, Work Programs, Child Care Subsidy, and LIEAP.

Avenues will provide SRS with a comprehensive view of a client across programs in order to integrate service delivery and achieve positive outcomes. This approach will allow multiple programs to be supported, using consistent and standard-based technology and management practices.

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Avenues

Overview

This approach will make the transition from a traditional, program-driven approach to a client-centered, outcome-based environment using an integrated service delivery model.

Avenues will also include the reorganization of the staffing and management structure within SRS to optimize the new Business Model that will be implemented with Avenues.

Avenues will replace the current KAECSES-AE, KsCares, and LIEAP systems. These systems are now used by internal staff and contractors of both SRS and KHPA.

These systems are very old legacy mainframe applications written in COBOL, Natural, and Adabas. These systems are currently supported and maintained by SRS.

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Avenues

Timeline

SRS is required to obtain Federal project approval for Avenues from both the U.S. Department of Health and Human Services and the U.S. Department of Agriculture through a process known as the Advance Planning Document (APD). The APD process has two major steps that include the Planning Advanced Planning Document (PAPD) and the Implementation Advanced Planning Document (IAPD).

SRS has already received approval from both HHS and Agriculture for the PAPD and is now in the process of finalizing the IAPD and RFP for submission to our Federal Partners for their approval sometime in January 2011.

SRS is also planning to submit the required Feasibility Study Report and RFP to KITO in January for their review and approval.

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Avenues

Timeline

SRS has been advised by the current Executive Branch CITO that they will not approve letting SRS issue the RFP for Avenues until after the award of the K-Med procurement (which is currently projected for June 2011).

SRS plans to proceed with obtaining all the necessary approvals to be able to issue the Avenues RFP as soon as the proper approvals have been received.

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Avenues

Funding

SRS currently estimates that the Avenue's project will cost about $65 million.

This estimate includes the acquisition of the new system, project management, integration services, data conversion, implementation of a Enterprise Content Management system, and Independent Verification and Validation.

SRS has already allocated approximately $12.5 million in State General Funds (SGF) and is now working with our Federal partners to determine the proper cost allocation rates to determine the Federal participation match for Avenues.

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Avenues

K-Med Project

SRS is currently providing internal resources as requested by KHPA for the K-Med project. Soon additional contracted resources will be required to adequately staff and support the K-Med project. Most of the resources that are necessary for the K-Med project from SRS will be for business process expertise, Interface Development, Data Conversion, and Decommissioning the Medical processes in KAECSES-AE. At this time, both SRS and KHPA are meeting to agree on the proper amount and funding of these resources.

Since the decision was made to not obtain the proper Federal approvals so that K-Med and Avenues could be acquired together, integration of the two systems will be necessary to provide a transparent interface so that our mutual customers and staff do not have to use two separate systems. SRS is currently working with KHPA to ensure the two systems will work together once both have been implemented.

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10- 4

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Questions

Thank You

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Unemployment Insurance Modernization (UIM) Project

Joint Committee on Information Technology

15 December 2010

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11-2

Today's Presentation

- A brief history of the UIM project

- Progress and accomplishments since last report

- Next steps

- Financing

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What is the UIM project and its goals?

- A project to update the processes and systems used to collect taxes to fund the program and to distribute benefits to qualifying out-of-work Kansans.

- Modernize both our business processes and technology.

- The UIM project has been driven by two guiding principles: customer-focused assisted self-service and integrated operations.

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Why are we doing this?

- During the recession of 2002-2003, the systems posed significant challenges to implementing new Extended Benefit (EB) programs enacted.

- The antiquated system prevented KDOL from improving its operation to meet the needs of customers.
  - Determining eligibility for UI benefits, paying benefits and tracking UI tax assessments and collections.

- In 2004, KDOL hired a consultant to conduct a feasibility study regarding a modernization project for the UI operating system. Governor Sebelius requested and the Legislature approved funding in the FY 2005 budget for KDOL to start a rewrite of the UI Benefits system.
  - A total of $21 million was authorized.

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You've got to have a plan

- In September 2005, a consultant was hired to conduct a full business process reengineering project.
  - All existing UI processes were reviewed, and the new structure and flow of processes were identified and documented.
  - Planned for 31 Business Transformation Projects reengineering 86 Operational Level Processes.

- Based on these results, it was more logical to pursue a complete modernization of the entire UI system.

- The Governor recommended and the Legislature authorized an additional allocation of $26 million in the FY 2007 budget to expand the project to include a re-write of the entire UI system.

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From design to implementation

- A vendor was engaged in June of 2007 to develop the design plan and requirements.

- In 2009, KDOL leadership decided to use an incremental and agile approach to building the new system.

- The agile, incremental approach to building and implementing the new system was more manageable in light of the unemployment crisis.

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Historic workload levels

Growth in Kansas Unemployment Claims During Recent Recession
Jan. 2005 - Nov. 2010

HIGHEST POINT:
Mar. 2010
373,038 total continued claims

Continued Claims by Program
- Regular
- Emergency Unemployment Compensation (enacted Aug. 2008)
- Extended Benefits (triggered Sep. 2009)

LOWEST POINT:
Sept. 2007
58,576 total continued claims

Source: Labor Market Information Services, Kansas Department of Labor

From design to implementation

- A vendor was engaged in June of 2007 to develop the design plan and requirements.

- In 2009, KDOL leadership decided to use an incremental and agile approach to building the new system.

- The agile, incremental approach to building and implementing the new system was more manageable in light of the unemployment crisis.

- In May 2009, the "build and deploy" phase of the project was approved.

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UIM Project Timeline

UIM Project Timeline

| Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan |

2004   2005   2006   2007   2008   2009   2010   2011

Feasibility study

Securing funding for Benefits

Bearing Point - Business Process Reengineering - $200,000

Business Process Reengineering. IV&V - $3,619,045

Requirements, Design. HP Servers, SAN, VMware, Oracle, Filenet, Genesys, IV&V - $24,223,209

UIM Build and Deploy - $18,957,746

UIM B&D 1 - Siebel Upgrade, Filenet, Genesys Infrastructure

UIM B&D 2 - Deploy SIDES and Eforms. Prep for business process deployments

UIM B&D 3 - Primary business process deployments

UIM B&D 4 - Secondary business process deployments

2004   2005   2006   2007   2008   2009   2010   2011

| Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan |

Created with Timeline Maker Professional on Dec 01 2009

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On the leading edge

Kansas is the first state to:

- Use Siebel 8.2 public sector, the very latest version of Siebel software developed specifically for case management in the public sector.

- Adopt the newest Genesys phone system technology and integrate it with Siebel 8.2.

- Integrate Siebel 8.2 with FileNet, the software that stores and manages all of our electronic documents, correspondence and forms.

- Undertake both a major technology upgrade and UI business transformation in parallel.

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Accomplishments overview

- December 2009: the first subproject was completed.

- February 2010: second subproject was completed.

- January 2011: the third subproject is on target to be completed.

- October 2011: The fourth and final subproject has been approved and is scheduled to be completed.

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11-12

Accomplishments

1. Laying the foundation

- Oracle Public Sector for Case Management system

- FileNet for the Document Management solution

- Genesys phone support system

- Oracle Policy Automation Rules Engine

- New KDOL website

- VMware virtual server

- Fax server

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Technical Architecture

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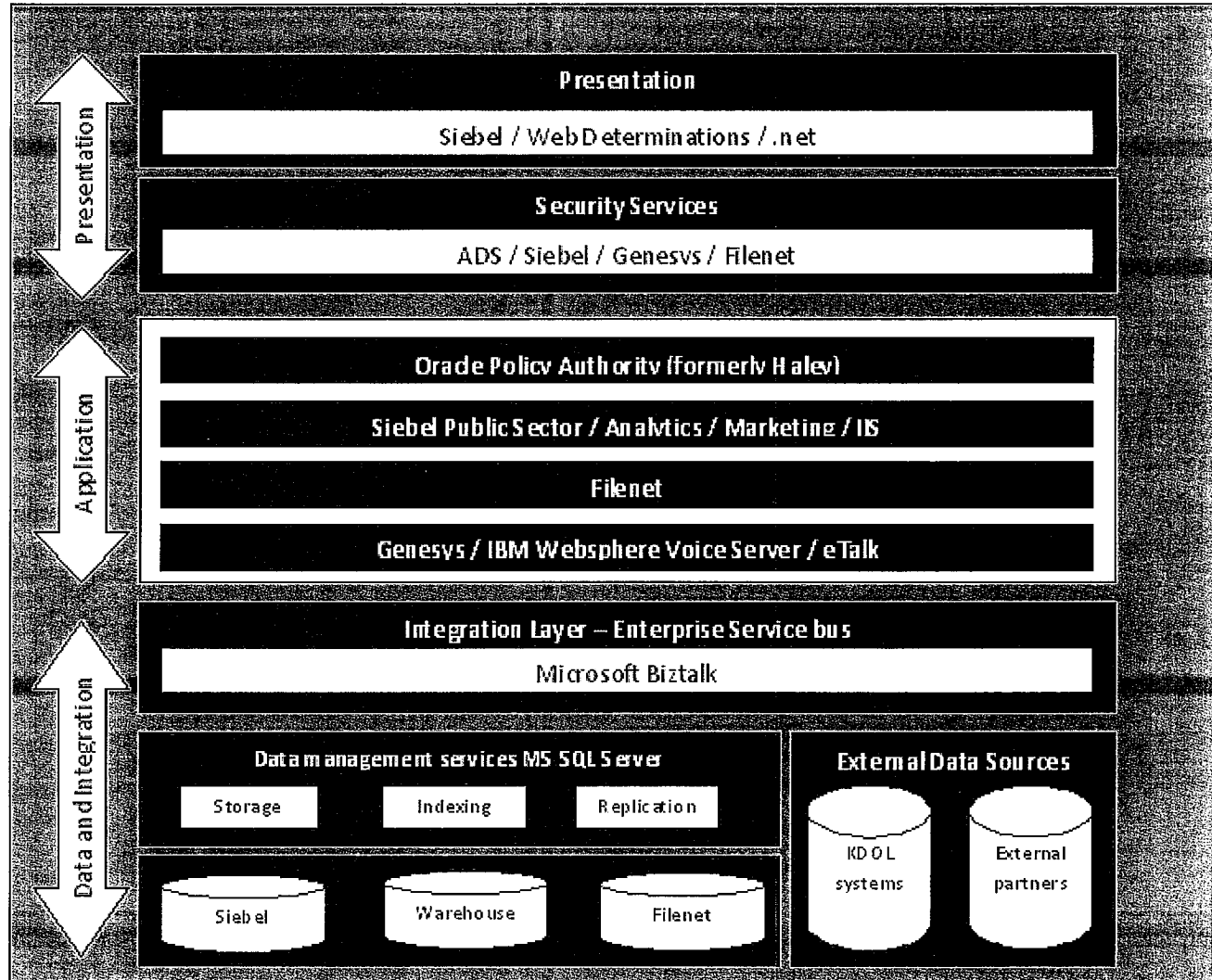
11-14

Accomplishments

2. Modernizing UI Tax

- Moving employer data into Siebel
  - In June 2010, we moved 16 quarters of 72,000 employers' wage data

- Upgraded the Web portal

- Developing a new Quarterly Wage Report
  - Employers can save reports online
  - Many switching to online filing
    - 41,000 3rd Qtr 2010
  - Simplified filing with pre-populated employer data
  - File copy can be printed from online report
  - Small employers' paper forms include a barcode for optical scanning

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Accomplishments

3. A modern Contact Center

- **Consolidated center**
  - Spring 2007, the agency consolidated three separate call center locations into one Contact Center in Topeka.

- **Internal Google online resource tool ("Einstein")**
  - Launched in August 2010. Used almost 8,000 times in October 2010.
  - Online Benefits Operations Manual

- **Dynamic Fact Finding**
  - September 2010, we added additional questions to the online initial claim application - more than 80% of claimants are completing the additional questions.

- **Imaging – Records Management**
  - In 2004, the Benefits Imaging Unit was formed. Over a 5-year span more than 5.5 million pages were converted to electronic documents.
  - In 2009, the agency's Records Management Unit was formed. In less than two years, more than 6.2 million pages have been converted to electronic documents.

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Other accomplishments

- Paper checks replaced with debit cards
  - In CY 2009 the agency experienced savings that topped $1 million.

- Debit card user survey results:
  - 90% of respondents say they value the immediate access to their benefit funds the debit card provides.
  - 78% of respondents say they understand how to access their benefit funds fee-free.
  - 89% say they find their Kansas DOL prepaid benefit card easy to use.

- UI claimants are automatically registered with KANSASWORKS.com job postings/reemployment services.

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Other accomplishments

- Digital appeals hearings – October 2010
  - Replaced antiquated analog cassette tapes with digital recorders.

- New contact center phone system – November 2010
  - Claimants now respond to the system using voice recognition instead of using their touch-tone key pads.
  - The new phone system provides a consistent voice and a more pleasant experience for our customers. The system also is more natural – intuitive – in requesting information from claimants.

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Reaching out with Proactive Communications

- Quarterly Wage Report "How-to" Webinars
  - 12 free webinars were launched in November.

- Use of social media
  - E-mail newsletters to claimants
  - Twitter
    - launched in June and have 456 followers
  - Podcasts
    - 22,653 unique visitors in 2010
  - E-mailing employers
    - Utilizing Siebel technologies, we can now send mass e-mail messages to all Kansas employers
  - UI Desk Guide to help claimants
    - More than14,000 claimants have downloaded
  - YouTube video
    - Tutorial on "*How to file your unemployment benefits*"

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Financing: funds appropriated

- FY 2005: $21 million in bonds appropriated by the Legislature; debt service on bonds paid with federal Reed Act funds

- FY 2007: $26 million in federal Reed Act funds appropriated by the Legislature

- Total appropriated: $47,000,000

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Financing: funds expended

- ## Pre-Phase I: $200,000

- ## Phase I: $3,619,045

  - Detailed documentation of all current processes in "as-is" model

  - Developed "to-be" model for all processes

  - Planned 31 BTPs

- ## Phase II: $24,223,209

  - Identified business rules regarding all processes

  - Built requirements for re-engineered business processes

  - Detailed design of business processes

  - Evaluated and selected technical solutions

  - Includes purchase of hardware, software, training, independent verification and validation, internal staff

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Financing: funds available (budgeted)

- UIM Build & Deploy: $18,957,746 (budgeted)
  - Sub Project I - $2,864,768 (expended)
    - Siebel upgrade
    - FileNet implementation
    - Genesys implementation
  - Sub Project II - $1,039,994 (expended)
    - TABS Website redesign
    - Develop and deploy more FileNet forms
    - Web infrastructure development
  - Sub Project III - $5,764,350 (as of last quarterly report)
    - New phone/IVR system
    - Rules Engine
    - Dynamic Fact Finding
    - Migrating from Mainframe

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Financing

- Total funds expended: $37,711,366

- Total funds remaining: $9,288,634 (as of last quarterly report)

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On to the future

- Updates to the Liability/status reports

- Tax Payments processed inside Siebel

- More Dynamic Fact Finding questions

- Enhancing features to IVR phone system

- Moving benefits and claims data off the mainframe and into Siebel

- Implementing E-talk – a call monitoring program

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Conclusion

- The reengineered processes, and the implementation of new technologies, improve the use of agency staff time and efficiencies.

  - The goal is to automate and consolidate routine processes, allowing staff to work more efficiently.

- The new modern operating system will improve the experience of KDOL's customers.

  - The claimants and employers who interact with the UI system will see a modern customer-focused system that allows as much self-service as desired by the customer.

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1-25

Thank you

Questions?

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Kansans through responsive workforce services.

Home   File a Claim   Injured?   File Taxes   Newsroom   About Us   Contact Us   Español   KDOL

Unemployment Insurance Modernization Project
Progress Report

The Unemployment Insurance Modernization (UIM) project is a comprehensive, ongoing project for the Kansas Department of Labor (KDOL). The purpose of the project is to update the processes and systems used in the agency's Unemployment Insurance (UI) operations to collect taxes to fund the program and to distribute benefits to qualifying out-of-work Kansans.

Although state-of-the-art in its day, the existing operating system used to accomplish these tasks is more than 30 years old. Additionally, many of the processes for handling day-to-day operations are just as antiquated. The outdated technology and way of doing business was inefficient and inflexible, making changes to the system difficult and expensive. The UIM project has been driven by two guiding principles—customer focused, assisted self service and integrated operations.

Technology deployments began in 2009 and we are now into a monthly deployment cycle of the modernized business technology and processes. Each month we implement additional releases that build on the previous releases and bring us closer to our ultimate goal. This is a very exciting time for our agency. Since we began this project, many people across the agency have devoted countless hours to planning, development and testing—and we are seeing our hard work pay off.

Not only is our progress critical to the citizens of Kansas, but we are also being noticed by several other states. Kansas is the first state to:

- Use Siebel 8.2 public sector, the very latest version of Siebel software developed specifically for case management in the public sector;
- Adopt the newest Genesys phone system technology and integrate it with Siebel 8.2;
- Integrate Siebel 8.2 with FileNet, the software that stores and manages all of our electronic documents, correspondence and forms; and
- Undertake both a major technology upgrade and UI business transformation in parallel.

Attachment 12
JCIT   12-15-10

Why are we doing this?

During the recession of 2002-03, it became apparent that the current UI operating system was built on outdated, inflexible programs. The systems posed significant challenges to implementing new extended benefit programs enacted during that recession. The system also prevents KDOL from improving its operation to meet the needs of customers. The UI system at KDOL is comprised of more than 1,600 COBOL language programs and more than a million lines of code (some dating back 40 years). It is a mission critical operation supporting the system of determining eligibility for UI benefits, paying benefits and tracking UI tax assessments and collections. It is an antiquated system in real need of replacement.

In 2004, KDOL hired a consultant to conduct a feasibility study regarding a modernization project for the UI operating system. Governor Sebelius requested and the Legislature approved funding in the FY 2005 budget for KDOL to start the project. A total of $21 million was authorized.

You've got to have a plan

To achieve a successful project, the agency needed a detailed and well-thought-out plan. Agency leadership decided that while other states had upgraded and modernized technologies, it was critical that the Kansas project review and modernize the business processes used to conduct the operations of unemployment insurance.

In September 2005, the agency hired a consultant to conduct a full business process reengineering project. All existing UI processes were reviewed, and the new structure and flow of processes were identified and documented. This thorough project took more than a year to complete. We successfully planned for 31 Business Transformation Projects which resulted in the reengineering of 86 Operational Level Processes.

Based on these results, KDOL leadership determined that the best approach would be to pursue a complete modernization of the entire UI system. The Governor recommended and the Legislature authorized an additional allocation of $26 million in the FY 2007 budget to expand the project to include a re-write of the entire UI system.

After successful completion of the process reengineering project, it was time to develop a detailed plan setting out the specific requirements and technical solutions to be used in constructing the new system. A vendor was engaged in June 2007 to develop the plan and requirements.

12-2

A major decision was made in earlier 2009 to use a more incremental and agile approach to building the new system instead of a "big bang" or "flip the switch" approach. This change in approach has been instrumental in the project's continued success. The recent severe recession dramatically increased the workload for our UI business staff (see chart below). The agile, incremental approach to building and implementing the new system was more manageable in light of the unemployment crisis.

Growth in Kansas Unemployment Claims During Recent Recession
Jan. 2005 - Nov. 2010

HIGHEST POINT:
Mar. 2010
373,038 total continued claims

Continued Claims by Program
■ Regular
▨ Emergency Unemployment Compensation (enacted Aug. 2008)
■ Extended Benefits (triggered Sep. 2009)

LOWEST POINT:
Sept. 2007
58,576 total continued claims

Date

Source: Labor Market Information Services, Kansas Department of Labor
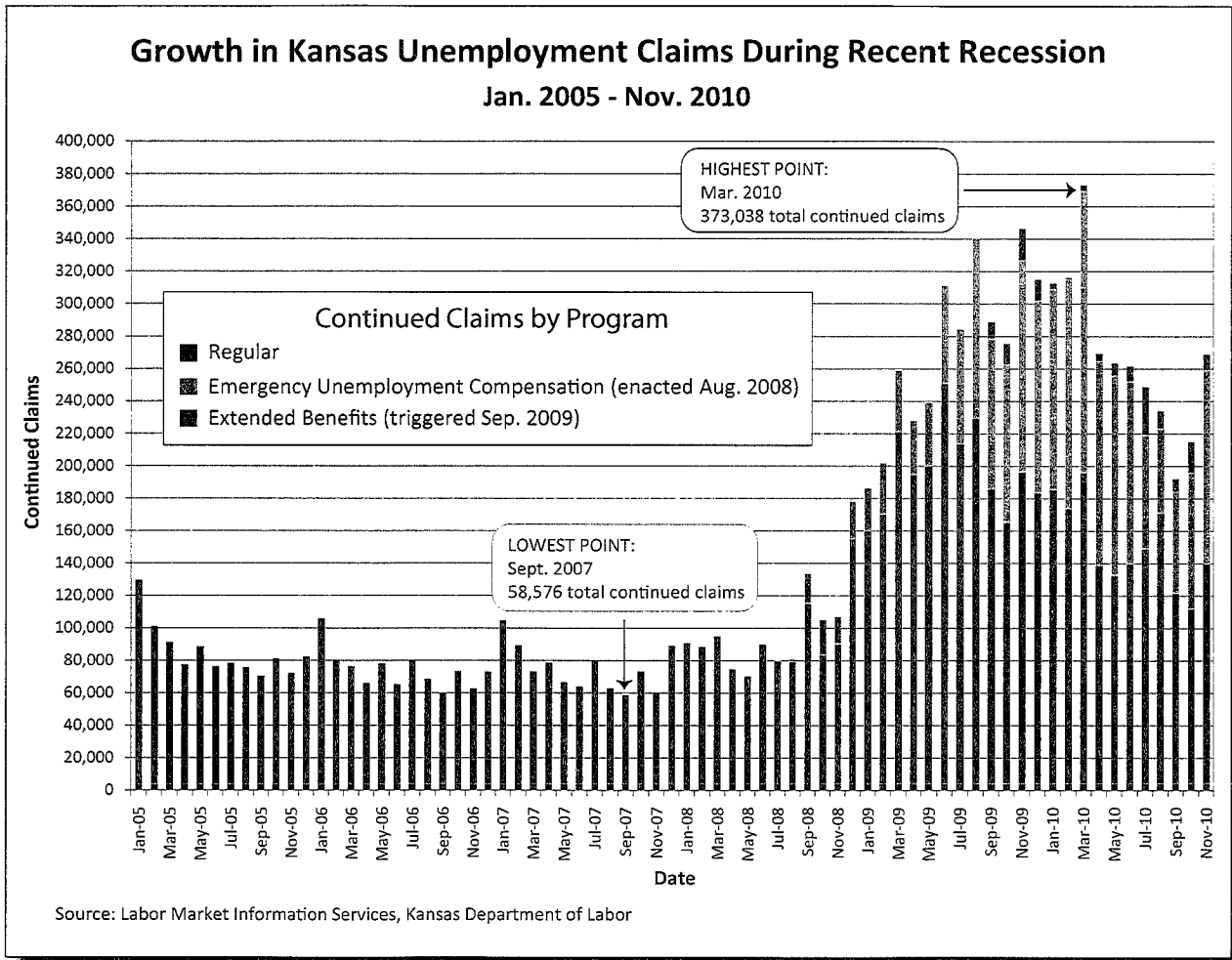
In May 2009, the State's Chief Information Technology Office (CITO) approved the high level plan for the "Build and Deploy" phase of the project.

12-3

So where do we stand on accomplishments?

With the assistance of skilled and talented KDOL staff and outside vendors, the agency has been proceeding with implementation of the UI Modernization Project using a series of subprojects. The first subproject was completed in December 2009, the second in February 2010 and the third subproject is on target to be completed next month (January 2011). The fourth and final subproject has been approved by the CITO Office and is scheduled to be completed in October 2011.
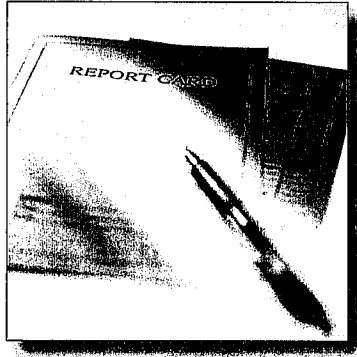
The following items are an overview of some of the more significant accomplishments—items built, implemented and in operation:

1. Laying the Foundation

The agency successfully completed a solid foundation of platforms upon which the new UI operating system is being built. This included:

- **Installing Oracle Public Sector for our Case Management system (Winter 2009)**
  This is the main tool that all our agency employees use to do their daily work. It replaced the old mainframe "green screens" and moved us to a modern database and Web platform.

- **Implementing FileNet for the Document Management solution (Winter/Spring 2010)**
  FileNet streamlined our records storage unit and allowed for individuals' data to be instantly stored after submission. This reduced, and in some cases eliminated, the time our employees previously spent manually entering data.

- **Genesys phone support system (Fall/Winter 2010)**
  With our new Genesys phone system, callers hear professionally recorded voices and, using voice recognition, are asked a modernized flow of questions.

- **Oracle Policy Automation (OPA) Rules Engine (Summer/Fall 2010)**
  This program is the heart of the new system's ability to apply the policy rules governing the UI program and provides the flexibility to adapt to policy changes. The rules engine allows for dynamic fact-finding for adjudication determinations and implements calculations for taxes and benefits due. The program is automatic and will allow agency staff to work more efficiently.

12-4

- **New KDOL website (Spring/Summer/Fall 2010)**

  The website was redesigned to make the user experience more consistent and easier to navigate. Each unit now has its own landing page that includes links to all the available information for that section.

- **Use of VMware (2008)**

  KDOL successfully moved servers to the VMware virtual server environment. We now have 15 servers operating and supporting systems that previously needed 150 servers to operate. This also included consolidation and virtualization of our databases.

- **Fax Server (2008)**

  The agency implemented the use of a fax server to convert incoming faxes directly into electronic documents, reducing the amount of paper documents.

12-5
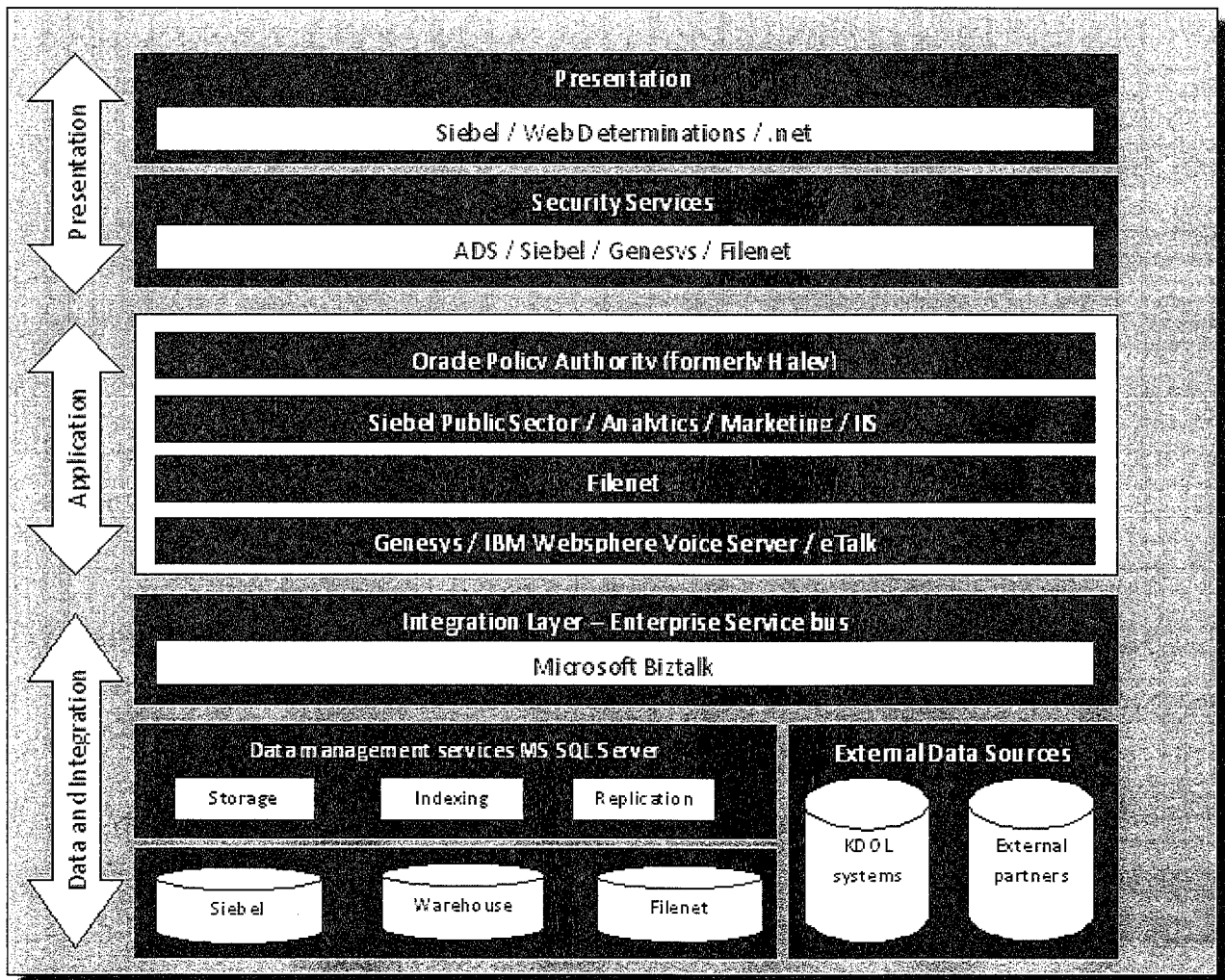
2. Modernizing UI Tax: The first parts of the UIM project to be deployed focused on upgrades to the UI tax system. This included:

- **Moving employer data into Siebel**: The first release in June 2010 moved 16 quarters of 72,000 employers' wage data off the mainframe and onto our new Siebel system. In addition, we re-engineered the processes of doing adjustments and excess wages. Subsequent releases have included migrating the employer account information into Siebel. Now employer accounts are established, assigned a contribution rate, updated and maintained within Siebel.
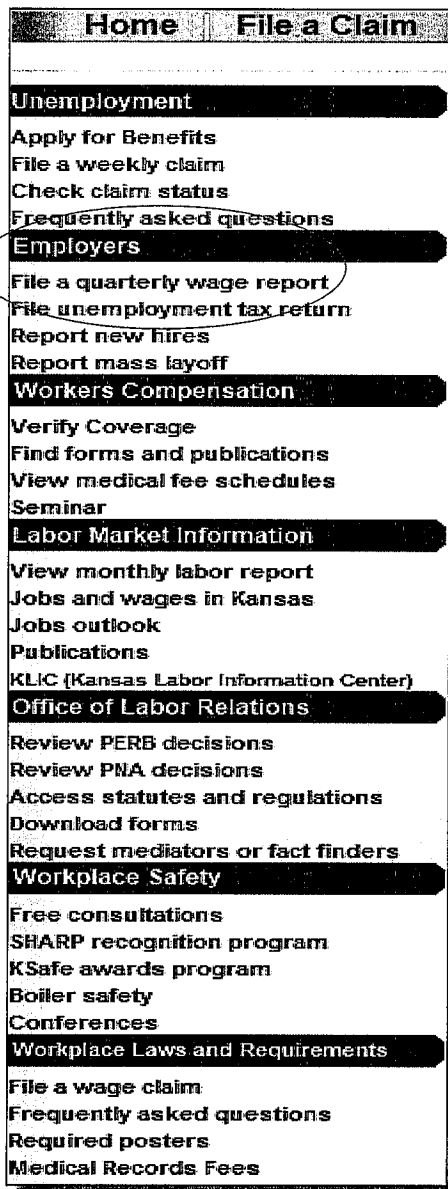
- **Updating the Web portal:** In June 2010, we upgraded the Web portal that employers, claimants and accountants use to file claims, share data and file reports with KDOL. The old portal was created about eight years ago and Web technology has evolved significantly since then.

- **Developing a New Quarterly Wage Report:** In July 2010, the online quarterly wage report took on a whole new look and feel, with added features to improve the process of filing quarterly reports.

The overall goal was to make filing online reports easier and faster and to improve the accuracy of the information filed with the agency. Kansas law requires employers with more than 100 employees to file online. Certified public accountants and third-party administrators handling more than 50 client employees must also file on the Web. Filing online saves time and paper for businesses and KDOL. As a result of the recent changes:

  – Employers can now save a wage report and return to it at a later date. Previously, once the employer hit the submit button, their wage report was sent to KDOL and no further changes could be made online. This made correcting a name or Social Security number cumbersome and required employers to call agency staff who had to locate the paper report to make the change over the phone.

12-6

- Employers can now file their quarterly wage reports using a Web-based service along with other electronic formats. Since its implementation during third quarter of 2010, more than 8,000 employers have switched from filing on paper to filing electronically, saving time and resources for employers and KDOL staff.
- Using previously filed reports, the Web-based filing populates the majority of the data needed to file each employer's quarterly wage report, thus simplifying and reducing time to file these reports. This process also increases the efficiency and accuracy of KDOL staff.
- Employers now have a second chance each quarter to make changes online once they've submitted the form to KDOL.
- We've also added a print function to the wage report so employers can now print the report at any point in the process.
- The paper wage report form for small employers has been reformatted and bar coded to allow for the wage report to be optically scanned and quickly converted to an electronic document for efficient processing once it arrives at KDOL.

3. A modern Contact Center

- **Consolidated, modern call center:** In Spring 2007, the agency consolidated three separate call center locations into one Contact Center in Topeka. The goal was to combine best practices by having all staff physically located in one professional environment

which ultimately saved the agency money. In May 2010, Contact Center customer service representatives (CSRs) moved into the lower level of a newly renovated building. The new space has state-of-the art ergonomic work spaces and provides increased visibility among the Contact Center staff. Previously, CSRs and supervisors had little or no visibility to one another, making it difficult to seek assistance. With better visibility, we have created a real-time environment for coaching, management and development. Another noteworthy change is that we reduced the CSR cubicle size which maximized floor space. The open space creates a true modern call center environment.

12-7

- **Internal Google online resource tool:** In August 2010, we launched a new internal Google online resource tool, which is affectionately called Einstein (our UI genius) by staff. This tool contains all the information from our UI Business Operations Manual, in an easy to use searchable format. We have revolutionized the way CSRs search for information and eliminated the need for printed handouts, which can quickly become outdated. In October 2010, KDOL staff used the new online resource tool to search for information from the manual 7,892 times.

- **Dynamic Fact Finding:** In September 2010, we added additional questions to the online initial claim application, creating a dynamic fact-finding process. Previously, if a claimant's online application raised additional employment separation questions, the claimant was instructed to call the Contact Center. This resulted in more phone calls and longer wait times for claimants. Now claimants answer these additional questions while applying on the website instead of calling the Contact Center. It's called dynamic fact finding because the way the claimant answers the first question determines the types of questions that follow. By gathering more information upfront, we can make a faster determination about eligibility for benefits. By using this tool, adjudicators provide prompt, accurate eligibility decisions and thus reduce the possibility of a claim being appealed. Although in its early stage, our initial review of the adjudication dynamic fact-finding feature indicates a 20 percent improvement in our federal benefit timeliness and quality scoring. These questions are being launched in phases, the first set of questions added involved claimant discharge reasons and quits. Future releases will help us identify "able and available" issues. Although optional, more than 80 percent of claimants are completing these additional questions after finishing their online application.

- **Agent Anywhere:** Many of our customer service representatives and other staff work weekends to reduce the backlogs. By using Agent Anywhere, staff can log on and access their work desktop from any computer in the building, allowing staff to physically work together in the same area.

- **Imaging:** This process brings the UI Benefits and UI tax paper file rooms into one consolidated UI imaging unit.
  - In 2004 the Imaging Unit was formed. Over a 5-year span more than 5.5 million pages were scanned and converted to electronic images.
  - In 2009 the Records Management Unit was formed. In the past 22 months, more than 6.2 million pages have been scanned and converted to electronic images.

12-8

4. Replacing paper warrants with debit cards: In November 2008, KDOL moved from paying benefits with paper checks to using debit cards. With the huge surge in benefit payments in CY 2009, the agency experienced savings that topped $1 million as a result of this change. In addition, our customers have a more secure and flexible method of accessing benefits. A user survey of our customers was conducted, which found that:

- 90% of respondents say they value the immediate access to their benefit funds provided by their card;
- 78% of respondents say they understand how to access their benefit funds fee-free; and
- 89% say they find their prepaid benefit card easy to use.
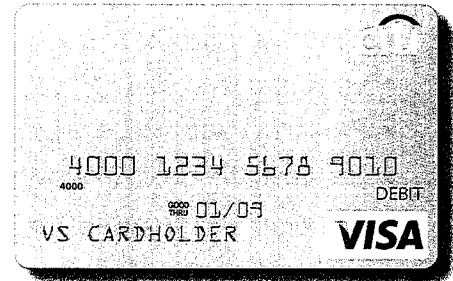
5. Automatic Registration: In July 2009, KDOL worked with the Kansas Department of Commerce to launch a new service that automatically registers all claimants for unemployment benefits with the **KANSAS**WORKS.com job postings and reemployment services website.

6. New phone system—Interactive Voice Response: In November 2010, KDOL debuted the first phase of our new contact center interactive voice response (IVR) system. The new system upgraded our outdated phone system and allows us to gather claimants' information before speaking to a service representative. The first phase streamlined our menu system and brought a professional voice to the system. Claimants now respond to the system using voice recognition instead of using their touch-tone key pads, however, using the key pad is still available. The new IVR eliminated the multiple voices claimants heard when calling in, replaced by a single, consistent and professionally-recorded voice talent. It also eliminates the wait time to enter the IVR—callers no longer have to wait to get into the IVR main menu and,

> *The new phone system provides a consistent voice and a more pleasant experience for our customers. The system also is more natural – intuitive – in requesting information from claimants. It is a significant improvement over the previous system.*

if the queues are at capacity, the caller will be informed upfront and asked to call back. This happens within a few minutes of their call being answered.

7. **Appeals goes digital:** Starting in October 2010, all eighteen UI Appeals judges now use digital recorders to record appeals hearings instead of recording hearings on antiquated analog cassette tapes. The files are then digitally uploaded to a server for easy access to those who need to review the recordings. The new system:

- Eliminates the cost of cassette tapes;
- Eliminates the need for cassette tape storage/filing;
- Provides easier access to files, and less chance for lost or misplaced tapes;
- Reduces the need to redo a hearing due to faulty or lost tapes;
- Allows the recording to be accessed from anywhere in the agency with the click of a button (instead of requesting, finding and delivering the specific tape); and
- Allows faster review of hearing files—the user can skip to a specific time in the recording without having to manually fast-forward or rewind a cassette tape.

8. **Proactive communications with our customers**
- **Quarterly Wage Report "How-to" Webinars:** In November 2010, we launched a series of free webinars to help employers, accountants and third-party administrators understand how to file their quarterly wage reports online. We initially scheduled six webinars for 100 attendees each, but they "sold out" within a few hours of announcing registration. We doubled the webinars to 12 (four in November, four in December, four in January) for 100 attendees each.

- **Revised employer newsletter:** We revamped the agency's quarterly newsletter to employers, the *Employer Insider*, to include a new look and feel and to provide additional information about the quarterly wage report system improvements and other UIM project changes.

- **Social media:** To communicate with our many customers, we realized the need to "go where the people are" and utilize communication vehicles that our customers expect us to use. So far we have seen great success.

EMPLOYER INSIDER
KANSAS DEPARTMENT OF LABOR

Quarterly filing tips, news and updates for Kansas businesses

4th Quarter • December 2010

CONTACT US
Phone:
(785) 296-5027
E-mail:
uitax@dol.ks.gov
Home page:
https://www.uitax.dol.ks.gov

Which way do you file? Make sure you know the law

Over the last three years, the law has required more businesses to file their quarterly wage reports online. Are you in compliance?

- June 30, 2008: Employers, CPAs and TPAs with 250 or more employees are required to file their quarterly wage reports online.
- June 30, 2009: Employers, CPAs and TPAs with 100 or more employees are required to file their quarterly wage reports online.
- June 30, 2010: Third-party administrators filing for employers with 50 or more client employees are required to file their quarterly wage reports online.

Remember these dates
Keep these important fourth-quarter dates in mind

Last quarter, House Bill 2676 provided you with a 90-day, interest free extension on payments of your third-quarter taxes in 2010. Please note: This 90-day, interest-free extension DOES NOT apply to your fourth-quarter unemployment tax, which is due on Jan. 31, 2011. Delaying the payment of your state unemployment tax past the Jan. 31 deadline could reduce the credit you are allowed on your Federal 940 return.

Submitting voluntary contributions
In addition to the required payment of your unemployment tax, you may make additional payments into your reserve account to reduce a deficit balance or to increase a positive balance. Since tax rates are based on reserve account balance, changing your balance can lower your tax rate for next year. Sometimes, a relatively small voluntary contribution will lower your tax rate and allow you to save more money in the coming year.

How do I make a voluntary contribution?
Your "Notice of Contribution Rate" contains instructions for determining whether a voluntary payment will reduce your tax rate for the new year. If you plan to use the Shared Work program in 2011, you must have a positive account balance. If your experience rating notice shows a negative account balance, you will need to make a voluntary contribution in the amount of your negative balance. Voluntary contributions to reduce your tax rate are due within 30 days from the Dec. 13, 2010, mailing date on the 2011 experience rating notice. If you wish to make a contribution, please follow the instructions on your notice.

Questions? Please contact your local field representative, whose name and telephone number is listed on your 2011 experience rating notice.

2011 experience rates are out
Understand your tax rate groups and where to get answers to your questions

If you're a contributing employer, you should have received an experience rating notice around Dec. 13, 2010. House Bill 2676 mandated that each of the 51 rate groups would remain at the same level as they were for 2010. Despite the tax rate groups staying the same, you may see changes in your rate. If your tax rate has changed from 2010, it is because the factors used in computing your rate have caused you to move into another rate group.

How are rate groups determined?
Your rates are based on the ratio of the individual employer's experience with benefit charges and taxable payroll. Your 2011 assigned rate, in the range of 0.11 to 5.40 percent for positive balanced employers and 5.60 to 7.40 percent for negative balanced employers, depends on your experience with the unemployment insurance program.

12-10

**States using Social Media
(YouTube, Facebook, Twitter, etc.)
to provide or receive information from claimants or employers**

Implemented - 5 States
Planning/Developing - 2 States
No Plans - 46 States

- **Twitter:** We launched a Twitter site on June 25, 2010, to post updates and communicate with our many customers. Our site address is: http://twitter.com/KansasDOL. We are currently following 88 other Twitter users (mostly news sources, state agencies and cities), and have 456 followers. To put this in perspective, the Missouri Department of Labor has 182 followers.

- **Podcast:** We also launched a podcast in 2010 and have posted 25 podcasts to date. The audio podcasts share detailed information about specific UI program issues and KDOL. For those podcasts we've had 22,653 unique visitors. Unique visitors represent the total number of people who have listened to a podcast. Visitors are counted only once (by IP address), even if they visit our site multiple times. Divide this number by 25 and we've had more than 900 unique visitors per episode.

- **E-mails to employers:** Utilizing new Siebel technologies, we can now send mass e-mail messages to all Kansas employers for whom we have e-mail addresses. We have used this new process to inform employers about tax payment deadlines, upcoming webinars and to send out an electronic copy of the *Employer Insider* newsletter.

12-11

– **E-mail newsletter to claimants:** In April 2010, we launched the *Kansas Unemployment Update*, an electronic newsletter sent to all claimants for whom we have e-mail addresses. This newsletter includes the latest news and updates about unemployment benefits and UI programs. We currently have 38,568 claimant e-mail addresses and obtain more through the online filing system every day.

– **Unemployment Insurance Desk Guide:** We created and posted an online reference guide to help claimants file their claims online. So far, more than 14,000 claimants have downloaded and viewed this file.

– **"How to file your unemployment benefits" video – a 10-minute tutorial:** We created and posted a video tutorial for first-time claimants. Since posting this video to our website, it has had nearly 1,800 views by unique visitors.

– **YouTube videos:** We have posted two videos to YouTube – our commercial advertising www.GetKansasBenefits.com and the "How to file your unemployment benefits" video tutorial. These two videos have been viewed more than 840 times.

KANSAS DEPARTMENT OF LABOR
401 SW Topeka Boulevard, Topeka, KS 66603-3182

Unemployment Insurance Desk Guide

An easy reference to file unemployment claims online

12-12
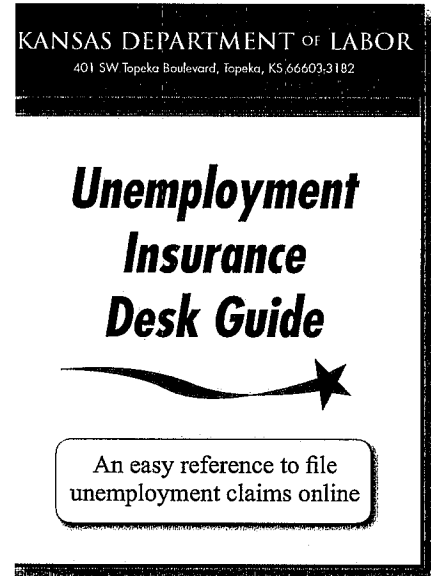
On to the Future

KDOL staff continues to work hard on the UIM project and deploy and implement new releases each month. As we see the improvements take place, anticipation builds for the next series of releases. Here are a few items for upcoming releases:
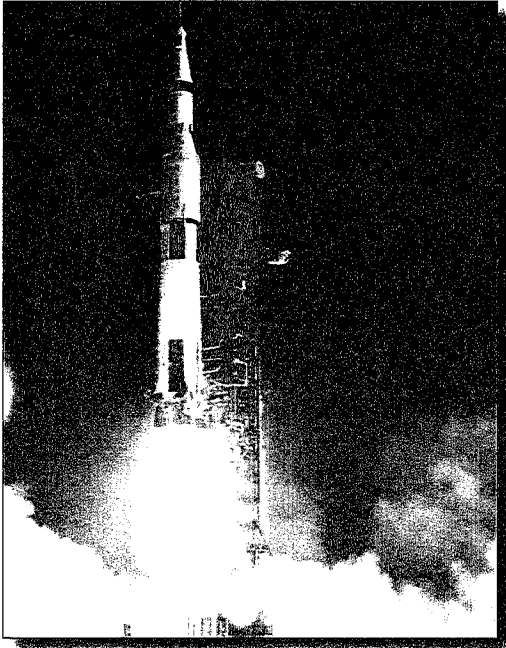
- **Liability/status reports:** This winter we are launching updates to the employer liability and status reports online. Previously, employers completed a form and then waited for KDOL staff to process the information. Now, the process includes a set of dynamic fact-finding questions which will provide employers with a temporary tax rate and account information immediately (created by the system), instead of waiting for a KDOL employee to process the report.

- **Payment processing inside of Siebel:** This winter, employer tax payments will be processed directly inside of Siebel, making the payment process instantaneous.

- **More claimant dynamic fact-finding questions:** This winter we will also launch a set of "able and available" questions on the online initial claim application. We should see a major impact from these questions since many eligibility issues involve the requirement that claimants must be available to seek and able to accept work immediately.

- **More updates to the phone system IVR:** Efforts will be pursued to allow claimants to use the weekly claims filing system with voice activated responses and to add a "wait time" feature to provide claimants with an estimated timeframe of how long they may have to hold before speaking with a customer service representative.

- **Moving all intake initial and continued claims data into OPA rules engine:** In early 2011, we will make the first major move of benefits data into the OPA rules engine, which will move this data off the mainframe and into the new system.

- **More benefits data into Siebel:** In spring 2011, we will move even more benefits data off the mainframe and into Siebel for use by Contact Center and UI Benefits staff.

12-13

- **E-talk:** The Contact Center will began using e-talk, a call monitoring program, to randomly record calls taken in the Contact Center. Supervisors can listen to recorded calls to provide customer service representatives with feedback and additional training if necessary. E-talk records the phone conversation between the CSR and the claimant and captures video screen shots from the CSR's computer. Supervisors will be able to listen to recorded calls and see CSR computer actions. Because calls are recorded at random, CSRs do not know which calls are being recorded. Supervisors will be able to evaluate calls and review them with the CSR.

The UIM Project reaps real rewards

The UI Modernization Project is funded by the distribution of federal Reed Act funds made by the federal government to the State of Kansas in March 2002. The Governor and Legislature authorized $21 million in bonds in FY 2005 to fund a rewrite of the UI benefits system. The debt service on these bonds is paid with Reed Act funds. In FY 2007, an addition allocation of $26 million of Reed Act funds was made to fully fund a complete modernization of the entire UI system. A total of $47 million has been allocated for this project.

Here is how the funding has been spent:

```
The Business Process Reengineering Phase .........................$  3,819,045
The Detailed Design and Requirements Planning Phase ........$24,223,209
Total Available for the Build and Deploy Phase ......................$18,957,746

Subproject I ..............................................................................$2,864,768
Subproject II ............................................................................$1,039,994
Subproject III ...........................................................................$5,764,350
Amount remaining for the rest of the project.............................$9,288,624
```

The savings of a modernized system are real and meaningful. The reengineered processes and the implementation of new technologies improve the use of agency staff time. The goal is to automate and consolidate routine processes, thus allowing staff to work efficiently.

12-14

The new technologies will allow the agency to significantly reduce its dependence on the mainframe system, which cost the agency $1.08 million in FY 2010. Modernizing our benefits payment methods (moving from paper checks to using debit cards) saved the agency more than $1 million in CY 2009

But most of all, the new modern operating system will improve the experience of KDOL's customers. The claimants and employers who interact with the UI system will see a modern, customer-focused system that allows as much self service as desired by the customer.

A project of this magnitude takes time and perseverance. But the benefit to the State of Kansas is real and will be enjoyed for many years.

UIM Project Timeline

| Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan |

2004   2005   2006   2007   2008   2009   2010   2011

Feasibility study

Securing funding for Benefits

Bearing Point - Business Process Reengineering - $200,000

Business Process Reengineering. IV&V - $3,619,045

Requirements, Design. HP Servers, SAN, VMware, Oracle, Filenet, Genesys, IV&V - $24,223,209

UIM Build and Deploy - $18,957,746

UIM B&D 1 - Siebel Upgrade, Filenet, Genesys Infrastructure

UIM B&D 2 - Deploy SIDES and Eforms. Prep for business process deployments

UIM B&D 3 - Primary business process deployments

UIM B&D 4 - Secondary business process deployments

2004   2005   2006   2007   2008   2009   2010   2011

| Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan | Jul | Jan |

Created with Timeline Maker Professional on Dec 01 2009

12-15

QUARTERLY WAGE REPORT & UNEMPLOYMENT TAX RETURN

For Internal Use Only

avoid a penalty this return must be postmarked or electronically submitted by the last day of the month after the quarter
ending date. This report must be filed if you have an active account, even if you have No Wages or No Tax Due.

Attachment 13
JCIT 12-15-16

M M D D Y Y Y Y Q Y Y Y Y

1. Business Name:		2. Employer Serial Number		3. Quarter Ending	

4. Social Security Number	5. Employee Last Name First Name MI (PLEASE PRINT UPPER CASE CLEARLY)	6. Total Wages Paid This Quarter Dollars Cents	7. Excess Wages Dollars Cents

8. **Total Wages for THIS page** ⟶

9. Number of continuation sheets attached   (See Instructions)

11. For each month, report the number of covered workers who worked during or received pay for the payroll period which includes the 12th of the month. ⟶ Month 1 [ ]   Month 2 [ ]   Month 3 [ ]

10. NAICS CODE:
(For Internal Use Only)

22. I certify that the information on this return is true, correct and complete, to the best of my knowledge and belief.

Signature

Print Name

Phone Number

M M   D D   Y Y Y Y

Calculate Tax / **Additions/Deductions**

12. **Total Wages** from **ALL** pages   If **NO** Wages were paid mark **X** Here [ ]

13. **Total Excess Wages** from **ALL** Pages

14. **Compute Taxable Wages.** (item 12 minus item 13)

15. **Unemployment Tax Due.** Multiply   (Item 14 by Tax Rate) Tax Rate = 0.00%

16. **SUTA Penalty Rate** (See Instructions)   Penalty Rate = 0.00%   **+**

17. **Late Filing Penalty**   (See Instructions)   **+**

18. **Interest on Late Payment** (See Instructions)   **+**

19. **Prior amount due**   **+**

20. **Prior Overpayment**   **—**

21. **Total Due.**   If tax is $5 or more, pay to **KANSAS EMPLOYMENT SECURITY FUND**

NOTICE: By submitting your payment by check, you are consenting to the department processing your check by using your routing numbers to initiate an electronic funds transfer. If you do not want to electronically transfer funds from your bank account, you must pay by money order or credit card.
(Please refer to Instructions on back for assistance with completing each item)

23. **Check if this is your final wage report.** [ ]

FILE ONLINE AT: www.uitax.dol.ks.gov OR RETURN TO: Kansas Department of Labor P.O. Box 400, Topeka, KS 66601-0400

Kan-ed

JOINT COMMITTEE ON INFORMATION TECHNOLOGY

December 15, 2010

Bradley S. Williams, M.S.
Executive Director, Kan-ed
CIO, Kansas Board of Regents

★ KANSAS BOARD OF REGENTS ★

KANSAS BOARD OF REGENTS

Kan-ed is...

* A program administered by the Board of Regents, connects almost 500 Kansas hospitals, libraries, higher education institutions, and K-12 schools with high-speed bandwidth.
* Bringing members together through Interactive Distance Learning and the exchange of data. Members have access to shared databases, video-conferencing, telemedicine, and to content that is otherwise unavailable or available at prohibitive costs.
* A unique public/private partnership:
  * Kan-ed leases 100% of its circuits from over 20 telecom and ISP providers in Kansas.
* Providing our members a connection to one of the most advanced research networks in the world (Internet2).
* A world-class distance learning and video-conferencing network:
  * Dedicated video operation center with worldwide access and scheduling services.
* An aggregator of services:
  * Increasing economies of scale and purchasing power to lower costs for critical databases and services for our members.
* Providing technology equipment grants and connectivity grant assistance for access to Kan-ed and the commercial internet by maximizing funding and the federal E-rate program which has just dramatically changed.

Attachment 14
JCIT 12-15-10

Kan-ed 2.0

★ Kan-ed connects with over 20 telephone, cable and internet service provider companies in KANSAS which in turn also provide connectivity to the Kan-ed network for Kan-ed members using their local provider of choice.

★ Kan-ed provides a T-1 of internet connectivity to all members as a "base" level of broadband access. Members pay pro-rated costs at 3mb and 100% of costs above the 3mb level.

★ Kan-ed connects directly with both KanWIN (state agency network) and KanREN (University Research Network) so that our joint memberships and agencies can connect and "work" together across the networks.

Kan-ed Usage Statistics

Membership & Connectivity:

	Members		Sites	
	Total	Connected	Total	Directly * Connected
Higher Ed. Institutions	53	34	99	50
Hospitals	154	71	212	100
K-12 Schools	339	198	1,961	268
Libraries	338	132	390	151
Total:	884	435	2,662	569

Video sessions *scheduled* ** from September 1st, 2010 through December 31st, 2010:

7,990 Individual point to point sessions for a total of 9,193 hours.
7,560 Individual multi-point (MCU) sessions for a total of 8,972 hours.

Empowered Desktop hours of usage for the top 5 applications (June 1, 2009 through July 22, 2010):

1. LS Test Builder (version 4)	57,306 hours
2. Cengage Learning	15,702 hours
3. WorldBook Kan Ed	13,968 hours
4. Typing Pal	13,233 hours
5. netTrekker d.i. Kan-ed	11,647 hours

* Includes only the number of sites *directly connected* to the Kan-ed 2.0 network as of December 13, 2010. More sites may have access to Kan-ed via a member's internal network. For example, most school districts have only one site directly connected to Kan-ed, but then share that connection with all buildings in the district.
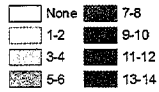
** Only includes video conference sessions that are scheduled through the Renovo Scheduler as of September 16, 2010. This does not represent all video conference sessions that occur on the Kan-ed 2.0 network.

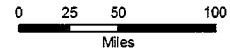14-2

Members Connected to the Kan-ed Network
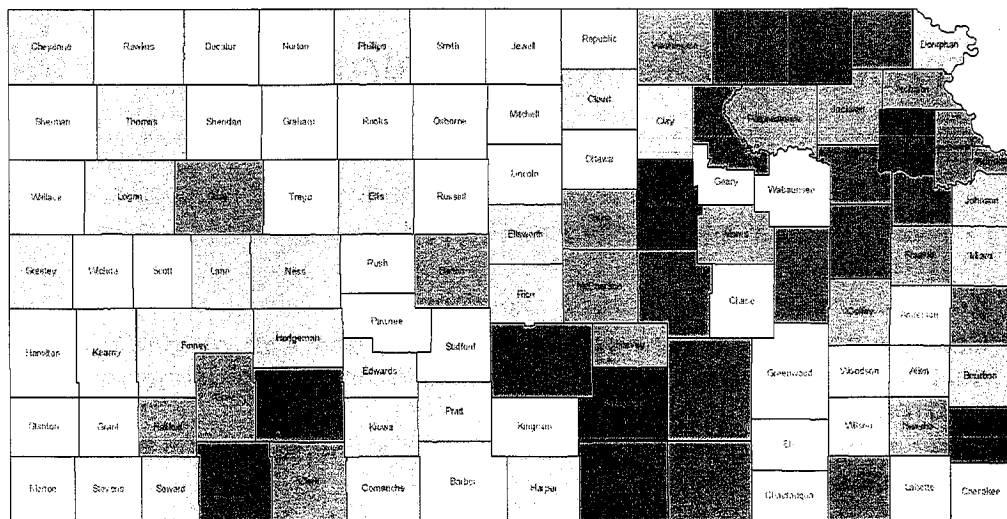## 282 Members Connected as of December, 2007
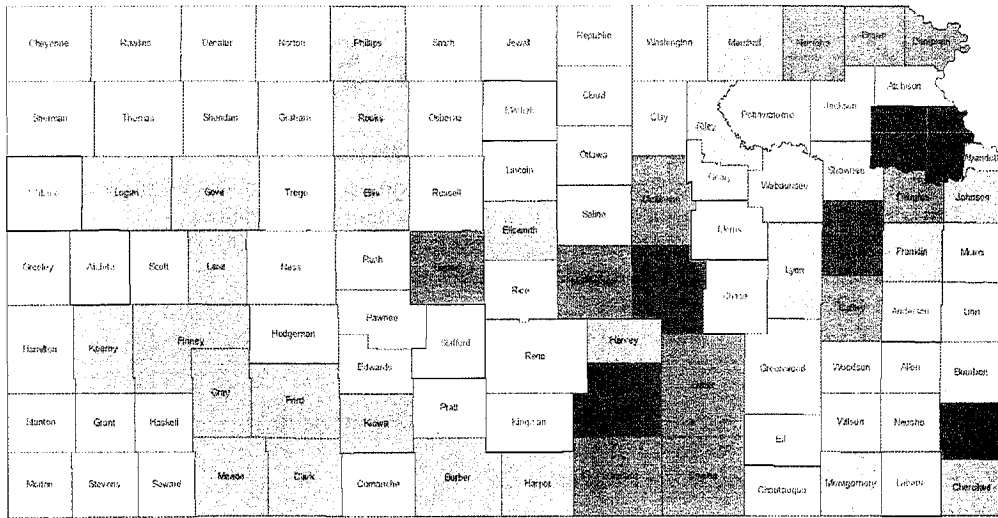
Members Connected

None | 7-8
1-2 | 9-10
3-4 | 11-12
5-6 | 13-14

Note: Members may have multiple physical locations connected to the Kan-ed network but are counted here as single entities.
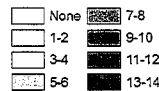
0 25 50 100
Miles

N
Kan-ed

Members Connected to the Kan-ed Network
445 Members Connected as of December, 2010

Members Connected

None | 7-8
1-2 | 9-10
3-4 | 11-12
5-6 | 13-14

Note: Members may have multiple physical locations connected to the Kan-ed network but are counted here as single entities.

0 25 50 100
Miles

N
Kan-ed
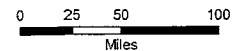
14-3

Kan-ed Member Services

* Kan-ed Empowered Desktop Authenticated Portal* (430k subscribers)
    * Kan-ed Portal is "Single Sign-On" so members sign on once for all applications.
* Broadband Equipment Grant Program For Kan-ed Authorized Providers
* Filtered Internet Service (CIPA Compliance) for K-12 and Libraries Available
* EM Resource Emergency Management System
* E-rate 1-800 telephone support
* Multipoint Control Unit (MCU) Access
* Renovo Scheduled Video Conference Services
* Network Operation Center (NOC) Support
* Access to a private, secure network for video and data services
* Access to Internet 2 content and services
* Enhancing Technology Grant Program
* Kan-ed Livetutor.com
    * Formerly called "Homework Kansas."
    * Kan-ed funds program as a grant which provides one-on-one tutoring for the full K-20 experience and includes GED preparation, career services, citizenship resources and more!

Drivers of Kan-ed 2.0 Network Growth

* Enhancements in technologies:
    * H.323 - High-Definition (HD) Video Conferencing at reduced cost
    * "Cloud" based service offerings (Kan-ed 2.0 Network as a Service (NaaS)
* K-20 utilizing worldwide learning experiences
* Colleges and universities meeting the growing demands of non-traditional, adult learners and students with advanced technical knowledge and requirements
* Libraries becoming the "hub" for advanced communications in their communities
* Hospitals needing to perform secure data transfers, training and telemedicine
* Kan-ed is leading the charge with leadership roles in broadband state policy and health information technology state initiatives.

14-4

2011 Legislative Proposal

★ Approved for introduction by LEPC in November.

★ Updates older statutory language.

★ Adds "Health Information Providers" to the network.

★ Allows connections to and from "Community Based Technology Networks."

★ Allows connections to and from "Community Anchor Institutions."

★ Allows Kan-ed to partner with DISC to utilize other state assets (fiber, space, etc.).

In Closing…

★ Kan-ed will continue to support education technology, health information technology, statewide broadband initiatives and research efforts by:

- Working with the private industry and government leaders to remove barriers to high-speed broadband access in Kansas.
- Providing access to collaborative opportunities among our membership groups and state network partners.
- Bringing technological resources to K-12 schools, Libraries, Higher Education and Hospitals.
- Leveraging existing resources to demonstrate commitment and efficiencies of scale for the benefit of our State and membership.
- Maximizing our members ability to apply for federal and state funding programs related to E-Rate, Federal broadband programs, Rural Utilities Service Grants (RUS), Health Information Technology Grant Programs and other technology programs that are made available to the State of Kansas.

14-5

Never Event

- Atypical event -- building still standing.
- Situation was fluid -- In a constant state of assessing and then "hurry up and wait."
- KDHE worked the problem.
- Required intellectual resources.
- Xiotech picked up state's expenses.
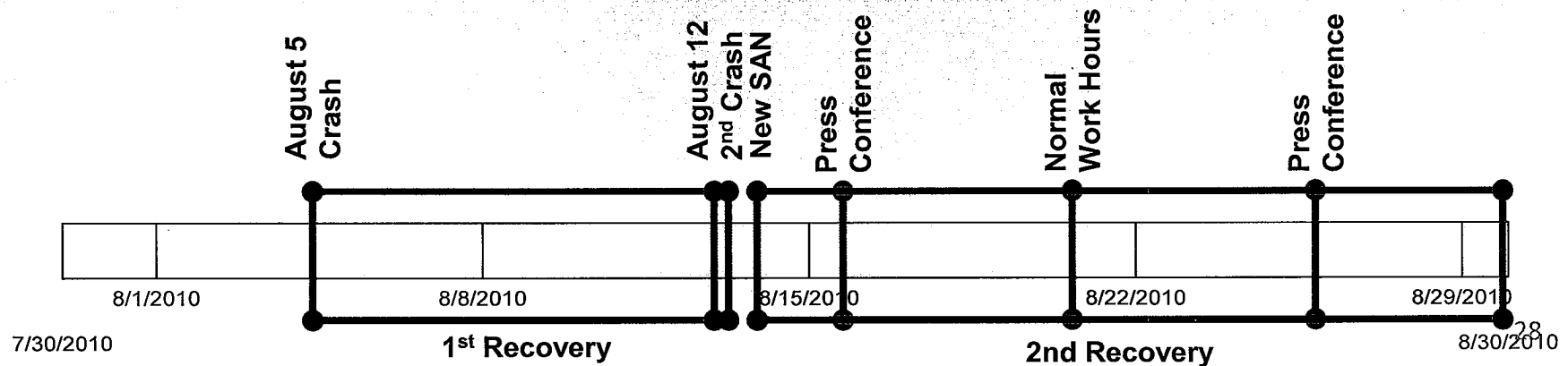
State of Kansas, Department of Health and Environment
1000 SW Jackson Street
Suite 570
Topeka, KS 66612

Norma Jean Schaefer,

EVENT SUMMARY – CALL 1949049, Magnitude 3D 4000 11264

August 31st, 2010

Description of Incident: On the morning of August 5th, 2010 it was reported to Xiotech Support that there were servers reporting inconsistent data when reading from the Magnitude 3D 4000.

Summary:

Initial review of the logs from both the storage array and the fabric switches showed a significant rate of link drops and resets to server connections on the fabric and associated RSCNs against the storage array. This lead to a common understanding between KDHE and Xiotech that fabric events were leading to logical discrepancies in the volumes due to intermittent interruptions in connectivity throughout the storage area network.

Upon in-depth review, it was discovered that there was a resident table structure inconsistency in the Magnitude 3D 4000 that affected the physical disk allocation. This inconsistency was traced back to the series of events related to upgrades and power cycle events that occurred on July 30th and July 31st, although the exact point cannot be determined due to lack of point-in-time logs.

On July 30th, the Xiotech 3D 4000 software was upgraded to version 8.61. During the software upgrade a condition occurred that caused the disk drive bay/enclosure to become unavailable for approximately 20 seconds. During this unavailability, and as-designed, the system attempted to rebuild data from parity onto 4 system hot-spares. This resulted in all available system hot-spares (4) to become used hot-spares. When the disk drive bay/enclosure became available the system returned to a normal state. However, the resulting use of all system hot-spares still existed.

On July 31st, the system was power cycled. During the series of power cycle events of July 31st we believe the drive table became inconsistent.

On August 5th, KDHE manually removed a failing disk drive from the system. Because of the latent table state, the drive recovery action taken the morning of August 5th lead to the system selecting an invalid target for the hot sparing and rebuilding of data. The selection of drive G00 in this process lead to a circular reference in the affected raids. Because these raids were raid-10, the net result was an inconsistent read state depending on the side of the mirror that was being read from the server. This condition would present to the server as inconsistent due to differing results being presented for consecutive reads.

Recovery:

Once this state was discovered, the removal of drive G00 allowed consistent data to be presented to the servers. Additionally, a new target storage array was provided onsite to serve as a mirror target in data migration and restoration efforts.

Future Remediation:

With an understanding of this condition as a potential system state, Xiotech is approaching future diagnostic and remediation efforts from multiple directions.

1. The affected table is being added to log gathering tools from systems (internally tracked as ATS-363).

2. In our automated parsing applications for system log review, these tables will be analyzed and alerts will be generated any time inconsistencies are found. This will allow Xiotech to react proactively to correct the condition before an issue is experienced.

3. The Xiotech firmware will do internal analysis of these tables to detect and warn of anything inconsistent (ATS-364).
   o
4. Systems reporting to ActiveWatch will send additional data in their daily reports, allowing the parsing applications to have data from each system on a daily basis to alert on any issues seen (ATS-365). This would have given us five data points between the table inconsistency point and the sparing operation.

/5-3

STAR EXPONENT.com
Culpeper, VA
PART OF InsideNOVA

Published: August 27, 2010

State struggles with computer failures

By

By PETER BACQUE AND JEFF E. SCHAPIRO | TIMES-DISPATCH STAFF WRITERS

RICHMOND -- A massive computer failure is crippling Virginia government, knocking out websites, blocking the issuance of driver's licenses, preventing the processing of jobless benefits and delaying welfare payments.

The outage, flaring Wednesday afternoon and expected to disrupt some services through the weekend, is attributed to 228 malfunctioning servers, which supply shared software and applications to clusters of state agency computers.

Twenty-six of more than 80 state agencies were hit by the shutdown, including the office of Gov. Bob McDonnell.

"We're disappointed to have a failure, an outage of this magnitude," Samuel A. Nixon Jr., head of the Virginia Information Technologies Agency, said yesterday. "No matter what you do, it's going to happen on occasion."

The incident is the latest embarrassment for VITA and Northrop Grumman, the company the state hired in 2005 to provide computer and communications services under a $2.3 billion contract -- Virginia's richest-ever privatization deal.

VITA and the firm, whose headquarters was lured to Northern Virginia from California by McDonnell, have quarreled for months over shoddy, expensive service. This past spring, VITA and the company announced a new agreement giving an additional $236 million to Northrop Grumman in return for a pledge of better service.

The Rain family of Lynchburg was hit twice by the computer blackout.

Marc Rain Jr., on his way to Old Dominion University in Norfolk, had lost his driver's license and tried to get it reissued Wednesday at the Department of Motor Vehicles office in Lynchburg, and then again yesterday in Richmond.

"We were dropping him off at college," said Rain's mother, Shelly Rain.

None of DMV's 74 offices could process license applications and may not be able to do so again until Monday, officials said. DMV still is handling other transactions, including vehicle decals and titles, and driving and vehicle records.

With its website inaccessible, thousands of out-of-work Virginians could not file jobless claims with the Virginia Employment Commission.

"Acce⸱ ur website is down 100 percent," said <u>VEC</u> spokeswoman Joyce Fogg. "So no one can get to ⸱ebsite, not even us."

The Virginia Department of Social Services, which, among other things, manages child-support payments and aid to needy families, reports that the outage is disrupting benefits.

"It appears that some benefit payments will be delayed, but we will know more [today]," said spokeswoman <u>Carla Hill</u>. "We are still assessing and are doing everything we can to get back to normal business processes as quickly as possible."

<u>Nixon</u>, appointed by <u>McDonnell</u> under a <u>new law strengthening gubernatorial control</u> over VITA, said that the shutdown -- apparently the largest for the state since 2007 -- occurred about 3:30 p.m. Wednesday.

<u>Nixon</u> said 228 of 3,600 servers were affected when technicians for <u>EMC</u>, a Northrop Grumman subcontractor, were checking for faulty <u>equipment</u>. <u>Nixon</u> said he believes state computer data are largely intact.

<u>Nixon</u> also said that the interruption was of insufficient magnitude to activate a backup system at a duplicate computer center in <u>Russell County</u>, in Southwest Virginia.

<u>Nixon</u> said it is too early to determine whether Northrop Grumman will be punished financially because of the outage. The latest contract, which extends the company's deal with the state from 10 to 13 years, includes new penalties for poor service.

"It depends on how long the outage remains," <u>Nixon</u> said.

<u>Megan Mitchell</u>, a spokeswoman for Northrop Grumman, said, "Knowledgeable and dedicated staff at the agencies, VITA and Northrop Grumman are working together to respond appropriately to the impacted systems.

She added, "It is our priority to minimize these impacts and restore services as quickly as possible."

However, the incident alarmed legislators already skeptical about the effectiveness of the VITA-Northrop Grumman deal, its rising cost to taxpayers and implications for other privatization ventures.

"It's pretty obvious that Northrop Grumman continues to underperform, and I think it would have been wise for the governor to require quality performance before extending the contract for three years," said Sen. Janet D. Howell, D-Fairfax, a member of the Senate Finance Committee.

"This is a sign that privatization is very complicated and should be entered into with caution."

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