Approved: 4-5-96
Date

MINUTES OF THE HOUSE SELECT COMMITTEE ON TELECOMMUNICATIONS.

The meeting was called to order by Chairperson Doug Lawrence at 1:35 p.m. on February 12, 1996 in Room 423-S of the Capitol.

All members were present except: Representative Greg Packer - excused

Committee staff present: Lynne Holt, Legislative Research Department
Bob Nugent, Revisor of Statutes
Mary Ann Graham, Committee Secretary

Conferees appearing before the committee: Donald Heiman, Director - Division of Information Systems & Communications

John Grace, President/CEO - KS Association of Homes and Services for the Aging

Ann Johnson, Coordinator of Research and Information Resources - KS Assoc. of School Boards

Tom Bell - Kansas Hospital Association (Written Only)

Rob Hodges, President - KS Telecommunications Association (Written Only)

Others attending: See attached list

Chairman Doug Lawrence called the meeting to order at 1:35. He drew the committee's attention to several items that had been distributed, a Telecommunications Glossary of terms from the Institute of Electrical and Electronics Engineers, supplied by Representative George Dean. (See Attachment 1) Two fiscal notes; one for **HB 2728** by House Committee on Appropriations, authorizes the Secretary of Administration to enter into agreements with local governments, hospitals, and nonprofit corporations so they can use state telecommunications facilities under the control of the Secretary, a second fiscal note; for **HB 2762** by House Select Committee on Telecommunications, concerns the regulation of telecommunications in Kansas, would require the Kansas Corporation Commission to define universal telecommunications service and develop a process to support universal service.

Lynne Holt distributed copies of material submitted to the Legislative Research Department by people in the industry, comparing Federal Legislation with the KCC Competition Docket and the Telecommunications Strategic Planning Committee Report . (See Attachment 2)

The Chairman opened public hearing on: **HB 2728**

HB 2728: An Act concerning statewide telecommunications network; relating to nonprofit organizations; amending K.S.A. 1995 Supp. 75-4709 and repealing the existing section.

The Chair welcomed Donald Heiman, Director, Division of Information Systems & Communications. Mr. Heiman spoke in favor of **HB 2728,** he feels this bill would allow DISC to bill nonprofit organizations for the use of State networks if the organization is performing a governmental function. (See Attachment 3) He introduced two members from DISC, Andrew Scharf, Public Service Exec., Bureau of Telecommunications and Bruce Roberts, Chief Financial Officer. Also, Craig Kammen, from the Department on Aging, was available for questions from the committee.

The Chair recognized John Grace, President/CEO, Kansas Association of Homes and Services for the Aging.

Mr. Grace provided testimony in support of **HB 2728**, which he believes would be good public policy in that it acknowledges and facilitates public/private partnerships for high quality and cost efficient nursing home care throughout Kansas. (See Attachment 4)

The Chairman recognized Ann Johnson, Coordinator of Research & Information Resources, Kansas Association of School Boards. Ms. Johnson supports **HB 2728**, she believes it would help provide greater access to telecommunications for the local units of government which she represents: the school boards of Kansas. (See Attachment 5)

Two conferees did not appear but supplied written testimony, Tom Bell, Kansas Hospital Association. (See Attachment 6) and Rob Hodges, President of the Kansas Telecommunications Association. (See Attachment 7)

The Chairman briefly commented on the agenda for the remainder of the week. He also announced that the language for the property tax bill has been drafted. Tomorrow, February 13, the committee will hear **HB 2790**, relating to end-user support.

The meeting adjourned at 2:05 p.m.

The next meeting is scheduled for February 13, 1996.

SELECT COMM. ON TELECOMMUNICATIONS
COMMITTEE GUEST LIST

DATE: 2-12-96

NAME	REPRESENTING
[illegible]	KASB
[illegible]	KAHSA
STEVE KEARNEY	KINI L.C.
John Reinhart	Ks Press Assn
DAVE HOLTHAUS	Western Resources Inc
Cindy Pennington	KHI
Edgar Reinert	
Terrel Hendrich	
GERALD JOHNSON	
Bruce Burns	
[illegible]	DISC
Bruce Roberts	DISC
Don Herman	DISC
JEFF RUSSELL	SPRINT
Ron Hein	Classic Communications
John Grace	KAHSA
Anne Humphrey	Ks. Hospital Assn.
Jeff Wagaman	Admin
[illegible]	AULY

HEINEMANN KCC

Greg Harrison TCI

SELECT COMM. ON TELECOMMUNICATIONS
COMMITTEE GUEST LIST

DATE: 2-12-96

NAME	REPRESENTING
Tom Miles	FCC
Bill Drexel	SCBT
Bill Blase	SCBT
Scott Richardson	"
Denny Koch	"
Karen Matkin Fleming	KCC

IEEE THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Telecommunication Glossary

The Institute of Electrical and Electronics Engineers (IEEE), a transnational organization of engineers dedicated to the advancement of its members and the society which they serve, has an interest in the advance development of telecommunication in the state of Kansas. As the legislature considers the telecommunication issues, many terms are unique to this technology, so a glossary has been developed to explain some of the jargon that is used in this industry.

A

AAL--See Asynchronous Transfer Mode Adaption Layer.

ABBREVIATED DIALING--A feature that permits the calling party to dial the destination telephone number in fewer than normal digits. Abbreviated Dialing numbers must be set up in advance of their use. Speed Dialing is a typical example of Abbreviated Dialing.

ACCESS--The method, time, circuit, or facility used to enter the network.

ACCESS COORDINATION--The design, ordering, installation, preservice testing, turn-up and maintenance on local access services.

ACCESS LINE--The circuit used to enter the communications network.

ACCOUNT CODES--Also known as Project Codes or Bill-Back Codes. Account Codes are additional digits dialed by the calling party that provide information about the call. Typically used by hourly professionals (accountants, lawyers, etc.) to track and bill clients, projects, etc.

ACD (Automatic Call Distributor)--A system designed to evenly distribute heavy incoming call traffic among multiple attendants.

ACNA (Access Carrier Name Abbreviation)--(e.g. LDDS WorldCom's ACNA is "WTL") There can be multiple CICs per ACNA.

ADDRESS MASK--A 32-bit long mask used to select an IP address for subnet addressing. The mask selects the network portion of the IP address and one or more bits of the local LAN address.

ADDRESS TRANSLATION--The process of converting external addresses into standardized network addresses and vice versa. Facilities interconnection of multiple networks which each have their own address plan.

AGENT--A person or organization that acts on behalf of another. In the telecommunications industry, Agents typically are independent individuals or companies that market the services of a carrier as if they were employees of that carrier.

AGGREGATE DISCOUNT--A discount applied to multiple services based on the total dollar value of those services.

AGGREGATOR--An independent entity that brings several subscribers together to form a group that can obtain long-distance service at a reduced rate. Subscribers are billed by the original IXC. The aggregator

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Attachment 1

only provides the initial set-up of the plan. He usually provides no service after that. Different than a reseller.

AIN (Advanced Intelligent Network)--A dynamic database used in Signaling System 7. It supports advanced features by dynamically processing the call based upon trigger points throughout the call handling process and feature components defined for the originating or terminating number.

AIOD (Automatic Identified Outward Dialing)--An option on a PBX that specifies the extension number, instead of the PBX number on outward calls (for internal billing).

AIS (Alarm indication signal)--Uusually all ones--F11111111. Also known as a Blue Alarm which signals that an upstream failure has occured.

ALARM--A real-time indication or a signal of an abnormal situation or event. Usually includes a Priority or Severity Code.

ALTERNATE ACCESS--A form of local access where the provider is not the LEC, but is authorized or permitted to provide such service.

ALTERNATE ACCESS CARRIERS--Local exchange carriers in direct competition with the RBOCs. Normally found only in the larger metropolitan areas. Examples are Teleport and Metropolitan Fiber Systems.

ALTERNATE MARK INVERSION (AMI)--A line code used for T-1 and E-1 lines that has a 12.5% ones density minimum, and the one conditions of the signal alternate between positive and negative polarity.

ALTERNATIVE OPERATOR SERVICES--Operator services provided by a company other than a LEC, RBOC or AT&T that is authorized to provide such service.

AMA RECORD (Automatic Message Accounting)--See CDR.

AMI (Alternate Mark Inversion)--A line code used for T-1 and E-1 lines that has a 12.5% ones density minimum, and the one conditions of the signal alternate between positive and negative polarity.

ANCILLARY CHARGES--Charges for supplementary services comprised of optional features, which may consist of both non-recurring and monthly charges.

ANCILLARY FEATURES--Subordinate, supplementary, subcomponent characteristics and capabilities. Marketing options of Products and Services.

ANI - (see Automatic Number Identification)--A telephone number.

ANSI (American National Standards Institute)--A United States-based organization which develops standards and defines interfaces for telecommunications.

ANSWER SUPERVISION--The off-hook indication sent back to the originating end when the called station answers.

AOS (see Area Of Service or Alternative Operator Service)

AP (Access Provider)

ARCHITECTURE--The specifications of a system and how its subcomponents interconnect, interact and cooperate. Architectures are often described in multiple levels of abstraction from low-level physical to higher-level logical application and end-user views.

AREA CODE ROUTING--Route calls based on the originating ANI NPA (area code). See NPA-NXX Routing.

AREA OF SERVICE (AOS)--The geographical area supported by a communication service. For 800 numbers, if AOS is "CC", it is using Complex Call routing.

ARI (Automatic Room Identification)--as in Hotel/Motel room number.

ARP (Address Resolution Protocol under TCP/IP)--Used to dynamically bind a high level IP address to a low-level physical hardware address. ARP is limited to a single physical network that supports hardware broadcasting.

ASR (Access Service Request)--A document (or data transaction) sent to the LEC to order the local access portion of a circuit.

ASTA--Areas of Service State (list)

ASYNCHRONUS (i.e. Not Synchronous)--A form of concurrent input and output communication transmission with no timing relationship between the two signals. Slower-speed asynchronous transmission requires start and stop bits to avoid a dependency on timing clocks (10 bits to send on 8-bit byte). (Contrast with Synchronous)

ASYNCHRONOUS TRANSFER MODE (ATM)--An international ISDN high-speed, high-volume, packet-switching transmission protocol standard. ATM uses short, uniform, 53-byte cells to divide data into efficient, manageable packets for ultrafast switching through a high-performance communications network. The 53-byte cells contain 5-byte destination address headers and 48 data bytes. ATM is the first packet-switched technology designed from the ground up to support integrated voice, video, and data communication applications. It is well-suited to high-speed WAN transmission bursts. ATM currently accommodates transmission speeds from 64 Kbps to 622 Mbps. ATM may support gigabit speeds in the future.

ASYNCHRONOUS TRANSFER MODE ADAPTION LAYER (AAL)--A series of protocols enabling ATM to be made compatible with virtually all of the commonly used standards for voice, data, image and video.

ATM (See Asynchronous Transfer Mode).

ATTENUATION--A loss of signal strength in a lightwave, electrical or radio signal usually related to the distance the signal must travel (e.g. fiber optic transmission must be regenerated approx. every 30 miles). Fiber optic attenuation is caused by transparency of the fiber, bending the fiber at too small of a radius, nicks in the fiber, splices, poor fiber terminals, FOTs, etc. (See EDOA), Electrical attenuation is caused by the resistance of the conductor, poor (corroded) connections, poor shielding, induction, RFI, etc.

Radio signal attenuation may be due to atmospheric conditions, sun spots, antenna design / positioning, obstacles, etc.

AUTHCODE or AUTHORIZATION CODE--A number used for security purposes to gain access to an Interexchange Carrier's network. Authorization codes are inherently required for all Feature Group-A and Feature Group-B Circuits without ANI reporting. Authorization codes are also required for Travel Service and Cut-Through capabilities on Feature Group-D circuits.

AUTOMATIC NUMBER IDENTIFICATION--Originating Number: (1) The number associated with the telephone station(s) from which switched calls are originated (or terminated). (2) A software feature associated with Feature Group D (and optional on Feature Group B) circuits. ANI provides the originating local telephone number of the calling party. This information is transmitted as part of the digit stream in the signalling protocol, and included in the Call Detail Record for billing purposes. (3) ANI may also be used to refer to any phone number.

AUTOMATIC RING DOWN (ARD)--A private line connecting a station instrument in one location to a station instrument in a distant location with automatic two-way signaling. The automatic two-way signaling used on these circuits causes the station instrument on one end of the circuit to ring when the station instrument on the other end goes off-hook. This circuit is sometimes called a "hot-line" because urgent communications are typically associated with this service. ARD circuits are commonly used in the financial industry. May also have one way signaling. Station "A" rings Station "B" when Station "A" goes off hook, but Station "B" cannot ring Station "A".

B
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B8ZS (Bipolar with eight zero substitution)--Clear channel line coding option on DS-1 service allows the DS-1 user to obtain greater throughput and functionality from their DS-1 facilities. The use of B8ZS allows users to transmit data at a rate of 64 Kbps per DS-0, achieving what is referred to as a clear channel. Applied against all 24 DS-Os on a DS-1, the effective data throughput of the DS-1 facility is increased with B8ZS from 1.344 Mbps to 1.536 Mbps, a 14% increase in throughput. CSUs with B8ZS support are required on both ends of the user's circuit.

BABY BELLS (see RBOC).

BACKBONE--Network of broadband connections between switches.

BALLOT--A release form that authorizes a customer's long-distance phone service to be switched to (another) long-distance carrier, or reseller.

BAN (Billing Account Number)--Used by telephone companies to designate a billing account, i.e., a customer or customer location that receives a bill. A customer may have any number of BANs.

BANDED RATES--Tariffed rates which may be changed by the carrier within a specified range. Frequently, state commissions require notice to the commission prior to each change. Banded rates are being used less frequently today.

BANDWIDTH--A measure of the communication capacity or data transmission rate of a Circuit. The total frequency spectrum (in Hertz - cycles per second) that is allocated or available to a channel, or the amount of data that can be carried (in bits per second) by a channel.

BASE RATE--The nondiscounted "per minute" charge for Measured Service.

BASIC RATE INTERFACE (BRI)--ISDN offering that allows 2 64kbps and 1 16kbps channels to be carried over 1 typical single pair of copper wires. This is the type of service that would be used to connect a small branch or home office to a remote network. Through the use of BONDING (Bandwidth on Demand) the two 64kbps channels can be combined to create more bandwidth as it becomes necessary.

BATCH ORIENTED--A system that groups input into "batches" and processes them periodically (rather than in real-time). (Contrast with Event Driven)

BAUD--The number of signaling elements that can be transmitted per second on a circuit. e.g. When a modem is used to send digital information on an analog line, baud refers to the speed that the circuit can change from the tone used to represent a binary zero to the tone used to represent a binary one (or vice versa). In an average data stream, one baud is roughly equivalent to one bit per second on a digital transmission circuit. This is an older term being replaced by bps (bits per second).

BCC (Bellcore Client Company).

BELL CUSTOMER CODE--A three-digit numeric code, appended to the end of the Main Billing Telephone Number, that is used by Local Exchange Carriers to provide unique identification of customers.

BELL OPERATING COMPANY (BOC)--The local (or regional) telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches. BOCs have connections to other COs, Tandem (Class 4 Toll) offices and may connect directly to IECs like LDDS WorldCom, AT&T, MCI, Sprint, etc. BOC may refer to the nineteen Bell Operating Companies that are owned by the seven RHCs (Regional Holding Companies) (not including
Cincinnati Bell or Southern New England Telephone). The BOC role was originally defined by the 1982 Modified Final Judgement that specified the terms of the AT&T Divestiture). For Example, the three BOCs: Mountain Bell, Northwestern Bell and Pacific Northwest Bell are owned by the U.S. West RHC. Each BOC may service more than one LATA, but BOCs are generally constrained from providing long distance service between LATAs.

BER (see Bit Error Rate).

BETA TEST--A secondary product test performed by a selected set of "early support" end user(s) or customer(s) (under special contract) prior to the general availability of the product.

BILL--Notice of charges for products and services rendered.

BILLING ACCOUNT NUMBER (BAN)--Used by telephone companies to designate a customer or customer location that will be billed. A single customer may have multiple billing accounts.

BILL-TO-ROOM--A billing option associated with Operator Assisted calls that allows the calling party to bill a call to their hotel room. With this option, the carrier is required to notify the hotel, upon completion of the call, of the time and charges.

BIRD--Satellite (informal slang).

BICSI (Building Industries Consulting Service International)--A non-profit professional association for those engaged in voice\data cable plant design and installation. Administers the Registered Communications Distribution Designer (RCDD) and LAN Specialist certifications and provides related training.

BISDN or B-ISDN (Broadband Integrated Services Digital Network)--A packet switching technique which uses packets of fixed length, resulting in lower processing and higher speeds. Also see ATM or Cell Relay.

BIT--The smallest amount of information that can be transmitted. In binary digital transmission, a bit has one of two values: 0 or 1. A combination of bits can indicate an alphabetic character, a numeric digit, or perform a signaling, switching or other function.

BIT ERROR RATE (BER)--The rate at which errors occur in a stream of transmitted data. The BER may be expressed in terms of a percentage of error-free seconds or as a percentage of error-free bits.

BLOCK CALLS--Prevent calls from completing to the requested destination. May be due to network problems (outage, overload, etc.), or by customer request (e.g. block calls from-or-to certain NPAs, NXXs, States, LATAs, etc.).

BOC (see Bell Operating Company)

BONG--An interactive signal that prompts the originating end user to enter additional information. For example: 10555 Bong (Enter Destination). Bong (Enter Billing information).

BOTTLENECK--A system capacity constraint that may reduce traffic during peak load conditions.

bps (lower case): bits per second.

BPS (upper case) (8-bit) bytes per second.

BRI (Basic Rate Interface)--Relates to ISDN. 3 digital signals over a single pair of copper wires: 2 voice (B) channels and 1 signalling (D) channel. (e.g. voice and fax on a single pair of wires)

BRIDGE--A LAN internetworking device that filters and passes data between LANs based on Layer 2 (MAC layer) information. Bridges do not use any routing algorithms. (Compare Router. Contrast Gateway - dissimilar protocols)

BROADBAND--A high-capacity communications Circuit/path. It usually implies a speed greater than 1.544Mbps. (Contrast with Wideband and Narrowband)

BROUTER--A term used by some vendors, normally referring to a bridge also having some of the characteristics of a router.

BTN (Billing Telephone Number)--The phone number associated, for billing purposes, with the Working Phone Number.

BURSTY--Batchy. Communications characterized by high volumes of data transmitted intermittently, as opposed to steady-stream data.

BUTT-SET, BUTT-IN, or BUTTINSKI--Hand-carried test telephone used to monitor, dial, and talk on conventional analog telephone lines. So named because the craft person could clip onto a pair and "butt in" to a conversation. Definition submitted by Jay Hennigan of the RAIN Network.

BYPASS--Access an IEC other than the customer's Equal Access carrier by dialing 10+CIC Code. (e.g. Bypass to LDDS WorldCom by dialing "10555"). See Walkthrough, CIC Code.

BYPASS SERVICE--The use of facilities other than those of the LEC (Facilities Bypass) or the use of operating telephone company private lines (Service ypass) to connect a customer premise to a PoP or another customer remise.

C

CABLE CUT--Service outage caused by cutting or damaging a cable.

CABLEHEAD--The point where a marine cable connects to terrestrial facilities.

CALL--A completed switched communication (at a specified bandwidth) between two stations on a network. A call is originated by a "calling party", "calling station" or "caller". The destination or termination of a call is the "called party", "called station(s)" or "destination node" on the network.

CALL DETAIL RECORD (CDR)--An accounting record produced by Switches to track Call Type, Time, Duration, Facilities used, Originator, Destination, etc. CDRs are used for customer billing, rate determination, network monitoring, and facility capacity planning. CDRs represent unrated calls (to be processed by Rating) in contrast to Tolls, which are rated calls.

CALL DURATION--The period of time that begins with Answer Supervision (destination off hook) and ends when the call is terminated.

CALL PROCESSING DATA (CPR)--Information sent to SMS to define specific 800 service features, such as call routing by: time of day, day of week, state of call origination, load balancing, etc.

CALL ROUTING TREE--A graphical display of complex call routing decision logic.

CALL TREE--A graphical display of computer function Call sequence. Documents function usage. Used for change impact analysis.

CALL TYPE-- (e.g. 1+, 0+, 800, etc.)

CALLED STATION (Also known as Called Party - Destination Node On The Network)--The telephone number to which a call is directed or terminated.

CALLING CARD--A telecommunication credit card with an AuthCode for using a long distance carrier when the customer is away from their home or office (ANI).

CALLING STATION (Also known as Calling Party - Origination Node On The Network)--The telephone number or ANI that initiates a call.

CAP (See Competitive Access Provider).

CAPACITY--The highest possible (reliable) transmission speed that can be carried on a channel, circuit or piece of equipment. Capacity may be expressed as raw speed or net throughput.

CARD ISSUER IDENTIFIER CODE (CIID)--A code issued with certain calling cards. AT&T's CIID cards cannot be used by other interexchange carriers but can be used by LECs.

CARRIER--A telecommunications provider which owns switch equipment.

CARRIER CIRCUIT--A higher level circuit (DS-1, DS-3, Transmission System, etc.) that has been designed to carry lower-level circuits (DS-0, DS-1).

CARRIER FACILITY ASSIGNMENT (CFA)--An identifier for the Telco network point where an IEC connects.

CARRIER IDENTIFICATION CODE (CIC)--A three digit number used with Feature Groups B and D to access a particular IEC's switched services from a local exchange line. One or more CIC codes are assigned to each carrier. (i.e. there may be multiple CICs per ACNA). See Bypass

CARRIER SPLIT--Use of 800 service call routing features to divide 800 calls between two or more IECs. Split may be by % allocation, origination NPA, Time of Day, etc.

CASUAL CALLING--Allow any ANI (including undefined ANIs) to access a given carrier. For example, if the originator is calling from a non-coin phone, they may dial 10555+destination number and have the call routed through LDDS WorldCom and billed to the originating phone number.

Casual Customer--Any person or organization that dials any CIC Code. (Not necessary to presubscribe to the carrier.)

CATV (Cable Television, Community Antenna Television)--A community television system, served by cable and connected to a common (set of) antenna(s). 1994 Federal legislation may allow them to compete with LECs for telephone service (on the Information Superhighway).

CBUD (Call Before U Dig)--Operational management system for protection of fiber facilities. May have electronic geographic maps of states, counties and city streets where the carrier has buried facilities, upon which reported construction activities are automatically mapped. Human technicians verify that the activities do not pose a danger to the facilities, or dispatch on-site technicians when facilities may be at risk.

CCITT (Consultant Committee on International Telephone and Telegraph)--An international organization which develops standards and defines interfaces for telecommunications. (now known as ITU).

CCS (Common Channel Signaling)--One Hundred (Roman Numeral C) Calling Seconds
Also, a standard unit of traffic, used in communications engineering. See Erlang.

CDR (see Call Detail Record).

Cell--(1) Packet switching information grouped in units of uniform size. Cells are fixed-length packets. (e.g. ATM 53-byte cells). (2) A small group acting as a unit in a larger organization (e.g. one of the separate geographical areas covered by a radio transceiver antenna in a multi-antenna cellular phone system, a spreadsheet cell, a biological cell, etc.).

CELL RELAY--Packet switching technique which uses packets of fixed length, resulting in lower processing speeds. Also known as BISDN and ATM.

CELLULAR SERVICE TYPE--Type 1 - ANI only identifies the mobile cellular system, Type 2 - ANI identifies the mobile DN placing the call, but does not necessarily identify the true call point of origin, Roaming - Subscriber is "roaming" in another cellular network. Roaming ANI identifies the mobile DN placing the call, but does not necessarily identify the true forwarded-call origin.

CENTRAL OFFICE (CO)--One local Class 5 Switch with lines to customer locations. (Usually less than 100,000 telephone lines per Central Office.) COs are usually owned and operated by LECs or BOCs. COs have connections to Tandem (Class 4 Toll Offices) and often connect directly to other COs and IECs like LDDS WorldCom, AT&T, MCI, Sprint, etc. A CO is a major equipment center designed to serve the communications traffic of a specific geographic area. CO coordinates are used in mileage calculations for local and interexchange service rates. A Non-Conforming CO is one that does not (yet) support Equal Access.

CENTREX--A service that is functionally similar to a customer-premise PBX, but provided by means of equipment located in a Central Office.

CEPT (Conference on European Post and Telegraph)--A European organization which develops standards and defines interfaces for telecommunications.

CFA (see Carrier Facility Assignment).

CGA (Carrier Group Alarm)--A major alarm condition for a T1 or E1 multiplexer or DACS frame which results in channels being taken out of service. Normally a RED, YELLOW, or AIS condition.

CHANNEL--A telecommunications path (pipe) of a specific capacity (speed) between two locations in a network. (See DS-0 through DS-4)

CHANNEL BANK--A multiplexor that merges 24 voice and/or data circuits into a single T1 (DS-1) digital communication format.

CHANNEL EXTENDER--A device that increases the distance in which a mainframe can communicate with other mainframes and input / output devices (such as remote terminals, tape drives, high-speed printers, etc.).

CHANNEL EXTENSION /CHANNEL NETWORKING (SERVICE)--Interfaces that allow high-speed computers to communicate with remote devices at local channel speeds (over T1/T3 lines).

CHANNEL SERVICE UNIT / DATA SERVICE UNIT (CSU / DSU)--Manages digital transmission, monitors signals for problems. Responds to Central Office commands. It performs many of the functions that modems do, but it does not have to convert digital signals to/from analog, since the end device and the underlying transmission facility are both digital.

CHANNEL TERMINATION--The equipment (multiplexer, channelizer, etc.) required to provide a connection point for one channel. For dedicated circuits, there is a recurring charge rate element for each channel termination.

CHANNELIZE--To subdivide (or break out) a broadband transmission system into multiple communication channels.

CIC (see Carrier Identification Code. Example: LDDS WorldCom = "555").

CIID (see Card Issuer Identifier Code).

CIM (Computer Integrated Manufacturing)(see Computer Aided Design /Computer Aided Manufacturing).

CIR (Committed Information Rate)--In a frame relay network, each PVC is assigned a Committed Information Rate, measured in bits per second. The CIR represents the average capacity that the Port Connection should allocate to the PVC. This rate should be consistent with the expected average traffic volume between the two sites that the PVC connects. The CIR that is assigned to a PVC cannot exceed the speed of either the originating or terminating Port Connection.

CIRCUIT--A switched or dedicated communications path with a specified bandwidth (transmission speed/capacity).

CIRCUIT MEDIA WIRE CABLES--Two Wire (not twisted), Twisted Pairs (Radio Frequency Interference Cancelling), Shielded Coaxial Cable, Terrestrial Microwave, Satellite Microwave, Fiber Optic.

CIRCUIT SWITCHING--A switching method where a dedicated path is set up between the transmitter and receiver. The connection is transparent, meaning that the switches do not try to interpret the data.

CITY PAIR--Two cities between which an IEC offers long-distance service. When ordering a new dedicated circuit or trunk group, "city pair" NPA/NXXs are used to determine the switch location.

CLASS 3 - IEC (Interexchange Carrier)--Hierarchical interconnection for Class 4 and optional Class 5 Switches

CLASS 4 (Tandem Office/Toll Office)--Interconnection for Class 5 Switches and long distance via Class 3 IECs. Optional direct connection to higher volume Class 4 sites. A Class 4 may also serve as a Class 5 CO.

CLASS 5 (Central Office -End Office)--Connection to local Customer Premise Equipment and local switching. Capacity typically is up to 100,000 lines, 1 to 10 NXX.

CLASS OF SERVICE (COS)--A special limitation on what numbers can and cannot be called. International, 809, 809 + Canada, 48 contiguous states, etc.

CLIENT/SERVER (C/S)--A distributed computing model in which clients request data and processing from servers. Servers usually have higher capacity than clients (but not necessarily). Client/Server exploits less expensive hardware than host-based computing, but C/S application design and resource management must be more sophisticated. See Peer-To-Peer LLI

Closed End--The end of a line (such as a WATS 800 or foreign exchange line) from which all calls are directed to or from a single point. Private lines normally have two closed ends.

CMSDB--SCP 800 Number Translation Database (To POTS)

CO (see Central Office).

COAM (Customer Owned and Maintained Equipment).

COB (Close Of Business)--due or completed by end of business day.

COCOT (Customer Owned Coin Operated Telephone).

CODEC (enCOde/DECode)--A device that converts (encodes) analog signals into a form for transmission on a digital circuit. The digital signal is then decoded back to analog at the receiving end of the transmission link. Codecs allow voice and video transmission over digital links. Codecs may also support signal compression. (Contrast modem)

COIN PHONE--A coin-operated pay phone with restricted access to some services (e.g. International calling). Coin phones have subclasses of Public, Semi Public, and Private.

COLLECT--A call that is paid for by the receiving/destination phone number. Requires approval/authorization of the person being called.

COLLOCATION--The placement of in-service customer telecommunications equipment at a carrier's central office, point of presence or other network location.

COMMERCIAL CUSTOMER--A company that purchases products and service primarily for their own use.

COMMON CARRIER--A carrier that holds itself out as serving the public (or a segment thereof) indifferently (i.e., without regard to the identity of the customer and without undue discrimination). Common carriers may vary rates based on special considerations and may in fact serve only a small fraction of the general public.

COMMON LOCATION LANGUAGE IDENTIFIER (CLLI)--A unique identifier assigned to LEC End Offices and Tandem (Class 4 switch) Toll Offices groups. The CLLI code is the designation for a central office, or the area served by a CO. CLLI is a BellCore standard. Example: "SNANTXFRCGO". Digits 5 & 6 are the state code, digits 7 & 8 are the CO name, digits 9 through 11 specify equipment type.

COMMUNICATION LINK--A system of hardware and software connecting two end users.

COMPETITIVE TELECOMMUNICATIONS ASSOCIATION (CompTel)--An industry association of IECs that does not include AT&T, MCI or Sprint, but does include LDDS WorldCom and most medium-sized communications carriers. CompTel may also refer to one of the organization's conventions.

COMPETITIVE ACCESS PROVIDER (CAP)--Access services provided by a company other than a LEC, RBOC, or AT&T that is authorized to provide such service.

COMPRESSION / DECOMPRESSION--A method of encoding/decoding signals that allows transmission (or storage) of more information than the media would otherwise be able to support. (e.g. The "Stacker" software product more than doubles the storage capacity of a PC magnetic disk drive.)

Both compression and decompression require processing capacity, but with many products, the time is not noticeable.

COMPTEL (see Competitive Telecommunications Association).

COMPUTER AIDED DESIGN/COMPUTER AIDED MANUFACTURING (CAD/CAM)--CAD is a computer application using software and high-resolution graphics for drafting, design and similar engineering functions. CAM is computer-controlled manufacturing. When CAD is connected with CAM it is sometimes called CIM (Computer Integrated Manufacturing). CIM allows efficient production of small quantities of custom-designed equipment. When CAD and CAM are distributed over a geographical area, significant communication network capacity may be required.

COMPUTER TELEPHONY INTEGRATION (CTI)--The integration of telephony function with computer applications.

CONFIGURATION--1. The relative arrangement, options, or connection pattern of a system and its subcomponent parts/objects. 2. The process of defining an appropriate set of collaborating hardware and software objects to solve a particular problem.

CONNECTION--A Point-To-Point Dedicated or Switched communication path.

CONSTRUCTION AND MAINTENANCE AGREEMENT (CMA or C&MA)--An agreement for the ownership, construction and maintenance of expensive facilities (such as transoceanic cables and related equipment). Such agreements are usually between multiple carriers, but may be between a carrier and a government.

CONTRACT--A legally-binding agreement between a vendor and a customer to provide Products, Services or Features in a specified quantity and quality, for a specified price, during a specified period of time. Contracts consist of Terms and Conditions. Contracts may be modified by an Addendum (or multiple Addenda).

CONTRACT CARRIAGE--The provision of regulated service pursuant to individually negotiated contracts, instead of through public tariffs.

CONTRACT TARIFFS--Services and rates based on contracts negotiated with individual customers, but theoretically available to all customers. AT&T has filed several hundred contract tariffs.

CONUS (CONtiguous United States)--The 48 contiguous U.S. states. Used primarily to designate the operating range or authorization of a satellite or radio facility.

COORDINATES--Vertical and Horizontal (V&H) grid points used to determine straight-line mileage between locations such as PoP, CO, etc.

COPT (Coin Operated Pay Telephone).

CORRESPONDENT--A local service provider in a country which exchanges traffic with a carrier. For example, British Telecommunication or Mercury could be the U.K. correspondent of a U.S. carrier.

COS (see Class Of Service).

COUNTRY CODE--Two or three digit codes used for International calls outside of the North American Numbering Plan area codes. Dial: 011 + country code + city code + local phone number) (e.g. "011 + 91 + 22 + 123-4567" 91 = India, 22 = Bombay)

CPE (see Customer Premise Equipment).

CPL (see Commercial Private Line).

CR (Customer Record in SMS).

CREDFACS (Conduit, Raceway, Equipment Ducts, and FACilitieS)--Generic collective term for infrastructure used in cabling.

CROSS CONNECT--A point in a network where a circuit is connected from one facility to another by cabling between the equipment.

CS (Calling Seconds)--a measure of communication traffic.

C/S (see Client /Server).

CSB (Client Support Bulletin)--NASC information to RespOrgs about NPA splits, etc.

CSPDN (Circuit Switched Public Data Network)--Circuit oriented public network usually based on X.25.

CSU/DSU (see Channel Service Unit - Data Service Unit).

CTI (see Computer Telephony Integration).

CUSTOMER--An individual person or organization that purchases (orders, requests, or may be billed for) service. A customer may be related to an entity that pays for products. For example, a subsidiary company may have its own customer identification even though the parent company pays all charges. A billable customer may be someone that merely accepts an operator service call or a casual customer that dials a CIC code (like 10555) without presubscribing. A service provider or an agent may act as (or on behalf of) a customer. (Contrast with End User)

CUSTOMER CONTACT NAME--The designated person to notify as order status changes, etc. A SMS NUS NCON field. Customer Contact Telephone Number is in NUS NPHONE.

CUSTOMER PREMISE--The local facility where the circuit terminates.

CUSTOMER PREMISE EQUIPMENT (CPE)--Communications equipment (such as PBX switches, origination/termination adapters, multiplexers, modems, codecs, telephones, computers, etc. - but not including carrier lines) at the customer's location that connects to carriers' Products and Services. CPE may be COAM or provided by the carrier. Primary CPE suppliers include: AT&T, Northern Telcom, NEC, Phillips, Siemens, Erickson, etc.

CUSTOMER RECORD INFORMATION SYSTEM (CRIS)--A system used by many LECs to maintain customer records.

CUSTOMER TYPE--Classification of customer that defines procedural rules and the availability of products, services, features and options (e.g. residential, commercial, reseller, carrier, etc.)

CUTOVER--The exact date/time that a phone number, circuit, etc. is scheduled to be (or was) moved from one implementation (carrier, etc.) to another. (e.g. moving an 800 number from MCI to LDDS WorldCom).

CUT-Through--Dialing "10"+CIC+" #" followed by an AuthCode for IntraLATA calls.

CYCLE--A recurring series of events (e.g. Business Cycle, System Life Cycle, etc.)

D

D-4 (or Super Frame SF)--A data transmission format comprised of 12 frames of 192 bits each. A single 193rd bit is used for link control and error checking. As an industry standard, D4, also known as SF, has been superseded by the Extended Super Frame (ESF) format. However because ESF is not backward compatible and there continues to be a large installed base of channel banks and DS-1 Multiplexers that are based upon D4, it is still the default private line formatting technique.

D-4 Channel Bank--A multiplexer used to convert 24 voice grade analog or data channels into a DS-1. The D-4 is not equipped for software- controlled provisioning or remote circuit testing.

DA (Directory Assistance)--Phone Number Lookup Service.

DACS (Digital Access Cross-Connect System)--A digital switching facility interconnection device. A DACS allows reconfiguration of lower levels of capacity within a circuit without the need for manual changes in the interconnections. A DACS is similar to a Mux, but a DACS permits software changes which would require physical changes with a MUX.

DAL (Dedicated Access Line)--A non-switched circuit from the customer to a carrier.

DARK FIBER--An inactive fiber-optic strand without electronics or optronics, i.e., no connected transmitters, receivers, regenerators, etc. (See also-Dry Fiber).

DATABASE--A multiuse collection of information (on a computer). Often supports random access selectivity (via "Keys") and multiple "Views" or levels of abstraction of the underlying data.

DATA CIRCUITS--Communication links that are optimized for digital transmission of computer information.

DAY OF WEEK ROUTING--Route calls based on day of week (e.g. single weekday, list of week days, range of weekdays or combinations).

DAY OF YEAR ROUTING--Route calls based on month/day of the year (e.g. single day, list of days, range of days or combination).

DB (see Decibel).

DBMS (Data Base Management System)--See RDBMS, ODBMS

DCE (Data Communications Equipment).

DCS (Digital Cross-Connect System)--(See DACS)

DIGITAL EUROPEAN CORDLESS TELECOMMUNICATIONS--A wireless standard for communications, operating at 1,88-1,9 GHz. The system is developed for high traffic rates and small cells. Applications are private, residential and business telephone and data transmissions.

DDD (Direct Distance Dialing)--Any switched telecommunication service (like 1+, 0++, etc.) that allows a call originator to place long distance calls directly to telephones outside the local service area without an operator.

DDS (Digital Data Service)--A digital data communication circuit (2.4, 4.8, 9.6 or 56K bps)

DE (Discard Eligible)--Frame relay frame indicator that identifies that the frame may be discarded in the case of network congestion.

DEACTIVATION--A request to terminate service (or the process of terminating service)

DECCO (See Defense Commercial Communications Office)

DECIBEL (Db or db)--A unit of power (sound, electrical or optical) increase (amplification) or loss (attenuation) that is proportional to the exponential increase or decrease in power.

DEDICATED LINE--A private line leased from a telecommunications carrier.

DEFAULT CARRIER--Your regular Dial-1 carrier. Call 1-700-555-4141 to find your default carrier.

DEFENSE COMMERCIAL COMMUNICATIONS OFFICE (DECCO)--A Department of Defense organization that procures communications circuits from carriers for use by the military and certain other federal agencies.

DEMARCATION POINT (Demarc)--A point (such as a jack or cross-connect panel) at which ownership or responsibility for operating and maintaining facilities passes from one party to another.

DENIED-ORIGINATING CLASS-TERMINATING ONLY--Answer Only.

DESIGN LAYOUT RECORD--Contains the layout for the local portion of a circuit at a particular location.

DIAL--To Place A Call On A Switched Network. The term "dial" is obsolete -based on rotary dial phones and electromechanical relay switches (which are nearly non-existent in modern telephone systems.) Touch Tone service recognizes dual tones that are generated as each telephone key is pressed. Where Touch Tone service is not available, telephones and switches electronically "pulse" signals that emulate the older rotary dial telephones. The terms "place" a call or "originate" a call are more accurate than "dial".

DIAL TONE--Ready To Place/Originate A Call. When the off hook indication is received at a central office, a dial tone signal is sent to the originating caller on a switched network to indicate that the switch is ready to accept a number.

DIALED NUMBER IDENTIFICATION SERVICE (DNIS)--An optional feature on dedicated access lines (DALs). DNIS delivers identifying digits (up to 14 digits) that distinguish incoming calls. This allows CPE to identify which number was dialed when multiple numbers terminate on the same trunk group.

DIALER--Equipment that pulses out a standard dial protocol signal.

DID (see Direct Inward Dialing).

DIGITAL--A device or method that uses discrete variations in voltage, frequency, amplitude, location, etc. to encode, process, or carry binary (zero or one) signals for sound, video, computer data or other information. For example, a digital clock displays the time as discrete numeric values, rather than angular displacement of analog hands. Digital communications technology generally permits higher speeds of transmission with a lower error rate than can be achieved with analog technology. When analog signals are received and amplified at each repeater station, any noise is also amplified. A digital signal, however, is detected and regenerated (not amplified). Unlike amplification, any noise (less than a valid signal) is eliminated by digital regeneration.

DIGIT STREAM--The switch signalling protocol that contains information such as information digits, destination number, originating ANI, etc. The digit stream is defined by Bellcore standards.

DIM FIBER--A fiber optic system in which the carrier provides regenerators, but does not originate the optical signals at one-or-both ends.

DIRECT INWARD DIALING (DID)--A PBX or Centrex optional feature that permits outside calls to be placed directly to a station line without use of an operator.

DIRECT INWARD SYSTEM ACCESS (DISA)--The ability to access a PBX from an outside telephone number. For example, a caller might dial an assigned number, input a security code and then use the PBX to place a long distance call.

DIRECTORY ASSISTANCE (DA)--An information service whereby operators assist customers in obtaining the telephone number(s) they wish to call.

DISA (see Direct Inward System Access).

DISCONNECT--Call termination and the information associated with it such as time of day, who disconnected (originator, destination, etc.).

DISCOUNT-- Special pricing flexibility used to encourage increased use of products, or to improve competitive marketing.

DISTORTION--A change (other than attenuation or noise) in the characteristics of a signal due to the distance of transmission or equipment problems or inefficiencies.

DISTRIBUTED NETWORK COMPUTING (DNC)--Separation of the elements of an application into subcomponent objects that can be implemented on multiple collaborative computers on a common network. Objects are designed to optimize local processing and storage capabilities and to minimize the slower overhead of remote communication.

DLCI (Data Link Connection Identifier)--A frame relay header field that identifies the destination of the packet.

DLR (see Design Layout Record).

DMOPRO--Switch Profile Loading. A Northern Telecom DMS-250 process for performing Network Database Updates. Defines the network configuration, valid user ANIs, alternate routing tables, service classes, etc.

DMS-250--Northern Telcom (NTI) Programmable Communication Switch. Commonly used in the telecommunication industry.

DN (Directory Number)--Usually 7 or 10 digits.

DNIC (Data Network Identification Code)--A four digit number used to identify public data networks.

DNIS (see Dialed Number Identification Service).

DOMINANT CARRIER--A carrier with marketing power and the ability to control overall price levels. LECs and AT&T, are considered dominant.

DRAG AND DROP--A GUI concept that allows one screen object to be selected and passed as input to another screen object (icon).

DROP AND INSERT--The ability to add and remove lower-level capacity from a higher-level circuit at an equipment location. Lower-level capacity may be interconnected at an intermediate point of a higher- capacity circuit. For example, a Chicago to Los AngelesDS-3 might have DS-1 level drop and insert capability at Salt Lake City. this would provide DS-1 service from Los Angeles to Salt Lake and from Salt Lake to Chicago.

DS (Digital System)--Circuit type

DS-0--(Facility) - The base unit of digital transmission capacity. 1 communication channel = 1 simultaneous voice grade equivalent with a communication capacity of 64 thousand bits per second (64Kbps).

DS-1-- (Facility) T1- The equivalent of 24 multiplexed voice grade channels (DS-0s). 1.544 million bits per second (1.5Mbps).

DS-2-- (Facility) T2 - The equivalent of 4 multiplexed T1 channels. 6.312 million bits per second (6.3Mbps).

DS-3-- (Facility) T3 - The equivalent of 28 multiplexed T1 channels. 44.736 million bits per second (45Mbps).

DS-4-- (Facility) T4 - The equivalent of 6 multiplexed T33 channels. 274.176 million bits per second (274Mbps)

DSU (Digital Service Unit)--A network interface device between the CSU and the customer's DTE. Usually associated with a CSU, the DSU has a V.35, RS232, RS449, or other interface to the customer equipment. The DSU is also a multiplexer for FT1 circuits.

DSX 1 / DSX 3-- A DS-1 / DS-3 Cross Connect.

DTE (Data Terminal Equipment).

DTMF (Dial Tone Multi Frequency).

Duration--The length of a call (switched communication connection) or the effective length of a Contract, Product Offering, etc.

E

E1--A digital circuit with standardized characteristics that operates at 2.048 Mbps. This standard is widely used in Europe and in submarine cables as the rough equivalent of aDS-1 (E1 provides thirty 64 Kbps channels - six more than a DS-1).

E3--A digital circuit with standardized characteristics that operates at 34 Mbps. This standard is widely used in Europe for intercarrier communications as the rough equivalent of a DS-3.

EARTH STATION--A satellite communications facility (a satellite dish and associated equipment) located on the earth's surface (or on a building, ship or other mobile vehicle).

ECHO CANCELLATION--A technique used with voice circuits to isolate and filter unwanted signal energy which accompanies analog transmissions.

ECHO CANCELLER--A circuit feature that turns off the incoming signal while one end of the call is talking (to avoid an annoying long distance echo). It must be disabled for Full Duplex (simultaneous 2-way calls). An echo canceller does not turn off the voice channel, as stated, but electronically removes unwanted echo, while maintaining a full-duplex channel. An echo suppressor disables the channel in one direction or the other, depending on who is talking. Echo cancellers must be disabled for some types of high speed modems calls, and must also be disabled for "clear channel" data calls, such as ISDN.

EDI (Electronic Data Interchange)--An industry standard (ANSI X12, X.400) for direct computer-to-computer information exchange.

EDOA (see Erbium-Doped Optical Amplifier).

EFS (Error Free Seconds).

EGRESS--The method, time, circuit, or facility used to exit the network at the call destination.

EIA (Electrical Industries Association).

EMAIL - Electronic Mail service (generic term)

END OFFICE--Class 5 Central Office Switch owned and operated by a LEC. See also Central Office.

END-TO-END DIGITAL TRANSMISSION--All circuit elements are digital. No modems are used to convert digital signals to analog at any point.

END-TO-END SERVICE--Interexchange service that extends from one customer premise to another customer premise. It usually consists of the local loops on each end and an IEC leg in the middle.

END USER--A person who uses (but does not necessarily pay for) products and services, e.g. a person called by a paying customer. Users are usually people, but could also be computers, objects, switches or other types of computer systems or communication equipment.

ENGINEERING--The process or organization responsible for the skillful design, construction, maintenance and enhancement of complex or sophisticated systems of hardware, software, processes, etc.

ENHANCED SERVICES--Services using network facilities and computer processing that: (1) act on the format, content, code, protocol or similar aspects of transmitted information; (2) provide additional or restructured information; or (3) involve subscriber interaction with stored data.

ENTRANCE FACILITY--A high-capacity circuit (such as DDS, DS-1 or DS-3), between the LEC's Central Office and the IEC's Point of Presence to support a customer's dedicated local access. There is a recurring charge rate element for each entrance facility.

ENTRY CLERK--A computer system end user responsible for transcribing raw data into a machine-readable form.

ENUMERATION LIST--A finite collection that identifies all possible (allowable) values for a variable, field, data attribute, object type, etc.

EQUAL ACCESS--The provision of one-plus capability to interLATA competitors of AT&T, mandated by the AT&T Divestiture, 1982 Modified Final Judgement. Customers should be able to reach the carrier of their choice by dialing 1+ the long-distance number. The MFJ and the FCC require local exchange carriers to provide equal access (most central offices now have this capability). Equal Access may also refer to a more generic concept under which the BOCs must provide access services to AT&T's competitors that are equivalent to those provided to AT&T.

EQUAL CHARGE RULE--A rule contained in the 1982 MFJ which required BOCs to charge access rates that do not vary with the volume of traffic.

ERBIUM-DOPED OPTICAL AMPLIFIER (EDOA)--High-performance optical fiber amplifiers capable of reducing the number of regenerators needed over a span of fiber optic cable.

ERLANG-- A traffic unit (1 Erlang = 3600 Calling Seconds = 36 CCS). An international unit of average traffic on a facility during a period of time (usually a busy hour). The number of erlangs is the ratio of the time the facility is occupied (continuously or cumulatively) to the time the facility is available.

ERROR-FREE SECONDS--A measure of the quality of the signal being transmitted. It is a percentage representing the total amount of time over a 24-hour period that the signal contained bit errors and it is calculated using a test pattern defined in CCITT Recommendation 0.151.

ES/9000 (Enterprise System 9000)--Large scale IBM computer system.

ESF (Extended Super Frame)--An enhanced version of D4 formatting, and it is the current industry standard. ESF is composed of 24 frames of 192 bits each. ESF provides 16 signaling states in the 193rd bit to ensure sychronization, supervisory control, and maintenance capabilities.

ETHERNET--A LAN and data-link protocol based on a packet frame. Usuallyoperating at 10Mbps, multiple devices can share access to the link.

EVENT--A milestone, a signal, the completion of something that is of interest to an object, a process, or a system.

EVENT DRIVEN--A system of cooperating objects that responds as things happen in real-time. (Contrast with Batch-Oriented)

EXCHANGE CARRIERS STANDARDS ASSOCIATION (ECSA)-- Developed 1984 SONET standard, etc.

EXEMPTION CERTIFICATE--A written customer designation that certifies that its dedicated facility should be exempt Special Access Surcharge.

EXPEDITE--A formal process of diverging from normal processing procedures to accelerate the handling of a high-priority request (usually at a higher cost to the requester).

EXPRESS CIRCUIT--A carrier circuit set up between two cities without multiplexing equipment, thus simplifying the provisioning process.

EXTENDED SUPER FRAME (ESF)--An enhanced version of D4 formatting, and it is the current industry standard. ESF is composed of 24 frames of 192 bits each. ESF provides 16 signaling states in the 193rd bit to ensure sychronization, supervisory control, and maintenance capabilities.

F

FACILITIES-BASED CARRIER (FBC)--A carrier that uses its own facilities to provide service, in contrast with resellers, that purchase the services of other carriers and then retail the services to customers. (Most facilities-based carriers use the services of other carriers to some extent.)

FACILITY--A generic term for a logical component of a system (such as a telecommunications channel, a cross connect, a switch, a computer, a control center, a building, etc.).

FAST PACKET--A general term for various streamlined packet technologies including frame relay, BISDM, and ATM. Compared to X.25 packet switching, fast packet contains a much reduced functionality, but with the lower overhead, fast packet systems can operate at higher rates at the same processing cost.

FAT - (Final Acceptance Testing).

FAX - (Facsimile Image Transmission)--There are multiple FAX transmission protocol standards and speeds. The most common standard used on voice-grade dial up analog networks is Group III at typical

speeds from 2400 to 14,400 bps. On Digital Data Service (DDS) and ISDN, Group IV operates at 56,000 bps.

FCC - (Federal Communications Commission)-- Regulates interstate communications: licenses, rates, tariffs, standards, limitations, etc. Appointed by U.S. President .

FDDI - (Fiber Distributed Data Interface)--A high-speed, optical-fiber-based LAN interface standard usually operating at 100Mbps. FDDI is a fault-tolerant dual counter-rotating-ring design.

FEATURE GROUP - (FG)--A Telco Product consisting of Services and Features (e.g. FG-D).

FEATURES--Subcomponent marketing options of Products and Services.

FEP - See Front End Processor.

FG-A--One Dial-Up Network Circuit via 2-Wire Connection.

FG-B--One Dial-Up Network Circuit via 4-Wire Connection (Higher quality than FG-A, extra wires for signalling) ANI (caller's phone number) Service is optional.

FG-C--(Used primarily by AT&T.)

FG-D--One 1+ Network Circuit via 4-Wire Connection. Also used for 800 Inbound WATS and Travel Card Service. Provides the "ANI" (caller's phone number) for billing purposes.

FILE SERVER--A process running on a computer that provides access to files for remote user systems.

FINGER--A standard protocol that lists who is currently logged in on a host. Usually used in conjunction with a user ID.

FIRST CALL DATE - Billing activation signal.

FK - (Foreign Key)--A reference in one relation (table) or object to another object.

FOC - (Firm Order Confirmation). A document sent by LECs that confirms (or denies) that the service requested (with an ASR) will be provided by the date that was originally requested.

FOREIGN EXCHANGE (FX)-- A DS-0 line utilizes Feature Group A facilities on one end of the circuit. The Feature Group A service connects a customer premise in the foreign location with the line side of a BOC central office switch in the U.S. The customer premise end of the circuit is referred to as the closed end because it terminates on a station instrument, key system, or PBX. The CO switch end of the circuit is referred to as the open-end because it is open to the public switched network. The open end of the circuit appears as a local business line in a local exchange, different from (foreign to) the local exchange of the closed end of the circuit. A dial tone from the distant city's local office is heard when this line is accessed, and a local phone number can be associated with the FX. An FX has fixed monthly charges for the originating local access, IXC, international circuits. Usage charges are applied through the local telephone company at the open (US) end.

The advantages of an FX line are the use of a local phone number for long distance calls and high volume centralized long distance calling at reduced fixed costs. In the case of international FX services, the open

end must be in the US, unless the foreign PTT can support this service. In many countries this service falls under regulatory laws.

FOREIGN HALF CIRCUIT--The logical circuit between the TMP and the ITMC in the foreign location.

FOT - Fiber Optic Terminal (Connects copper wire to optical fiber).

FRA - Fixed Radio Access.

FRACTIONAL T1 - FT1--A service that uses a portion of a 24-channel T1 circuit. FT1 allows 64 Kbps increments from 2-channel 128 Kbps through all 24 channels at 1.544 Mbps.

FRACTIONAL T3 - FT3--A service that uses a portion of a 672-channel T3 circuit for any mix of voice, data or broadcast-quality video.

FRAD -(Frame Relay Assembler/Disassembler)--Used to interface a customer's LAN with the frame relay WAN. This device interfaces LMI with IPX switch port.

FRAME RELAY--A wideband (64Kbps to 1.544Mbps) packet-based data interface standard that transmits bursts of data over WANs. Frame-relay packets vary in length from 7 to 1024 bytes. Data oriented, it is not usually used for voice or video.

FRAME RELAY FORUM--Consortium of vendors and consumers of frame relay equipment and services which specifies Implementation Agreements to ensure interoperability between multiple vendors' products and services.

FRAME SLIP (Also called just "slip")--Any shift of the timing on a circuit. Usually the difference between D4 Super Frame and Extended Super Frame or an un-framed signal stream. During an out-of-frame condition, one frame slip would increment.

FAUD - Toll Fraud--A crime in which a hacker obtains telecommunication services by: reaching computer security, using or selling stolen long-distance credit-card codes, or, accessing a PBX and using its communication facilities illegally. Toll Fraud is estimated to cost U.S. companies $1.2 billion/year.

FRONT END PROCESSOR -(FEP)--A support computer for a larger host computer. Performs communications and network control operations, freeing the host processor to do data processing.

FSO - Foreign Service Office (NPA/NXX).

FTP - (File Transfer Protocol)- (TCP/IP)--Used to provide file transfers across a wide variety of systems. FTP is an efficient application that only performs the most basic of file manipulations commands. This application is at the seventh layer of the OSI model.

FT-1-- Fractional digital service hierarchy level 1 with service in multiples of 56/64 Kbps 2 channels (112/128Kbps) or above, and up to 23 channels. 256/512/768/1024Kbps are common rates for this type of service. Also called fractional T1. See LD-1.

FT-3-- Fractional digital service hierarchy level 3 with service in multiples of 1.344Mbps. Also called fractional T3.

FULL DUPLEX--Simultaneous two-way communication path.

FX - (Foreign Exchange)--A dedicated line that operates as though it was a local switched line in a central office, other than where it is located. A DS-0 line utilizes Feature Group A facilities on one end of the circuit. The Feature Group A service connects a customer premise in the foreign location with the line side of a BOC central office switch in the U.S. The customer premise end of the circuit is referred to as the closed end because it terminates on a station instrument, key system, or PBX.

The CO switch end of the circuit is referred to as the open-end because it is open to the public switched network. The open end of the circuit appears as a local business line in a local exchange, different from (foreign to) the local exchange of the closed end of the circuit. A dial tone from the distant city's local office is heard when this line is accessed, and a local phone number can be associated with the FX. An FX has fixed monthly charges for the originating local access, IXC, international circuits. Usage charges are applied through the local telephone company at the open (US) end. The advantages of an FX line are the use of a local phone number for long distance calls and high volume centralized long distance calling at reduced fixed costs. In the case of international FX services, the open end must be in the US, unless the foreign PTT can support this service. In many countries this service falls under regulatory laws.

G

GATEWAY--Protocol Converter. An application-specific node that connects otherwise incompatible networks. Converts data codes and transmission protocols to enable interoperability. (Contrast Bridge) .

GEOCODE-- Geographic location code used by the Vertex taxing system.

GMT--Greenwich (England) Mean Time - Zulu Time GMT is 6 hours later than Central Standard Time (CST in the northern hemisphere Winter) and 5 hours later than Central Daylight-Savings Time (CDT in the northern hemisphere Summer). GMT (Zulu Time) is always the same worldwide. Communication network switches are typically coordinated on GMT.

GOPHER--Internet public database browsing and searching program.

H

HDSL - (High-bitrate Digital Subscriber Loop)

HALF DUPLEX-- Alternating two-way communication path (one way at a time).

HDB3 - (High Density Bipolar Three)--A line interface standard for E1 which is similar to B8ZS, which eliminates data streams with 8 or more consecutive zeros. Allows for 64Kbps clear channel capacity and still assures a minimum ones density required by E1 lines.

HDLC - (High-Level Data Link Control)--An ITU-T standard for a bit-oriented datalink-layer protocol on which most other bit oriented protocols are based. Submitted by: Kieran Taylor, WAN Editor, Data Communications.

HML--Multiline Hunt Group. If first line is busy, rollover to the next available line in the group

HOOT-N-HOLLER - (also known as a shout down.)--A voice only full time circuit that connects a speakerphone in one location to a speakerphone in a distant location. This type of circuit is normally open at all times to allow two-way communications without having to pick up the receiver or dial the phone. Speakerphones used in this type of circuit are full duplex, transmit and receive units.

This circuit is very similar to the ARD and MRD and is also used by the financial industry.

HOP--A network connection between two distant nodes.

HUB--A group of circuits connected at one point on a network. Enables traffic concentration and economies of scale. Hubs are located in larger cities throughout a network for concentration and routing of calls from cities with lower traffic demands.

HYBRID KEY SYSTEM--A CPE system that has characteristics of both a key system and a PBX system.

HYBRID OBJECT-ORIENTED SYSTEM--A computer system that combines object-oriented modeling and development methodology with non-object-oriented techniques (such as relational databases). This approach complicates the development and maintenance process and does not fully exploit the potential of object-oriented technology. It is a tactic that is used during the transition from legacy systems to fully object-oriented, enterprise-wide software solutions.

HYPERTEXT--Interactive on-line documentation technique. Allows the user to select (e.g. mouse click) certain words or phrases and immediately display related information for the selected item. Hypertext requires a "tag" language (like Hypertext Markup Language) to specify branch labels with a hypertext document.

I

IC--Interexchange Carrier - IXC - IEC (IEC is preferred). A company providing long-distance phone service between LECs and LATAs.

ICB - (Individual Case Basis)--Nonstandard situations where special arrangements are required to satisfy unusual requirements. General tariffs do not apply.

ICMP - (Internet Control Message Protocol). Delivers error and control messages from hosts to message requestors. An ICMP test may determine whether a destination is reachable. An ICMP echo is also called a PING.

IEC - (Interexchange Carrier)--IC - IXC (IEC is preferred). A company providing long-distance phone service between LECs and LATAs.

IEC Miles - (Interexchange Carrier (Long Distance) Miles). IXC Miles. On a Price Quote, the coordinates of Location A and Location B are used to calculate mileage-dependent line charges.

IEEE 802.3--The standard for Carrier Sense Multiple Access with Collision Detection is one of the most used LAN protocols.

IETF - See Internet Engineering Task Force.

IMS - (Information Management System)--Hierarchical-database-oriented transaction processing software. Used by the Bellcore SMS/800 system.

IMT - (Inter-Machine Trunk)--High capacity connection between switches (e.g. DMS-250 to DMS-250).

IMTSF - (Interstate Message Telecommunications Service Tariff)

IN BAND SIGNALLING--A method of sending signals over the same channel bandwidth as service being provided to a customer. (Contrast Out Of Band)

INFORMATION CONTENT PROVIDER--A business that supplies information or programming services such as news, weather, business reports, entertainment, etc.

INFORMATION DIGITS--CDR call type options. Two digit codes which precede the 7-or-10 digit destination number and inform exchange carriers and IECs about the type of line that originated the call, any special characteristics of the billing number, or certain service classes. These codes plus the destination number are part of the signalling protocol of equal access offices. These codes are defined by Bellcore. Examples:

00 - POTS
01 - Multiparty
02 - ANI Failure
06 - Hotel/Motel
07 - Special Operator Handling
20 - AIOD
24 - 800
27 - Coin
30 - Unassigned DN
31- Trouble/Busy
32 - Recent change or disconnect
34 - Telco Operator
52 - Outward WATS
61- Cellular 1
62 - Cellular 2
63 - Roaming
70 - Private Pay Phone
93 - Private virtual Network

INFORMATION PROVIDER - See Information Content Provider.

INFORMATION SUPERHIGHWAY--A Clinton/Gore administration plan to deregulate communication services beginning with 1994 legislation. It will integrate concepts from Internet, CATV, telephone, business, entertainment, information providers, education, etc. The potential impact to businesses, schools, homes and society as a whole are significant. CATV will be allowed to provide telephone and videoconferencing services. Phone companies will be allowed to provide movies and information services.

Aggressive companies could be major winners in the next few years. The potential is only limited by our imagination and creativity. The rate of change sparked by the Information Superhighway may be faster than anything the telecommunications industry has ever experienced before.

INHERITANCE--The transfer of object features (data attributes and operations) from a "class" that defines the common features of similar objects.

INSIDE WIRING-- Wiring within a customer's premise that is used for internal communications or to connect CPE to the network interface.

INSTALLATION--Service Initiation - Circuit, DAL or Port Connection

INTEGRATED ACCESS--The use of a single connection/circuit to access multiple telecommunications services (e.g.. private lines, switched services, frame relay).

INTEGRATED ACCESS BILLING SYSTEM -(IABS)--The application system used by LECs to bill access services. (Also called CABS - Carrier Access Billing System).

INTERCEPT TYPE INFORMATION DIGITS - 30 - Unassigned DN, 31 - Manual Assignment: Trouble or Busy, 32 - Recently changed or disconnected DN.

INTERCONNECT--Relating to the provision of CPE, especially installed key and PBX systems (e.g., "the interconnect business"). May refer to a company that provides/installs CPE.

INTEREXCHANGE--Communication between two different LATAs.

INTERLATA--Communication between Local Access Transport Areas. 1982 MFJ requires LECs to use an IEC for InterLATA services.

INTERNATIONAL--Between multiple nations.

INTERNATIONAL CIRCUITS--The international (between country) portion of an international private line circuit that runs between two International Test and Maintenance Center's (ITMC); a US based center and a center located in the foreign country. This transport may be via satellite or undersea cable, and is usually further divided into two components, the US half and the foreign half. Accounting for these half circuits is based on a TMP along this circuit.

INTERNATIONAL TEST AND MAINTENANCE CENTERS- (ITMC)--The point of demarcation for international circuits. Although it may be physically different from the undersea cable head or the satellite earth-station, it is often thought of as the end of domestic traffic and the beginning of international traffic.

INTERNET- Large international communication network that connects government agencies, technical universities and commercial customers. It is growing at 20% per month. Internet is a prototype of some services that will be on the Information Superhighway. (See Information Superhighway, TCP/IP, MIB, Usenet, WWW, Gopher, WAIS)

INTERNET ENGINEERING TASK FORCE - (IETF)--The standards and specifications review board for the Internet.

INTEROP--A communications industry trade show

INTEROPERABILITY--The ability of heterogenous systems and networks to communicate and cooperate through specified standards.

INTERRUPTION--Inoperative service (or a portion thereof).

INTERSTATE--Between multiple states. Interstate communications are regulated by the FCC.

INTRALATA--Communication within a Local Access Transport Area. 1982 MFJ allows LEC to handle these calls without an IEC.

INTRASTATE--Communication within a single state. Intrastate communications are regulated by each state's PUC.

INVOICE--A paper or electronic bill for products or services rendered.

INVOICING--The process or computer programs for calculating, producing and distributing bills.

IP - (Internet Protocol)--The internet protocol that defines the unit of information passed between systems that provides a basis packet delivery service.

IP ADDRESS--The internet protocol address which is a 32-bit address assigned to a host. The IP address has a host component and a network component.

IPX/LINK--This application for NetWare connects a PC Novell NetWare LAN through a network interface device.

ISDN - (Integrated Services Digital Network)--A set of standards for transmission of simultaneous voice, data and video information over fewer channels than would otherwise be needed, through the use of out-of-band signalling. The most common ISDN system provides one data and two voice circuits over a traditional copper wire pair, but can represent as many as 30 channels. Broadband ISDN extends the ISDN capabilities to services in the Gigabit range. (See BRI and PRI).

ISO - (International Standards Organization)-- Defines communications and computing standards.

ISO 7776 --High-Level Data Link Control Procedures X.25 .

ISO 8208--X.25 Packet Level Protocol for DTE.

ISSC (Information Systems Solutions Corp)--An IBM subsidiary computer center outsourcing company.

ISUP--ISDN User Part.

IT (Information Technology).

IXC-- 1) Interexchange Carrier (IEC is preferred). A company providing long-distance phone service between LECs and LATAs. 2) Interexchange Circuit. A circuit that connects PoPs.

IXC Miles (Interexchange Carrier (Long Distance) Miles)--On a Price Quote, the coordinates of Location A and Location B are used to calculate mileage-dependent line charges.

J

JEOPARDY--Any condition in the provisioning process that endangers the requested completion date (e.g. "no facilities available").

JIT (Just In Time).

JRAD (Joint/Rapid Application Development)--See RCD.

JUNCTION--A point on the network where there is a "fork", but where no PoP exists, (i.e. no drops off the network are possible).

K

KEY--Database Concept. An identifier for a single collection of data (e.g. a record, a row, an object, etc.). The key for a customer might be a customer number. The key for 800 number information might be the 800 number plus the state code plus an effective date, etc. One collection of data may have a "foreign key" that points to another collection of related data in another file, table, database, collection of objects, etc.

KEY SYSTEM--An office telephone system that provides all users with immediate access to outside lines when they press one or two dedicated keys without needing operator's services. For example, a six-button key system could have a hold button, four outside lines and an intercom. Key systems typically have fewer lines and telephones than a PBX system. A key system can also be used with a PBX or Centrex system.

L

LAN (Local Area Network)--A network of multiple interconnected data terminals or devices within a local area to facilitate data transfer. Most notable of LAN topologies are ethernet, token ring, and FDDI.

LAN Interconnect--A point on a LAN where circuits can be routed & administered.

LAP--Local Access Provider

LAT--Local Area Transport. Ethernet protocol developed by Digital Equipment Corporation.

LATA (Local Access Transport Areas)-- (200 LATAs in the U.S.). A geographic service area defined in the AT&T Modified Final Judgement. The RBOCs (baby Bells) and GTE are restricted to operations within, but not between, LATAs. Long distance service within a LATA is provided by the LEC. Service between LATAs is provided by an IEC. LATAs are represented by a 3-character code.

Layers--System design and communication standards that define different levels of conceptual abstraction (simplification). (e.g. The ISO OSI framework consists of seven layers.)

Layer 1--Physical Layer - The equipment
Layer 2--Data Link Layer - Protocols & Error Messages
Layer 3--Network Layer - Addresses & Routing

Layer 4--Transport Layer - Information Exchange - Delivery & Flow
Layer 5--Session Layer - Dialog Management
Layer 6--Presentation Layer - Mask Data Format Differences
Layer 7--Application Layer - Functions & Services

LCA- (Local Calling Area).

LD (Long distance)--Outside the local exchange service area.

LD-1--Fractional digital service hierarchy level 1 with service much the same as FT-1 except the service is integrated with voice, data, video, and frame relay.

LEC-- See Local Exchange Carrier.

LEC BAN (LEC Billing Account Number)--3-digit number appended to the billing phone number used as the LEC customer number. Groups all ANIs for a customer.

LEC Billing--Arrangement whereby the Local Exchange Carrier invoices the customer for some or all telecommunications services.

LEC Card--The billing arrangement which enables the caller to bill calls to an authorized calling card issued by a local exchange carrier.

LEC Charges--Charges that are the responsibility of the local exchange carrier.

LED (Light Emitting Diode)--An electronic device that efficiently emits light with little generation of heat. LEDs are often used in fiber-optic systems instead of coherent light lasers, particularly when low speeds or short distances are involved.

LERG (Local Exchange Routing Guide)--Documents end offices and their relationship to Tandem (Class 4 Toll) Offices. Produced by Bellcore Traffic Routing Admin (TRA).

LETTER OF AGENCY (LOA)--A document that authorizes changing the service provider. (See RespOrg, 800 Portability)

LINE NUMBER--The 4-digit XXXX number assigned to a North American telephone within an NXX exchange. (See NANP)

LINE SEGMENT--The expanse of fiber-optic cable(s) between 2 network locations.

LMI (Local Management Interface)--A protocol with four different versions used to control the local interface from a routing device to the WAN Switch. Also used for configuration, flow control, and maintenance of the local connection.

LNS--Abbreviation for Lines, "#LNS" is the number of lines

LOA - See Letter Of Agency

LOCAL ACCESS--Local Loop. The connection from a subscriber to the Central Office.

The portion of a circuit connecting the LEC's CO with the customer's premise equipment across the local network.

LOCAL ACCESS MILEAGE--For dedicated (non-switched) private lines there may be a recurring charge rate element that is based on mileage to the Central Office.

LOCAL ACCESS PROVIDER--Any organization that is authorized to provide local access. (May or may not be the LEC.)

LOCAL EXCHANGE CARRIER (LEC)--The local or regional telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches. LECs have connections to other COs, Tandem (Class 4 Toll) offices and may connect directly to IECs like LDDS WorldCom, AT&T, MCI, Sprint, etc.

LOCAL EXCHANGE SERVICE--Local phone calls.

LOCAL LOOP--See Local Access.

LOCAL SERVING OFFICE (LSO)--NPA + NXX 6-digit code.

LONG DISTANCE (LD)--Outside the local exchange service area.

LONG DISTANCE CARRIER--A company providing long-distance phone service between LECs and LATAs.

LONG DISTANCE MARKETPLACE--The long distance voice and data market is over $60 billion per year. AT&T provides more than half, with MCI, Sprint, and LDDS in the second, third and forth place positions.

LONG HAUL FACILITY.

LONG DISTANCE TRUNK--See IMT.

LOOPBACK TEST--A circuit test at any device which will tie the transmit data to the receive data in order to apply a signal and receive the data back for interpretation. Usually done at a customer device such as a CSU or a network device such as DS-O or DS-1 DACS port.

LSO (Local Serving Office)-- NPA + NXX 6-digit code.

M
===

M--One Million.

M13--A multiplexor that adapts DS-1 circuits to a DS-3 circuit.

MAG MEDIA--Magnetic data storage (e.g. floppy disk, hard drive, tape, etc.).

MAN (Metropolitan Area Network)--LANs interconnected within roughly a 50 mile radius. MANs typically use fiber optic cable to connect various wire LANS. Transmission speeds may vary from 2 to 100 Mbps.

MAN-MACHINE INTERFACE (MMI)--End User Computer Interface.

MANUAL RING DOWN (MRD)--A manual ring down gets its name from the fact that ring signaling is controlled by the user. When not signaling, an open circuit is present at all times.

MDI (Multiple Document Interface)--Microsoft Windows standard that allows an application to control multiple documents or multiple views of the same document within the main application window (workspace).

MEASURED SERVICE--Pay Per Minute or Incremental Usage Charges.

MECHANIZED INTERFACE (to SMS/800)--Also known as Mechanized Generic Interface. Direct computer-to-computer interaction software between IEC computer systems and SMS/800. In contrast to manual "online" or "batch" file processing modes. See Service Management System, RespOrg, 800 Portability.

MEDIA--Information storage techniques (e.g. magnetic tape, magnetic disk, optical disc, print, etc.).

MESSAGE TOLL SERVICE (MTS)--Pay-by-the-minute switched long distance services. Includes conventional long distance and measured WATS.

MFJ--See Modified Final Judgement.

MGI (Mechanized Generic Interface)--See Mechanized Interface.

MI--See Mechanized Interface.

MIB (Management Information Base)--The data schema which defines information available from an SNMP managable device or service to network management systems.

MMI (huMan Machine Interface)--End User Computer Interface

MODEM (Modulator/Demodulator)--End User Computer Interface.

MODIFIED FINAL JUDGEMENT (MFJ)--A 1982 court order issued by Federal Judge Harold H. Greene. MFJ settled the 1974 antitrust suit and specified the divestiture of AT&T. MFJ created the seven Regional Holding Companies (Baby Bells), RBOCS, LATAs, Equal Access, etc. AT&T retained long-distance service and its manufacturing business. The restriction that barred AT&T from entering the computer business was lifted.

MRC (Monthly Recurring Charge).

MSA (Metropolitan Serving Area).

MTS - See Message Toll Service.

MULTIDROP CIRCUIT--A single circuit or channel that has more than one connection on one end. For example, 2 offices at one location sharing one line.

MULTIMEDIA--Computer systems that integrate audio, video & data.

MULTIPLEXER (MUX)--A device that combines 2 or more signals into a single composite data stream for transmission on a single channel. For example, an M1-3 MUX combines 28 DS-1s into a DS-3.

MULTIPOINT CIRCUIT--A circuit that has more than one IEC leg.

MUX--See Multiplexer.

N

NANP (North American Numbering Plan)--NPA Area Codes, NXX Exchanges and XXXX Line Numbers The process for assigning 10-digit (3+3+4) North American telephone numbers.

NARROWBAND--Voice Grade. A low-capacity communications Circuit / path. It usually implies a speed of 56Kbps or less. (Contrast with Wideband and Broadband).

NASC - 800 Number Administration and Service Center--The organization that administers the SMS/800 system for the reservation, registration and administration of all North American 800 numbers for all carriers. (See 800 Portability, RespOrg and SMS/800)

NC Codes (Network Channel Codes)--Industry standard codes that define the type of service being provided at each end of a circuit.

NCON - See Customer Contact Name (SMS 800 Reservation).

NDM-- See Network Data Mover.

NeTBIOS (Network Basic Input/Output System)--This system provides a Session layer interface between network applications running on a PC and the underlying protocol software of the Transport and Network layers on the ODI model. Normally a LAN protocol.

NETWORK--A system of interrelated elements that are interconnected in a dedicated or switched linkage to provide local or remote communication (of voice, video, data, etc.) and to facilitate the exchange of information between end users with common interests. The set of switches, circuits, trunks and software that make up a telecommunications facility.

NETWORK SURVEILLANCE--Equipment, people, systems and procedures that monitor network activity and react to unusual situations.

NETWORK DATA MOVER (NDM)--File transmission protocol software.

NETWORK DATABASE UPDATES--Process for defining network configuration, valid access/use, alternate routing tables, etc.

NETWORKED COMPUTING TECHNOLOGIES--Hardware, software and architectural approaches for distributing computer applications across interconnected computers.

NEWRO (New Responsible Organization)-- See RespOrg.

NFS - Network File System--This system is a protocol developed to use IP and allow a set of computers to access each other's file systems as if they were on the local host.

NODE--Generic term used to refer to an entity that accesses a network.

NON-RECURRING CHARGE (NRC)--Also known as OTC - One-Time (Setup) Charge.

NPA (Numbering Plan Areas)--North American "Area Codes." (3 digits: 2-to-9, 0-or-1, 0-to-9. Middle digit to expand soon).

NPA-NXX ROUTING--Area Code / Exchange Routing. Route calls based on the originating ANI NPA-NXX.

NPA Routing--Area Code Routing. Route calls based on the originating ANI NPA (area code.)

NPA Split--Subdividing an area code, with the creation of a new area code. This is necessary when the number of telephones in an area code (NPA) grows to an excessive number.

NRC--See Non-Recurring Charge.

NTI (Northern Telecom Incorporated)--Manufacturer of a wide variety of telecommunications related products.

NTN (National Telecommunications Network)--A consortium of LDDS WorldCom, Litel, CNI, SouthernNet and Microtel that banded together in 1985 to form a national telecommunications network.

NUS--NASC SMS/800 Number Search. SMS application used to find available 800 numbers and reserve them for up to 60 days.

NXX--Exchanges (First 3 digits of a 7-digit phone number). (2-to-9, 0-to-9, 0-to-9) (Digits 4, 5 and 6 in a 10 digit NANP telephone number - NPA-NXX-XXXX).

O

OA (Order Administration)

OAM P (Operations, Administration, Maintenance and Provisioning).

OAS--See Office Automation Systems.

OBJECT--Any thing, entity, concept, or abstraction (real or imagined) with clear boundaries and meanings within a particular context, view, or domain (e.g. customers, vendors, locations, products, parts, services, contracts, reports, systems, resources, equipment, goals, business concepts, etc.). An object

may be an instance of one (or more) classes of similar objects that shared common attribute types and operations.

OBJECT ID (Object Identification)--The name that uniquely distinguishes one object from all others. The short form of an Object ID is unique on a local machine, or a LAN. A longer form of the Object ID may be required to uniquely identify it on a WAN. (See Universal Name Space) If the local machine name or LAN name is part of the Object ID, special consideration is required to support Object Mobility.

OBJECT MOBILITY LOCATION TRANSPARENCY--Location Transparency. The ability to move an Object from one machine or LAN to another without disrupting operations or modifying source code.

OBJECT MODEL--A computer representation that encapsulates data attributes and behavioral processes (operations) for an object. Object model software may respond to events, triggers, and requests for service submitted as message stimuli (with a finite set of message types, argument types and message formats). An object model is a graphical representation of the structure of objects in a system including their: identity, attributes, operations, and associations between objects.

OBJECT MODELING TECHNIQUE (OMT)--An application life cycle development methodology and graphical notation scheme that spans: object models, dynamic models, and functional models from analysis, through design, and implementation.

OBJECT ORIENTED (OO)--The idea of computer analysis, design and system development where real-world concepts (like customers, orders, products, etc.) are modeled as "encapsulated" objects with attributes and operations. (Unlike conventional computing systems that isolate database design from program design.) Similar objects are grouped together in "classes" with common data attributes and operations that can be "inherited" by "instances" of the class. Reusable subcomponent part objects can be assembled in various ways to define a wide variety of business object models, and reduce reinventing the wheel and incompatible applications. Objects communicate with other encapsulated objects by sending "messages". OO technology is very effective in the creation of innovative computer systems, communication networks, interface design, quality assurance and parallel development of reliable, reusable software modules.

OC (Optical Carrier)--Transport levels defined for SONET:

OC-1 : 51.84Mbps : 1 DS-3, 28 DS-1, 672 DS-0
OC-3 : 155.52Mbps : 3 DS-3, 84 DS-1, 2016 DS-0
OC-9 : 466.56Mbps : 9 DS-3, 252 DS-1, 6048 DS-0
OC-12 : 622.08Mbps : 12 DS-3, 336 DS-1, 8064 DS-0
OC-18 : 933.12Mbps : 18 DS-3, 504 DS-1, 12096 DS-0
OC-24 : 1244.16Mbps : 24 DS-3, 672 DS-1, 16.128 DS-0
OC-36 : 1866.24Mbps : 36 DS-3, 1008 DS-1, 24,192 DS-0
OC-48 : 2488.32Mbps : 48 DS-3, 1344 DS-1, 32,256 DS-0
OC-96 : 4976.64Mbps : 96 DS-3, 2688 DS-1, 64,512 DS-0
OC-192 : 9953.28Mbps : 192 DS-3, 5376 DS-1, 129,024 DS-0

OCC (Other Common Carrier)--Not part of the original AT&T system.

OCR (Optical Character Recognition).

OCUDP (Office Channel Unit Data Port).

ODBMS (Object-Oriented Data Base Management System)--Computer software and related hardware that provides persistent storage of objects.

ODMG 93 (Object Database Management Group)--The dominant standard for ODBMS bindings from C++ and Smalltalk. Uses the same language for defining and accessing objects as the programming language (unlike RDBMS that use a different SQL for manipulating data). Endorsed by primary ODBMS vendors like Object Design (ObjectStore), Versant, Ontos, Objectivity and Servio (Gemstone). ODMG 93 is likely to become the ODBMS industry standard for transportability.

OFF HOOK--The signal that the telephone receiver has been lifted (activated). Originating off hook activates a dial tone on switched networks. Destination off hook completes a call (and activates minute-by-minute billing for long distance calls).

OFFICE AUTOMATION SYSTEMS (OAS)--Word processors, spreadsheets, calendars, etc.

OM - See Operational Measurement or Object Model

OMT-- See Object Modeling Technique

One Plus (1+)--Customer ability to access the long distance service provider of their choice by first dialing 1, then the long distance number. Equal Access guaranteed by the 1982 AT&T MFJ. 1+ is an outbound service where the calling station pays the charges.

ONI (Operator Number Identification).

OO (Object Oriented).

OOF (Out Of Frame)--Condition counter that increments every change in the framing status of a circuit or device.

OPERATIONAL MEASUREMENT (OM)--Statistical data (e.g. alternate trunk usage, etc.).

OPERATOR SERVICE CALL (OSC)--A call that is placed through a human or automated operator (0+).

OPERATOR SERVICE PROVIDER (OSP or OS Provider)--The vendor that supplies operator service.

OPERATOR SERVICE RECORD (OSR)--Note O+ generates OSR and CDR

OPX (Off-Premise Extensions)--A station line at a location other than the premise where the PBX (or local exchange service) is located.

ORB (Object Request Broker)--Receives, redirects and routes realtime inter-object messages.

ORIGINATOR--The person, location or ANI that initiated a call, order, etc.

OSC (Operator Service Call).

OSP (Operator Service Provider)--OS Provider.

OSQL (Object(-Oriented) Structured Query Language)--The standard object selectivity language for ODBMS (Multiple implementations available).

OSR (Operator Service Record)--See O+, which generates OSR and CDR.

OSS (Operator Services System).

OTC (One Time Charge)--But see NRC, which is preferred.

OUTBOUND-- Outward, Sending, Call Originating, Dialing Out.

OUT-OF-BAND SIGNALLING--The use of transmission facilities other than the primary channel bandwidth for simple transmission control pulses. (Contrast In Band Signalling)

OVERLOAD-- (Object-Oriented) Multiple definitions of an object operation. Different input arguments (signatures) requesting the same operation name (message type) cause different methods (functions) to be invoked. OO slang may use the term "overload" to refer to ambiguous use of a word, etc. (Network Capacity) Excessive activity on a network. Causes calls to be "blocked".

OVERSUBSCRIPTION--In frame relay service definition, oversubscription occurs when the sum of the CIRs for all PVCs on a port exceed the port connection speed. Subscription levels of 200% are typically allowed. Oversubscription is possible because of dynamic capacity allocation in modern data networks.

P

PACKET SWITCHING--A transmission protocol where data is divided into small blocks with destinations so various routes can be efficiently taken, to avoid overloading a single facility. Paths are temporary and dynamic. Allows facility sharing by many users. Requires PAD.

PAD (Packet Assembly / Disassembly Facility)--A device that converts a serial data stream into discrete packets in the transmit direction and converts the received packets back into a serial data stream. Adds header information in the transmit packet to allow it to be routed to the proper destination.

PAL (Public Access Line)--e.g. payphone.

PARAMETERIZED--A reusable software object that behaves differently based on the input specifications that are given to it. (See Template).

PARTS--Subcomponent elements of an aggregate object.

PARTY--Person (participant in a call, etc.).

PAST DUE BALANCE--Failure to pay an invoice or bill by the specified due date.

PATH CIRCUIT--Connection Route

PAYMENT--The process of paying or receipt of a revenue item.

PAYPHONE--A public (or private) telephone that accepts coins or encoded credit cards.

PBX (Private Branch Exchange)--A Customer Premise Communication Switch used to connect customer telephones (and related equipment) to LEC central office lines (trunks), and to switch internal calls within the customer's telephone system. Modern PBXs offer numerous software-controlled features such as call forwarding and call pickup. A PBX uses technology similar to that used by a central office switch (on a smaller scale). (The acronym PBX originally stood for "Plug Board Exchange".)

PC (Personal Computer)--Any computing system for use primarily by one person.

PEER-TO-PEER NETWORK COMMUNICATION ARCHITECTURE--Objects that communicate in a network as equals, in contrast to a master/slave client/server relationship.

PERMANENT VIRTUAL CIRCUIT (PVC)--In data networking services, a circuit that is defined in a static manner with static parameters, but which is not tied to a given physical path through the network.

PERSON-TO-PERSON--Operator assisted phone call - only billed if the specified person is available.

PHYSICAL CHANGE--The modification of an existing circuit, dedicated access channel or port, at the request of the customer.

PIC (Primary Interexchange Carrier)--The IEC that 1+ calls are routed to. Specified by ANI.

PIC CHARGES--A LEC charge for changing the PIC. Often paid by the new IEC. If a LEC sends a PIC charge to a customer, the new IEC will typically credit the customer's account.

PIC REQUEST--A request record sent to a LEC asking for an ANI to be activated, deactivated or changed in some way.

PIC RESPONSE--A response record sent by a LEC (corresponding to a previous PIC Request) with a response code that indicates whether the request was performed. (Some LECs return non-standard PIC Response codes.)

Pin Digits (Personal Identification Number Digits).

PING (Packet INternet Groper)--A program useful in testing and debugging LAN/WAN troubles. It sends out an Echo and expects a specified host to respond back in a specified time frame.

Pink--Apple Computer's code name for its Object-Oriented Operating System development project. (Merged with IBM to form "Taligent".)

Platform--The foundation of a system on which subcomponents depend.

PM (Performance Monitoring).

PMR (Private Mobile Radio)--Usually non-cellular based systems, standardized by ETSI ETS300.279, used for private data and voice exchange.

PO (Purchase Order).

POINT OF PRESENCE (PoP or POP)--The physical access location interface between a local exchange carrier and an Interexchange Carrier fiber network. The point to which the telephone company terminates a subscriber's circuit for long distance service or leased line communications.

POINT-TO-MULTIPOINT--A circuit that connects a single node to a switch.

POINT-TO-POINT (non-switched, dedicated communication circuit.)

PON (see Purchase Order Number).

PoP or POP (see Point Of Presence).

PORT-- 1. A network entry or exit point, 2. A measure of CPE equipment capacity, generally based on the sum of the number of station lines and trunks, (e.g. a PBX with 100 station lines and 20 trunks would have 120 ports), 3. A connection between a computer and an external device (e.g. a printer port), 4. a connection point on a multiplexer, 5. the process of transporting something (like an application program) from one environment to another.

POTS (Plain Old Telephone Service).

POTS # --An ordinary telephone number.

PRI (Primary Rate Interface)--An ISDN circuit transmitting at T1 (DS-1) speed (equivalent to 24 voice-grade channels). One of the channels ("D") is used for signaling, leaving 23 ("B") channels for data and voice communication.

PRIMARY INTEREXCHANGE CARRIER--The long distance company that is automatically accessed when a customer dials 1+.

PRIMARY PATH--The preferred route from one switched node to another.

PRIORITY--Ranking of precedence, importance or preference.

PRIVATE LINE--Uses dedicated circuits to connect customer's equipment at both ends of the line. Does not provide any switching capability (unless supported by customer premise equipment). Usually includes two local loops and an IEC circuit.

PRIVATE NETWORK-- A communications network with restricted (controlled) access. Usually made up of private lines (with some PBX switching).

PROMPT--A character or string of characters used by a host to identify user needed information at the entry point of text inputs.

PROPERTY SURCHARGE--A per-call or per-minute charge assessed on an Operator-Assisted call by the property owner from which the call was placed. This charge is separate from the Call Type Surcharge, and monies from this charge are usually assigned to the property owner as part of the compensation package.

PROTOCOL--Very specific rules/standards for information transmission. A formal set of conventions governing the format and control of inputs and outputs between two communicating entities.

PROTOCOL CONVERTER--An application-specific node that connects otherwise-incompatible networks. Converts data codes and transmission protocols to enable interoperability. (Contrast Bridge).

PROVISIONING--The process by which a requested (ordered) service is designed, implemented and tracked (providing the subcomponent parts).

PSPDN (Packet Switched Public Data Network)--Packet oriented public network usually based on X.25.

PTN (Public Telephone Network).

PUBLIC NETWORK--A switched communications network with unrestricted access.

PUBLIC TELEPHONE NETWORK (PTN).

PUC (Public Utilities Commission)--The agency regulating intrastate phone service.

PVC (see Permanent Virtual Circuit).

Q

QUALITY ASSURANCE (QA)--A formal approach to product development and delivery with the goal of zero defects.

QUEUE--A facility that stores transactions or event-oriented messages and activates them for processing in a specific sequence such as "first in first out", "priority", "event type", etc.

R

RAD (Rapid Application (Design and) Development)--Spiral model, incremental, JIT progression from requirement analysis through prototyping, validation, development, deployment and enhancement.

RAO (Revenue Accounting Office)-- (RBOC Billing) - 3 digit code.

RAPID CYCLE DEVELOPMENT (RCD)--James Martin propagated the term RAD before he embraced OO Technology. RCD is a superset of RAD plus OO Methodology.

RATE CENTER--A specified geographical coordinate location used for determining mileage measurements.

RATE ELEMENT--A recurring fixed charge for IEC or LEC service at the lowest level. A local loop may have multiple rate elements associated with it, which make up the fixed portion of the monthly bill. For example: Local Access, Local Mileage, Entrance facilities, Channel Termination, Interexchange, etc.

RATES AND TARIFFS--Standards published by AT&T, OCCs, LECs, and IECs that define service availability, cost and provisioning procedures.

RATING--The process (or computer system) used to determine the customer charge for each billable call, based on time, duration and customer contract terms and conditions.

RBOC-- See Regional Bell Operating Company.

RCC- (Radio Common Carrier).

RCCN- (Radio Common Carrier Number)--800 NXX numbers that are reserved for use by RCCs.

RDBMS (Relational Data Base Management System)--A structured computer information storage and retrieval system where the basic unit is a Table with Rows and Columns (See Relation). Data is defined, accessed and modified with Structured Query Language (SQL) statements. (e.g. Sybase, Oracle, DB2, SQL/DS).

REAL TIME--Rapid transmission and processing of event-oriented data and transactions as they occur, in contrast to being stored and retransmitted or processed as batches. Real-time systems are required for monitor and control systems, but are not required where long response times (e.g. over night) are acceptable.

REBILLER--See Reseller.

RE-ENGINEERING--Reanalysis and radical redesign that is not bound by previous obsolete solutions. (Contrast TQM - incremental improvement)

REGEN STATIONS--Points on a fiber optic network (spaced about 30 miles apart) where optical signals are regenerated.

REGIONAL BELL OPERATING COMPANIES (RBOC)--One of the seven "Baby Bell" Companies created by the 1982 Modified Final Judgement that specified the terms of the AT&T Divestiture. The seven RHCs include: NYNEX, Bell Atlantic, Bell South, Southwestern Bell, U.S. West, Pacific Telesis, and Ameritech. "RBOC" is sometimes used informally to refer to the Regional Holding Companies defined in the 1982 MFJ. (See Bell Operating Companies - There are 19 BOCs).

REGULATORS--Federal Communications Commission (FCC), Public Utility Commission (PUC), Federal Courts (see e.g. MFJ), etc.

RELATION--A two-dimensional Table with Rows and Columns in an RDBMS. A Table must have at least two Columns. Each Row is an instance representing one relationship between column values (e.g. a table that relates Customer Numbers to their Names).

RELATIONSHIP--The OO concept of any Type of Association existing between two or more objects. (e.g. Inheritance, Aggregation, Requires, Provides, Connection, Uses, etc.). All relationships are bidirectional (e.g. PARTS and PART-OF).

REMITTANCE--A payment in response to a bill or an invoice.

REPEATER--A device that propagates electrical signals (See Attenuation).

RESELLER-- Also known as Rebiller. A long-distance carrier (IEC) that does not own a network, but leases bulk capacity and resells portions of it at a higher rate.

RESIDENTIAL CUSTOMER--An individual (non-business) telephone system subscriber.

RESPORG (also R/O)(Responsible Organization)--With 800 Portability, the Number Administration Service Center (NASC) allows the RespOrg to make changes such as carrier, termination, 800 call routing (by time of day, location.) A Letter Of Agency (LOA) must be on file to change the RespOrg for each customer/account.

RESTORE--To make service operative following an interruption by repair, reassignment, rerouting, substitution of parts, or otherwise.

REUSABILITY--Object (class) design and organization that encourages reuse in systems other than the original application.

RFC (Request For Comment)--Documents on the Internet that describe all aspects and issues associated with the Internet protocols or any computer and telecommunications subject.

RHC - See Regional Bell Operating Companies

RMU--Remote Monitoring Unit

RO or R/O (Read Only)--Read only data is not modifiable by user.

RO - R/O - See RespOrg

ROUTER--A system that controls message distribution between multiple optional paths in a network. Routers use routing protocols to gain information about the network, routing metrics and algorithms to select the "best route".

S

SAL - Special Access Line

SCALABILITY--The ability to add power and capability to an existing system without significant expense or overhead. An "economy of scale" exists when a small increase in load produces a less-than-linear increase in overhead. A "diseconomy of scale" exists when a small increase cause a significant increase in overhead.

SCE-- See Service Creation Environment.

SCENARIO--A set of one-or-more typical interaction dialogs between the users of a system (people or other systems) and a proposed system that is about to be developed. Scenarios are developed during the analysis phase of system development to assist in understanding business events, objects and interactions. Scenarios document specific transaction sequences, transformations, interfaces and information exchange. They represent cases that should be included in the Software Quality Assurance Test Plan, and may be used for end user training after the system is completed. Use case scenarios facilitate communication between the people who request a system, analysts, developers and testers. They are used to validate understanding, and to identify normal and special use situations. Scenarios clarify an evolving agreement between requesters and development teams.

SCP - See Service Control Point.

SDH (Synchronous Digital Hierarchy)--CCITT version of SONET.

SECURITY--Control mechanisms that prevent unauthorized use of resources.

SERVICE CONTROL POINT (SCP)--Computers that enable carriers to offer enhanced services by: (1) acting on the format, content, code, protocol or similar aspects of transmitted information; (2) providing additional or restructured information; or (3) involving subscriber interaction with stored data. e.g. translating 800 numbers to a POTS number or a trunk group. SCPs connect to Signalling Points, which connect to Switches.

SERVICE CREATION ENVIRONMENT (SCE)--GUI software for entering complex enhanced service specifications.

SERVICE MANAGEMENT SYSTEM (SMS / 800)--An IBM Information Management System (IMS) interactive computer system that coordinates all national 800 numbers across all U.S. telephone companies and carriers. It supports IBM 3270 terminal on-line access, batch processing (for 800 basic service only), and a Mechanized Interface.

SERVICE ORDER (SO)--A request to provide communication service(s).

SERVICE TYPE--The service(s) requested on a Service Order (e.g. VF, DDS, DS-1, DS-3, etc.)

SERVING WIRE--Phone number or POTS number.

SERVING WIRE CENTER--NPA/NXX. See Central Office.

SF- (Super Frame)--A data transmission format comprised of 12 frames of 192 bits each. A single 193rd bit is used for link control and error checking. As an industry standard, D4, also known as SF, has been superseded by the Extended Super Frame (ESF) format. However, because ESF is not backward compatible and there continues to be a large installed base of channel banks and DS-1 Multiplexers that are based upon D4, it is still the default private line formatting technique.

SHARED TENANT SERVICE - (STS)--The provision of PBX services (frequently by a landlord) to multiple customers located in the same building, campus or group of buildings. External calls can be placed and received over common lines and intracompany calls can be made without the use of outside LEC lines. State regulations frequently restrict the provision of STS to protect LEC interests.

SIGNAL--An event-oriented change in state (e.g. a tone, frequency shift, binary value, alarm, message, etc.).

SIGNALLING EQUIPMENT--Tone Generator / Tone Detection, etc.

SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)--A network management tool that is used to manage customer network equipment and processes. Usually graphic on an x-window display.

SIMPLEX--One way transmission path (no response of any kind).

SINGLE-POINT-CIRCUIT--A private line that has one IEC leg (from one PoP to another).

SL-1--The trade name for a Northern Telecom PBX system.

SLAM--An end user that is PICed without their permission. An RBOC Slam Fee must be paid for each slam.

SLIP (Serial Line Internet Protocol).

SLOTTING--The process of assigning a circuit to available channel capacity across the network (during the circuit design process).

SMDR - Station Message Detail Recording.

SMDS - See Switched Multi-Megabit Data Services.

SMS--See Service Management System (Bellcore TELEGATE)(See also RespOrg, 800 Portability).

SMS Complete--The date that SMS is notified to activate an 800 number.

SMS Customer Record--All information related to one 800 number, effective date and time, etc.

SMS FID (SMS Field IDentifier)--Specifies the type of information needed in each field (variable) in an SMS Customer Record.

SMS Time--SMS operates on the prevailing U.S. Central Time, which is Central Standard Time (CST) in the Winter and Central Daylight Savings Time (CDT) in the summer. SMS users may enter local time by suffixing their local zone. For example: "10:00A/E" (ten A.M. Eastern time zone) is converted by SMS to "9:00A/C" (nine A.M. Central time zone).

SNA (IBM's Systems Network Architecture)--Mainframe-centric hierarchical communication protocol.

SNMP (Simple Network Management Protocol)--A communications protocol used in the monitoring and management of communications devices and services. SNMP utilizes three basic request primitives: Set, Get, and Get-Next for configuration and performance information, and one asynchronous notification: Trap for alarm and status information. (Originally designed for TCP/IP.) Most popular SNMP software: SunNet Manager, HP OpenView and IBM NetView / 6000.

SO or S/O-- See Service Order

SOFTWARE QUALITY ASSURANCE (SQA)--A formal approach to software development, automated regression testing, configuration management, versioning, profiling and release control with the goal of zero defects.

SONET (Synchronous Optical Network)--A 1984 ANSI standard (developed by ECSA) for optical fiber transmission on the public network. 52Mbps to 13.22Gbps. Effective for ISDN services including ATM. (See OC - Optical Carrier SONET transport levels)

SOP (Service Order Processor)--See SMS.

SORT--To arrange in sequence by type, class, state, value, etc.

SOS (Save Our Ship)--Distress Call.

SOURCE CODE--A collection of computer programming commands that is used to define the behaviors (processes, operations, methods, functions) of computer systems and applications.

SPECIAL ACCESS--A class of LEC services that provides the link from the customer's premise to an IEC PoP for non-switched dedicated circuits.

SPEED DIALING--A service to abbreviate and accelerate frequently dialed numbers.

SQL (Structured Query Language)--The RDBMS interface language (Insert, Select, Update, Delete, etc.) (ODBMSs use some form of Object SQL - OSQL).

SRDM (Sub Rate Data Mux).

SS7 (Signaling System 7)--An addressing protocol that speeds up call processing by operating out of band. Includes fraud detection, caller ID, store and forward, ring back, concurrent data, etc.

SSP (Service Switching Point).

STATE--(USA) One of the 50 states, a territory or a possession of the United States of America or the District of Columbia. (Object) The current condition(s) or value(s) stored in the data attribute(s) of an object.

STATE TAX--A collection of tax types that each state is allowed to charge. Tax jurisdiction (which state can charge tax for a call) is based on the two-out-of-three rule: where it originates, where it terminates, where it is being billed to - if two match, that state can charge the tax.

STATION LINE--A line between an individual extension and a PBX or key system. May also refer to an internal circuit that can be connected to a PBX switchboard.

STATION MESSAGE DETAIL RECORDING--A PBX feature that provides information on the calls placed from each station line. In contrast to AIOD, it can also track local and toll-free calls.

STATION-TO-STATION--Normal long distance phone call - billed if anyone answers. A service arrangement, other than Person-to-Person, which requires the assistance of an operator to complete the call to the designated phone number.

STATUS CODE--Object (class or instance) state codes with an enumerated list of possible values.

STS-- (1) Synchronous Transport Signals. (2) Serving Translations Scheme. Used in translating an 800 number to a POTS or trunk group. (3) Shared Tenant Service.

SUBCLASS--A group of similar objects that is derived from a superclass.

SUBCOMPONENT--Part of an assembly or a system.

SUBNET ADDRESS--An extension of the IP address that allows a network to be autonomous by itself and still be a subsection of a larger user network.

SUBSCRIBERS--Synonomous with end user, customer, and local user.

SUPERCLASS--A grouping of similar class definitions.

SUPER FRAME (SF)--A data transmission format comprised of 12 frames of 192 bits each. A single 193rd bit is used for link control and error checking. As an industry standard, D4, also known as SF, has been superseded by the Extended Super Frame (ESF) format. However, because ESF is not backward compatible and there continues to be a large installed base of channel banks and DS-1 Multiplexers that are based upon D4, it is still the default private line formatting technique.

SURCHARGE--An additional charge on top of a base rate for a specified reason.

SVC (Switched Virtual Circuit)-- (Contrast PVC).

SWITCH--A device (like a DMS-250 or a PBX) that responds to originator signals and dynamically connects the caller to the desired communication destination.

SWITCHED 56KBPS--Dial Up Digital Data Service (DDS).

SWITCHED ACCESS--Nondedicated local access between the customer's premise and the serving wire center which is interconnected to the company's point-of-presence for origination or termination of service.

SWITCHED ACCESS SERVICE--A class of LEC services that provides the link from the customer's premise to the IEC PoP for switched circuits.

SWITCHED CIRCUIT--A communications path that allows the originator to specify a desired destination for each call.

SWITCHED DAL (Switched Dedicated Access (Egress) Line)--Dedicated trunk group (T1, etc.) circuit(s) used to access (1+, etc.) or egress (800, etc.) through normal network switching facilities.

SWITCHED MULTI-MEGABIT DATA SERVICES (SMDS)--A broadband communications standard for the public network that does not require predefinition of a specific path.

SWITCHED RESELLERS--Resellers that utilize their own switching hardware (and sometimes their own lines) and the lines of other IXCs to provide long-distance service to its subscribers. They provide their own billing and service.

SWITCHED SERVICES--All dial up long-distance services including conventional residential and WATS (most have incremental use charges). (See Message toll Service)

SWITCHING FEE--A per-line fee (usually around 5$) imposed by the LEC to reprogram their switching system to change your default carrier. Subscribers must usually pay this fee when switching to a reseller. Some resellers will reimburse the subscribers for this fee.

SWITCHLESS RESELLER--A reseller of long-distance services that does not utilize any of its own lines, or (switching) equipment. All actual service and equipment is handled by the IXC. Billing is usually done, by the reseller themselves, to the customer.

SWITCH SITE--A location that supports dynamic communication path routing.

SYNC (Synchronized)--Synchronization

SYNCHRONOUS--A form of communication transmission with a direct timing relationship between input and output signals. The transmitter and receiver are in sync and signals are sent at a fixed rate. Information is sent in multibyte packets. It is faster than asynchronous character transmission, since start and stop bits are not required. It is used for mainframe-to-mainframe and faster workstation transmission.

SYSTEM INTEGRATORS--A vendor that offers design, connection, implementation and management services for diverse network resources.

T

T1 - DS-1--(Facility) The equivalent of 24 multiplexed voice grade channels. 1.544 million bits per second (1.5Mbps)

T2 - DS-2--(Facility) The equivalent of 4 multiplexed T1 channels. 6.312 million bits per second (6.3Mbps)

T3 - DS-3--(Facility) The equivalent of 28 multiplexed T1 channels. 44.736 million bits per second (45Mbps).

T4 - DS-4--(Facility) The equivalent of 6 multiplexed T3 channels. 274.176 million bits per second (274Mbps).

TA (Technical Advisory)--Informational notice published by Bellcore.

TABLE-- (Relation) 2-dimensional information representation with Rows & Columns.

TALIGENT--Apple Computer plus IBM joint development company to create an Object-Oriented Operating System - upward compatible from Macintosh System 7, IBM OS/2 & AIX. (Soon to be joined by HP.)

TANDEM OFFICE--Toll Office. Class 4 Switch. Hierarchical interconnection for Class 5 End Offices.

TARIFF--A public document filed with the FCC or a PUC that outlines services and rates. Usually, all customers are offered the same rate for a specific service, based on published constraints.

TAX--A government levy based on the market price of products and services that are sold.

TAX EXEMPT CERTIFICATE--A document that verifies tax exempt status.

TAX IDENTIFICATION NUMBER--A unique identifier for business organizations that is used for reporting tax payments to the government (similar to the social security number for individuals).

TBD (To Be Determined)

TCP/IP (Transmission Control Protocol / Internet Protocol)--A data communication standard for interconnection of dissimilar networks and computing systems. Operates at the OSI transport and session layers. (See Layers). Updated by Jay Hennigan of the RAIN Network on 10/22/94

TDD (Telecommunications Device for the Deaf).

TDM (Time Division Multiplexing)--A method of mixing multiple signals on a single channel by transmitting in tightly controlled time slots. Unlike packet switching, TDM does not allow resource balancing during periods of mixed high and low use of different signals.

TECHNICIAN--A person familiar with installation and maintenance of systems.

TELCO (Telephone Company)--The local or regional telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches. Telcos have connections to other COs, Tandem (Class 4 Toll) offices and may connect directly to IECs like LDDS WorldCom, AT&T, MCI, Sprint, LDDS, etc.

TELECONFERENCE--Live, two-way audio transmission between two or more locations. Usually includes speaker phones and microphone amplification systems that allow audio volume balancing for people at different locations from the microphone. May also be supported by the use of FAX machines, etc. (See Video Conference)

TELEGATE--Bellcore registered trademark for it's Service Management System.

TELEPHONE--(Subject) An instrument or system used for voice communication. (Verb) The process or act of communicating via such a system.

TELNET--An application that provides virtual terminal services for a wide variety of remote systems. It allows a user at one site to interact with applications at other sites as if the user's terminal is local.

TEMPLATE--(generic) A pattern (e.g. a cookie cutter) used to replicate objects. (C++) A facility for creating parameterized class (type) definitions. (SMS/800) A standard pattern defined by an IXC that specifies the limits and boundaries (NPAs, LATAs, etc.) of 800 routing.

TERMINATING-- (Equipment) The equipment (multiplexer, channelizer, etc.) required to provide a connection point for one circuit. (Call 1) The destination of a switched call connection. (Call 2) The process of ending a switched call connection and the recording of the associated call details.

TEST PLAN--(SQA) A formal set of use case scenarios that describe normal and abnormal dialogs that must be validated before new or modified software may be released.

THEORETICAL MIDPOINT (TMP)--The theoretical halfway point that divides an international private line circuit into its respective US and foreign halves. A US records carrier is responsible for the US portion of service and a foreign records carrier assumes responsibility for service to the foreign half.

THIRD PARTY--A product or service vendor (other than the primary vendor or customer) that supplies a necessary component of a system. (e.g. software, circuit cards, etc.)

THIRD PARTY BILLING--Use of an outside service bureau for bill processing such as: call rating, customer invoicing, collections, etc.

THROUGHPUT--The end result of data transmission (for a given period of time). It is a measure of the overall efficiency, quality and performance of a communications link and its software/protocols.

TIIAP (Telecommunications and Information Infrastructure Assistance program)--A grant program from the National Telecommunications and Information Administration of the United States Department of Commerce, established by Congress in fiscal year 1994 to assist non-profit organizations and units of state and local government to undertake projects which contribute to the building of a national information infrastructure. Definition submitted by Don Druker, U.S Dept. of Commerce -- Nov. 4, 1994.

TICK--3 seconds in a communications switch.

TIE LINE--Two-way transmission circuits that typically directly connect a PBX in one location to a PBX in one location to a PBX in another. Tie lines are normally arranged for two-way calling. Calls from an extension at one location can be placed to an extension at the distant location by dialing a short access number. In most cases, this type of circuit is terminated with a four-wire analog local loop on both ends and uses MF signaling with E & M supervision. Tie lines can be used to support voice and/or data.

TIME OF DAY--Ticks since midnight. (See Communication Switch, TICK).

TIME OF DAY ROUTING--Route calls based on the time the call originates. (e.g. direct morning calls to East Coast operators and afternoon calls to West Coast operators, etc.). SMS/800 supports 15 minute time intervals.

TOKEN RING--An IBM LAN-based LAN protocol that uses a ring-shaped network topology. Token Ring has speeds of 4Mbps and 16Mbps. A distinguishing packet is transferred from machine to machine and only the machine that is in control of the token is able to transmit.

TOLL--A rated call (Contrast CDR - unrated call detail record). Tolls appear on the Invoice Detail.

TOLL CALL--A call with incremental use (minute-by-minute) charges. (Often through a Class 4 Toll Office).

TOLL FRAUD--A crime in which a "hacker" obtains telecommunication services by: breaching computer security, using or selling stolen long-distance credit-card codes, or, accessing a PBX and using its communication facilities illegally. Toll Fraud is estimated to cost U.S. companies $1.2 billion/year.

TOLL OFFICE--Class 4 Switch - Tandem Office. Interconnection for Class 5 Switches.

TOLL RATING--The process of determining the billing rate of a toll call.

TQM (Total Quality Management)-- Continual incremental improvement in quality: Customer Satisfaction. (Contrast with Re-engineering)

TRA (Bellcore Traffic Routing Administration)-- Produces the LERG.

TRADE REFERENCE--A company that a potential customer does business with - used during a credit check.

TRAFFIC--Activity on a network or an individual circuit.

TRAFFIC ENGINEERING--The process or the organization responsible for monitoring historical network use statistics, anticipating growth trends, planning, designing and implementing network facilities.

TRANSACTION--A single business event including the associated data and the underlying processes and triggers.

TRANSFER--Move an entity from one object relationship to another (e.g.ANI, customer, receivables, etc.)

TRANSMISSION MODE--Classification based on: (a) data flow (simplex, half duplex, full duplex), (b) Physical connection (parallel, serial), and (c) timing (asynchronous, synchronous).

TRANSMISSION SYSTEM--The foundation of communication capacity between two points. It is governed by the equipment type generating the (optical) signals. The capacity of a single fiber can be increased by installing higher-speed (higher-cost) transmission systems (end-to-end).

TRAVEL (CARD) SERVICE--A telecommunication credit card with an AuthCode for using a long distance carrier when the customer is away from their home or office (ANI). Travel Service calls are charged to the customer to whom the AuthCode was issued.

TRIGGER--(Generic) The activation of an event-driven process. (Database) An application-specific process invoked by a database management system as a result of a request to add, change, delete, or retrieve a data element.

TROUBLE TICKET--A piece of paper or a record in a computer system used to report and manage the resolution of network or circuit outages.

TRUNK--A (high-capacity) connection between switches. From a customer perspective, trunk may refer to an external (carrier) line connected to CPE/PBX, including local exchange lines, WATS lines and dedicated private lines. Customer trunks may be outgoing only, incoming only or two-way.

TRUNK GROUP--A group of circuits of a common type that originate from the same location.

TRUNK MEMBER--A single circuit in a Trunk Group.

TURNUP-Completing the installation of a circuit and making it available to the customer that requested it.

TWELVE O'CLOCK--12:00 a.m. refers to midnight, 12:00 p.m. refers to noon.

TWISTED PAIR--A circuit comprised of two copper wires that are twisted to cancel their own radio frequency interference, and thus reduce noise that might otherwise be induced into adjacent circuits.

TWO OUT OF THREE RULE--When determining state tax jurisdiction, there are three locations to consider: originating station, destination station, and the location that the bill is sent to. If two out of three are the same, then that state receives the tax.

TWO-WAY CONVERSATION--A telephone conversation between or among two (or more) parties, where each party has the ability to both transmit and receive communication from the other party (or parties). (See Half Duplex, Full Duplex. Contrast with Simplex - One Way)

U

UAL (User Application Layer)-- See SMS.

UNIVERSAL NAME SPACE--The set of all unique object identifiers in a domain, network, enterprise, etc. Object naming standards and methods for locating and sending messages to mobile objects are required in large-scale object-oriented distributed-computing systems.

UNIVERSAL SERVICE ORDER CODE (USOC)--A set of codes developed by the Bell System and used as a standard means of identifying service or equipment.

UNRATEABLE--Insufficient information available to determine the correct rate.

UPL (User Program Layer). See SMS.

US HALF CIRCUIT--A logical circuit between the US ITMC and the TMP.

USE CASE - See Scenario.

USENET INTERNET NEWS GROUPS--Internet news groups

USER ID--A unique number or name or both that is associated with a user name on a server system.

V

V.35-- A data communications interface standard adopted for use with circuits 56Kbps and above.

VALIDATION--The formal process of reviewing or examining something (such as a single data element value, a requirements specification, a user interface, an implementation design, plan, schedule, budget, etc.) and certifying or confirming that is acceptable for use. The process of searching for and eliminating errors.

VALUE ADDED NETWORK (VAN)--A communication network that provides features other than transmission of information, such as translation of one type of computer signal to another type of computer signal (protocol conversion). VAN sometimes refers to packet-switched networks with protocol conversion (dissimilar system interface capability).

VANITY NUMBER--A specific 800 number (may spell something).

VERIFIED ACCOUNT CODES--A finite list of carrier-verified, predefined Account Codes.

VERTEX-Provider of tax jurisdiction rate tables and related software.

VF ACCESS (Voice Frequency Access)--an option on DS-0.

V H COORDINATES--Vertical and Horizontal grid points used to determine straight-line mileage between locations. (Used for mileage sensitive product pricing.)

VIDEO--Animated Image Transmission, Storage, Display.

VIDEO CONFERENCE--A conference between two or more remote locations with live, animated image transmission and display. Two-way video conferencing allows both locations to see the people and presentation materials at the other location.

VIEWS--Levels Of Abstraction. (Relational) Tables with security authorization that may be subsets of database tables or joins of the rows and columns of multiple tables. RDBMS cannot update through views. (Object-Oriented) Objects that are a subset or aggregation of the subcomponents of one or more other objects. The underlying business object models encapsulate the data and behaviors that are used by object views. Object views send messages to the encapsulated objects to effect any required updates or to create new object instances.

VIRTUAL NETWORK SERVICE (VNS).

VPN (Virtual Private Network).

VOICE GRADE-- Narrowband. A low-capacity communications Circuit/path. It usually implies a speed of 56Kbps or less. (Contrast with Wideband and Broadband).

VOICE MAIL--An automatic answering service with the ability to record a message. Unlike simple answering machines, Voice mail uses a programmable computer system with options such as temporary call routing, monitoring and reporting, etc.

VOICE MAIL BOX--The assignment of one user/number on a voice mail system.

VPN (Virtual Private Network)--Switched network with special services like abbreviated dialing. A customer can call between offices in different area codes without having to dial all eleven digits.

W

WAIS (Wide Area Information Server)--Internet public database text searching.

WAIVER--An override to the standard terms and conditions of a contract.

WALKTHROUGH-- with regard to Computer System Development, refers to a peer review of a system design, code, etc. The goal is to identify errors as early as possible and learn from other people's experience. Managers and people who prepare performance reviews should NOT be in the room. The concept is to invite "egoless" constructive criticism and to nurture team-oriented validation and debug responsibility. With regard to telecommunications, refers to a 5-digit code used to access an IEC. Requires Feature Group B or D (SeeBypass, CIC Code, Casual Calling).

WAN (Wide Area Network)--Remote computer communications system. WANs allow file sharing among geographically distributed workgroups (typically at higher cost and slower speed than LANs or

MANs). WANs typically use common carriers' circuits and networks. WANs may serve as a customized communication "backbone" that interconnects all of an organization's local networks with communications trunks that are designed to be appropriate for anticipated communication rates and volumes between nodes.

WATS (Wide Area Telephone Service)--Flat rate, or special rate pay-by-the-minute (measured) billing for a specified calling area. May be outbound or inbound (e.g. 800).

WIDEBAND--A medium-capacity communications Circuit/path. It usually implies a speed from 64Kbps to 1.544Mbps. (Contrast with Broadband and Narrowband)

WIRELESS--Radio waves, cellular, satellite, microwave, etc.

WORKSTATION--A personal computer that may operate in a stand-alone environment, or may be part of a computer network. Workstation sometimes refers to a computing system that is more powerful than a simple personal computer.

WTN (Working Telephone Number).

WWW (World Wide Web)--Internet system for world-wide hypertext linking of multimedia documents, making the relationship of information that is common between documents easily accessible and completely independent of physical location.

X

X.25--An international narrowband (under 56Kbps) packet switching standard. A forerunner to frame relay and ATM.

XPL (Carrier Private Line).

XS (Carrier Switched).

Y

NO TERMS LISTED

Z

ZBTSI (Zero Byte Time Slot Interchange)--used in conjunction with definitions regarding DS1 coding schemes, e.g. AMI, B8ZS, ZBTSI.

ZULU DATE--The Day at Greenwich England - See Zulu Time. Zulu Date may be ahead of the day in other time zones, such as the USA, or behind time zones such as Japan, etc.)

ZULU TIME--Zulu is the military word for the letter "Z". Zulu is the abbreviation for Longitude Zero - Greenwich (England) Mean Time (GMT). Zulu Time is 6 hours later than Central Standard Time and 5

hours later than Central Daylight-Savings Time. Zulu Time (GMT) is always the same worldwide. Communication network switches are coordinated on Zulu Time.

NUMBERS

0+ Zero Plus--An Operator-Assisted telephone call where the caller dials zero, followed by the destination telephone number. The call is intercepted by a Long Distance Operator to obtain billing information.

0++ Zero Plus Plus--A telephone call where the caller dials zero, followed by the destination telephone number and billing info. The call is not intercepted by a Long Distance Operator, since billing information is provided by the caller.

0- Zero Minus--An Operator-Assisted telephone call where the caller dials the long distance operator (typically performed by dialing zero or zero zero). The call is intercepted by a Long Distance Operator to obtain the destination number and billing information, since the caller does not enter this information.

1+ One Plus--A direct-dialed telephone call where the originator dials 1 plus the destination number. Direct Distance Dialing - DDD

3270 IBM CRT Terminal Protocol--Non-programable terminal interface (used by systems such as IBM IMS - BellCore SMS, CICS, etc.). PC 3270 emulation software is available. 3270 screen formating is done by a host computing system.

700--An NPA used for Carrier-specific routing options. May also refer to any product or service associated with the dialing of a 700-based telephone number. The number 700-555-4141 is an industry standard telephone number that provides Primary Interexchange Carrier (PIC) identification on the line being used.

800 Enhanced Service Features--Includes 800 basic service plus: Services using network facilities and computer processing that: (1) act on the format, content, code, protocol or similar aspects of transmitted information; (2) provide additional or restructured information; or (3) involve subscriber interaction with stored data. Enhanced 800 Service may include dynamic call routing based on options such as time of day, day of week, load balancing, etc. A single 800
number may be routed to many different POTS or trunk groups at different times, based on changing conditions.

800 Number--The 7-digit NXX-XXXX 800 Service phone number. May be translated to one-or-more POTS numbers or trunk groups. In some cases, duplicate 800 numbers may be assigned in different USA states. For duplicate 800 numbers, SMS appends a 2-character state code to the 7-digit 800 number.

800 Number Reserved--SMS/800 public specification that an 800 number is reserved for up to 60 days.

800 Portability--Original 800 service used the exchange (NXX) to specify the carrier. This made it impossible to keep the same 800 phone number when changing carriers (long distance company). On May 1, 1993, FCC mandated that 800 Service subscribers can keep their numbers when they change carriers and that they can divide their traffic among carriers (by time of day, location, etc.) This has complicated the process of making changes. (See NASC, RespOrg and SMS)

800 Service - Inbound WATS--A service that provides long-distance calling to predesignated destination(s) without charge to the caller. 800 service charges are the responsibility of the party at the call termination location. Many 800 numbers may have the same POTS or trunk group destination. Optional Features (such as DNIS) can display the 800 number that was dialed to the telephone operator.

800 Service Database--Used to convert 800 numbers to POTS numbers.

800 Turnaround (SMSOption)--Untranslated 800 numbers (as dialed i.e. not translated to POTS) Bypass SCP/CMSDB translation.

900 Service--A value-added service that provides prerecorded or interactive services to the caller. The caller's charges are dictated by the Information Provider, and may be based on a per minute or per call rate.

COMMENTS TO THE HOUSE SELECT COMMITTEE ON TELECOMMUNICATIONS

February 9, 1996

SUBMITTED BY KINI L.C.
(Management Company for
Kansas Cellular and KINNET)
621 Westport Blvd, Salina, Kansas 67401

COMMENTS ON HB 2762:

Definitions of "Telecommunications Company" and "Telecommunications Public Utility"	As written, the definition of "telecommunications public utility" could be interpreted as a company with authorization for transmitting messages only. (as in a private line carrier). A "telecommunications public utility" should have equal ability with a "telecommunications company" to apply for certification as a local exchange carrier. Suggested Revision to Section 1 (j): "Telecommunications company" means a corporation, company, individual, association of persons, their trustees, lessees or receivers that provide a telecommunications service, including but not limited to interexchange carriers, and competitive access providers *and telecommunications public utilities*, but not including telephone companies certified before January 1, 1996.
State Universal Service Plan	We agree that a state-specific Universal Service Plan should be adopted. Legislation should state that a Universal Plan should be implemented and the KCC given the responsibility of determining the plan specifics. Funds from the Universal Service should only be available to providers in high cost areas. Providers should be defined as the incumbent LEC AND competitive entrants. Funds from the Universal Service Plan would be awarded to the company providing the high-cost service. This would encourage not only competition, but also infrastructure investment in the high-cost areas.
Resale	We believe that telephone companies with less than 150,000 access lines should not be required to resell their facilities initially. Legislation should not be written prohibiting resale, but neither should resale be required in the small independent telephone areas.

House Sel/Comm. Telecomm.
2-12-1996
Attachment 2

Interconnection	New entrants will rely on interconnection agreements so that their customers can continue to make and receive calls as usual. The federal legislation states that InterLATA toll restrictions will be lifted upon successful completion of a check-list of items. Among those items is interconnection. We agree that the parties involved with interconnection should negotiate terms and pricing on their own. However, we are concerned that delay tactics will occur in meeting the objectives of the federal check list. Instead of waiting 90 days to report disagreement to the KCC, the new entrant should have the ability to contact the KCC immediately if the incumbent LEC is not negotiating in good faith. Specific deadlines should be established by the KCC for a ruling on disputed interconnection agreements.
Number Portability	Telephone number portability needs to be available to any customer changing local service from the incumbent local exchange carrier. Although there may be technical restraints at the onset of competition, work should be continued to provide number portability as a database solution. Until such time that the database solution is technically and economically feasible, incumbent local exchange carriers should provide an acceptable interim service. Discounted interconnection rates should be assessed until such time full number portability is an option. The discounted rates should be applied to new service providers on a non-discriminatory basis. A neutral party should administer and allocate the telephone number equitably. Customers of competitive local service providers should be allowed to have their telephone number in telephone directories and available through directory assistance.
Cost Studies	We are very concerned about pricing local service or access without cost studies being reviewed by the KCC. The proposed policy framework states that initial prices would begin from existing prices. Given the fact that SWB has reported record earnings each quarter, no one can be sure that existing prices are realistic starting points. Although it can be argued that cost studies may be cumbersome to complete and could be interpretive, the KCC needs to review cost study information to assure consumers' interests are protected. Proposals have been made for the adjustment of intrastate access rates to interstate access rates. Without costs studies, it is impossible to know whether

Cost Studies (cont.)	instrastate access rates could be priced below interstate access rates. It is important that instrastate access rates be set on a non-discriminatory basis. The rates should not be discounted to any one specific service provider. The KCC should be given the authority to enforce non-discriminatory pricing.
Role of KCC vs. Kansas legislature	We do not believe that the legislative body and the KCC need to be in conflict with each other. Rather, the KCC should be given the authority to continue on its established path toward competition. Legislation should be drafted as broad as possible. Perhaps the Vision Statement (SCR1618 and HCR5036) incorporates enough policy framework that the KCC could utilize its skills in completing its competition docket, requests for information, and, if needed, hearings.
Internet Access	We believe that current initiatives by private Internet service providers, rural independent telephone companies, and other networks are sufficient in providing affordable Internet service to rural Kansans. It is true that not all Kansans have the ability to access the Internet. However, Internet service providers are expanding services daily. We believe that the Internet market is competitive and should be allowed to continue providing services for current and new locations without regulations or directives.
HB 2728:	
Definition of "entity"	The proposed definition of "entity" that would be allowed use of the state telecommunications facilities is too broad and would allow for abuse from non-qualified entities. We would suggest the definition of "entity" remain as written in Section 1 (1): *Any governmental unit, including any state agency, taxing subdivision of the state or municipality.* The definition in Section 1 (2) should be omitted as it is too vague and open to interpretation. "Entities" doing research or special projects for the State would not be eligible. In addition, "entities" that are required to file governmental reports, but are not State supported, would not be eligible.

Sprint

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
Universal Service	KCC should develop definition and methodology for periodic updates. KCC to determine if new fund is necessary, size of such fund, whether transitional, who contributes, who receives. KCC should adopt plan agreed to by group of parties representing major stakeholders.	State specific universal service fund shall be established under the jurisdiction of the KCC and shall be funded equitably by all telecommunications providers in the state based on telecommunications revenues net of payments to intermediaries. Fund to be administered by a neutral third party in manner to ensure that those that contribute and those that receive do not receive unfair competitive advantages. Fund must support: • Citizens who can't afford basic residential rate. • Local and competitive local exchange carriers serving high cost areas.

4-2

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
Competition		
A. Facilities Based Competition	Not later than 9/1/96 KCC shall authorize telecommunications companies to provide local exchange service that relies on the facilities of such company	No requirement that competitive local exchange carriers be facilities based.
B. Unbundling of Local Loop, Switch and Trunk Facilities for Resale	1. SWBT required to unbundle loop, switch and trunk facilities for resale when legal restrictions prohibiting SWBT from providing intraLATA service are removed. 2. Companies other than SWBT not required to unbundle until 1/1/98. At that time, KCC shall determine whether to require resale, based on industry experience and actions in other states.	Incumbent local exchange carriers must unbundle services into loop, port and transport. Rural incumbent local exchange carriers are exempt from unbundling requirements.
C. 1+ intraLATA Competition	1+ intraLATA interexchange service shall be implemented simultaneously with SWBT's provision of interLATA toll service.	
D. Interconnection Rights	Telecommunications companies must provide access to toll access, operator services, directory listings, directory assistance, access to 911.	Competitive local exchange carriers should be allowed to have telephone numbers included in directories and have access to directory assistance, 800 and other databases (LIDB and AIN) 911, relay services and operator services on same terms as incumbent local exchange carriers.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
Regulatory Reform		
A. Telephone Company Plans	Incumbent LEC shall file "regulatory reform plan" at same time it files its network infrastructure plan. Plans to include: 1. Price caps for local exchange and switched access services; 2. Price rebalancing among local exchange and access; 3. Deregulation of all services except: (a) unbundled loop, switch & trunk facilities offered for resale	Local exchange carriers precluded from electing price and service quality regulation until they have complied with interconnection request. If number portability is not technically or economically feasible, incumbent local exchange carriers shall provide surrogate service at prices based on incremental costs.
B. Price Cap Plans in General	1. Separate baskets (categories for residential and single-line business. 2. Switched access.	After becoming subject to price and service quality regulation, an incumbent local exchange carrier is permitted to adjust rates for basic network services by a Fixed Weighted Price Index for Gross National Product (GNP-PI) less a reasonable productivity offset to be determined by the Kansas Corporation Commission. May also adjust rates to reflect exogenous changes in costs or revenues required by law or regulation. Exogenous changes shall not include revenue reductions due to losses resulting from market entry.

2-6

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
C. Residence and Single-line Business	Adjusted according to formula Price change = % change in consumer price index minus national rate of productivity gain in telecommunications and factor to offset less in revenue estimated for access charges and imputed access portion of intraLATA toll charges. Total increases limited to $1.50 per month ($18 per year).	See above.
D. Intrastate Switched Access	Price caps for intrastate switched access will be reduced to prices charged for interstate switched access over 3 year period as long as changes to local service price caps do not exceed $1.50 per month	Local exchange carriers shall reduce, at a minimum, their switched access rates to the carriers' prices for interstate switched access rates. The reductions shall be revenue neutral to the local exchange carrier. Reductions shall be made in equal amounts over a three year period. After interstate, intrastate parity is reached local exchange carrier shall continue to adjust intrastate rates so as not to exceed interstate. Rates must be nondiscriminatory and shall not be discounted to any one or class of carriers on any basis other than costs.
E. Initial Prices	Price cap plans should include initial prices which are current prices. • Carriers subject to price regulation shall make a commitment to provide broadband capable services to hospitals, schools, libraries, state or local government facilities where facilities have been	Rates subject to price and service quality regulation are the rates in effect at the time a carrier elects price and service quality regulation.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
	built under infrastructure plan at discounted prices. • Carriers subject to price regulation shall make a commitment to provide basic rate ISDN capable service at prices which are uniform throughout the company's service area and which are designed to stimulate the development of an extensive residential market.	
F. Periodic Review of Formula	The price cap but not the actual prices shall be reviewed every five years in order to adjust the productivity offset.	Annually.
G. Deregulated Services	In the case of any service which has had its price deregulated, upon showing to the Commission that: 1. the service is essential for particular residential or business users; 2. there is not alternative supply for the service; and 3. The price of service has risen more rapidly than the price of basic residential local service. The Commission shall reimpose price regulation for that service in its own separate basket. A price cap is a maximum price for all services taken as a whole within a given basket. Prices for individual services and for services to individual customers may be reduced	Rate adjustments for non-basic network services to become effective 15 days after tariffs are filed with the KCC.

2-8

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	TSPC	SPRINT BILL
	within the basket. Nor service shall be priced below long-run incremental cost. Access charges equal to those paid by long distance companies to local telephone companies should be imputed as part of the price floor for toll services offered by LERC on a total service basis. SWBT to have filed long run incremental cost studies for all existing services as of 7/1/96 using studies completed after 4/1/94.	
H. Rules Applicable to Interexchange Carriers (IXCs)	1. Access charge reductions shall be passed through to consumers. 2. Base toll prices shall remain geographically averaged	

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
Universal Service	FCC shall within 1 month institute a Federal-State Joint Board to make recommendations on Universal Service including a definition. It shall act within 9 months The FCC shall implement Joint Board recommendations within 15 months of enactment. FCC shall periodically establish evolving definition of Universal Service. Joint Board may recommend changes. Every interstate telecom carrier shall contribute on an equitable and non-discriminatory basis. State Commission shall designate eligible carrier or carriers to receive support. State may adopt consistent regulation to protect Universal Service. Carriers shall provide service to public or non-profit rural health care provider at rate comparable to urban areas and to schools and libraries at discount rates with the difference to be made up through Universal Service. States may impose competitively neutral requirements to preserve Universal Service.	Universal service mechanisms must be revised to be competitively neutral and sustainable in more competitive environment. KCC to commence development of USF mechanism and rate structures that are more competitively neutral and compatible of local exchange competition. Parties directed to file long run incremental cost studies by April 1996. USF working group to submit proposal to KCC by 10/85.

2-10

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
Competition		
A. Facilities Based Competition	Does not mandate facilities-based local competition. Bell Company must enter into interconnection agreement with one or more facilities-based competitor for residential and business customers to provide in-region interLATA services or after 10 months if no competitor has requested access. Duty of all local exchange carriers to afford access to poles, ducts, conduits, and right-of-way. FCC shall adopt rules in 2 years to govern charges for pole attachments when parties fail to negotiate. To provide in-region interLATA services, Bell Company must provide access to poles, ducts, and rights-of-way. Local governments may manage on a competitively neutral basis the public rights-of-way or require fair and reasonable compensation for telecommunications providers.	Makes no distinction between facilities-based and non-facilities based. Competition to be authorized after cost studies are complete. Factors to be considered including 1. technical, managerial and financial capabilities of the applicant. 2. effect on public convenience and necessity 3. effect on universal service - applicant's proposal to comply with universal service obligations. 4. effect on economics and infrastructure development 5. effect on incumbent's revenues
B. Unbundling of Local Loop, Switch, and Trunk Facilities	Local exchange carriers must provide non-discriminatory access to unbundled network elements at any technically feasible point on just and reasonable terms. Local exchange carriers shall not put unreasonable restrictions on resale and shall offer services for resale	Local exchange carriers should be required to unbundle loop and switching in Phase I. Phase II shall consider unbundling of conduits, poles and ducts, network data bases, signaling, interoffice networks, operational support systems, facilities required for co-location. Task force to consider other functions that must be unbundled.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
	at wholesale rates, except that a State Commission may prohibit resale to different subscriber categories. The unbundling and wholesale rate requirements shall not apply to rural local exchange carriers unless State Commissions determine not unduly economically burdensome. Wholesale rates shall exclude from retail rates costs attributable to marketing, billing and avoidable costs. Rates shall be based on costs. Offsetting obligations, including "bill and keep" are not precluded. Local exchange companies with less than 2% of nations access lines may petition State Commission for suspension /modification to avoid adverse economic impact. The FCC has six months from enactment to complete action necessary to implement unbundling and resale. Bell companies must unbundle local loop, transport, and switching and it must resale to provide in-region interLATA services.	
C. 1+ intraLATA Toll Competition	1+ interLATA coincidental with 1+ interLATA for SWBT	Same as TSPC recommendation 1+ intraLATA coincidental with 1+ interLATA for SWBT

2-12

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
D. Interconnection Rights	Incumbent local exchange carrier must provide interconnection, must negotiate interconnection terms in good faith, and must provide collocation of interconnection equipment, except that a State Commission may provide for virtual collocation. Interconnection shall not apply to rural local exchange carriers unless State commissions determine not unduly economically burdensome. Local exchange companies with less than 2% of returns access lines may petition State commission for suspension/modification to avoid adverse economic impact. Local exchange carriers may negotiate binding interconnection agreements. Any party may ask State Commission to mediate between 135-160 days after request for interconnection. Shall resolve within 10 months. Agreements shall be submitted to State Commission for approval. Bell company must enter into interconnection agreement with one or more facilities-based competitor for residential and business customer to provide in-region interLATA services or after 10 months no competitor has requested access.	Parties encouraged to negotiate. Commission will monitor the negotiation process. If after reasonable efforts negotiating parties are unable to reach agreement, either party may file complaint with Commission.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
Telecommunications Infrastructure	FCC shall in 1 year adopt rules to require LECs to make available network information to enable other carriers to provide access to information services. FCC and State Commissions shall encourage deployment of advanced capabilities by regulatory forbearance and other methods. FCC shall in 30 months initiate an inquiry on availability of advanced telecommunications. Creates Telecommunications Development Fund to promote access, stimulate technology and support Universal Service.	KCC will consider infrastructure implications as one of the public interest criteria in granting certificates.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
Regulatory Reform	FCC shall forbear from regulating carriers if not necessary to ensure just and reasonable rates or discrimination, or to protect consumers.	No requirement to file infrastructure plans. • Price regulation available after filing long run and fully allocated cost studies. All services categorized as either competitive/non-competitive. In order for a service to be classified as competitive: 1. the competitor's service characteristics and supply area, there must be at least one actual competitor that can provide equivalent services at comparable rates in the same geographic region. 2. the market must be effectively competitive, as determined by incumbent's current market share, number of competitors in the market, existence and level of to entry. If market deemed competitive, eligible for individual case basis pricing. • Services which are classified as non-competitive shall be further categorized as essential/non-essential. • Non-competitive services presumed essential unless Commission determines otherwise.

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
		• Competitive services subject to price floor. • Non-competitive non-essential services: subject to floor may be subject to price cap. • Non-competitive essential services: subject to price caps. Price floors set at long run incremental costs. Price caps set at fully allocated cost. Individual case based (ICB) pricing permissible for sources deemed competitive. Would be considered non-competitive/essential and subject to price caps. Price caps subject to periodic adjustment (time not specified) by general industry productivity index and an inflation index.

2-16

COMPARISON OF TSPC, SPRINT BILL
FEDERAL LEGISLATION AND KCC ORDERS

TOPIC	FEDERAL LEGISLATION	KCC ORDERS
A. Telephone Company Plans	No requirement to file infrastructure plans.	No requirement to file infrastructure plans.
B. Price Cap Plans	Left to states.	Non-competitive, essential services subject to price caps based on fully allocated costs.
C. Residence and Single Line Business Service	Left to states.	Subject to price caps adjusted periodically (time not specified) by general industry productivity index and an inflation index.
D. Intrastate Switched Access	Left to states.	Silent.
E. Initial Prices	Left to states.	Based on fully allocated cost study.
F. Periodic Review of Formula	Left to states.	Reviewed periodically. Time not specified.
G. Deregulated Services	Left to states.	Competitive and non-competitive non-essential services: subject to price floors set at long run incremental costs. Individual case based (ICB) pricing permissible for sources deemed competitive.
H. Rules Applicable to Interexchange Carriers	FCC shall adopt rules in six months that require rates charged by interexchange carrier to rural/high cost customers be no high than those charged in urban areas. (No geographic deaveraging).	

AT+T

COST BASED PRICING

TSPC - HB2762	SPRINT - HB2960	FEDERAL BILL	KCC
Cost studies required on basis of complaint. All rates must be above long run incremental costs. Unbundled services offered for resale must be above LRIC. Initial prices for local exchange services are current prices. Rate of Return regulation no longer effective. Access rates key on interstate rates over three years.	Cost requirements pertain to interconnection, avoidable costs for resold services and number portability. No consistent cost methodology. Initial prices for local exchange services are current prices. Rate of Return regulation no longer effective. Access rates key on interstate rates over three years.	Cost requirements for interconnection.	May 5 order required all local exchange companies to file an incremental and a fully allocated cost study for each service by April of 1996. Subsequent cost order only required cost studies on local (Res./Bus.), access (transport, switching, CCL), and facilities (loop, port, switch, and transport).

2-18

RESALE

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Not required until Bell is able to enter the interLATA long distance market. Cannot be sold below long run incremental costs.	No restrictions on resale except service class. Rates will be current price minus avoidable costs.	Requires immediate resale at wholesale rates in a nondiscriminatory and reasonable manner without limitations. Requires state commission to determine wholesale rates based on retail rate less avoidable costs. Rates for unbundled elements based on cost to provide. The wholesale rate may include a reasonable profit.	In order to encourage introduction and growth of competition in the local exchange market, LECs should be required to lift tariff restrictions on resale and sharing of certain services and functions where appropriate.

UNIFORM STANDARDS

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
no mention	Common carriers shall cooperate in the development of and adhere to national uniform standards for basic network functions and enhancements.	Uniform standards oversight by the FCC.	Will be addressed in Phase II.

ACCESS CHARGES

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Parity with interstate over three years. Local rates increased in order to make LEC revenue neutral	Parity with interstate over three years. LEC remains revenue neutral with no indication of how.	Access must be priced based on cost.	The KCC considers todays level of access charges to be a subsidy for universal service. All universal service mechanisms must be revised to be competitively neutral and sustainable in a more competitive environment.

PRICING RULES

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Prices for Local Capped with adjustment factor of CPI-Productivity factor (PI) Access cannot increase during the three year phase down. After that they are capped at interstate levels. All other services are deregulated except for some minor services to schools, hospitals etc.	Prices are existing prices for basic network services. Can be increased for exogenous changes. Uses formula of GNP-PI for increases in addition to Exogenous changes. Access cannot increase during the three year phase down. After that they are capped at interstate levels. All other services are not price regulated.	Interconnection, including access must be priced based on cost. FCC may consider forebearance from regulation on specific services after public interest considerations and a showing of competitiveness of the market.	Competitive services are allowed maximum pricing flexibility subject only to price floors and tariff filings. Non-competitive essential services subject to price cap regulation. Commission will decide in Phase II pricing treatment for non-competitive non-essential services.

1+INTRALATA PRESUBSCRIPTION

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Simultaneous with Bell entering the interLATA market.	Not Addressed	SWB shall provide intraLATA 1+ dialing parity throughout the state coincident with its exercise of interLATA authority. No prohibition for dialing parity in non-Bell territory. All carriers required to provide local dialing parity.	Recognized as a barrier to entry. Task force report to Commission issued June 1, 1995. No action taken by Commission pending federal legislation.

NON INCUMBENT LEC REGULATION

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
No regulation except requires pass through of access reduction and geographically averaged basic toll schedule	Not addressed	FCC given authority to forebear any unnecessary regulation and state cannot continue to regulate inconsistent with FCC. Rural interexchange service must be priced no higher than urban interexchange service.	Will be addressed in Phase II.

FRANCHISE RESTRICTIONS

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Must be granted certificate by KCC. Facility based only with the ability to resell non telephone company facilities. Effective July 1, but not later than September 1, 1996	Must certify if company has managerial, technical and financial resources. KCC has 90 days to grant certificate. May not dictate service area. Effective on enactment.	Each telecommunications carrier has the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers. Each local exchange carrier has the duties to: provide unrestricted resale, number portability, dialing parity, access to rights-of-way, reciprocal compensation, duty to negotiate in good faith, interconnection, and unbundled access. No state or local government can prohibit any carrier from offering any service.	There are no exclusive franchise restrictions either by statute or regulation. Companies must be certified to provide local exchange service.

NON-DISCRIMINATORY PRICING

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Minimal prohibitions against discrimination. In fact, provides for discrimination in all services but access and local. Access must be imputed to LEC toll on a total service basis.	Prohibits discrimination. Provides imputation on an aggregated basis for all services.	Prohibition against discrimination throughout the bill.	The importance of proper imputation standards for effective competition has been and will continue to be recognized by the Commission.

UNIVERSAL SERVICE FUND

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
TSPC recommendation leaves in the hands of the KCC. The LECs are amending that to do the following: Only toll providers fund the Kansas fund. Only Incumbents can draw from the fund. Not clear on lost revenues for toll and competitive losses	Requires all telecommunications providers to fund the Kansas plan. All providers can draw from fund Fund to be used for low income and high cost areas.	Requires all telecommunicatons providers to fund USF. All local exchange providers can draw from the support. States can adopt plans which are consistent with the federal plan. Establishes federal state joint boards to determine plan.	Universal service mechanisms must be revised to be competitively neutral and sustainable in a more competitive environment. Staff has recommended creation of a Kansas Basic Service Fund (KBSF) to include universal service, rate rebalancing and low income funds.

INTERCONNECTION

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Terms and conditions shall initially be negotiated on good faith between parties. KCC shall intervene and resolve differences on an expedited basis if agreement not reached within 90 days	LECs shall provide Interconnection at any reasonable point upon receipt of a bona fide request. Reasonable and nondicriminatory terms and conditions Negotiated within 90 days if no agreement, KCC shall arbitrate disputes within 90 days Bill and Keep until agreement reached.	All carriers shall provide interconnection at any reasonable point of the network. Negotiations between parties and then arbitration by the state commissions. Terms, rates and conditions must be approved by the state commissions. Rates must be cost based and may include reasonable profits. Bill and keep permitted.	Interconnection should be negotiated between the parties. Recognized the lack of parity between the parties. Agreed to arbitrate unresolved differences.

CONDUITS AND ROW

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
ROW Nothing in bill Conduit Telephone Companies must provide telecommunications companies with pole attachments and duct space on the same basis that they provide access to cable companies.	ROW Providers shall have access to public rights of way on non-discriminatory terms and conditions Private owners etc. cannot withold access to buildings Fees and Assessments must be non-discriminatory. Conduits Poles, conduits and rights of way that it controls must be provided by the telephone company on the basis of allocated costs not to exceed the price charged to cable companies.	ROW Providers have access to rights of way on the same terms and conditions as incumbent LEC. Conduits Providers have access to conduits, pole attachments etc. as incumbent LEC.	ROW ROW in the hands of municipalities that must grant use on a non-exclusive basis. Conduits Lack of access to conduits, poles, and ducts at cost based rates is a barrier to competition.

LOCAL NUMBER PORTABILITY AND DIALING PARITY

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Customers shall be accorded number portability and local dialing parity to the extent economically and technically feasible and in conformance with national standards.	To the extent economically and technically feasible, telephone number portability shall be available. To the extent not available by a date established by the KCC, interim solution at reasonable rates. Interconnection charges will be discounted until such time as full number portability is implemented. Interim solution will be based on incremental costs.	Each Local Exchange Carrier has the duty to provide number portability to the extent technically feasible. Each Local Exchange Carrier has the duty to provide dialing parity to competing providers of exchange service. Telephone numbers will be administered by a local neutral party. Telephone numbers shall be included in telephone directories, d.a., LIDB, etc. using same terms and conditions as incumbent.	KCC found the lack of number portability is a barrier to competition. Task force was charged with monitoring national solutions and examining interim solutions. The Commission directed the task force to monitor national efforts and report on any state action that might be taken to further the national solutions.

UNBUNDLING

TSPC - HB2762	SPRINT - HB2960	FEDERAL	KCC
Unbundled loop, trunk and switch will be provided simultaneously with Bell entering the interLATA market. They shall be priced above long run incremental costs and approved by the KCC.	Upon bona fide request, LECs shall unbundle their services into a reasonable number of basic network features and functions which should be the loop, port and transport. These features and functions shall be made available at reasonable and non-discriminatory prices.	Each Local Exchange Carrier has the duty to provide any requesting telecommunications carrier nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on terms that are just, reasonable and non discriminatory. An incumbent local exchange carrier shall provide such unbundled network elements in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications services.	LECs should be required to unbundle certain functions and facilities and offer them as separate services. For cost study purposes access must be unbundled to transport, switching, CCL; facilities must be unbundled to loop, port, switch and transport.

COMPARATIVE ANALYSIS
OF
KCC, TSPC & TELECOM ACT POSITIONS
ON
MAJOR COMPONENTS
OF
TELECOMMUNICATIONS COMPETITION IN KANSAS

February 1996

(Submitted to the Kansas Legislative Research Department)

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COST-BASED PRICING

KCC (May 5,1995 Order)

All LECs must file both an incremental and a fully allocated cost study for each service by April, 1996. Subsequent cost study order only requires cost studies on local (res./bus.), access (transport, switching, CCL), and facilities (loop, port, switch, and transport).

TSPC (Final Report)

No cost studies are required to be made at the outset. They are required only upon someone making a complaint. Price-cap regulation is to be established without an up front earnings review.

'96 TELECOMM ACT

Resale of retail services are at wholesale rates - retail less marketing, billing and other avoidable costs. Rates for interconnection and network elements must be cost-based and nondiscriminatory.

RESALE

KCC (May 5, 1995 Order)

LECs should be required to lift tariff and other restrictions on resale and sharing of certain services and functions where appropriate.

TSPC (Final Report)

For SWB, resale is not required until legal restrictions to SWB providing interLATA Service are removed. For other LECs, resale not required before October 1, 1998 and then only after KCC approval thereof. As a practical matter, resale is restricted to only facilities-based competitors.

'96 TELECOMM ACT

LECs may not prohibit or impose unreasonable or discriminatory limits on resale and must resell retail services at wholesale rates. FCC to establish rules. A pre-condition to BOC providing interLATA service in its in-region states is the BOC's agreement to resell local service components.

UNIFORM STANDARDS OF COMPETITION

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Not specifically addressed, but contemplated KCC continued oversight would have the same effect and would lead to such standards.	Not addressed.	Throughout the section dealing with Telecommunications Services, the FCC is ordered to establish regulations, oversee certain aspects of competition and pre-empt in other areas. In addition, several sections acknowledge the authority and jurisdiction to be retained by state utility commissions.

ACCESS CHARGES

KCC (May 5, 1995 Order)

Present day access charges are, in part, a subsidy for universal service. All universal service mechanisms must be revised to be competitively neutral and sustainable in a more competitive environment.

TSPC (Final Report)

Over a 3 year period, intrastate switched access charges will be reduced to the prices for interstate switched access. Local rates will increase to offset this reduction.

'96 TELECOMM ACT

Access charges must be based on cost and, unless agreed to, the state utility commission is given the authority to determine such charges.

1+INTRALATA PRESUBSCRIPTION

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Recognized as a barrier to entry. Task force report to KCC issued June 1, 1995. No action taken by KCC pending federal legislation.	1+ intraLATA presubscription is required when SWB is able to enter interLATA service market.	LECs must, pursuant to FCC rules to be established, provide dialing parity to competitive providers of exchange and toll services. A pre-condition of in-region long distance service by a BOC is the provision of dialing parity.

FRANCHISE RESTRICTIONS

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Neither state statutes or current regulations prohibit local exchange competition. KCC favors retaining present requirement that a local exchange provider must first be certified by the KCC.	All local exchange providers must be certified by KCC. New entrants must be facilities-based.	Federal act recognizes and upholds state utility commission regulatory authority. In some areas federal act directs the state commission to arbitrate disputes. Federal act also specifically pre-empts any state or local statute or regulation which prohibits or restricts competition.

NON-DISCRIMINATORY PRICING AND PRACTICES

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Recognizes the chilling effect of discriminatory practices and pricing on real competition and proposes oversight mechanisms to eliminate discrimination.	Price cap plan which proposes starting with existing prices with no up-front earnings review has the effect of sanctioning discriminatory pricing.	The Act prohibits unreasonable or discriminatory conditions, prices and practices in general. Leaves the details and mechanisms to FCC regulation and state utility commission oversight.

UNIVERSAL SERVICE

KCC (May 5, 1995 Order)	TSPC (Final Report)	96 TELECOMM ACT
Universal service mechanisms must be revised to be competitively neutral and sustainable in a more competitive environment. Staff has recommended creation of a Kansas Basic Service Fund (KBSF) to include universal service, rate rebalancing and low income funds.	All aspects of Universal Service are delegated to the KCC.	Federal-State Joint Board set up to recommend changes to existing fund. Mandates general standards such as all interstate carriers must contribute, who receives support, no cross-subsidy and the role of state universal service rules and funds.

INTERCONNECTION

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Interconnection should be negotiated between the parties with KCC to arbitrate unresolved differences. Recognizes the lack of parity between the parties.	Terms and conditions shall initially be negotiated in good faith between parties. KCC shall intervene and resolve differences on an expedited basis if agreement not reached within 90 days.	All carriers must interconnect directly or indirectly at any technically feasible point of the network. Initially, negotiations between parties and then arbitration by state utility commissions. Terms, rates and conditions must be approved by the state utility commissions. Rates must be cost based and may include reasonable profits. Bill and keep arrangements are not precluded.

RIGHTS-OF-WAY and CONDUITS

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Current LEC policy, pricing and control over access to poles and conduit is a barrier and procedures and practices that are nondiscriminatory must be established.	Upon request, telephone companies must provide telecommunications companies with pole attachments and duct space on the same basis that they provide access to cable companies.	LECs must not discriminate in access to poles, ducts, conduits and rights-of-way. Such non-discriminatory access is a pre-condition of entry by BOCs into the long distance market.

LOCAL NUMBER PORTABILITY AND DIALING PARITY

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Lack of number portability is a barrier to competition. A task force was charged with monitoring national solutions and examining interim solutions that the State can take.	Customers shall be accorded number portability and local dialing parity to the extent economically and technically feasible and in conformance with national standards.	LEC must provide number portability per requirements to be set by FCC and to also provide dialing parity to competitors' customers. Both are pre-conditions for entry into long distance services.

UNBUNDLING

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
LECs should be required to unbundle certain functions and facilities and offer them for sale as separate services.	Unbundled loop, trunk and switch facilities will be provided simultaneously with SWB being able to enter the interLATA market.	LEC must provide any requesting telecommunications carrier nondiscriminatory access to unbundled network elements on terms that are just, reasonable and non-discriminatory. Approved unbundled local loops are a pre-condition to RBOCs entering the long distance market.

PRICING RULES

KCC (May 5, 1995 Order)	TSPC (Final Report)	'96 TELECOMM ACT
Competitive services are allowed maximum pricing flexibility subject only to price floors and tariff filings. Non-competitive essential services subject to price cap regulations. KCC will decide in Phase II pricing treatment for non-competitive non-essential services.	Residential and single line businesses have prices capped at present levels with inflation factor. Intrastate switched access cannot increase during the three year phase down. After that they are capped at interstate levels. All other services are deregulated.	State commission in compulsory arbitration must set rates for interconnection and network elements that are cost-based and non-discriminatory.

KANSAS TELECOMMUNICATIONS COALITION

Blue Valley Telephone Company
Home

Columbus Telephone Company

Craw-Kan Telephone Coop., Inc.
Girard

Cunningham Telephone Company, Inc.
Glen Elder

Elkhart Telephone Company, Inc.

Golden Belt Telephone Assn., Inc.
Rush Center

Gorham Telephone Company

H&B Communications, Inc.
Holyrood

Haviland Telephone Company, Inc.

Home Telephone Company, Inc.
Galva

JBN Telephone Company, Inc.
Wetmore

KanOkla Telephone Assn., Inc.
Caldwell

LaHarpe Telephone Company, Inc.

Madison Telephone Company, Inc.

Mokan Dial, Inc.
Louisburg

Moundridge Telephone Company, Inc.

Mutual Telephone Company
Little River

Peoples Mutual Telephone Company
LaCygne

Pioneer Telephone Assn., Inc.
Ulysses

Rainbow Telephone Coop. Assn., Inc.
Everest

Rural Telephone Service Company, Inc.
Lenora

S & A Telephone Company, Inc.
Allen

S & T Telephone Coop. Assn.
Brewster

South Central Telephone Assn., Inc.
Medicine Lodge

South Central Telecommunications
of Kiowa, Inc.
Medicine Lodge

Southern Kansas Telephone Co., Inc.
Clearwater

Southwestern Bell Telephone Company
Topeka

Sunflower Telephone Company, Inc.
Dodge City

Totah Telephone Company, Inc.
Ochelata, OK

Tri-County Telephone Assn., Inc.
Council Grove

Twin Valley Telephone, Inc.
Miltonvale

United Telephone Association, Inc.
Dodge City

Wamego Telephone Company, Inc.

The Wheat State Telephone Co., Inc.
Udall

Wilson Telephone Company, Inc.

Zenda Telephone Company, Inc.

Kansas Retains Discretion Under The Federal Act To Set State Telecom Policy

The Federal Telecommunications Act of 1996 (Federal Act) leaves considerable room for the Kansas legislature to adopt telecommunications policies that it believes are necessary to serve the best interests of Kansans. The Federal Act addresses concerns across many industries and across the entire country. The policy decisions reflected in the Federal Act opening the local exchange, interLATA and cable television markets to competition by all providers does not preclude the adoption of complementary policies that are in the best interests of citizens in a geographically large and relatively sparsely populated state like Kansas. A cookie cutter approach to telecommunications policy simply won't work.

The Kansas Legislature should decide what policies are in the best interest of Kansans and then determine whether the Federal Act prohibits the adoption of those policies. The Kansas Telecommunications Coalition submits that the Federal Act permits Kansas sufficient latitude to decide the most critical policy issues.

Summary of Core Features of HB 2762

To analyze the impact of the Federal Act, it is helpful to bear in mind the core features of HB 2762 which include: infrastructure deployment commitments by telephone companies, a recognition of the need to adopt mechanisms to maintain universal service; authorization of facilities-based competition immediately; requirements for carriers to negotiate interconnection arrangements, subject to Commission oversight; a requirement that, if it is not offered earlier, resale and unbundling must be provided by SWBT simultaneous with its provision of interLATA service and by small telephone companies upon order of the Commission no sooner than October, 1998; a requirement that 1+ intraLATA dialing parity be offered simultaneously with SWBT's provision of interLATA long distance service; rate rebalancing between toll, access and local services for large telephone companies to avoid possible rate shock due to competition; optional price regulation of residence, single line business and access services for all telephone companies; streamlined regulation of other services; maintenance of statewide average toll prices; and deregulation of competitive providers.

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Federal Legislation Would Not Preempt House Bill 2762

The legislatively-appointed Telecommunications Strategic Planning Committee (TSPC) studied telecommunications issues in extensive detail over the course of 18 months and at an expense of over a quarter of a million dollars. The TSPC recommended the policy framework embodied in HB 2762 as the best means of achieving its proposed vision for telecommunications in Kansas for the 21st century. Assuming that the Legislature reaches a similar conclusion about future regulatory policy for telecommunications in Kansas, the Federal Act would not preempt the legislature from adopting those policies in Kansas statutes.

In fact, many of the policies embodied in HB 2762 clearly are consistent with the Federal Act. A matrix summarizing the major provisions addressed by both bills is attached. Both bills recognize that price regulation and streamlined regulation should be used as incentives to encourage the deployment of advanced telecommunications services to all Americans (e.g., Kansans) and to educational institutions in particular. Act Section 706; HB 2762 Section 2(c)(4) and 2(d)(5)(A). Both bills require local telephone competition. Act Section 251(a-c); HB 2762 Section 2(b)(1). Both bills require local dialing parity and number portability to the extent technically feasible and in accordance with national standards. Act Section 251(b)(1-2); HB 2752 Section 2(b)(4). Both bills require competitors and existing providers to negotiate interconnection, with the state commission resolving any disputes. Act Section 252(b)(4); HB 2762 Section 2(b)4. Both bills provide competitors access to the telephone poles and conduits of existing providers. Act Section 251(b)(4); HB 2762 Section 2(b)(1). Both bills provide for continuation of geographically averaged toll rates. Act Section 254(g); HB 2762 Section 2(d)(1). Both bills recognize the importance of implementing intraLATA dialing parity only when SWBT provides the interLATA long distance services it is now barred from offering. Act Section 271(e)(2); HB 2762 Section 2(b)(3). And last, but certainly not least, both bills recognize the importance of maintaining universal service. Act Section 254; HB 2762 Section 2(a).

In certain areas, HB 2762 addresses policy issues with more specificity than does the Federal Act. In these areas, there simply is no basis for any inconsistency between the bills. For example, HB 2762 expressly recognizes the need to eliminate the distortions in rate structures through price rebalancing. The rebalancing is designed to protect universal service by gradually phasing-in the rate restructuring that competition abruptly could cause. Although the Federal Act recognizes the importance of universal service, the Federal Act does not address the rate rebalancing issue. This is in part due to the rebalancing between interstate toll and local service prices accomplished years ago through the institution of the federal end user charge. Similarly, price regulation already exists at the federal level, so the continuation in HB 2762 of existing state price regulation for SWBT, and offering it as

an option to the independent telephone companies, is a state issue.

Finally, the Federal Act does not decide the applicability or scope of streamlined regulation for intrastate services. That is an issue left to the states. Nevertheless, Section 706 of the Federal Act notes that price regulation and streamlined regulation are appropriate incentives to encourage the ubiquitous deployment of advanced services, especially to schools. HB 2762 conforms with Section 706 of the Federal Act by giving existing telephone companies the incentive to invest throughout the entire state; in part by continuing price regulation at existing prices and by allowing independent telephone companies the option to participate in price regulation as well.

HB 2762 Resale And Unbundling Provisions Comport with the Federal Act

HB 2762 embodies a policy preference for facilities-based competition. That policy is reflected in the provisions that prohibit the Commission from requiring, yet at the same time permit, the telephone companies to offer, unbundling and resale of their services. SWBT would not be required by state law to permit resale or unbundling of its services until it provides interLATA services and small telephone companies would not be required by state law to permit unbundling or resale of their services until the Commission decides it is in the public interest, but no sooner than October, 1998. To the extent the Federal Act requires more, or quicker, unbundling and resale, the telephone companies are permitted to do so. A conflict would only arise if HB 2762 did not give telephone companies the option to offer resale and unbundling whether in response to federal requirements or their desire to enter the interLATA market. If SWBT desires to provide resale and unbundling sooner or more pervasively in order to obtain interLATA relief, HB 2762 permits SWBT to do so.

HB 2762 reflects a policy decision that facilities-based competition is best for Kansas. To promote that objective, HB 2762 adopts a principled time frame for providing resale and unbundling that will apply unless otherwise required by federal law or offered by existing providers. Nothing in the Federal Act precludes the state from attempting to foster facilities-based competition by preventing the Commission from requiring more extensive resale and unbundling obligations than may be required by federal law.

Moreover, there are numerous provisions in the Federal Act suggesting that the states have some latitude to set policy guidance concerning the nature and extent of resale and unbundling obligations. The Act expressly provides that telephone companies may establish reasonable conditions and limitations on resale. Act Section 251(c)(4). The Federal Act expressly permits a restriction on reselling service designed for one class of customers (e.g., residence) to another class of customers (e.g., business). Further, the Act expressly provides that states can impose competitively neutral requirements necessary to preserve and enhance universal service, protect the public safety and welfare, ensure the continued quality

of telecommunications services and safeguard the rights of consumers. Act Section 253(b). Finally, the Act expressly permits states to prescribe regulations to implement the Act as long as they are not inconsistent with the Act. Act Section 261.

There are also special provisions in the Act relating to resale and unbundling by rural telephone companies that comport with HB 2762. Rural telephone companies may seek a waiver from the state commission of the duty not to unreasonably prohibit resale at retail rates by proving that a waiver is in the public interest and either is necessary to avoid a significant adverse economic impact on users, to avoid imposing a requirement that is unduly economically burdensome or to avoid imposing a requirement that is technically infeasible. Act Section 251(f)(2). Further, the resale at wholesale rates and unbundling requirements do not apply to rural telephone companies until they receive a bona fide request and the state commission determines that the request is not unduly economically burdensome, is technically feasible, and is consistent with the universal service section of the Act. Act Section 251(f). If rural telephone companies offer resale at wholesale rates, the Federal Act also allows states to require a telecommunications carrier seeking to provide telephone exchange service or exchange access in the service area of a rural telephone company to meet the requirements for designation as an eligible telecommunications carrier. Act Section 253(f). Based upon considerations of the public interest, convenience and necessity, a state also may elect not to designate an additional eligible telecommunications carrier for receipt of universal service support in such service area. Act Section 102(a).

For the foregoing reasons, nothing in the HB 2762 would prevent telephone companies from implementing any resale and unbundling obligations they may have under the Federal Act and HB 2762 thus fully comports with the Federal Act.

The Kansas Telecommunications Coalition expressly responded to the resale and unbundling issue due to debate over the impact of the Federal Act. Since it is difficult to prove a negative (i.e., that there is no inconsistency between HB 2762 and the Federal Act), the Coalition would appreciate an opportunity to respond to any other specific concerns, if any, the Committee may have about the Federal Act.

ISSUE	HB 2762	FEDERAL ACT
1) Infrastructure	Encourages development	Encourages Development
2) Price Regulation	Used as infrastructure incentive	Suggested as infrastructure incentive
3) Rate Rebalancing	Used as transition to competitive prices	Silent
4) Universal Service	Identifies need to address	Requires Federal State Joint Board to address while leaving option for states to supplement
5) Competitive Entry	Authorizes competition; provides for parties to negotiate interconnection and the Commission to resolve disputes; permits resale and unbundling	Authorizes competition; provides for parties to negotiate interconnection with the state commission to arbitrate disputes; subject to certain exceptions and conditions, all local providers must allow resale of their services and existing local providers must unbundle their services

COMPARISON OF THE KCC LOCAL COMPETITION ORDER, THE FINAL REPORT OF THE TELECOMMUNICATIONS STRATEGIC PLANNING COMMITTEE, AND THE TELECOMMUNICATIONS ACT OF 1996

POLICY GOALS AND OBJECTIVES

Local Competition Order--encourage development of effective competition for telecommunications services where feasible, including the removal of existing barriers to entry. (SCR 1627)

Ensure the availability of efficient and sufficient telecommunications services throughout Kansas, at just and reasonable rates. (Statutory/universal service)

TSPC Final Report--encourage competition in all markets, with a transition from monopoly as rapidly as possible consistent with consumer benefit and industry stability; stimulate with incentives the construction of an advanced telecommunications infrastructure, so as to meet all current and future needs in a prudent and economical manner; protect universal service, so as to ensure that telecommunications service is available at affordable rates throughout Kansas.

1996 Telecommunications Act--to provide for a pro-competitive, de-regulatory national policy framework designed to accelerate rapid private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition. Universal service is to be protected and advanced.

Comparison--the objectives are very similar. One contrast is that the TSPC Framework seeks to "stimulate with incentives the construction of .....infrastructure", while the Order and the Act are reliant on the forces of competition, rather than deals with the incumbent local exchange carriers, to provide that incentive.

UNIVERSAL SERVICE

Local Competition Order--Commission will decide appropriate universal service support methods and mechanisms, including potential rate rebalancing, subject to "competitive neutrality" considerations.

TSPC Final Report--$4.50/customer/month local rate increase is to be phased in, with accompanying toll/access decrease. Universal service support is left to Commission.

1996 Telecommunications Act--Charges FCC to set up Federal-State Joint Board within one month and to implement its recommendations in fifteen months. Object is to define the services that are to be supported, the Federal support mechanisms, and a specific timetable for implementation. States can implement additional mechanisms, to the extent they are specific and predictable, and do not burden Federal mechanisms.

Comparison--The Act appears consistent with the Order and the Report. The KCC has expressed concerns about the Report preempting "funding mechanisms needed by the Commission (i.e., the $4.50 shift) in order to implement a sound, competitively neutral Universal Service plan."

RECIPROCAL MARKET ENTRY ("SIMULTANEITY")

Local Competition Order--cannot address line-of-business restrictions (InterLATA toll, telecommunications equipment manufacturing, electronic publishing) imposed at Divestiture on Bell Operating Companies, since they exist due to an antitrust settlement and federal court decision under federal law. KCC decision was made with the knowledge that Congress was dealing with that issue.

TSPC Final Report--cannot address line-of-business restrictions on Bell Operating Companies. Recommended state restrictions include conditioning resale, unbundling and 1+ IntraLATA toll competition on SWBT's ability to enter the interLATA toll market.

1996 Telecommunications Act--comprehensively addresses restrictions on all major communications industry segments. Accomplishes the major telecommunications "quid pro quo" of allowing the Bell companies into restricted lines of business subject to completing the "competitive checklist", to allow local competition.

Comparison--the Act comprehensively addresses pro-competitive telecommunications policy matters, which were beyond the jurisdiction of the state.

BARRIERS

Local Competition Order--specifically identifies barriers to local competition, sets up "Phase II" to deal with those identified barriers.

TSPC Final Report--Barriers are maintained until InterLATA entry is granted to SWBT.

1996 Telecommunications Act--no state law may prohibit any entity from providing any telecommunications service. States may impose competitively neutral requirements to preserve universal service, protect public safety and safeguard consumers. "Competitive Checklist" requirements imposed on Bell Operating Companies, to remove barriers prior to BOC entry into restricted markets. FCC is to adopt regulations to implement the "Competitive Checklist" provisions. States then review and approve "Checklist" submissions by Bell Operating Companies. FCC is to within 15 months identify and eliminate market entry barriers.

Comparison--the Order, the Final Report, and the Act all address the topics of Resale; number portability; dialing parity; access to rights of way/ducts/conduit; interconnection and compensation arrangements; and, unbundling. The Order and the Act include a stated plan to deal with the barriers. The Final Report does not. The Order and the Act require "checklist" steps to be taken to ensure there is competition--the Act requires these steps before the Bell Operating Companies are allowed to offer long distance services to their customers. The Final Report does neither.

INTERCONNECTION

Local Competition Order--negotiation between affected parties, followed by KCC determination if negotiations prove unsuccessful.

TSPC Final Report--negotiation between affected parties, but the KCC shall intervene and resolve issues on an expedited basis if agreement is not reached after 90 days of negotiation. It appears that interconnection negotiations shall include number portability and local dialing parity to the extent technically and economically feasible and in conformance with national standards.

1996 Telecommunications Act--provides several duties and obligations for incumbent local exchange carriers, including the obligation to negotiate agreements in good faith. Procedures stated for negotiation of agreements, standards for state commission arbitration and resolution, and approval of agreements by state commission. Lays out standards for rural exemptions from certain obligations.

Comparison-- "Negotiate first" approach is common to all. Report seems to include dialing parity and number portability in the scope of negotiations--the Act and Order do not.

RESALE

Local Competition Order--resale restrictions are barriers to maximizing the effectiveness of competition. Directed industry task force to review the matter, and provide recommendations to the Commission in Phase II, on appropriate actions and modification/removal of the resale restrictions.

TSPC Final Report--accords priority to facilities based local competition over resale. Local resale available only at SWBT's option until legal restrictions against interLATA entry are removed.

1996 Communications Act--there shall be no unreasonable restrictions on resale. Resale is an element of the "Competitive Checklist" that must be available prior to Bell Operating Company entry into the InterLATA toll market. State may prohibit resale of facilities to a different class of customer (i.e., reselling a residence line to a business). Also, joint marketing of a local line obtained via resale with other services, by large interexchange toll carriers (i.e., MCI, AT&T, Sprint) is prohibited for the earlier of 36 months, or the BOC obtaining InterLATA authority.

Comparison--the Order and the Act are consistent, while the Report is not consistent with either.

COSTING/PRICING

Local Competition Order-- "In order to effectuate a reasonable rate rebalancing, it is imperative the Commission be apprised of the cost of providing these services." The Commission anticipates reviewing costs in the areas of: Local Service (business and residence, and rural services, separately), long distance service, access charges (transport, switching and CCL, separately), and unbundled local facilities (loop, switch/port, and interoffice transport, separately). Costs will be among the factors considered by the Commission in its repricing and price cap decisions.

TSPC Final Report--Consideration of costs in repricing of services and establishment of price caps is prohibited. Concerns were raised about the affordability of services, but were included in the Report only as an "unresolved matter."

1996 Communications Act--interstate price caps have already been established. Pricing standard is imposed on state commissions, for interconnection-related determinations, that rates shall be based on costs (without reference to rate of return) and may include a reasonable profit.

Comparison--standards of the Act and the Order are similar. The Report is inconsistent with both the Act and the Order.

PRICE CAPS

Local Competition Order--embraces the use of price caps as a means of alternate regulation. Specific alternate regulatory framework to be used is to be defined in Phase II hearings.

TSPC Final Report--provides for establishment of price cap, with specified structure.

1996 Communications Act--does not address. (FCC has established interstate price caps based on cost information for major carriers.)

Comparison--there are significant potential differences between the TSPC's price cap mechanism, and the additional alternative components the Commission might require as a result of Phase II. These differences are generally listed in the Report, at page 46. In addition to those, the Report specifies a certain measure of inflation (CPI) for the price cap index formula, for which there are other potential measures that may be selected by the Commission in Phase II.

DEREGULATION

Local Competition Order--contemplates deregulation only upon the existence of effective competition (consumer choice).

TSPC Final Report--deregulates all services except local service and access service. Permits reregulation upon consumers proving certain elements within a complaint.

1996 Communications Act--requires the FCC to forbear from regulation if it is not necessary to ensure just and reasonable rates or discrimination, or to protect consumers.

Comparison--The Order and the Act have the same orientation toward continued regulation so long as needed to protect consumers. Report deregulates first, and puts burden on consumers for reregulation.

. . . .THE CITIZENS' UTILITY RATEPAYER BOARD ASSESSMENT OF THE TELECOMMUNICATIONS ACT OF 1996

Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Implementation		FCC has 6 months after enactment to establish regulations to implement the requirements of the Act relating to general obligation of all LEC and incumbent LECs. The FCC has 1 month after enactment to implement a Federal-State Joint Board to address Universal Service issues. Within 6 months, the FCC will adopt rules to require that rates charged by providers of interexchange telecomm. services to rural/high cost subscribers shall be no higher than rates charged in urban areas. Within 1 year interconnection and unbundling regulations will be in place for incumbent LECs to make available network infrastructure, technology, information, facilities and functions to other carriers.			
Obligations of all LECs	1) Resale - to not prohibit or impose unreasonable or discriminatory conditions; 2) Number Portability - to provide as technically feasible; 3) Dialing Parity - to provide to competing providers and permit nondiscriminatory access to telephone numbers, operator services, directory assistance, directory listing with no unreasonable dialing delays; 4) Access to Rights-of-Way - to afford access to poles, ducts, conduits and rights-of-way to competing providers on rates, terms and conditions; 5) Reciprocal Compensation - to establish arrangements for transport and termination of telecommunications.			Staff is not in agreement with the TSPC proposal that discrete steps be taken to accelerate competition in the local exchange. For example, the TSPC suggests the following events occur in chronolgical order: 1) facilities based local competition 2) dialing parity, and 3) local resale and unbundling. Staff intended to use resale initially for its value in stimulating competition. The TSPC makes this a lower priority. (The TSPC ties provision of resale to ability of SWBT to provide interLata service, whereas Staff did not).	The TSPC Report is not consistent with 1996 Act in various areas. TSPC does not address issues as they relate to either rural carriers or incumbents with the specificity set out in the Act. TSPC did not address the issues of Reciprocal Compensation, Privacy and various other issues the Act addresses. The primary areas of difference or inconsistency are noted in subsequent sections. The TSPC Report does not provide for a competitive checklist which incumbent LECs must meet.

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Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Additional Obligations of Incumbent LECs-- These obligations do not apply to certain rural LECs until, a) such company has received a bona fide request for interconnection or network elements, and b) the State Commission determines that such request is not unduly economically burdensome and is technically feasible.	The incumbent LECs have a duty to:1)Negotiate in Good Faith; 2) Interconnection - provide for facilities and equipment of any requesting carrier, interconnection with the LEC's network for a) transmission and routing of telephone exchange service and exchange access; b) at any technically feasible point within the carrier's network; c) at least equal in quality to that provided by the LEC to itself or any affiliate/subsidiary; d) on rates, terms and conditions that are reasonable and nondiscriminatory; 3) Unbundled Access - provide to any requesting carrier nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms and conditions; 4) Resale - offer for resale at wholesale rates any telecomm. service that the carrier provides at retail to subscribers (who are not telecomm. carriers) and not to impose unreasonable or discriminatory conditions on resale (see state exception) 5) Notice of Changes - reasonable public notice regarding changes in information necessary for transmission and routing of services 6) Collocation - provide rates, terms, conditions that are reasonable and nondiscriminatory.		Relating to Resale, a State Commission may (consistent with FCC regulations) prohibit a reseller that obtains at wholesale rates a telecomm. service that is available at retail only to a category of subscribers from offering such services to a different category of subscribers. The State Commission can determine that rural LECs are not required to provide interconnection, unbundled access, resale and collocation if a bona fide request to provide this service is unduly economically burdensome and is not technically feasible.		The TSPC Report is not as specific or as pro-competitive as the 1996 Act in the areas of resale, interconnection, unbundling, collocation, right-of-way and the general issues of barriers removal, carrier neutrality and nondiscriminatory actions. The TSPC Report requires a chronological transition to competition in the order of: 1) facilities based competition; 2) dialing parity; 3) local resale and unbundling. The Act does not require such a "chronological order" (except for some time restrictions on dialing parity) and is more pro-competitive at an earlier date. The TSPC Report may be limited to facilities based local competition, as opposed to measures in the Act that open competition up to other carriers and providers.
Rural LEC Exceptions	As it relates to interconnection, unbundled access, resale and collocation--the obligations do not apply to rural LECs until, a) such company has received a bona fide request for interconnection or network elements, and b) the State Commission determines that such request is not unduly economically burdensome and is technically feasible.				

Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Universal Service/Consumer Protection - The FCC and the States should ensure that universal service is available at rates which are reasonable and affordable.	Principles are: 1) quality services available at reasonable and affordable rates; 2) access to advanced services provided in all regions of the Nation; 3) low income consumers, and those in rural and high cost areas should have access to services reasonably comparable in terms and rates to those in urban areas; 4) all providers of telecomm. services should make an equitable and nondiscriminatory contribution to advancement of Universal Service; 5) there should be specific, predictable and sufficient Federal and State mechanisms to advance Universal Service; 6) Schools, health care and libraries should have access to advanced services; and 7) other principles yet to be determined by the Joint Board and the FCC to protect the public interest.	The Federal/State Joint Board will recommend and the FCC shall establish the definition of services (which are subject to change/evolution) to be supported by Federal universal service mechanisms. Criteria includes: 1) essential to public education, health or safety; 2) subscribed to by a majority of residential subscribers; 3) are deployed in public networks by carriers; 4) consistent with public interest. Additional services to schools, libraries and health care providers are also subject to support mechanisms.	States may adopt regulations not inconsistent with FCC rules to preserve and advance universal service. Every carrier providing intrastate telecomm. services shall contribute on an equitable and nondiscrim. basis to the advancement of Universal Service in a manner determined by the State. The State may adopt additional measures to advance Universal Service if they do not burden Federal support mechanisms. With respect to intrastate services, States shall establish necessary cost allocation rules, accounting safeguards and guidelines to ensure that services included in the definition of Universal Service bear no more than a reasonable share of the joint/common costs of facilities used to provide those services.		TSPC Report addresses Universal Service generically without any of the specific protective language included in the Act. The Act requires that low income and rural customers receive reasonable and affordable rates consistent with urban customers and requires reasonable and affordable rates for all customers. The Act imposes no end user tax on customers for an End-User Support Fund.
Eligible Carriers			The State shall designate more than one carrier to provide service for a service area designated by the State. For areas served by rural telephone companies the State may designate more than one carrier if this is in the public interest. The State may permit a carrier to relinquish its designation as a carrier in any area served by more than one telecomm. carrier.		

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Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Access Charges and Reciprocal Compensation			For incumbent LECs the State Commission shall determine if rates are reasonable by determining if they provide for: a) mutual and reciprocal recovery of each carrier's costs associated with transport/termination on each carrier's network facilities of calls that originate on the network facilities of the other carrier; or b)based on approximation of additional costs of terminating such costs; or c)bill and keep; and d) States can conduct proceedings to determine such costs.		The TSPC Report did not address this issue.
Number Portability	See FCC...	Cost of establishing number portability and numbering administration is borne by all carriers on a competitively neutral basis as determined by the FCC.			
Negotiation			Voluntary binding agreements between carriers for interconnection, services and network elements are to be submitted to the State. Either party negotiating an agreement, during the 135th to 160th day after which the incumbent LEC receives a request for negotiation may ask the State Commission to mediate any differences. The agreement is considered approved if the State does not accept or reject the agreement within 90 days after submission. No state court shall have jurisdiction to review the action of a State approving or rejecting an agreement. A State can reject agreements if: They a) discriminate against a carrier not a party to the agreement; b) not consistent with public interest; c) they do not meet the Act's or the FCC's requirements.		The TSPC Report requires Commission intervention if an interconnection agreement between parties is not reached within 90 days. This time frame and the requirements are changed by the Act as previously noted.

Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Interconnection and Unbundled Access		The FCC will determine which network elements should be made available for Unbundled Access	State Commission shall determine the rate for interconnection/unbundling which must be a) based on cost (without reference to rate of return/rate-based proceeding; b) nondiscriminatory; and c) may include a reasonable profit.	Commission notes in its Competition Order that unbundling is necessary for effective competition and rates must be cost-based. In a November 1996 decision, the Commission determined that 3 components of cost study information have implications for unbundling: 1) loop, 2) switch and 3) transport. However, no detailed decisions regarding the level of unbundling in each of these 3 areas has been made pending decisions in Phase II in 1996 (after hearings).	TSPC requires the removal of interLATA service restrictions for SWBT at the time resale and unbundling are made available, the Act requires the opposite--that resale and unbundling occur before interLATA restrictions are removed for BOCs.
Resale - Also see Interconnection, Unbundling			The State Commission shall determine wholesale rates by starting with retail rates and excluding marketing, billing, collection and other costs that will be avoided by the LEC.	Commission notes in its Competition Order that current restrictions on resale and sharing are barriers to effective competition and that LEC's should have to lift restrictions. The Commission has not made detailed decisions in this area pending a decision in the summer of 1996 (after hearings).	TSPC requires that SWBT file a tariff with the Commission before resale of unbundled services. The Act allows carriers to request bona fide interconnection, and requires unbundling and resale (without it being left to the BOC's discretion regarding the filing of a tariff). The Act is more specific in noting that marketing, billing, collection and other costs are excluded from wholesale rates. The Act allows states to define their costs, but it does not require that unbundling/resale be at rates above incremental cost (as does TSPC Report).

Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
InterLATA Services by LECs	In Region - A BOC, or affiliate, may provide interLATA services in its in-region states if the FCC approves the application (it has 90 days) and the BOC has: 1) entered into one or more binding agreements for interconnection and access of its network facilities with an unaffiliated competitor for telephone exchange service to residential/business customers (unless no request is made within 10 months of the Act); 2) fulfilled the competitive checklist of a) interconnection; b) nondiscriminatory access to network elements, c) nondiscrim. access to poles, ducts, conduits, and rights-of-way owned/controlled by the BOC at reasonable rates; d) local loop transmission from central office to customer premise unbundled from switching/other services; e) local transport from trunk side switch unbundled from switching/other services; f) local switching unbundled from transport, local loop transmission or other services; g) nondiscriminatory access to 911/E911, directory assistance, operator call completion services, white pages directory listings, databases and signalling necessary for call routing/completion, until the date the FCC issues regulations pursuant to requiring number portability; h) services or information to allow requesting carrier to implement local dialing parity; i) reciprocal compensation; j) services are available for resale. Out of Region - A BOC, or affiliate, may provide interLATA services outside of in-region states upon the Act's enactment, subject to certain services considered to be in-region such as 800 service, private line or equivalents that: a) terminate in an in-region state; or b) allow the called party to determine the interLATA carrier. Incidental InterLATA services - A BOC, or affiliate, may provide these services which originate in any State upon Act's enactment (subject to eligible services).	A BOC may provide interLATA services in its in-region states if the FCC approves the application and			TSPC requires the removal of interLATA service restrictions for SWBT at the time resale and unbundling are made available. The Act requires the opposite--that resale and unbundling occur before interLATA restrictions are removed for BOCs.

Issue	1996 Telecommunications Act	FCC Responsibilities	State Responsibilities	Compared to KCC	Compared to TSPC Final Report
Dialing Parity	Dialing Parity is provided: 1)If a BOC has authority to provide interLATA services (under previous section), then it shall provide intraLATA toll dialing parity throughout the state at the same time; 2) except for single-LATA states and states that have issued an order by December 19, 1995, requiring a BOC to implement dialing parity--a State cannot require dialing parity either: a) before a BOC has been granted authority to provide interLATA services, or b) before 3 years after the enactment of the Act.			The Commission has not established a date for implementing dialing parity. However, the Commission has determined in an Order that SWBT and United's retention of the 1+/0+ advantage for IntraLata competition is a barrier to effective competition.	The Act requires BOCs to first remove barriers to entry by meeting a competitive checklist, and then dialing parity is implemented simultaneous with the BOCs ability to provide interLATA services. TSPC has no competitive checklist, but notes that dialing parity is allowed when SWBT can provide interLATA services.
Rights-of-Way	The Act does not affect the authority of local/State government to manage public rights-of-way or to require fair and reasonable compensation from telecomm. providers on a competitively neutral and nondiscriminatory basis if the compensation is publicly disclosed by such government.				The Act's requirements are different in that they are not necessarily tied to the rate charged cable companies. Instead, the Federal legislation suggests a rate lower than that charged cable companies.
Advanced Services	The FCC and the State shall encourage deployment of advanced telecommunications capability to all Americans (particularly, elementary and secondary schools) by utilizing in a manner consistent with the public interest price cap regulation, regulatory forbearance, pro-competitive policy and other measures removing barriers to infrastructure investment.				

Testimony on HB 2728
Select Committee on Telecommunications
Donald C. Heiman, Director, DISC

Mr. Chairman and Members of the Committee

Thank you for the opportunity to testify on House Bill 2728. This bill amends KSA Supp 75-4709 to allow DISC to bill nonprofit organizations for the use of State networks if the organization is performing a governmental function. Under the existing law the Governor determines if the organization is performing a government service. The amendment shifts this designating responsibility to the Secretary of the Department of Administration. In addition, the bill specifically references hospitals. The need for this amendment was caused by a request we received to direct bill area agencies that provide services for the Department on Aging. The Department on Aging has contracts with eleven (11) service agencies. Three of these agencies are considered public sector agencies. However, the other eight (8) agencies are private nonprofit organizations. These agencies use the DISC telecommunications data network to update and access Department client databases. This network includes services for long distance voice, data communications and two-way interactive video.

When the Department on Aging asked us to direct bill the nonprofit organizations, I referred the request to Department of Administration Legal staff. They reviewed the legal structure of the nonprofit organizations and determined that under KSA 75-4709 DISC could bill them. However, the legal staff felt the law should be clarified to allow DISC to bill any nonprofit organization or hospital that is performing a State or local unit of government function.

Direct billing these organizations will save State agencies time and money because the agencies will no longer need to rebill their nonprofit or hospital providers for use of State network services. Craig Kammen from the Department on Aging is with us today to answer questions about the Department's service agencies and the savings the Department realizes when DISC direct bills its service providers. There is no increased cost to DISC or agencies for approving this legislation.

Thank you, Mr. Chairman for introducing this measure. May I answer any questions.

House Sel/Comm. Telecomm.
2-12-1996
Attachment 3

KAHSA
KANSAS ASSOCIATION OF
HOMES AND SERVICES FOR THE AGING

TESTIMONY

TO: Representative Doug Lawrence, Chair,
and Members of the House Select Committee on Telecommunications

FROM: John R. Grace, President/CEO

RE: House Bill 2728

DATE: February 12, 1996

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Thank you, Mr. Chairman, and members of the committee.

The Kansas Association of Homes and Services for the Aging is a not-for-profit association representing over 150 not-for-profit retirement, nursing, and community service providers throughout Kansas.

We support House Bill 2728.

Our member nursing homes are highly regulated by the Kansas Department of Health and Environment and the Kansas Department of Social and Rehabilitation Services. Complex mandates impact every facet of care for our residents, as well as general institutional operations. In order to stay up to date on these regulations, the state, in cooperation with our association, provides periodic in-service training for our members.

Given the rural/urban spread of our state, it makes good fiscal sense to allow other nonprofit organizations to simultaneously conduct in-service training for people in Ulysses, Coldwater, Clearwater, Hays, Topeka, and Salina, via the state telecommunications network, rather than visiting a number of locations around the state. Through this technology, our members can receive the information they need in a timely, uniform and cost-effective manner.

We believe that House Bill 2728 would be good public policy in that it acknowledges and facilitates these public/private partnerships for high quality and cost efficient nursing home care throughout Kansas.

Thank you, Mr. Chairman, I'd be glad to answer any questions.

700 SW HARRISON, SUITE 1106
TOPEKA, KANSAS 66603-3759

PHONE: 913-233-7443
FAX: 913-233-9471

House Sel/Comm. Telecomm.
2-12-1996
Attachment 4

KANSAS ASSOCIATION OF SCHOOL BOARDS

1420 S.W. Arrowhead Rd, Topeka, Kansas 66604
913-273-3600

Testimony on House Bill 2728
before the
Select Committee on Telecommunications
by
Ann Johnson
Kansas Association of School Boards
February 12, 1996

Mr. Chairman, Members of the Committee:

Thank you for the opportunity to address the Committee on House Bill 2728, concerning statewide telecommunications network relating to nonprofit organizations. My name is Ann Johnson. I am Coordinator of Research and Information Resources for the Kansas Association of School Boards.

We appear today in support of H.B. 2728 because we believe it would help provide greater access to telecommunications for the local units of government we represent: the school boards of Kansas. As members of the committee are certainly now well aware, telecommunications access is critical to the future development of our state, and certainly to our educational future. We cannot expect Kansas schools to be successful in the 21st century using outdated technology. Internet access, distance learning, rapid electronic communications are all strategies that can help board members, administrators, teacher, students and parents be more effective, productive and successful.

H.B. 2728 would help insure that school districts are connected to the emerging telecommunications infrastructure of Kansas.

Thank you for your consideration.

House Sel/comm. Telecomm
2-12-1996
Attachment 5

HOSPITAL ASSOCIATION

Memorandum

Tom Bell

Donald A. Wilson
President

To: Select Committee on Telecommunications

From: Kansas Hospital Association

Re: House Bill 2728

Date: February 12, 1996

The Kansas Hospital Association appreciates the opportunity to speak in favor of the provisions of HB 2728. This bill appears to allow all hospitals in the state access to the state telecommunications network. County, district and city hospitals have had access and many are using this network for telemedicine, specifically interactive video. Other, non-governmental hospitals have not had this system available to them. While there are some limitations in terms of time available on the network and a question of how much additional capacity the new entities will require, we do agree that equal access is necessary to allow governmental hospitals to comunicate with the often larger, non-governmental hospitals as is consistent with their traditional patient referral patterns.

Thank you for your consideration of our comments.

House Sel/comm Telecomm
2-12-1996

1263 Topeka Avenue • P.O. Box 2308 • Topeka, Kansas 66601 • (913) 233-7436 • FAX (913) 233-6955

Attachment 6

KTA

Legislative Testimony

Kansas Telecommunications Association 700 SW Jackson St., Suite 704, Topeka, KS 66603-3758 V/TTY 913-234-0307 FAX 913-234-2304

Testimony before the
House Select Committee on Telecommunications

HB 2728 February 12, 1996

Mr. Chairman, members of the committee, I am Rob Hodges, President of the Kansas Telecommunications Association. Our membership is made up of telephone companies, long distance companies, and firms and individuals who provide service to and support for the telecommunications industry in Kansas.

The KTA does not have a hard-and-fast position on HB 2728. Our members are in favor of economy and efficiency in government. We believe in the concepts of loading things high and tight. We also believe that businesses should compete -- with businesses.

We encourage you to consider HB 2728 in the context of all the matters that have been discussed, and those that will be discussed, before this committee.

One matter you are considering is the vision statement of the Telecommunications Strategic Planning Committee. That vision holds great promise for Kansans. Making that vision real will require thought, effort, commitment, and investment on behalf of many firms and individuals.

New telecommunications facilities and services can and will come to all Kansans if the markets are there for them. To the extent that markets are reduced or eliminated, there will be less incentive to invest in new facilities and services.

Keep in mind, too, that today's customer costs are kept low by maximizing use of the public switched network.

The members of the KTA request that you consider the concepts of HB 2728 in the context of the telecommunications vision and all the other matters you are considering for Kansas.

House Sel/Comm. Telecomm.
2-12-1996
Attachment 7