

## Appendix C

# Glossary

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**ACTS (Advanced Communications Technology Satellite): A National Aeronautics and Space Administration Ka-band satellite that is scheduled for deployment** in the early 1990s.

**Addressable converter:** A device connected to a television set that allows cable television operators to turn on or block individual subscriber access to pay-per-view services.

**Amplifiers:** Electronic devices, spaced at intervals (cascaded) throughout a cable television system, used to boost the strength of the cable signal as it passes from the headend to the subscriber. In coaxial cable systems, amplifiers are needed approximately every 1,500 feet.

**Analog communication: A communication format in which information is** transmitted by modulating a continuous signal, such as a radio wave. See *also* Digital communication.

**Asynchronous communication: Two-way communication** in which there is a time delay between when a message is sent and when it is received. Examples include electronic mail and voice mail systems.

**Audio bridges:** Electronic devices that connect and control multiple telephone lines for audio and data applications, allowing many callers to be connected as a group simultaneously. Used for audioconferencing.

**Audioconferencing: An** electronic meeting in which participants in different locations use telephones to communicate simultaneously with each other.

**Audiographics:** An advanced computer application in which computer interaction is augmented by two-way, real-time audio communication. Audio, data, and graphics are shared over regular telephone lines, allowing users in different locations to work on the same application simultaneously.

**Bandwidth:** The width of frequencies required to transmit a communications signal without undue distortion. The more information a signal contains, the more bandwidth it will need to be transmitted. Television signals, for example, require a bandwidth of 3 million hertz (cycles per second), while telephone conversation needs only **3,000** hertz.

**Bit (Binary digiT): the** smallest unit of information a computer can use. A bit is represented as a "0" or a "1" (also "on" or "off"). A group of 8 bits is called a byte. Bits are often used to measure the speed of digital transmission systems.

**Bell Operating Companies (BOCs):** As a result of the divestiture of AT&T in 1984, the original Bell telephone system was divided into 22 local Bell Operating

Companies that now provide local telephone service across most of the country. These companies are controlled by the seven "Baby Bells," the Regional Bell Operating Companies (RBOCs).

**Bulletin board service (BBS): A computer service that allows remote** users to access a central "host" computer to read and post electronic messages. Communication is usually asynchronous.

**C-band:** The designation for satellite communications operating at 6 GHz (billion cycles per second) uplink and 4 GHz downlink. These frequencies are also used for terrestrial microwave transmission.

**Coaxial cable:** Shielded wire cable that connects communications components together. It is commonly used in cable television systems because of its ability to carry multiple video (or other broadband) signals.

**Codecs:** The abbreviated form of "coder-decoder." Electronic devices that convert and compress analog video signals into digital form for transmission, and convert them back again on reaching their destination.

**Compact disc-read only memory (CD-ROM):** An optical storage system for computers that only allows data to be read off the disc. New data cannot be stored and the disc cannot be erased for reuse.

**Compressed video:** A video signal requiring less information to transmit than broadcast quality or full-motion video. Digital technology is used to encode and compress the signal. Picture quality is generally not as good as full-motion; quick movements often appear blurred. Compressed video requires transmission speeds between 56 kbps and 2.0 Mbps.

**Computer conferencing:** Allows individuals at different locations to communicate directly with each other through computers. Communication may be in real time or delayed.

**Digital communications:** A communications format used with both electronic and light-based systems that transmits audio, video, and data as bits ("1 s" and "0s") of information (see Bit). Codecs are used to convert traditional analog signals to digital format and back again. Digital technology also allows communications signals to be compressed for more efficient transmission.

**Digital video interactive (DV-I): A system that combines audio, data, and limited-motion** video on an optical disc. DV-I will run on a personal computer, allowing the user to control interactive programs.

**Direct broadcast satellites (DBS): Satellites that operate in the 12.2 to 12.7 GHz frequency band.** These satellites

are designed to broadcast programming directly to small ( 1 meter) home receiving dishes. No such services are currently operating in the United States.

**Downlink:** An antenna shaped like a dish that receives signals from a satellite. Often referred to as a dish, terminal, Earth station, TVRO (television receive only).

**Downstream:** The direction a signal travels as it moves from the transmitting (origination) site to the receiving sites.

Electronic blackboard: A computer application that allows graphics to be shared among many computers simultaneously. Each user can see and annotate the graphics as needed. The results will be visible to all users.

**Facsimile machine (fax):** A telecopying device that electronically transmits written or graphic material over telephone lines to produce a "hard copy" at a remote location.

**FCC:** Federal Communications Commission.

**Fiber optics:** Hair thin, flexible glass rods that use light signals to transmit audio, video, and data signals. Signals can be sent in either analog or digital format. Fiber optic cable has much higher capacity than traditional copper or coaxial cable, and is not as subject to interference and noise.

**Footprint:** The area on the Earth's surface to which a satellite can transmit. Different satellites cover different areas and have different footprints. Satellite footprints generally cover all the continental United States (full conus) or only half of it (half conus coverage).

**Freeze frame:** One method of transmitting still images over standard telephone lines. A single image is transmitted every 8 to 30 seconds. Also referred to as slow scan.

**Frequency:** The number of times per second an electromagnetic wave completes a complete cycle. A single hertz (Hz) is equivalent to one cycle per second,

**Full-motion video: A standard video signal that can be transmitted by a variety of means including television broadcast, microwave, fiber optics, and satellite. Full-motion video traditionally requires 6 MHz in analog format and 45 Mbps when encoded digitally.**

**Gbps:** Giga (billion) bits per second. See Bit.

**GHz:** One billion hertz (cycles per second). See Frequency.

Graphics tablet: A computer device resembling a normal pad of paper that users draw or write on, The graphics tablet converts hand-drawn images into digital information that can be used and displayed by a computer.

**Headend:** In a cable television system, the headend is the central transmission office from which programming is

distributed to subscribers.

**High definition television (HDTV):** An advanced television system that produces video images as clear as high-quality photography. HDTV is still experimental in the United States.

Instructional Television **Fixed Service (ITFS):** A band of microwave frequencies set aside by FCC exclusive y for the transmission of educational programming. Allows broadcast of audio, video, and data to receive sites located within 20 miles. Receive sites require a converter that changes signals to those used by a standard television set.

**Integrated Services Digital Network (ISDN):** An end-to-end digital network that will allow users to send voice, data, and video signals over the same line simultaneously. Narrowband services now in operation give users up to 24 channels to send voice and data information, with a combined capacity of up to 1.544 Mbps. In the future, broadband services available over a public ISDN are expected to offer full-motion video services as well.

**Ka-band:** Satellite communications frequencies operating at 30 GHz uplink and 20 GHz downlink.

**Kbps:** Kilo (thousand) bits per second. See Bit.

**KHz:** Kilohertz; thousand cycles per second. See Frequency.

**Ku-band:** Satellite communications frequencies operating at 14 GHz uplink and 12 GHz downlink.

**Light emitting diodes (LEDs):** Used as transmitters in some fiber optic systems. They transmit digital bits as pulses of light along a fiber optic strand.

**Limited-motion video:** See Compressed video.

**Mbps:** Mega (million) bits per second. See Bit.

**MHz:** Megahertz; million cycles per second. See Frequency.

**Microwave:** High-frequency radio waves used for point-to-point and omnidirectional communication of audio, data, and video signals. Microwave frequencies require direct line-of-sight to operate; obstructions such as trees or buildings distort the signal.

**Modem (modulator/demodulator):** A device that converts digital computer signals into analog format for transmission.

**Modification of Final Judgment (MFJ):** The 1944 agreement that brought about the divestiture of AT&T, and limited the Bell Operating Companies' involvement in manufacturing and designing equipment, as well as their ability to provide long distance and information services.

Modulation: The process of encoding audio or video signals onto a radio wave (carrier frequency) for transmission.

**Multiplexer:** A device that combines multiple signals for simultaneous transmission over a single channel.

**Multipoint distribution services (MDS):** Also MMDS; **Multichannel Multipoint Distribution Service.** Also known as “wireless” cable. A telecommunications service that uses microwave signals to transmit video entertainment and data.

**Public Switched Telephone Network (PSTN):** The public telephone network.

**Real-time communication:** Two-way simultaneous communication, as opposed to asynchronous.

**Repeater:** A device used to extend the range of a communication signal.

**Reverse flow amplifier:** In two-way cable television systems, these devices move video and audio signals from the receive sites back to the cable headend.

**Signaling System 7 (SS7):** A recent development in control systems for the public telephone network. It allows telephone company computers to communicate with each other, making telephone call processing faster and more efficient and enabling more services to be made available to consumers.

**Slow scan:** See freeze frame.

**Steerable dish:** A satellite receive dish that uses motors to rotate the dish to receive signals from many satellites. “Fixed” dishes are stationary, always pointed at the same satellite, unless retimed by hand.

**Switched network:** A type of system where each user has a unique address (such as a phone number), which allows the network to connect any two points directly.

**T1 rate:** A digital transmission speed of 1.544 Mbps.

**Teleconferencing:** A general term for any conferencing system using telecommunications links to connect remote sites. There are many types of teleconferencing including: videoconferencing, computer conferencing, and audioconferencing.

**Television receive only (TVRO):** Satellite dishes only capable of reception.

**Touch screen:** A computer screen that allows data to be entered by using a specialized pen to write on the screen, or by making direct physical contact with the computer screen.

**Transponder:** The electronic equipment on a satellite that receives signals from an uplink, converts the signals to a new frequency, amplifies the signal, and sends it back to Earth. Satellites are usually equipped with 12 to 24 transponders.

**Uplink:** A satellite dish that transmits signals up to a satellite.

**Upstream:** The direction a signal travels as it moves from a receive site back to the site of original transmission. Used especially in two-way cable television systems.

**Vertical blanking interval (VBI):** The unused lines in a standard television signal. The VBI appears as a black band at the top or bottom of a television picture. Often used for closed captioning.

**Very small aperture terminals (VSATs):** Satellite receive dishes, approximately 1.8 to 2.4 meters in diameter, that are capable of sending and receiving voice, data, and/or video signals.

**Videophone:** A telephone combined with a video screen, allowing callers to see each other as they speak.