

SECTION G: Glossary

All the definitions in this Glossary relate to the video conferencing context



A

Analogue

Analogue audio or video signals from microphones or cameras are represented by continuously changing values which represent the change in volume or frequency of sound or the changing scenes in a captured video. In contrast digital audio or video is represented by discrete values, measured at set intervals, which represent the audio or video being captured.

B

Bandwidth

In general use - the data capacity of a link or service, measured in bits per second (bps), thousands of bits per second (kbps) or millions of bits per second (Mbps).

BRI ISDN

Basic Rate Interface ISDN - One of the options when renting an ISDN service. 3 digital signals over a single pair of copper wires: 2 (B) channels (64kbs each) for video and data and 1 signal (D) channel. See also PRI ISDN

Bridge

A bridge connects three or more conference sites so they can simultaneously communicate with each other. Audio and video bridges are available. Bridges are also called Multipoint Conferencing Units (MCU).

Broadband

Refers to the capacity of a communications circuit or link. DfES have defined broadband as a speed greater than 2 Mbps for connections to schools.

C

Camera presets

Pre-defined camera angles that can be programmed into a video conferencing system and selected using a single button press. This enables those contributing to a discussion to be quickly focused on.

Codec

Compressor/Decompressor - a system of converting video and audio to digital format and compressing the signal prior to transmission and decompressing to the far-end. The information in a video transmission is squeezed into a fraction of its former bandwidth by a codec; the resulting compressed video can be transmitted more economically over a lower capacity link. Some information is sacrificed in the process, which may result in lower quality picture and sound. Normal PAL TV signals require around 270Mbps of digital bandwidth for absolute picture transmission. The coding process of any video conferencing system has to minimise this

using very high compression ratios to achieve any performance whatsoever. Compression ratios and predictive coding techniques used are delivering in excess of 1000:1 compression ratios so a lot of information is lost with video conferencing codecs.

Continuous Presence

A method of displaying far-end sites during a multipoint conference. Each system connected is displayed in a section of the screen so that all sites can be seen at the same time.

D

Desktop video conferencing

Video conferencing using a computer or videophone. Typically for one-to-one calls.

Document Camera

A camera used to show documents, pictures or 3D objects. It consists of a flat platform with a camera mounted above. Objects and documents can be placed on the platform and focused on by the camera. A document camera will usually have lights mounted above the platform to light the object.

Document Sharing

A feature supported by many desktop video conferencing systems that enables participants at both ends of a video conference to view and edit the same document.

E

Echo Cancellation/Suppression

In any situation where microphones and speakers are used for two-way communication there is the potential echo - e.g. hearing your own voice a short time after you have spoken (this is due to the microphone at the far-end picking up your voice and relaying it back to you). Echo cancellation eliminates the possibility of this happening and is important for easy communication.

F

Far-end

The distant video conferencing system to which you are linked.

Firewall

A means of analysing and controlling data passing between computer networks. Often used as a security device to prevent unauthorised access to a network, it can also control the type of traffic being transmitted and received. A firewall will have to be configured to enable video conferencing protocols to pass through.

FPS

Frames per second - TV in the UK [PAL] is displayed at 25 frames, or individual pictures, per second. Video conference systems can deliver up to 30fps and this is referred to as 'Full Motion Video'. Speeds of less than 25 fps can result in jerky video motion. It is accepted that the eye generally considers 15 fps as full motion video. It should be noted that 'quality' of video conference systems is often confused with frame rates. If the image is still, a video conference system will achieve the maximum frame rate of 30fps. However full motion may well reduce this on a cheap system to 2-5 fps. Quality should be measured as the ability to sustain at least 15fps under heavy motion. Some systems will reduce the resolution [QCIF] to maintain high frame rates, giving the impression of good motion handling but at the expense of poor perceived images.

G

Gatekeeper

A security device that controls audio and video conferences into and out of a network. It can restrict or allow users external to the network to conference with internal users.

Group Systems

Dedicated video conferencing units suitable for use with small or large groups of users.

H

H.221

The ITU-T standard relating to the communications protocol for video conferencing.

H.242

Part of the ITU-T's H.320 family of video interoperability recommendations. This recommendation specifies the protocol for establishing an audio session and taking it down after the communication has terminated.

H.243

ITU-T recommendation setting the procedures for establishing communication between three or more video conferencing sites - multipoint conferencing.

H.261

The ITU-T's recommendation that allows dissimilar video codes to interpret how a signal has been encoded and compressed and to decode and decompress that signal. The standard also identifies two picture formats: the Common Intermediate Format (CIF) and the Quarter Common Intermediate Format (QCIF). These two formats are compatible with all three television standards: NTSC, PAL, and SECAM. This is the video compression standard.

H.320

This is the umbrella communication standard and defines what basic video, audio and data standards are mandatory and optional.

H.323

An ITU-T standard developed to promote compatibility in video conference transmissions over IP networks. H.323 was originally promoted as a way to provide consistency in audio, video and data packet transmissions in the event that a local area network did not provide guaranteed service quality. This has a number of variations. Most manufacturers are operating to v3 standards but they have yet to be applied across the industry. See *Quality of Service (QoS)*.



Interactive Whiteboard

Similar to a normal, wall-mounted whiteboard but with a surface material that contains electronic sensors. A computer image is projected onto the board and the computer is then controlled from the board using either the finger or a special pen.

Internet

When spelt with a lower case "i", it is a group of two or more networks connected together. Internet spelt with a capital "I" is the collection of all the interconnected networks in the world, and is often simply referred to as the 'net'.

IP

Internet Protocol - standard for addressing devices and transmitting data between devices on a network.

IP Video Conferencing

Conferencing across local or wide area networks and between networks.

ISDN

Integrated Services Digital Network - digital dial-up "telephone line" allowing faster data transfer rates than existing analogue lines. Allows simultaneous transfer of voice, data and video information.

ITU-T

The International Telecommunications Union-Telecommunication Standardization Sector, which establishes "recommendations" for standard protocols.



kbs

Kilobits per second - the transmission of digitised information over a network at a rate of 1,000 bits per second.

L

LAN

Local Area Network - a computer network linking workstations, file servers, printers, and other devices within a local area, such as an office or school site.

M

Mbps

Megabits per second - the transporting of digitised information over a network at a rate of one million bits in any given second.

MCU

Multipoint Control Unit - a bridging device that connects three or more conference sites so they can simultaneously communicate with each other. The MCU uses fast switching techniques to switch between the connected systems and mixes the audio (and sometimes the video in continuous presence mode) from all locations.

Mute

The ability to switch off the microphone on the video conferencing system so that those speaking at the far-end are not interrupted. It can also be used for privacy.

N

NAT (Network Address Translation)

NAT reduces the number of public Internet addresses required by an institution and has the additional advantage of “hiding” the private IP address of a particular system from the outside world. There are a number of ways in which NAT can be set up. Some configurations can restrict the number of concurrent video conferencing sessions from a site.

Near-end

The video conferencing system at your own site (see far-end).

NetMeeting

A software tool from Microsoft which manages audio and video conferencing on a PC. It supports the use of microphones and cameras and can access central directory servers and gatekeepers.

Network

Two or more computers linked together and able to share resources constitutes a network.

P

Peripherals

Devices such as document cameras, camcorders or VCRs that work with a system but are not integral to it.

PRI ISDN

Primary Rate Interface ISDN - provides up to 30 x 64kbs ISDN channels. These can be used as individual circuits, for applications such as phone lines, or used together to provide greater bandwidth for data communication. PRI ISDN can be rented in different quantities from 6 - 30 channels.

Protocol

Standards which enable devices such as computers or video conferencing units to communicate with each other.

Q

QoS

Quality of Service - a range of protocols which enable an audio or video stream to claim and protect required bandwidth for the duration of a conference.

R

Roll-about

A totally self-contained video conferencing system consisting of codec, monitor(s), audio system, network interfaces, etc. These systems can, in theory, be moved from room to room. In fact, they are not really portable because they include electronic equipment that does not benefit from a great deal of manhandling and are quite heavy.

Router

A device (or software package) that handles the connection between two or more networks. Routers concentrate on looking at the destination addresses of the data passing through them and deciding the onward route.

S

Streaming

The delivery of audio and video live across the Internet. The audio and video streams are listened to or watched via a computer attached to the Internet. Video conferences can be streamed live, opening up the conference to many more participants who can view it, but would need to use e-mail or a different communications method to feed back responses.

T

T.120

A standard for sharing graphical information such as applications. Users can share and manipulate information, much as they would if they were in the same room, though they are working over distance and using a computer platform.

TCP/IP

Transmission Control Protocol / Internet Protocol - the two fundamental protocols which form the basis of the Internet and inter-network communication.

U

USB

Universal Serial Bus - a method of connecting peripherals such as cameras, printers, scanners and disk drives to computers. Faster than standard serial connections, USB connectors are now common on new computers.

V

Voice Activation

1) During a conference a camera may be voice activated. The camera automatically moves to focus on the person speaking. 2) During a multipoint conference, where just one site is displayed on the screen at any one time, the site where someone is speaking is the site which is on screen for all the other sites.

VPN

Virtual Private Network - A network across a region that runs on facilities provided by a service provider. The network is secure from access by unauthorised users.

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.

Web-cam

A small, low-cost camera that can be connected directly to a computer, usually via the USB port.

Whiteboarding

A term used to describe the placement of shared documents on an on-screen 'shared notebook' or 'whiteboard'. A whiteboard will include tools for 'writing' and drawing, enabling collaborative work to take place.