

GLOSSARY

ANALOG SIGNAL - An electrical signal whose voltage “wave” continuously and proportionately varies in amplitude to represent the information being carried or stored.

AMPLITUDE - The amount of voltage swing in a signal. Commonly thought of as the “height” of a wave.

AMERICAN STANDARD CODE FOR INFORMATION INTER EXCHANGE (ASCII) - A coding method used to convert letters, numbers, and control codes into a numeric code understood by most computers. For example, your keyboard’s **capital A** is ASCII 65 (decimal), or 01000001 (binary).

APPLICATION SHARING - A feature of some computer conferencing software which allows individuals to share and simultaneously work and mark up a document.

ASYNCHRONOUS - Communication in which interaction between parties does not take place simultaneously.

ASYNCHRONOUS TRANSFER MODE (ATM) - A transmission protocol which routes data in packets (or cells) of fixed length. Each packet may take a different route over the network, arrive at irregular time intervals, and is ultimately reassembled, buffered, and output as the original data stream at the receiving end.

AUDIO BRIDGE - A device used to conference, or “bridge”, multiple audio telephone calls together to enable all parties to simultaneously participate in the audio conference.

AUDIOCONFERENCING - Voice only connection of more than two sites using standard telephone lines.

BACKBONE - A primary, high bandwidth, communication path connecting multiple service providers or users. Usually DS3 (45Mbs) or OC3 (150 Mbs)

BANDWIDTH - a designated amount of data capacity (frequency for analog or bps for digital) carried by a circuit. In terms of frequency, the range between the lowest and highest frequencies used to transmit a signal from one site to another.

BINARY - A numbering scheme, (base 2), which only uses 0 and 1 to represent any number. The byte representation of the number 17 (base 10) in binary is “00010001”.

BIT - Abbreviation for a single binary digit.

BROWSER - A Software interface that, utilizing “hyperlinking” techniques, allows you to find and see information on the world wide web.

BYTE - A single computer “statement” comprised of eight bits.

BRIDGE - In terms of digital signaling, a device used to split, route, and direct data among remote sites on a network. These devices go by many names such as router, bridge, or digital cross connect. In terms of analog signaling see **Audio Bridge**.

CARRIER - A telecommunications network provider (“phone company”) which offers connectivity services between geographically separate networks.

CCITT (Consulting Committee for International Telegraphy and Telephony) Now known as TSS. The international body responsible for establishing interoperability standards for communications equipment.

CENTRAL PROCESSING UNIT (CPU) - The “brain” component of a computer in which data calculation and decision making takes place.

CHANNEL - The smallest subdivision of a circuit. A standard T1 digital circuit is comprised of 24 channels.

CIF - Common Intermediate Format - An international standard for video transmission and display between codecs developed by the TSS.

CODEC - An electronic device which transcodes between analog and digital signals, often “compressing” the signal. Codec stands for COder/DECoder.

COMPRESSION - The action taken by a codec to reduce the data rate required for the transmission of videoconferencing signals between sites. Although a very complex task, the nature of the process is the elimination of all information which repeats (does not change) from one frame of video to the next. Consequently, slow fluid movements can be transmitted nicely via a compressed video system, while rapid motion will cause the received picture to break up or “tile” into large squares on the screen.

COMPUTER ASSISTED INSTRUCTION (CAI) - Teaching process in which a computer and interactive software is utilized to enhance the learning environment by assisting students in gaining mastery over a specific skill.

CPE (Customer Premises Equipment) - all terminal gear, network interfaces and customer equipment which connect to the carrier or phone company data transmission lines.

CSU - A network interface which is placed between the incoming data service line and the customers equipment. This device electrically isolates the CPE and Network, and allows the phone company to perform remote diagnostics and loop-back for testing purposes.

CYBERSPACE - The nebulous “place” where humans meet and interact over computer networks while browsing the internet. Coined by William Gibson in Neuromancer.

DEDICATED NETWORK - Network lines or circuits which are leased full time providing direct, continuous connection between sites; a circuit that is used exclusively by one customer for a discreet purpose. Dedicated service lessens problems such as interference and bottle-necking data caused by other users' demands on the bandwidth.

DESKTOP VIDEOCONFERENCING - Videoconferencing via a personal computer that has had special hardware and software installed.

DIAL-UP TELECONFERENCE - Using the public switched network channels for communications links among various locations.

DIGITAL SIGNAL - An electrical signal that is comprised of a stream of digits utilizing only two voltage levels representing either "ON (1)" or "OFF (0)".

DISTANCE EDUCATION - The process of providing instruction when students and instructors are separated by physical distance. Technology, often in tandem with face-to-face communication, is used to bridge the gap.

DISTANCE LEARNING - The desired outcome of distance education.

DOWNLOAD - The transfer of a file from a remote computer to your computer.

DS3 - A bandwidth allocation of 45 Mbs. One DS3 roughly equals twenty-eight T1 lines. Fiber is almost always required for DS3 transmission. **(Also referred to as T3.)**

ECHO CANCELLER - A device that blocks audio echo reflections during a conference while maintaining full duplex audio.

ELECTRONIC MAIL (E-mail) - Sending messages from one computer to another via a data network.

ENCRYPTION / DECRYPTION - A technique for securing information transmitted over a communication channel with the intent of excluding all other than authorized receivers from interpreting the message. Encryption utilizes a "key" to scramble the data which must also be used to reconstruct the data on the receiving end. Can be used for voice, video, and other communications signals.

FIBER OPTIC CABLE - Transmission lines composed of thin, high purity glass strands (fibers) used for laser-light transmission of video, audio, and/or data.

FILE TRANSFER PROTOCOL (FTP) - A protocol that allows you to move files between a distant computer to a local computer using a network such as the Internet.

FREQUENTLY ASKED QUESTIONS (FAQ) - A collection of information on the basics of any given subject, often used on the WWW.

FULL DUPLEX AUDIO - Bidirectional transmission of audio which allows all sites to simulta-

neously talk and listen.

FULL DUPLEX CONFERENCE - Two-way communication as opposed to simplex or half duplex, one-way communication. In a two-site duplex videoconference, both parties can send and receive video, audio and data simultaneously.

FULL MOTION VIDEO - Transmission of a complete, non-compressed video signal at 30 fps (frames per second).

FULLY INTERACTIVE VIDEO - (Two way interactive video) Two or more sites simultaneously interacting with audio and video as if they were co-located.

H.320 - A standardized compression method and protocol for the transmission of audio/video data between videoconferencing codecs. It is this standardization which now allows codecs from different manufacturers to communicate with each other. Although many codec manufacturers offer their own proprietary compression algorithm, it is essential that they also offer H.320 if you desire to be able to communicate with ALL manufacturers codecs.

HOME PAGE - A document with an address (URL) on the world wide web maintained by a person or organization which is the usual entry point into a web site. The home page contains pointers, or “hyperlinks” to other pages of information.

HOST COMPUTER - A network computer located at the central “hub” of an interactive network which can serve data and receive information from other computers.

HYPER TEXT MARKUP LANGUAGE (HTML) - A software “language” used to create interactive, linked documents. Extensively used to create web pages.

HYPERTEXT TRANSFER PROTOCOL (HTTP) - The multimedia rich protocol used for sending and receiving world wide web information.

HYPERTEXT - A document which has been created, usually with **HTML**, to allow a user to select “hot” (linked) words or pictures within the document, click on them, and connect to further, related information.

INTEGRATED SERVICES DIGITAL NETWORK (ISDN) - A digital protocol developed to bring standardization to the transmission of “dial-up” data services. ISDN is a media-rich protocol which allows the simultaneous transmission of voice, data and video through the same channel. It is available in two basic configurations: **BRI (Basic Rate Interface)** comprised of two 64 Kbs data channels and a 16 Kbs signaling channel, and **PRI (Primary Rate Interface)** comprised of 23 64 Kbs data channels and a 64 Kbs signaling channel. A PRI is the rough equivalent of a T1 circuit. However, a T1 offers 24 56 Kbs channels (8 Kb of EACH channel is used for signaling overhead).

INTERNET - An international “network of networks” originally implemented by the United States government and used to connect military and research networks. The internet is now a ubiquitous network available to educational, corporate, and private individuals.

IMUX Inverse Multiplexer - a device which allows the “bonding” of individual communications channels into a channel with bandwidth equaling the SUM of all the channels bonded. For example, if you had three **ISDN BRI** circuits (each offering dual 64 Kbs service) you could use an IMUX to bond all six channels into a 384 Kbs communications channel. [**384 Kbs is the almost universal transmission rate being used between schools and corporations for compressed video distant learning and videoconferencing applications in the United States.**]

Kbs - 1000 bits of data per second (actually 1024 bits per second; in the binary system, everything is based on the power of 2, thus the products are: 0, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, etc.)

LINK - (1) A **communications channel** which ties together only two sites. A network is made up of many links. (2) A **target destination** of a hyperlinked tag in an HTML or WEB document.

LOCAL AREA NETWORK (LAN) - Two or more local computers, printers, or other computing devices that are physically connected in a manner which allows the sharing of data and resources.

Mbs - megabits per second, or one million bits per second. (Actually 1,048,576 bits per second; see Kbs)

MICROWAVE - Electromagnetic waves, just adjacent to the frequency of light. Microwaves behave much like light; they travel in a straight “beam” and can be reflected. They are used to transmit to and from satellites, and for short terrestrial distances (i.e., up to 30 miles).

MODEM - (MODulator / DEModulator) - A device to allow for a dial up connection to a remote computer over standard telephone lines.

MPEG (Moving Pictures Experts Group) - A compression scheme(s) which allow a superior mechanism for the compression and transmission of audio and video data over limited bandwidths. When bandwidths of 512 Kbs (1/2 T1) or above are available, MPEG is vastly superior to H.320 for the coding and transmission of videoconferencing or distant learning applications. **MPEG 1** offers approximately the same resolution of H.320 systems with better motion handling abilities, while **MPEG 2** offers resolution exceeding standard television broadcasts. DSS satellite broadcasts utilize MPEG encoding.

MULTIMEDIA - Any medium which uses multiple forms of communication, such as text, audio, and/or video.

MULTIPOINT CONTROL UNIT (MCU) - A “bridge” which allows multiple videoconferencing sites to interconnect in a “multipoint conference”. Usually, the site which is “talking” causes the MCU to transmit that sites picture to all the other sites in the conference. When another site begins talking, the MCU automatically switches and transmits that site to all other parties.

MULTIPLEX - To combine several different signals (video, audio, data) onto a single communication channel for transmission. Demultiplexing separates each signal on receipt.

MULTIPOINT VIDEOCONFERENCE - See MCU

NETWORK - An interconnected series of various equipment which communication with each other via LAN or WAN communications channels.

ON-LINE - Network communication is established and prepared for operation. Also suggests access to a computer network such as the internet.

ORIGINATION SITE - The location from which a teleconference originates.

POINT OF PRESENCE (POP) - Point of connection provided by a digital service provider or interexchange carrier and the local user. The digital access point into the network.

POINT-TO-POINT - A conference or transmission between two sites. Often, one way with an origination and receive site.

POINT-TO-MULTIPOINT - A conference configuration which allows information to be communicated from one point to many points. In some point-to-multipoint teleconferencing systems, the receive sites can transmit back to the point of origination, but not to the other receive sites. Standard broadcast television is a point to multipoint scenario.

POTS - Plain Old Telephone Service; the acronym often used for ordinary analog telephone connections as used in a residence.

PROTOCOL - A formal set of standards, rules, or formats for exchanging data that assures uniformity between computers and applications.

RJ-11 - The standard, 6 pin jack utilized to connect an ordinary telephone. Most residences have RJ-11 jacks for telephone service. (Some digital telephones on PBX's in offices also use RJ-11 jacks)

RJ-45 - A slightly larger (8 pin) version of the RJ-11. Used to connect computers to local area networks (Ethernet, 10 base T or 100 base T) and also used for the connection point of an ISDN BRI line.

ROUTER - A device, usually located between your local area network and the transmission link to a wide area network, which segments your local area network into divisions or departments, and "firewalls" your network from entry by unauthorized users.

SATELLITE TV - A point to multipoint scenario with video and audio signals relayed via a communication satellite to multiple receive sites.

SIMPLEX (half duplex) - One-way "at a time" communication, as opposed to full duplex transmission. Think in terms of a "push to talk" two way radio.

STILL FRAME - A single image transmitted over a communications link. Usually, a very high resolution image can be transferred in this manner as no motion is involved.

SYNCHRONOUS - Communication in which all packets of information are sent in a continuous bit

stream over a dedicated path.

T1 - A communications link operating at 1.54 Mbs. Channelized T1's offer 24 channels of 56 Kbs each. (If you multiplied and are wondering, each 64 Kbs channel loses 8 Kbs for signaling and hand-shake information; **An ISDN PRI T1 has 23 full 64 Kbs channels** and utilizes the remaining channel for signaling / handshaking for all the other 23 channels)

TELECOMMUNICATION - The science of electronic information transport using wire, radio, optical, or electromagnetic channels to transmit and receive signals for voice, video or data communications.

TELECONFERENCING - The use of electronic communications to allow two or more people at two or more locations to interact with each other in real time. Includes videoconferencing, audioconferencing, audiographic conferencing, and computer conferencing.

TRANSMISSION CONTROL PROTOCOL (TCP) - A protocol which makes sure that packets of data are transmitted and received in the intended order.

TRANSPONDER - Satellite transmitter and receiver that receives a signal from earth, and amplifies the signal prior to retransmission to an earth station. A typical C-band satellite has 12 transponders which receive and transmit 24 channels (12 polarized vertical, 12 polarized horizontal)

UNIFORM RESOURCE LOCATOR (URL) - The addressing scheme utilized by the internet. Each network and subnetwork, or domain, has a unique URL address.

UPLINK - The communication link (the dish and associated electronics) used for transmitting from the earth station to the satellite.

VIDEOCONFERENCING - Communication between two or more individuals or groups who are remote from one another using telecommunications channels for fully interactive video and audio exchange. This includes full-motion video, compressed video, and, in some definitions, freeze-frame video images.

WAN - Wide Area Network - The incorporation of two or more LAN's into a larger, interconnected network via data transmission lines connecting the geographically separated networks.

WORD - A single computer "statement" comprised of 16 bits (two bytes)

WORLD WIDE WEB (WWW) - A graphical, hypertext linked, Internet-based tool that provides access to web sites created by individuals, businesses, and other organizations.