



## Videoconferencing Glossary

A...

### **Application Sharing**

Application sharing is a feature that allows two people to work together when one of the individuals doesn't have the same application, or same version of the application. In application sharing, one user launches the application and it runs simultaneously. Both users can input information and otherwise control the application using the keyboard and mouse. Although it appears that the application is running on both PC's, it actually is running on only one, yet each user operates as though the application were running on both PC's. Files associated with the application can be easily transferred, so the results of the collaboration are available to both users immediately. The person who launched the application can lock out the other person from making changes, so the locked-out person sees the application running but cannot control it.

### **Analog-to-Digital Conversion (ADC)**

Process of converting analog signals to a digital representation. DAC represents the reverse translation.

### **ATM**

Asynchronous Transfer Mode. High speed (up to 155 Mbps), high bandwidth, low-delay, transport technology, integrating multiple data types (voice, video, and data). ITU has selected ATM as the basis for the future broadband network because of its flexibility and suitability for both transmission and switching. May be used in the phone and computer networks of the future.

### **Audio Bridge**

Equipment that mixes multiple audio inputs and feeds back composite audio to each station after removing the individual station's input. This equipment may also be called a mix-minus audio system.

B...

### **bps**

Bits per second, a unit of measurement of the speed of data transmission and thus of bandwidth.

### **B channel**

The ISDN circuit-switched bearer channels, capable of transmitting 64 Kbps of digitized information.

### **Bandwidth**

A measure of spectrum (frequency) use or capacity. For instance, a voice transmission by telephone requires a bandwidth of about 3000 cycles per second (3KHz). A TV channel occupies a bandwidth of 6 million cycles per second (6 MHz) in terrestrial Systems.

### **Baud**

The rate of data transmission based on the number of signal elements or symbols transmitted per second. Today most digital signals are characterized in bits per second.

### **Basic rate ISDN**

See ISDN entry.

### **Bell Operating Company**

Any of the 22 regulated telephone companies that were "spun off" from AT&T during divestiture. The BOCs are grouped into RBHCs-Regional Bell Holding Companies such as Nynex, BellSouth and others.

### **Bit**

A single digital unit of information

### **Bit Rate**

The speed of a digital transmission, measured in bits per second.

### **Blanking**

An ordinary television signal consists of 30 separate still pictures or frames sent every second. They occur so rapidly, the human eye blurs them together to form an illusion of moving pictures. This is the basis for television and motion picture systems. The blanking interval is that portion of the television signal which occurs after one picture frame is sent and before the next one is transmitted.

### **BRI**

See the ISDN entry.

### **Bridge**

In videoconferencing vernacular, a bridge connects three or more conference sites so that they can simultaneously communicate. Bridges are often called MCU's - multipoint conferencing units. In IEEE 802 parlance, a bridge is a device that interconnects LAN's or LAN segments at the data-link layer of the OSI model to extend the LAN environment physically. They work with frames (as opposed to packets) of data, forwarding them between networks. They learn station

addresses and they resolve problems with loops in the topology by participating in the spanning tree algorithm. Finally, the term bridge can be used in audio conferencing to refer to a device that connects multiple (more than two) voice calls so that all participants can hear and be heard.

### **Bursty data**

Information which flows in short intense data groupings (often packets) with relative long silent periods between each transmission burst.

### **Byte**

A group of eight bits; usually the smallest addressable unit of information in a data memory storage unit.

### **C...**

### **Carrier**

A term used to refer to various telephone companies that provide local, long distance or value added services; alternately, a system or systems whereby many channels of electrical information can be carried over a single transmission path.

### **CCD**

Charge coupled device used in cameras as an optical scanning mechanism. It consists of a shift register that stores samples of analog signals. An analog charge is sequentially passed along the device by the action of stepping voltages and stored in potential wells formed under electrodes. The charge is moved from one well to another by the stepping voltages.

### **CCITT**

Consultative Committee for international Telegraphy and Telephony, (now called the International Telecommunications Union's Telecommunications Standardization Sector or TSS) An international body responsible for establishing interoperability standards for communications systems. The world's leading telecommunications standards organization.

### **CIF**

Common Intermediate Format, an international standard for video display formats developed by TSS. The QCIF format, which employs half the CIF spatial resolution in both horizontal and vertical directions, is the mandatory H.261 format. QCIF is used for most desktop videoconferencing applications where head and shoulder pictures are sent from desk to desk. QCIF displays 176 pixels grouped in 144 non-interlaced luminance lines.

### **Codec**

Coder/decoder system for digital transmission.

### **Compression**

The process of reducing the information content of a signal so that it occupies less space on a transmission channel or storage device and a fundamental concept of video communications. An uncompressed NTSC signal requires about 90 Mbps of throughput, greatly exceeding the speed of all but the fastest and shortest of today's networks. Squeezing the video information can be accomplished by reducing the quality (sending fewer frames in a second or displaying the information in a smaller window) or by eliminating redundancy.

D...

### **D-channel**

In an ISDN network the D-channel is a signaling channel over which packet-switched information is passed by the carrier. The D-channel can also support the transmission of low-speed data or telemetry sent by the subscriber.

### **Data compression**

Reducing the size of a data file by reducing unnecessary information, such as blanks and repeating or redundant characters or patterns.

### **Delay**

The time it takes for a signal to go from the sending station through the videoconference to the receiving station.

### **Digital**

Conversion of information into bits of data for transmission through wire, fiber optic cable, videoconference, or over air techniques. Method allows simultaneous transmission of voice, data or video.

### **Distance learning**

The incorporation of video and audio technologies into the educational process so that students can attend classes and training sessions in a location distant from that where the course is being presented. Distance learning systems are usually interactive and are becoming a highly-valuable tool in the delivery of training and education to widely-dispersed students in remote locations or in instances where the instructor cannot travel to the student's site.

E...

### **Echo Cancellor**

An electronic circuit which attenuates or eliminates the echo effect on videoconference telephony links. Echo cancellers are largely replacing obsolete echo suppressors.

### **Echo Effect**

A time-delayed electronic reflection of a speaker's voice.

**Echo suppression**

Used to reduce annoying echoes in the audio portion of a videoconference. An echo suppressor is a voice-activated "on/off" switch that is connected to the four-wire side of a circuit. It silences all sound when it is on by temporarily deadening the communication link in one direction. Unfortunately, not only the echo is stopped but also the remote end's new speech, which results in clipping.

**Ethernet**

A LAN running on coaxial or twisted pair wiring, at 1 or 10 Mbps.

**F...****Fast ethernet**

A way to run ethernet at 100Mbps on one or two pairs of standard, unshielded telephone copper wire.

**Fps**

Frames per second.

**Fractional T-1**

FT-1 or fractional T-1 refers to any data transmission rate between 56 Kbps and 1.544 Mbps. It is typically provided by a carrier in lieu of a full T-1 connection and is a point-to-point arrangement. A specialized multiplexer is used by the customer to channelize the carrier's signals.

**Frame store**

A system capable of storing complete frames of video information in digital form. This system is used for television standards conversion, computer applications incorporating graphics, video walls and various video production and editing systems.

**Frequency**

The number of times that an alternating current goes through its complete cycle in one second of time. One cycle per second is also referred to as one hertz; 1000 cycles per second, one kilohertz; 1,000,000 cycles per second, one megahertz; and 1,000,000,000 cycles per second, one gigahertz.

**Full-CIF (FCIF)**

See CIF

**Full-duplex (FDX)**

Two-way, simultaneous transmission of data; a communication protocol in which the communications channel can send and receive data at the same time.

Compare to half-duplex, where information can only be sent in one direction at a time.

### **Full-motion video**

Video reproduction at 30 frames per second (fps) for NTSC signals or 25 fps for PAL signals. Also known as continuous-motion video.

H...

### **H.320**

A recommendation of the ITU-T based on Discrete Cosine Transform, CCM and motion compensation techniques. It can be a video system's sole compression method or supplementary algorithm, used instead of a proprietary algorithm when two dissimilar codecs have need to interoperate. H.320 includes a number of individual recommendations for coding, framing, signaling and establishing connections. It also includes three audio algorithms, G.721, G.722 and G.728.

### **handshake**

The electrical exchange of predetermined signals by devices wishing to set up a connection. Once completed the transmission begins. Used in video communications by codecs wishing to interoperate whereby they seek out a common algorithm.

### **Interoperability**

The ability of electronic components produced by different manufacturers to communicate across product lines. The trend toward embracing standards has greatly furthered the interoperability process.

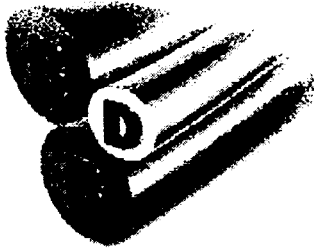
### **ISDN - Integrated Services Digital Network.**

A CCITT standard for integrated transmission of voice, video and data.

Bandwidths include: Basic Rate Interface - BR (144 Kbps - 2 B & 1 D channel) and Primary Rate - PRI (1.544 and 2.048 Mbps).

Integrated Services Digital Network. A set of protocol and interface standards that effectively constitute an integrated (voice, video, and data) telephone "network." These standards promote global availability and compatibility of ISDN products and services. The two types of ISDN are Basic Rate Interface (BRI) and Primary Rate Interface (PRI). ISDN BRI provides two 64Kbps B ("bearer") channels to carry information content, the voice, video, and data substance of a transmission. A separate 16Kbps D ("data") channel is used for call setup and signaling. ISDN BRI is often called "2B+D" ISDN, for its combination of two B and one D channel. This service is marketed and supported by the LECs. ISDN PRI (Primary Rate Interface) is the ISDN equivalent of a T-1 circuit. It provides 23B+D (in North America) or 30B+D (in Europe) running at 1.544 Mbps and 2.048Mbps,

respectively. Each channel (time slot) is 64Kbps. One channel is reserved as the D channel; the other 23, as bearer channels (23+D).



### **Pricing**

ISDN rates, known as tariffs, vary by phone company. ISDN pricing generally has three components:

- **Installation Charge** - this is a one time charge to have the ISDN service installed. Part of this charge may be waived if you commit to keep your ISDN line for a period of time.
- **Monthly Charge** - this is a recurring monthly charge.
- **Usage Charges** - this is a charge associated with use of the ISDN line. Typically it is not more than a couple of cents per minute. The monthly charge may include a certain number of hours of free usage each month. Some packages have no usage charges at all, or may waive usage charges during evenings and weekends.

If you expect to make a lot of local ISDN calls within your organization, you can sometimes get CENTREX ISDN service, which has no usage charges for calls to other local numbers belonging to the same organization.

### **Isochronous**

Pronounced "I-sokronous" Data transmission where timing is derived from the signal carrying the data. No timing or clock lead is provided at the customer interface. In isochronous data transmission, data has no embedded timing - send it slower and it is still valid, only late. Voice and video are intimately tied to timing. With TMD (Time Division Multiplexing) services, there is a direct relationship between the signal rate used to digitize the voice and samples and the bearer channel rate, allowing accurate reconstruction of the voice (or other signals) at the far end. In packet technologies, no such relationship exists. Services like ATM must use care in transferring such signals so timing can be recovered since it cannot be derived from the ATM bearer channel.

### **ITU**

International Telecommunications Union; one of the specialized agencies of the United Nations and founded in 1865 before telephones were invented as a telegraphy standards body.

### **IEC**

Interexchange Carrier. Long-distance carrier providing service between local area exchanges (LECs). AT&T, MCI, and GTE-Sprint are IECs. The services an IEC provides may be interstate or intrastate, as long as it's between local areas.

### **IXC**

Interexchange carrier, long distance service providers in the U.S. that provide inter-LATA service.

### **K...**

### **Kbps**

Kilobits per second. Refers to transmission speed of 1,000 bits per second.

### **Kelvin (K)**

The temperature measurement scale used in the scientific community. Zero K represents absolute zero, and corresponds to minus 459 degrees Fahrenheit or minus 273 Celsius. Thermal noise characteristics of LNA or LNB used in satellite communications are measured in Kelvins. The lower number the better.

### **Kilohertz (kHz)**

Refers to a unit of frequency equal to 1,000 Hertz.

### **L...**

### **LAN**

Local Area Network, a computer network linking workstations, file servers, printers, and other devices within a local area, such as an office. LANs allow the sharing of resources and the exchange of both video and data.

### **LATA**

Local Access and Transport Areas. The areas within which the Bell Operating and independent telephone companies can provide transport services. Inter-LATA connections must be provided by Interexchange carriers.

### **LEC**

Local exchange company, the local telephone office that provides service between the long-distance carrier and the customer premises. Depending on the location, the LEC may be part of an RBOC (Regional Bell Operating Company) or an independent telephone company, such as GTE or United Telephone. RBOC refers to the seven Bell companies that were part of AT&T before divestiture. Each RBOC is broken down into a number of LECs. For example, the Ameritech RBOC includes Illinois Bell, Ohio Bell, Wisconsin Bell, etc.

### **Leased Line**

A dedicated circuit typically supplied by the telephone company.



M...

**Mbps**

Megabits per second.

**Megahertz (MHz)**

Refers to a frequency equal to one million Hertz, or cycles per second.

**MPEG**

Moving Picture Experts Group. MPEG has established standards for compression and storage of motion video.

**Multiplexing**

Techniques that allow a number of simultaneous transmissions over a single circuit.

**Multipoint**

Communication configuration in which several terminals or stations are connected. Compare to point-to-point, where communication is between two stations only.

**Multipoint Control Unit**

(MCU) A device that bridges together multiple inputs so that more than three parties can participate in a video conference. The MCU uses fast switching techniques to patch the presenters or speaker's input to the output ports representing the other participants.

N...

**Network**

A group of stations (computers, telephones, or other devices) connected by communications facilities for exchanging information. Connection can be permanent, via cable, or temporary, through telephone or other communications links. The transmission medium can be physical (copper, wire, fiber optic cable, etc.) or wireless, for example via satellite.

**NT 1**

Network Termination type 1. The NT-1 is a device which converts the two-wire line (or "U" interface) coming from your telephone company into a 4-wire line (or "S/T" interface). The NT- 1 is physically connected between the ISDN board of your videoconferencing system and your ISDN phone line. The NT- 1 supports network maintenance functions such as loop testing. Check to see if your ISDN equipment requires an external NT-1 to operate.

**NTSC - National Television Standards Committee** (Never Twice the Same Color)

A video standard established by the United States (RCA/NBC) and adopted by numerous other countries. This is a 525-line video with 3.58-MHz chroma subcarrier and 60 cycles per second. Frames are displayed at 30 frames per second.

P...

### **Packet Switching**

Data transmission method that divides messages into standard-sized packets for greater efficiency of routing and transport through a network.

### **PAL - Phase Alternative Line System**

The European TV standard based upon 50 cycles per second electrical system and 625 lines per frame and 25 Frames per Second. (NTSC, the North American standard is based on 30 frames per second) (French use SECAM)

### **Pixel**

The smallest element of the computer or television display on the raster scale.

### **POTS**

Plain Old Telephone Service. Conventional analog telephone lines using twisted-pair copper wire. This is used to provide residential service.

### **PRI**

See ISDN.

### **PTT - Post Telephone and Telegraph Administration**

Refers to operating agencies directly or indirectly controlled by governments in charge of telecommunications services in most countries of the world.

### **Pulse Code Modulation**

A time division modulation technique in which analog signals are sampled and quantized at periodic intervals into digital signals. The values observed are typically represented by a coded arrangement of 8 bits of which one may be for parity.

Q...

### **QCIF**

See CIF

R...

### **RBOC**

Pronounced "R-BOCK." Regional Bell Operating Company, one of the seven Bell companies that resulted from the AT&T divestiture. Each RBOC is broken down

into a number of LECs. The RBOCs are Nynex, BellAtlantic, Bell South, Southwestern Bell, Ameritech, US West, and Pacific Telesis.

### **Real-Time**

The processing of information that returns a result so rapidly that the interaction appears to be instantaneous. Telephone calls and videoconferencing are examples of real-time applications. These kinds of real-time information not only need to be processed almost instantaneously, but it needs to arrive in the exact order it's sent. A delay between parts of a word, or the transmission of video frames out of sequence, makes the communication unintelligible. The telephone network is designed for real-time communication.

### **Receiver (Rx)**

An electronic device which enables a particular videoconference signal to be separated from all others being received by an earth station, and converts the signal format into a format for video, voice or data.

### **RGB**

Red, green, blue. The additive used in color video systems. Color television signals are oriented as three separate pictures: red, green and blue. Typically, they are merged together as a composite signal but for maximum quality and in computer applications the signals are segregated.

### **RS-232-C**

A set of standards specifying various electrical and mechanical signals for interfaces between computers, terminals, and modems. In personal computer world, the original PC and PC/XT used the 25-pin RS-232 connector. With the introduction of the AT-class personal computers, the serial connector was reduced to the 9-pin version.

### **S...**

A color television system developed by the French and used in the USSR. Secam operates with 625 lines per picture frame and 50 cycles per second, but is incompatible in operation with the European PAL system or the U.S. NTSC system.

### **Signal to Noise Ratio (S/N)**

The ratio of the signal power and noise power. A video S/N of 54 to 56 dB is considered to be an excellent S/N, that is, of broadcast quality. A video S/N of 48 to 52 dB is considered to be a good S/N at the headend for Cable TV.

### **Spectrum**

The range of electromagnetic radio frequencies used in transmission of voice, data and television.

### **Synchronization (Sync)**

The process of orienting the transmitter and receiver circuits in the proper manner in order that they can be synchronized. Home television sets are synchronized by an incoming sync signal with the television cameras in the studios 60 times per second. The horizontal and vertical hold controls on the television set are used to set the receiver circuits to the approximate sync frequencies of incoming television picture and the sync pulses in the signal then fine tune the circuits to the exact frequency and phase.

### **Switched 56**

Switched 56 service allows customers to dial up and transmit digital information up to 56,000 bits per second in much the same way that they dial up an analog telephone call. The service is billed like a voice line—a monthly charge plus a cost for each minute of usage. Nearly all LECs and IXCs offer switched 56 service and any switched 56 offering can connect with any other offering, regardless of which carrier offers the service.

T...

### **10Base-T**

Standard ethernet. A variant of IEEE 802.3 which allows stations to be attached via twisted pair cable.

### **T1**

The transmission bit rate of 1.544 millions bits per second. This is also equivalent to the ISDN Primary Rate Interface for the U.S. The European T1 or E1 transmission rate is 2.048 million bits per second.

### **T.120**

A standard for audiographics exchange. While H.320 does provide a basic means of graphics transfer, T. 120 will support higher resolutions, pointing and annotation. Users can share and manipulate information much as they would employ if they were in the same room though they are working over distance and using a PC platform. T. 120 will allow audio bridge manufacturers to add graphics to their products in support of a wide range of applications.

### **Talking head**

The portion of a person that can be seen in the typical business-meeting style videoconference; the head and shoulders. This type of image is fairly easy to capture with compressed video because there is very little motion in a talking head image and most occurs in facial expression and torso movement.

### **T3 Channel (DS-3)**

In North America, a digital channel which communicates at 45.304 Mbps.

### **TELCO**

Generic term for telephone company. Can refer to an Interexchange Carrier or to the Local Exchange Carrier.

### **Telecommuting**

The process of commuting to work electronically rather than physically. Telecommuting will find much greater acceptance as the public switched telephone network becomes more robust and digital and as videoconferencing and multimedia technologies arrive at the desktop.

### **Telemedicine**

The practice of using videoconferencing technologies to diagnose illness and provide medical treatment over a distance. Used in rural areas where health care is not readily available and to provide medical services to prisoners, among other applications.

## **W...**

### **WAN**

Wide Area Network. A communications network that services a geographic area larger than that served by a local area network or metropolitan area network. WANs include commercial or educational dial-up networks such as CompuServe, InterNet and BITNET.

### **Whiteboarding**

A term used to describe the placement of shared documents on an on-screen "shared notebook" or "whiteboard." Desktop videoconferencing software includes "snapshot" tools that enable you to capture entire windows or portions of windows and place them on the whiteboard. You can also use familiar Windows operations (cut and paste) to put snapshots on the whiteboard. You work with familiar tools to mark up the electronic whiteboard much like you do with a traditional wall mounted board.

## **Y...**

### **Y/C**

In component video, the "Y" or luminance signal is kept separate from the "C" (hue and color saturation signal) to allow greater control and to enable enhanced quality images. The luminance is recorded at a higher frequency and therefore more resolution lines are available. Super-VHS and Hi8 systems use Y/C video.

Z... We do not know of any Zs. do you?

## **Helpful Web Sites**

### **Conferencing**

[http://www.dciGLOBAL.com/VC\\_links.htm/](http://www.dciGLOBAL.com/VC_links.htm/)

<http://www.imtc.org/>

<http://www.itca.org/>

<http://www.bcr.com/dvcmag/>

<http://www.savie.com/>

### **ISDN**

<http://www.microsoft.com/windows/getisdn/whatis.htm>

<http://alumni.caltech.edu/~dank/isdn/>

<http://www.pacbell.com/products/business/fastrak/networking/isdn/info/isdn-guide/index.html>

<http://www.unitedmedia.com/comics/dilbert/>