MBONE BRINGS VIDEO CONFERENCING TO ROGERS

Since its inception in 1992, the Rogers Communications Centre at Ryerson Polytechnic University has supported and enhanced educational and professional efforts in New Media Technology. One area of research and development is the use of MBONE or Multicast Backbone Technology for the delivery of course and the exchange of ideas.

What is MBONE?

In March 1992, a new venue quietly debuted on the internet -- one in which people worldwide could meet in a common electronic window and not only see and talk to one another, but work on a shared whiteboard. This conferencing network -- called the Multicast Backbone, or MBONE -- has the potential to launch a new era in scientific collaboration.

The MBONE originated from experiments during IETF (Internet Engineering Task Force) meetings in which live audio and video were transmitted around the world. The MBONE is a network of hosts connected to the internet communicating using a technique called IP multicast and is used to develop protocols and applications.

Scientists and Academics have been quick to embrace the potential of MBONE for bringing together those with common ideas to share and examine information and concepts. MBONE technology has been used to provide around-the-clock coverage of space shuttle flights, an opportunity for doctors in England and Sweden to observe and question a surgeon in San Francisco performing a complex liver operation, and a place for Ph.D. candidates to defend their dissertations to committee members. While this technology is not yet mainstream, today the use of MBONE conferencing extends to more than 10,000 people in over 30 countries and the traffic doubles about every eight months.

MBONE allows internet video conferencing

Ryerson

Dr. Michael Murphy, Academic Director of the Rogers Centre, has been leading research in using MBONE for the delivery of high quality video and video conferencing over the internet. Recently, Ryerson collaborated with several other universities (University of Calgary, University of Toronto, McGill University, York University, Simon Fraser University, and University of Alberta) to conduct a graduate-level course in Communications using MBONE to deliver the program.

He comments that until now, bandwidth has imposed limitations on the effective delivery of video and video conferencing. While there have been developments in the use of streaming video, live, real-time video has tended to be delivered in a slow, stilted set of still images. Now however, the software and hardware are finally coming on stream to enable the broadcast of high quality video in a multicast basis.

"With streaming video, packets are sent out to each individual. Even though each packet is small in size, when you have multiple users, you have to send out multiple packets to each of those users and this demands a lot of bandwidth resources and time," he says. "With MBONE, recipients are viewing the same packet of information at the same time. This represents a much more efficient use of resources."

What makes this all possible is the development of the High Band Network. Most Universities are already connected to the High Band Network, so it simply makes sense to develop the use of MBONE. Ryerson is a member and supporter of CANARIE Inc., the High Band Network developed with the participation of the Government of Canada and over 125 members.While the Communications course was a success, it was not without the occasional technical hiccup or delay, but as Murphy is quick to observe, that's part of the research process. Beyond the few glitches that were experienced, Murphy sees the benefits. "Students and professors from across the country were able to participate fully and have a shared course experience at a fairly low cost. We were able to avoid the hassles one normally associates with videoconferencing and we were able to bring in individual content experts each week to the various conference sites"

Murphy also credits Dr. Ed Slopek of Image Arts for making a signifigant contribution to this trial run. "By doing this, we were able to shift the burden from one professor who has to know everything," he adds. "We were able to bring in experts who might have recently published an article or paper and we asked questions of them."

What excites Murphy is the potential for this technology. "With MBONE we could bring together people from diverse areas to participate in on-line courses. In effect we would be narrowcasting to geographically dispersed areas. This could eventually provide On-demand education for people who because of their work or other factors, are unable to attend a city centre. This is a means to life long education."

While more research is required, the recent test course has already prompted Murphy and colleagues to consider other ways to enhance the experience. "This technology is very user-friendly. While there are still some bugs in the Beta software, and there were moments when a particular site couldn't hear the audio, we found that one of the strengths was that it didn't involve a huge learning curve for the participants.

"Most people know how to pick up a phone and talk and this was for the most part, that simple and straightforward. While there are some simple protocols to work out, MBONE can quickly become one more tool in the arsenal, but we now have to experiment with using the technology in a more visual way. This involves a little more planning and pre-production. But it will be possible for a lecturer to take the participants to a Web-Site, or go to a Power Point presentation."

"MBONE uses shared tools that are readily available. It will be possible for small groups of people to arrange and participate in a session at a moment's notice. Both the cost and the aggravation level are low. It operates with an open universal standard and it is slowly gaining recognition as a world-standard for interactive video on the internet. I think this could in time replace video conferencing."supported by Industry Canada, 120 members and over 500 project partners. It has a 26-member board that represents the private and public sectors equally.

CANARIE's mission is to accelerate Canada's Advanced Internet Development and use by facilitating the development of Canada's communications infrastructure; stimulating next generation products, applications and services. It is a cornerstone of the Connecting Canadians initiative as well as an integral part of Canada's ability to maintain its global competitiveness and leadership in information technology.