

## Central Queensland University, Australia, Implements IP Videoconferencing for Teaching with RADVISION Technology

### Highlights:

- Client:** Central Queensland University of Australia
- Product:** RADVISION 100 port ViaIP 400 with H.323 & SIP support  
RADVISION video & audio transcoding modules  
RADVISION 60 port MCU.  
RADVISION ECS gatekeeper  
RADVISION IP/ISDN Gateway
- Number of sites:** CQU operates 12 purpose-built videoconference teaching facilities for 120+ hours/week teaching and 10+ hours/week administrative purposes
- Application:** The challenge was to converge operations onto a single network infrastructure with an IP-based system that could provide greater bandwidth and better video and audio quality more cost effectively. The system also needed to provide better call reliability with shorter call connection times. The new RADVISION videoconferencing infrastructure has resulted in improved video transmission quality at considerable savings. Reliability has improved with call completion ratio now 99%+ (previous ISDN system was approximately 90%) and reduced connection time (< 2 seconds) with ISDN-to-IP in-dial and IP-to-ISDN dialing.

### Introduction

Central Queensland University (CQU) has almost 20,000 students located at more than a dozen learning facilities across Australia and Asia Pacific. The university has traditionally provided well designed printed notes for its distance students (67% of its domestic students participate in distance education). Some of these materials are supplemented by audio and videotapes and audio conferencing. Since 1992, videoconferencing has been progressively installed and used for teaching across all campuses of the university.

CQU operates 12 purpose-built videoconference teaching facilities for 120+ hours/week teaching and 10+ hours/week administrative purposes. Videoconferencing is a critical part of CQU's teaching operation. Conferences commence automatically on the hour, lecturers control the video and audio sources during their presentation and students can interact via desk microphones that activate the camera to auto-zoom on the student speaking.

Videoconferencing has been 384k ISDN based using a PictureTel Montage 12-port ISDN MCU and Tandberg 2000 endpoint units operating at H.261 CIF (352 x 288 pixels) video resolution. This has presented several reliability and support issues and with a 12-port MCU limit there has been no room to grow the network. The CIF (352 x 288 pixels) video resolution limit has meant that the document camera and PC video were acceptable but not high quality images. The videoconference calls were also competing with inter-campus PABX-to-PABX calls and there were call dropout problems.

### Challenge

The challenge was to converge operations onto a single network infrastructure with an IP-based system that could provide greater bandwidth and better video and audio quality more cost effectively. The system also needed to provide better call reliability with shorter call connection times.

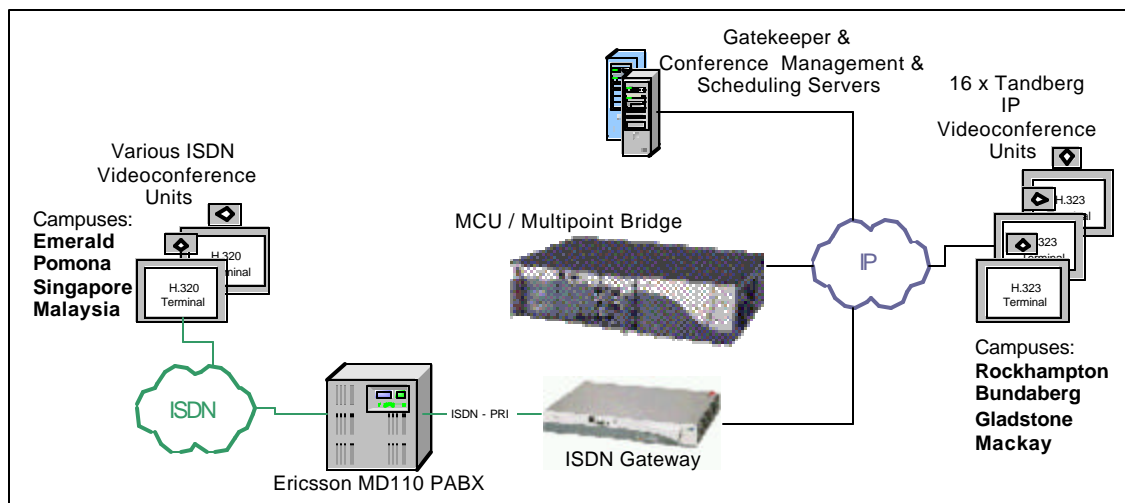
Lecturers at CQU have used videoconferencing for several years and are familiar and comfortable with the operation and interface. Any new system had to support the current user paradigm and the AMX control in lecture theatres

The technical support team needed a web based interface for system administration and operational support and to be able to monitor conference status in real time and remotely observe conferences without affecting the conference.

### Solution

CQU researched extensively with a specific set of criteria to meet their technical, administrative and educational requirements. The final solution included a 100 port RADVISION ViaIP 400 with H.323 & SIP support, video & audio transcoding modules plus 60 port MCU for user self-serve video conferences. The Gatekeeper is a RADVISION ECS (installed on mirrored servers in failover mode) and the IP/ISDN Gateway is a RADVISION PRI (30 channel).

The endpoints are Tandberg 2500s and the conference scheduling/reservation and monitoring system is VisionNex VCS. The RADVISION and VisionNex equipment, along with Installation and network testing, were provided by Broadreach Services.



## Results

The new RADVISION videoconferencing infrastructure has resulted in improved video transmission quality at considerable savings. Reliability has improved with call completion ratio now 99%+ (previous ISDN system was approximately 90%) and reduced connection time (< 2 seconds) with ISDN-to-IP in-dial and IP-to-ISDN dialing.

There is enhanced user support with Web (Java) based interfaces, a real-time conference monitoring interface, remote conference observation from support staff offices and conference recording from support staff offices. This allows the small technical support team to be more efficient and cover more conferences across a larger area without having to travel.

## Real World Applications: Benefits for Lecturers, Students and Support Staff

Within weeks of the release of the new system, students and lecturers were expressing their delight with the improved clarity of vision provided by 768 Kbps 4CIF videoconferences. The improvement in quality was particularly evident in subjects that rely on high-quality video transmission eg multimedia studies.

The 'ready-to-roam' nature of the new system allows staff to plug in to the CQU network from wherever they are and be automatically up and running. The support team assigns a permanent 'video extension number' to each staff member or videoconference unit. No matter where the videoconference endpoint is plugged in, it is automatically assigned an IP address (DHCP), and automatically registers to CQU's videoconference gatekeeper (H323). The endpoint is then ready to make and receive video calls.

Staff who are away from their usual campus are able to deliver lectures or attend meetings from any CQU campus with a sufficient wide-area-network connection back to the main campus at Rockhampton. A recent example of this was a music lecturer who traveled several thousand miles from Rockhampton to CQU's Brisbane and Melbourne campuses over a 2-week period, and was able to continue to deliver the usual weekly lecture and tutorial to his students in Mackay and Rockhampton via his laptop equipped with a webcam.

"Support staff have been able to drastically reduce problem resolution time through remote conference observation," reports Shaune Sinclair, Manager, Flexible Delivery Support. "They can use a PC at any CQU campus for web-based administration and support." Sinclair explained that the IP-streaming capabilities of the Tandberg videoconference endpoints allow support staff to watch a conference in order to provide proactive support as, and when, needed. Conferences scheduled for recording are being recorded remotely from support staff offices, which frees up valuable time and resources.

"The next phase of the project will take advantage of the low costs associated with IP Internet connections to make videoconference lecturing to CQU's International campuses more cost effective," added Sinclair. "

We're also planning to provide users with self-serve videoconference services such as scheduling their own multipoint conferences.”

**About RADVISION**

RADVISION is a leading provider of products and technology for real-time voice, video, and data communications over packet networks; this includes the Internet and other Internet Protocol (IP) based networks. Recognized universally as the experts in real-time voice and video over IP (VoIP), RADVISION offers the broadest and most complete set of enabling technology and networking systems needed to enable enterprises and service providers to migrate their voice and video communications from traditional telephone networks to new converged networks. Today, hundreds of thousands of end-users around the world communicate over next-generation networks, using IP-centric products and solutions built around RADVISION products and technology. RADVISION's multi-protocol software toolkits for developers of IP communications include: SIP, MEGACO, MGCP, and H.323; RADVISION's VoIP networking products include: gateways, conferencing bridges, and gatekeeper applications. For more information, please visit our website at [www.radvision.com](http://www.radvision.com).

