Networks and standards

Dr Syngen Brown of the University of London Computer Centre (ULCC) has made most helpful and detailed comments on the standards. Polycom® is a registered trademark of Polycom in the U.S. and various countries.

A videoconference link requires:

- transmitting and receiving equipment at each site for more details see the VTAS guide Videoconferencing Audio and Video Equipment;
- an intervening network to carry the signals.

In the case of IP based conferences other network related equipment is normally required to establish a connection, namely gatekeepers. The role of these devices is explained fully in the factsheet H323 Videoconferencing Components.

The network to be traversed can involve one or more of the following:

- Local Area Network (LAN), e.g. a university campus;
- Regional Network, supporting a city or region;
- Wide Area Network (WAN), extending to national and international sites.

These networks may comprise a number of physical transmission methods including: fibre optic cables, coaxial transmission lines, copper twisted pair cable, satellite and high frequency radio. The latter includes long range terrestrial microwave links up to 320km and the newer short range (10cm10m) cableless connection systems.

To enable transmission of information over these networks different data transmission methods are available that may broadly be broken down into two categories:

1. Switched Circuit Networks (SCN) that include:

- NISDN - Narrowband Integrated Services Digital Network (NISDN) (used to transfer data over digital telephone lines);
- General Switched Telephone Network (GSTN), a very narrow bandwidth method using existing analogue telephone lines.

2. Packet Based Networks (PBN) that include:

- Internet Protocol (IP)(sometimes referred to as packet based format).

It is frequently a requirement to ‘bridge’ more than one network type to achieve a link, e.g. one organisation with IP capable equipment may need to communicate to another that only has an ISDN connection. Gateways (sometimes termed bridges) are pieces of equipment that can transparently translate the communication between different network types.

The ITUT has produced several umbrella videoconferencing standards, collectively known as the H.3xx videoconferencing standards.

***Table 1**: The H.3xx Umbrella Videoconferencing Standards*

Network Type ITUT	**Standard**	**Description**
ATM	H.310	Broadband conferenci networks.
NISDN (Narrowband ISDN)	H.320 Narrowband conferencing over visual telephone circuits.	
BISDN (Broadband ISDN)	H.321	An adaptation of H.32 transmission over ATM
GQoS (Guaranteed Quality of Service)	H.322	Guaranteed Quality of conferencing over Loc networks
IP (Internet Protocol)	H.323	Narrow band conferen (Packet Based Networ
GSTN (General Switched Telephone Network)	H.324	Low bit rate (very narr conferencing) over ana telephone lines.

Within these umbrella standards are several sub-standards specific to a particular area of the signal, e.g. G.72x defines the audio coding and H.26x the video coding.
