

Issues in Networking for Entertainment, Graphics, and Data

Organizer:

Marke Clinger, FORE Systems, Inc.

Panelists:

Robert Amen, Cinesite, Inc.

Ray Feeny, RFX, Inc.

Chuck Garsha, Paramount Studios

Jim McCabe, Full Spectrum Networks

Mark Valenti, Sextant Group

This panel will not only discuss the state-of-the-art in networking graphics, video, audio, voice, and data, but will use the latest technologies to create a virtual panel. An audience at MIT in Boston, MA will be linked via a country wide Asynchronous Transfer Mode (ATM) network to the New Orleans Convention Center to participate "virtually" in this panel. Two way video and graphics will be transported over the ATM network to allow for full participation by the remote audience. That same ATM network will extend to Paramount Studios in Los Angeles, CA to allow a panelist to participate "virtually." This panelist will deliver his presentation from LA using an integrated platform to transport high quality graphics over the same infrastructure as the two-way full motion video.

During the panel the video-to-ATM equipment will be changed, providing the audience and panelists an opportunity to experience the different technologies.

The panelists are from different parts of the industry, but all are using advanced networking techniques and technologies to build the networks that transport multimedia. In addition to delivery of traditional data sets, these networks are built to deliver video, audio, and massive graphics files in real time. One of the networks that will be described was built to allow several auditoriums full of students to observe brain surgery and interact with the surgeon during the surgery. It now delivers traditional data and voice services too. Another network is changing the way a user will look at a network connection. When a studio space is rented to do filming, the production company will rent a network connection providing them connectivity and software services they need while on-site. The computers used can either be rented along with the network, or the customers can bring their own.

The latest video-to-ATM devices will be installed at the three locations. Equipment from several different vendors will be used to give the participants an idea of the quality and capabilities of different types of products. All equipment will support 30 frames per second video transported over ATM. Some of the equipment will also support integrated graphics and video support.

Panelists will present one of their projects that combines state-of-the-art networking with one or more of the following technologies:

- Computer Graphics
- Video
- Audio
- Voice (as in telephony)

The presentations will consist of an overview of the business drivers behind the project, the technical details, and the issues that arose during or after the implementation.

At SIGGRAPH 95, Eastern Carolina University used GraphicsNet 95's country wide ATM network to deliver two video streams and multiple data channels from their university to the LA Convention Center. Using the high quality video link, conference attendees were able to consult with doctors and specialists in North Carolina on health issues. A nurse at the convention center used stethoscopes and thermometers that were attached to the data network so that the remote doctor could view the results. With the high quality video connection and the data flow, a doctor could diagnose a patient remotely; however, these doctors are not licensed in California, therefore they could only offer advice. This is a good example of where technology has surpassed our laws that govern the way society interacts.

What other issues do people deploying advanced networking technologies run into? In local area networking, what are the concerns of the networking specialist? How well are non-technology savvy users adapting to the technology? Are the goals behind the deployment of the technology being realized? What type of functionality is missing? How easy is it to integrate graphics, voice, video, etc. into a network? What issues arose when doing this integration?

In local area networking bandwidth is considered free. The cost to run a fiber optic cable through the building is a relatively cheap one-time charge, so users tend to waste bandwidth. In the wide area network, bandwidth must be purchased, and it is very expensive. New technologies on the market are bringing down the cost to the service providers of this bandwidth. Is this bringing a reduction in the price to the user? What are the issues that need to be considered when connecting to a phone company? What technologies have the panelists employed? Which were successful? What problems did they run into with the different technologies?

During the course of the panelist presentations and the follow-on interactive discussion, these questions and issues will be explored.