GLOSSARY of Telecommunications Terms

Convergent
NETWORKS

List of Abbreviations for Telecommunications Terms

AAL – ATM Adaptation Layer

ADPCM – Adaptive Differential Pulse Code Modulation

ADSL – Asymmetric Digital Subscriber Line

AIN – Advanced Intelligent Network

ALI – Automatic Location Information

AMA - Automatic Message Accounting

ANI – Automatic Number Identification

ANSI –American National Standards Institute

API – Applications Programming Interface

ATM – Asychronous Transfer Mode

BHCA – Busy Hour Call Attempts

BHCC – Busy Hour Call Completions

B-ISDN – Broadband Integrated Services Digital Network

B-ISUP – Broadband ISDN User's Part

BLV – Busy Line Verification

BNS – Billed Number Screening

BRI – Basic Rate Interface

CAC – Carrier Access Code

CCS – Centi Call Seconds

CCV – Calling Card Validation

CDR – Call Detail Record

CIC – Circuit Identification Code

CLASS – Custom Local Area Signaling

CLEC – Competitive Local Exchange Carrier

CO – Central Office

CPE – Customer Provided/Premise Equipment

CPN – Called Party Number

CTI – Computer Telephony Intergration

DLC – Digital Loop Carrier System

DN – Directory Number

DSL – Digital Subscriber Line

DSLAM – Digital Subscriber Line Access Multiplexer

DSP – Digital Signal Processor

DTMF – Dual Tone Multi-Frequency

ESS – Electronic Switching System

ETSI - European Telecommunications Standards Institute

GAP – Generic Address Parameter

GT – Global Title

GTT – Global Title Translations

HFC – Hybrid Fiber Coax

IAD – Integrated Access Device

IAM – Initial Address Message

ICP – Integrated Communications Provider

ILEC – Incumbent Local Exchange Carrier

IMT – Inter-Machine Trunk

IN – Intelligent Network

IP – Internet Protocol

ISDN – Integrated Services Digital Network

ISP – Internet Service Provider

ISTP – Internet Signaling Transport Protocol

ISUP – ISDN User Part

IXC – Inter-Exchange Carriers

LAN – Local Area Network

LATA – Local Access Transport Area

LCR – Least Cost Routing

LEC – Local Exchange Carrier

LERG – Local Exchange Routing Guide

LES – Loop Emulation Service

LIDB – Line Identification Database

LNP – Local Number Portability

LRN – Local Routing Number

MF – Multi Frequency

MFJ – Modified Final Judgement

MGCP – Media Gateway Control Protocol

MMF – Multi-Mode Fiber

MTP – Message Transfer Part

NANP – North American Numbering Plan

NEBS – Network Equipment Building Standards

NFAS – Non-Facility Associated Signalling

N-ISDN – Narrowband Intergrated Services Digital Network

NP – Number Portability

OAM – Operations, Administration, and Maintenance

OLNS – Originating Line Number Screening

OSI – Open Systems Interconnection Model

OSS - Operations Support System

PBX – Private Branch Exchange

PCM – Pulse Code Modulation

PODP –Public Office Dialing Plan

POI – Point of Interface

POP – Point of Presence

POTS – Plain Old Telephone Service

PRI – Primary Rate Interface

PSTN – Public Switched Telephone Network

PVC – Permanent Virtual Circuit

RBOC – Regional Bell Operating Company

SAC – Service Access Code

SAM – Service Access Multiplexer

SCCP – Signaling Connection Control Part

SCE – Service Creation Environment

SCP – Service Control Point

SDH – Synchronous Digital Hierarchy

SIBB – Service Independent Building Block

SIP – Session Inititation Protocol

SLEE – Service Logic Execution Environment

SMF – Single Mode Fiber

SMS – Service Management System

SONET – Synchronous Optical Network

SS7 – Signaling System 7

SSP – Service Switching Point

STM – Synchronous Transport Mode

STP – Signal Transfer Point

SVC – Switched Virtual Circuit

TCAP – Transaction Capability Application Part

TDM – Time Division Multiplexing

UM – Unified Messaging

VC – Virtual Circuit

VoATM – Voice over ATM

VoDSL – Voice over DSL

VoIP – Voice over IP

VoP – Voice over Packet

Glossary of Telecommunications Terms

4ESS - Class 4 toll switch made by Lucent

5ESS - End Office switch made by Lucent

AAL – ATM Adaptation Layer. Protocol used on top of ATM to support high-level service requirements, converting non-ATM bit streams into ATM cells.

AAL2 - ATM Adaptation Layer 2. Used for carrying both CBR traffic and VBR traffic simultaneously, usually in support of voice over ATM.

AAL5 – ATM Adaptation Layer 5. AAL functions in support of VBR, delay-tolerant connection-oriented traffic requiring minimal sequencing or error detection support.

Access Tandem - A tandem switch that is used to interconnect between carriers for equal access. Typically, this used to interconnect ILECs with IXCs, but now also includes CLECs.

Adaptive Differential Pulse Code Modulation (ADPCM) – A ITU-TS standard technique for voice encoding and compression. It allows analog traffic to be carried within a 32Kbps digital channel.

Advanced Intelligent Network (AIN) - An evolving, service-independent architecture that allows a carrier to quickly and economically create and modify telecommunication services for its customers.

A-Link - In the SS7 world, an A-link is a signaling link that connects a STP to a SSP or SCP. A-links operate at a transmission speed of 56 Kbps.

American National Standards Institute (ANSI) - A non-government organization which develops and distributes standards for transmission codes, protocols and high-level languages for suggested use in the U.S.

Applications Programming Interface (API) - Software that an application program uses to request and carry out lower level services performed by the computersj or a telephone systems operating system. For Windows, the API also helps applications manage windows, menus, icons and other GUI elements. In short, an API is a "hook' into software. An API is a set of standard software interrupts,calls and data formats that applications programs use to initiate contact with network services, mainframe communications programs, telephone equipment or program-to-program communications. For example, applications use APIs to call services that transport data across a network. Standardization of APIs at various layers of a communications protocol stack provides a uniform way to write applications. NetBIOS is an eraly example of a network API. Applications use APIs to call services that transport data across a network.

Asymmetric Digital Subscriber Line (ADSL) – Technology using digital filtering to remove noise from twisted-pair copper lines, enabling broadband transmission. There are several varieties of ADSL using varying hardware, modulation software and compression techniques. ADSL-2 can deliver up to four VCR-quality video signals but has limited upstream response.

ADSL can only work over distances of less than 12,000 feet, a requirement 60% of U.S. homes meet.

Asynchronous Transfer Mode (ATM) - An international standard for high-speed broadband packet-switched networks operating at broadband digital transmission speeds. The technology is based on fixed-length, 53-byte cells. ATM includes protocols that specify how diverse kinds of traffic are transformed into standardized packets whose transport can be managed uniformly within the network.

Automatic Location Identifier (ALI) – A feature of E911 systems that provides information such as name, phone number, address, nearest cross street, to agents answering E911 calls.

Automatic Message Accounting (AMA) – The network functionality that measures, collects, formats, and outputs subscriber network-usage data to upstream billing and other operating systems.

Automatic Number Identification (ANI) – More colloquially called Caller ID. A service provided by local exchange carriers in which the telephone number of a caller is sent to the called-party's telephone between the first and second ring. This is one of several CLASS services, all of which require SS7 interoffice signalling.

Backbone – Part of a network used to connect smaller segments of networks together.

Bandwidth - The relative range of frequencies that can be passed by a transmission medium. Greater bandwidths mean a higher information carrying capacity of the transmission circuit. Usually measured in Hertz, bandwidth is assessed as the number of bits that can be transferred per second.

Basic Rate Interface (BRI) - The ISDN interface standard for single-line ISDN service. This standard provides for two message-bearing 64 Kbps B channels for speech and data, plus a 16 Kbps D channel for network signaling and data.

B channel - Message-bearing 64 Kbps digital channel used for digital transmission of high speed data and video.

Billed Number Screening (BNS) – When consumers decide who can and who cannot charge a call to their phone based on an agreement with their local telephone company to screen calls.

Bit Rate – The number of bits transmitted over a telephone line per second.

B-Links, D-Links and B/D Links - Links interconnecting two mated pairs of STPs are referred to as B-links, D-links or B/D links.

Broadband - A term used to describe a channel with more bandwidth than a standards voice grade channel. Broadband channels are used to carry multiple high-speed voice and data transmissions on a common communications path.

Broadband Integrated Services Digital Network (B-ISDN) - An evolving standard for the second generation of integrated services digital networks. Broadband ISDN services employ packet switching to integrate voice and data services over a high-speed, packet-based infrastructure.

Broadband ISDN User's Part (B-ISUP) - An SS7 protocol defining the signaling messages to control connections and services.

Bursty – Data transmitted in short, uneven bursts with relatively long, silent intervals between.

Busy Hour - An uninterrupted 60-minute period during which the average volume of telecommunications traffic is at its maximum.

Busy Hour Call Attempts (BHCA) - A measure of dynamic traffic calls that can be attempted in an average Busy Hour.

Busy Hour Call Completion (BHCC) - A measure of dynamic traffic calls that can be completed in an average Busy Hour.

Busy Line Verification (BLV) – A feature that allows an attendant to verify the busy or idle state of telephone lines and to break into the conversation.

Call Detail Record (CDR) – A billing feature of a telephone system which allows the system to collect and record information on outgoing and incoming phone calls such as who made/received them, where they went, what time, how long, etc.

Called Party Number (CPN) – When a call is set up over an ISDN network, SS7 send an initial address message which contains the as part of the ISUP protocol

Calling Card Validation (CCV) - Process of verifying that a calling card is valid and then processing a call to be billed to that account.

Carrier Access Code (CAC) - The sequence that an end user dials in order to access the carrier's switch service. The codes are composed of 7 digits in the form of 101xxxx, where xxxx is the CAC.

Centi Call Seconds (CCS) - In telecommunications traffic engineering terminology, CCS represents (centi call seconds) one hundred call seconds or one hundred seconds of telephone conversation. One hour of telephone traffic is equal to 36 CCS (60 x 60 = 3600 divided by 100 = 36) which is equal to one erlang. CCS are used in network optimization. CCS can also mean Cumulative call seconds which is measure of trunk occupancy.

Central Office (CO) - The facility of a telecommunications common carrier where subscribers' lines are joined to switching equipment for connecting other subscribers to each other, locally and long distance.

Centrex - A type of phone service offered by local exchange carriers that provide PBX like functions to a group of users without the need for a PBX. Despite having individual phones connected to the central office, users are able to dial each other by extensions, transfer calls, etc.

Circuit Identification Code (CIC) – An SS7 term used to identify a particular circuit within a trunk group.

Circuit Switch – A switching system that establishes a dedicated physical connection between end points, in a network, for the duration of the communication session.

Class 4 Office - A switching center for toll calls. A class 4 office switches toll traffic originating at class 5 offices to other class 4 offices, or offices of a higher class. In addition, a class 4 office relays toll traffic from class 4 toll offices to the class 5 end office serving the destination address.

Class 5 Office - The lowest level in a hierarchy of central offices. Class 5 offices serve as the network entry point for user access lines and are a switching center for local calls.

C-Links: Links that interconnect mated STPs. They are used to enhance the reliability of the signaling network in cases where one or multiple links are unavailable.

Competitive Local Exchange Carrier (CLEC) - These are new local carriers, typically formed after the US Telecommunications Act of 1996, to compete with the incumbent RBOCs.

Compression – Reducing the size of the data, image, voice or video file sent over a telephone line, lessening the bandwidth needed to transmit the file.

Computer Telephony Integration (CTI) - The combining of data with voice systems in order to enhance telephone service. Examples include the delivery of Caller ID information via a PC, and the ability to access mail via the PC.

Custom Local Area Signaling Services (CLASS) - A grouping of optional features to basic local exchange telephone service or enhanced telephony services that utilize the signaling system 7 (SS7) channel to carry data about a call. CLASS provides subscribers with the ability to screen and selectively reject, forward, trace, and redial incoming call—Caller ID is one example.

Customer Premise Equipment (CPE) – Equipment which resides on the customer's premise, such as a PBX or IAD.

Default Routing – The ability of the switch to continue the call based on the dialed number when the SCP cannot be accessed due to abnormal circumstances.

Digital Signal Processor (DSP) – A digital microprocessor that calculates digitized signals that were originally analog (e.g. voice) and then sends the results on. DSPs are used in telecommunications for tasks such as echo cancellation, call progress monitoring, voice processing and for compression.

Directory Number (DN) – A unique complement of digits associated with the name of a subscriber in a telephone directory. Your phone number.

Digital Loop Carrier (DLC) - An access provisioning system by which a telephone switch is able to remotely deploy telephony interfaces to customers. Typically, the connection between the switch and DLC is via a digital or fibre connection, and user interfaces such as POTS lines are deployed out of the DLC to customers.

Digital Subsciber Line (DSL) - DSL is the technology that is employed between a customer location and the carrier's network that enables more bandwidth to be provided by using as much of the existing network infrastructure as possible.

Digital Subscriber Line Access Multiplexer (DSLAM) - A network device at a telephone company central office that receives signals from multiple customer DSL connections and puts the signals on a high-speed backbone line using multiplexing techniques.

DMS 100 - Class 5 end office switch made by Nortel.

DMS 250 - Access tandem switch made by Nortel.

DMS 500 – Class 5 end office switch made by Nortel.

Donor Exchange – The switch the Directory Number was initially ported from.

DS-0 - Digital signal level zero. A single digital 64 Kbps, pulse code modulated, transmission channel which represents the starting point for a digital multiplexing hierarchy.

DS-1 - Digital signal level one. A 1.544 Mbps digital signal comprised of 24 multiplexed 64 Kbps DS-0 digital channels.

DS-3 - Digital signal level three. A 44.6 Mbps digital signal comprised of 28 multiplexed DS-1 signals that is carried over a T-3 facility.

Dual Tone Multi-Frequency (DTMF) – A term used to describe push button or touchtone dialing.

E-1 – The European equivalent of a T-1, however an E-1 line can support 32 64kbps channels, versus 24 64kbps of a T-1.

E-3 – The European standard for T-3.

E911 – Enhanced emergency reporting service. 911 service becomes enhanced 911 when there is a minimum of two special features added to it – Automatic Number Identification (ANI) and Automatic Location Information (ALI).

Echo cancellation – A technique that allows for the isolation and filtering of unwanted signals caused by echoes from the main transmitted signal.

E-links: Links that provide backup connectivity to the SS7 network in the event that the 'home' STPs are unreachable using the A-links.

End Office - The location where carriers place telecom equipment closest to the customer. Typically, this is where customers are provisioned. Class 5 switches are typically located here.

Equal Access - A condition where the local exchange access service offered by a carrier is made available in equal kind, quality, and price to all long distance companies.

Electronic Switching System (ESS) – One type of AT&T/Lucent's family of stored, program-controlled central office switches, including the 4ESS and 5ESS switches.

European Telecommunications Standards Institute (ETSI) – The European counterpart ot ANSI, tasked with paving the way for telecommunications integration in the Eurpoean

community as part of the single European market program. ETSI's main goal is the unrestricted communication between all the member states by provisioning European standards.

EWSD - Switching system made by Siemens.

Exchange – Another term for switch.

F-links – A link used to connect two SS7 signaling points.

Facilities Based Service Provider – Identifies owners of switches and infrastructure—a reseller of switched services is not a facility based service provider.

Feature Group - In switched access tariffs, a Feature Group denotes a specific and uniform type and quality of local exchange access available to inter-exchange carriers and other types of telecommunications companies.

Feature Group A - A line-side switched access connection for originating and terminating traffic. Customers of a long distance company that use Feature Group A for originating access must dial a seven-digit local number to reach an inter-exchange carrier, and then use a touch tone phone or tone dialer to dial an identification code plus the phone number they want to reach. In areas where equal access is not available, Feature Group A is provided at discounted rates.

Feature Group B - A trunk-side switched access connection for originating and terminating traffic. Transmission quality is superior to that of Feature Group A. Customers of a long distance company using Feature Group B for originating access must dial "950" followed by a "1" or a "0" and the three-digit carrier identification code of their chosen company. Mostly superseded by Feature Group D.

Feature Group C - A trunk-side switched access connection that directly links local phone company end offices with the long distance network of AT&T. Only AT&T has Feature Group C access connections, which offer the highest transmission quality and a complete array of access features for originating and terminating long distance traffic.

Feature Group D - The equal access connection; a trunk-side switched access connection equal in quality, features, and price to the Feature Group C connection of AT&T. Customers in exchanges where Feature Group D is available can pre-subscribe to any one long distance company. They can reach their chosen company by dialing "1" plus the phone number they want to reach. Customers in an equal access area can use other long distance companies by dialing "1" and "0" and the five-digit carrier identification code of the carrier they want.

Frame Relay – A packet-switched method of data communications provided by telecommunications carriers and Internet service providers. Frame relay can provide guaranteed bandwidth at no additional charge if the lines are open during periods of low traffic.

Fully Associated Link (F-links) – A link which is used to connect two SS7 signaling points when there is a high community of interest between them and it is economical to link them.

Global Title (GT) – An address such as customer-dialed digits that does not contain information that would allow the SS7 network to route it.

Global Title Translations (GTT) – The process of translating a GT from dialed digits to a point code address and application address by means of a STP.

GR-303 – A set of technical specifications from Bellcore that define the interface between the DLC and a Class 5 switch.

G-Recommendations – A series of standards defined by the ITU-T covering transmission facilities. Including, but not limited to:

H.323 – A framework of protocols for inter-working voice, video and data across an IP network.

Hot Swappable – The ability of a component to be added to or removed from a piece of equipment without powering down the device, providing maximum uptime.

Hunt Group – A series of telephone lines organized so that if the first line is busy the next line is hunted and so on until a free line is found.

Hybrid Fiber Coax (HFC) – An access infrastructure typically used by cable companies and multiple system operators (MSOs) to deliver services to their customers. Most of the access infrastructure is via fiber, with the last portion (street to home) being coaxial cable.

In-Band Signaling – A method of controlling information in a telecommunications network by using tones or other signals carried within the same band or channel as the information being carried. For example, in a telephone call, tones can be used to control the transmission, receipt and disconnection of the call.

Initial Address Message (IAM) – A SS7 signaling message that contains the address and routing information required to establish a point-to-point telephone connection.

Integrated Access Device (IAD) – An access device located on the customer premises that can handle both voice and data services.

Integrated Communications Provider (ICP) – A company that provides bundled communications services, including voice and data services.

Interexchange Carrier (IXC) – Long distance companies that sell toll-free 800, international and outgoing telephone service on an interstate basis.

Incumbent Local Exchange Carrier (ILEC) – This is the incumbent local phone company which owns most of the local loops and facilities in a serving area; frequently an RBOC.

Integrated Services Digital Network (ISDN) – A switched network providing end-to-end digital connectivity for simultaneous transmission of voice and/or data over multiple multiplexed communications channels and employing transmission and out-of-band signaling protocols that conform to internationally-defined standards.

Intelligent Network (IN) - A telecommunications network architecture in which processing capabilities for call control and related functions are distributed among specialized network nodes rather than concentrated in a switching system. The SS7 network forms part of the IN infrastructure.

Inter-Machine Trunk (IMT) – These are switch-to-switch trunks that are used to carry calls between carriers. Signaling is not performed in-band on these trunks; instead, they are coordinated via the overlayed SS7 network.

Inter-Exchange Carrier (IXC) – A carrier that is allowed to carry traffic from one LATA to another, typically long distance inter-state traffic, but can also include intra-state toll traffic.

Intermediate Exchange – A tandem switch.

Internet Protocol (IP) – A network layer (Layer 3) standard for data transmission that performs the addressing function and contains some control information to allow packets to be routed through networks.

Internet Signaling Transport Protocol (ISTP) – A standard used to provide signaling interconnection between packet networks and the PSTN.

Internet Service Provider (ISP) – An ISP connects end-users to the Internet via telephone lines.

Intra-LATA – Telecommunications services that originate and terminate in the same Local Access and Transport Area.

ISDN User Part (ISUP) – The portion of SS7 that handles call control for ISDN-type calls.

ITU-T – The Telecommunication Standardization Sector of the International Telecommunications Union .

Local Area Network (LAN) – A geographically localized network located on an individual organization's premise. A LAN enables computer devices to communicate with each other as well as share and have access to peripherals such as printers, fax services, modem services and centralized databases.

Local Access Transport Area (LATA) – A geographical area within which a divested RBOC is permitted to offer regional toll and access services.

Local Exchange - Geographic area determined by the appropriate state regulatory authority in which calls generally are transmitted without toll charges to the calling or called party. Several local exchanges may exist within a LATA.

Least Cost Routing (LCR) - A telephone system feature that automatically chooses the lowest cost phone line to the destination. The "lowest cost" is deteremined by algorithms, equations and decision trees programmed into a PBX.

Line Identification Database (LIDB) – Database developed by RBOCs and all local telephone companies that contain all the valid telephone and calling card numbers in their regions, and have the necessary information to perform billing validation.

Line Served by Switch – Any Directory Number that is connected to the switch or subtends the switch. The DN may be a physical subscriber port or a virtual DN.

Local Number Portability (LNP) – The ability of telephone subscribers to maintain their phone numbers when they change local telephone companies. Dependent on SS7 in order to implement.

Local Exchange Carrier (LEC) – Any company authorized by the state public utility commission to sell local telephone service.

Local Exchange Routing Guide (LERG) – A Bellcore document which lists all North American Class 5 central offices or end offices and describes their relationship to Class 4 tandem offices. It is often used by carriers for network design.

Local Loop – The local loop is the telephone line that runs from the local telephone company's end office switch to the end user's premise.

Location Routing Number (LRN) – A 10 digit number used to uniquely identify a switch that has ported numbers.

Loop Emulation Service (LES) – An ATM Forum specification designed to emulate a customer's local loop using ATM by extending class 5 services capabilities, along with high-speed data services, to customers.

Media Gateway – Communications switch equipment operating at the edge of multi-service packet networks.

Modified Final Judgment (MFJ) – The 1984 US Department of Justice ruling that resulted in the divestiture of the Bell Operating Companies from AT&T.

Media Gateway Control Protocol (MGCP) - An IETF draft standard for a protocol that allows Voice Gateways to control external call control elements. MGCP assumes a call control architecture where the call control 'intelligence' is outside the gateways and handled by external call control elements.

Message Transfer Part (MTP) – Level 1 through 3 protocols of the SS7 protocol stack. It provides functions for the basic routing of signaling messages between signaling points.

Multi-Frequency (MF) – Inband, analog trunk signaling.

Multi-Mode Fiber (MMF) – Fiber in which the ultrapure glass that forms the core transmission medium is between 50 and 62.5 microns. This fiber has less carrying capacity than single-mode fiber.

Multiplexing - A process that concentrates traffic by combining a large number of lower-speed transmission lines into one high-speed line by splitting the total available bandwidth of the high-speed line into narrower bands (frequency division), or by allotting a common channel to several different transmitting devices, one at a time in sequence (time division).

MUX – A multiplexing device.

Narrowband Integrated Services Digital Network (N-ISDN) – Standards-based voice and data network that operate over today's TDM-based switches and provides 144K and 1.544 Mbps interfaces.

Network Equipment Building Standards (NEBS) – NEBS defines a set of performance, quality, environmental and safety requirements for carrier class telecommunications equipment. NEBS compliance is usually required by telecommunications service providers for equipment installed in their switching offices. Level 3 represents the highest ranking.

Next Generation (Next Gen) – Used to describe emerging technologies.

Non-Facility Associated Signalling (NFAS) – Out of band signaling which allows signaling to be completed without using up excessive bandwidth.

North American Numbering Plan (NANP) - The numbering architecture in which every station in an NANP area is identified by a unique 10-digit address consisting of a three-digit area code, a three-digit central office code, and a four-digit subscriber number.

Number Portability (NP) – The ability for end-users to retain their telephone number when they change service providers, location or their service.

OC-1: Optical Carrier One. Bit rate of 51.84 Mbps and capacity of 28 DS-1s.

OC-3: Optical Carrier Three. Bit rate of 155.52 Mbps and capacity of 84 DS-1s.

OC-12: Optical Carrier Twelve. Bit rate of 622.08 Mbps and capacity of 336 DS-1s.

Open Standard - A computer or communications standard whose technical specifications are readily available to equipment manufacturers and other parties that want to incorporate the standard into their products or systems.

Open Systems Interconnection Model (OSI) – An international set of rules for computer networking that creates open standards to allow a computer on any network to share information with any other computer on that network or a connected network.

Operations, Adminstration, and Maintenance (OAM) – A group of network management functions that provide information and specifics to manage a system or network such as performance information, network fault indications, and data and diagnosis functions.

Operations Support System (OSS) – Methods and procedures that support the daily operation of a carrier's infrastructure, including order processing, equipment assignment, etc.

Packet Switching – The technique by which a stream of data is broken into standardized "packets," each of which contains address, sequence, control, size, and error checking information, in addition to the user data. Packet switches operate on this added information to move the packets to their destination in the proper sequence and again present them in the correct continuous stream.

Permanent Virtual Circuit (PVC) – This is a connection between end points that is defined in advance and requires little if any setup time, and end points are normally defined for the carrier, by the customer, in advance.

Point of Interface (POI) – The point in a network at which carriers interface with one another.

Point Code - A network address used within the SS7 network to represent a Service Switching Point (SSP) for routing purposes. Typically, each SSP switch within an SS7 network has at least one point code.

Point of Presence (POP) – A long distance company's switch that is connected to the local telephone company's central office. The POP is the point at which telephone and data calls are handed off between local telephone companies and long distance telephone companies.

Port - An interface location that provides a point of access for peripheral equipment, such as central office lines.

Plain Old Telephone Service (POTS) – The traditional telephone service for the transmission of speech across the telephone network.

Primary Inter-LATA Carrier Code (PIC) - This code is associated with the customer profile of every phone subscriber, and is used to route to the customer's pre-selected long distance carrier.

Primary Rate Interface (PRI) – TThis is the narrowband ISDN interface standard for high-speed ISDN service. Within the US, this provides 23 channels of data and/or voice traffic.

Private Branch Exchange (PBX) - Equipment used to switch telephone calls within a business or closed environment and also for that environment to outside lines.

Public Switched Telephone Network (PSTN) – The current narrowband-based telephone network that was designed for voice traffic.

Pulse-Code Modulation (PCM) – An analog to digital conversion technique. It is used to convert voice for transmission over digital facilities. It is also used to convert voice analog data to digital data for transmission in a multiplexed voice and data stream over T1 or other digital circuit.

Q.2931 - An ITU standard for basic call control/connection across an ATM network.

 Reciprocal Billing - A process by which the carrier who locally terminates a call to a customer gets compensated by the carrier who delivered the call for termination.

Redundancy - Having back-up systems available to provide uninterrupted continuous service in the case of a failure in the main system.

Regional Bell Operating Company (RBOC) – Regional companies formed after the divestiture of AT&T in 1984. At the time of the divestiture, there were seven companies, but now that number has been reduced to four. In today's competitive environment, they are typically referred to as Incumbent Local Exchange Carriers (ILECs).

Scripting Language: Simplest form of computer programming using nearly plain English commands. A high-level programming language which uses a language that is recognizable as something like natural language. JAVAScript, developed jointly by SUN and Netscape for writing Web applets, is an example of a scripting language, as is Hypertalk and Supertalk.

Service Access Code (SAC) – These are the special codes that replace the area code and are used for special network services. (Examples include 500, 700, 800, 888, 877, and 900.)

Service Access Multiplexer (SAM) - Generic name for a central office located multiplexer that aggregates multiple customers via lower speed line to a higher speed trunk connection.

Service Control Point (SCP) - A remote computer database within the SS7 network that receives queries from SSPs in order to process applications such as 800 and LNP number lookups and calling card verification.

Service Creation Environment (SCE) – Supports the creation, management, and execution of various test cases that allow a user to verify and maintain IN services.

Service Independent Building Block (SIBB) – Software modules that can be combined together to allow new computer telephony services to be developed.

Service Logic Execution Environment (SLEE) -   A functional group residing in an signal control point or adjunct that contains the service logic and control, information management automatic message accounting and operations functional entity.

Service Management System (SMS) – Allows provision and updating of information on subscribers and services in near real time for billing and administrative purposes.

Service Switching Point (SSP) – Within the SS7 network, an SSP is a telephone central office switch that inter-works with the network.

Session Initation Protocol (SIP) – A protocol for transporting call setup, routing, authentication and other feature messages to endpoints within the IP domain, whether those messages originate from outside the IP cloud over PSTN resources or within the cloud.

Signaling Connection Control Part (SCCP) - Part of the ITU-T signaling protocol and of the SS7 protocol. It provides routing and management functions for the transfer of messages other than call set-up between signaling points. It typically supports the MTP.

Signaling System 7 (SS7) – The SS7 network allows call control and transaction messages from the integrated voice and data network to be transferred on communications paths that are separate from the voice and data connections. It delivers out-of-band signaling that provides fast call setup by means of high-speed, circuit-switched connections and transaction capabilities which deal with remote database interactions. SS7 makes such enhanced telephony features as caller ID, call forwarding, and call waiting widely available. SS7 also plays an integral role in the deployment of ISDN. The SS7 protocol consists of four basic sub-protocols:

> **Message Transfer Part (MTP),** which provides functions for basic routing of signaling messages between signaling points;

> **Signaling Connection Control Part (SCCP),** which provides additional routing and management functions for transfer of messages other than call setup between signaling points;

> **Integrated Services Digital Network User Part (ISUP),** which provides for transfer of call setup signaling information between signaling points;

Transaction Capabilities Application Part (TCAP), which provides for transfer of non-circuit related information between signaling points.

Signaling Transfer Point (STP) – An STP is a packet switch within the SS7 network that routes network call information among other circuit switches and between SSPs and SCPs.

SIGTRAN Standards – Standards to define an architecture and related protocols to support transport and interworking of signaling over IP.

Single-Mode Fiber (SMF) – Fiber in which the ultrapure glass that forms the core transmission medium is between 8–10 microns. This fiber makes up the majority of today's long distance network. Only one ray or mode can travel down the strand, making a simpler job of regenerating the signal at points along the span.

Softswitch – As defined by the International Softswitch Consortium, a softswitch (a.k.a. call agent, call server or media gateway controller) is a device that provides, at a minimum: Intelligence that controls connection services for a media gateway, and/or native IP endpoints. It has the ability to select processes that can be applied to a call. It can provide routing for a call within the network based on signaling and customer database information. It has the ability to transfer control of the call to another network element. It provides interfaces to and supports management functions such as provisioning, fault, billing, etc.

Switched Virtual Circuit (SVC) – A temporary connection between end points. Connections last only as long as necessary and are disconnected when the session is complete.

Synchronous Digital Hierarchy (SDH) – Term used by the International Telegraph and Telephone Consultative Committee to refer to SONET.

Synchronous Optical Network (SONET) – The ANSI standard that allows interworking of transmission protocols from multiple vendors. SONET is the ANSI standard for transmitting digital information over optical networks.

Synchronous Transport Mode (STM) – The synchronous transmission capability of a system that is capable of both synchronous and asynchronous capabilities of B-ISDN service.

T-1 - A digital transmission link capable of handling 1.544 Mega bits per second.

T-3 - 28 T-1 lines.

Tandem Network - An arrangement of voice switches that enables calls to be routed through two or more switching centers in tandem fashion, such that each end office switch does not need to be directly connected to each other.

Tandem Switch - A voice switch that is designed primarily with trunk interfaces rather than subscriber interfaces.

Telephony-Grade - 99.9994% uptime or the higher reliability standard circuit switches require (translating into 3 minutes of downtime a year), as opposed to the "carrier-class" reliability standard of 99.999% (called "five-nines").

Time Division Multiplexing (TDM) – A multiplexing scheme in which numerous signals are combined for transmission on a single communications line or channel. Each signal is broken up into many segments, each having a very short duration and specific time slots within the channel. The slots are assigned whether or not any signals are available for transmission.

TR-303 – A Bellcore standard for communication between telephony switches and Digital Loop Carrier systems.

Transaction Capabilities Application Part (TCAP) – The portion of the SS7 protocol that is used to make database queries to SCPs. It is used to support services such as 800 and LNP number translation, as well as other functions.

Trunk - The line of communication between switching systems.

Unbundling – 1. As part of telecom deregulation, ILECs were required to unbundle their network elements and lease them at wholesale rates to CLECs, in order to be allowed into the long distance market. 2. Removing the service intelligence from the switching function.

Unified Messaging (UM) – Voice, fax, electronic mail, image and video all on one platform available to consumers via a local area network.

V5 – A standard approved by ETSI for the interface between the access nework and the carrier switch to provide basic telephony, ISDN and semi-permanet leased lines. The Eurpoean equivalent of GR.303.

Virtual Circuit (VC) – A link between two or more end stations on a packet switched mesh network. It provides a temporary or dedicated connection-oriented session between two end points. The defining characteristic is a predefined path through a network that has many paths.

Voice Over ATM (VoATM) – The process of transmitting voice traffic across an ATM-based packet network.

Voice Over DSL (VoDSL) – The process of transmitting voice traffic across a DSL-based packet network. Using a greater range of frequencies over the existing copper line makes this increase in bandwidth possible.

Voice Over IP (VoIP) – The process of transmitting voice traffic across an IP-based packet network.

Voice Over Packet (VoP) – The process of transmitting voice traffic across any kind of packet network.

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