

An Overview of H.323 Videoconferencing

Educational organisations are increasingly using videoconferencing to enhance their activities. Universities, colleges and schools are finding that videoconferencing provides an efficient means of delivering education and facilitating communication within their organisation and beyond. Until recently, quality videoconferencing implied a per-minute cost, but a significant benefit of H.323 videoconferencing is the avoidance of such call charges.

Much of our communication is visual, and being able to see as well as hear each other enhances the interaction between people. Most modern videoconferencing systems also allow for the display of presentation materials or documents so that collaborative working and interactive learning can be an everyday reality. Although videoconferencing can be disconcerting for some initially, with a little experience the equipment becomes unobtrusive and the focus of a session becomes the human interaction that the technology allows.

Why videoconference?

There are many ways that videoconferencing is being used by educational organisations for teaching and learning. Multi-campus organisations can share a single seminar or lecture across their different locations, making classes easier to attend and deliver, and increasing the viability of less popular courses. Speakers and experts at remote locations can be invited to deliver lectures or workshops. Access for learners who are isolated by location or circumstance can be increased through the use of off-campus learning centres. Students on placements or industrial experience can be monitored and mentored. Learners can 'attend' at locations where their actual presence is not practical, for example by placing a camera in the operating theatre, lambing shed or engineering workshop. Conferences and events elsewhere in the world can be 'attended' by videoconference without the costs associated with physical attendance.

Organisations are also finding that there are advantages to holding management and administrative meetings by videoconference. The most obvious benefit is the financial saving and efficiency gained by reducing travel costs and staff 'down-time' spent travelling. Busy people are often more likely to attend a meeting if it does not involve them being away from their desk for hours, and experience shows that meetings held by videoconference are often more productive and focussed than physical meetings of the same groups.

H.323 videoconferencing

Videoconferencing over public telephone networks has been around for a number of years, principally using the Integrated Services Digital Network (ISDN). Dialed using a telephone number, and making use of all of the available bandwidth between the systems, ISDN videoconferencing is well-established and reliable. Calls are charged according to the telephone service model – a line rental, plus the cost of calls metered on a per-minute basis. This has been seen as one reason why the use of videoconferencing within the educational sector has not kept up with levels of use within industry and commerce. Despite this, ISDN videoconferencing has been used for many years within the JANET community, supported by the JANET Videoconferencing Service.

Internet Protocol (IP) videoconferencing uses the same data transmission networks as e-mail and web pages. For colleges and universities, this means their JANET connection.

Upgrading university and college connections has been possible since the implementation of SuperJANET4. The standard that defines this type of IP videoconferencing (H.323) is now well-established and it has been adopted by the vast majority of equipment manufacturers. These factors have combined to make it possible for IP videoconferencing to be supported by the JANET Videoconferencing Service.

Sharing presentations and documents

As well as communicating with voice and video, most videoconferencing products also allow for people to display documents, presentations, and other computer applications at the remote end(s) of a conference. Known as data sharing, this allows all parties in a conference to see what is happening on the local computer screen in real-time. Parallel, or out-of-band data sharing (where a separate, dedicated, Internet call is made) has the advantages of increased interactivity while conserving bandwidth on the network paths used by the videoconferencing data.

The JANET Videoconferencing Service

The JANET Videoconferencing Service offers support for both ISDN and IP videoconferencing by offering the means to schedule and make multi-party calls, and by managing 'gateways' between the two types of conferencing. It also offers a national booking service for registered sites, which allows people to check the availability of studios at educational organisations connected to JANET.

Further information

An Introduction to H.323 Videoconferencing:
<http://www.ja.net/documents/services/video/vtas/323intro.pdf>

JANET Videoconferencing Service:
<http://www.ja.net/documents/services/video/jvcs>

The JANET Videoconferencing Service - IP (JVCS-IP):
<http://www.ja.net/documents/services/video/jvcs/jvcsip.html>

Video Technology Advisory Service (VTAS):
<http://www.ja.net/documents/video/vtas>

Introduction to Videoconferencing:
<http://www.ja.net/documents/video/vtas/intro>

Data Sharing within Videoconferencing:
<http://www.ja.net/documents/video/vtas/datasharing>

Videoconferencing Cookbook:
<http://www.videnet.gatech.edu/cookbook/>

H.323 Forum™:
<http://www.h323forum.org/>

Further Factsheets in this series:
<http://www.ja.net/services/publications/factsheets.html>