

Movie networks

by Niall McKay on 13 November 2000, 00:00

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Each evening during the postproduction of *Mission: Impossible 2*, special effects wizards in London were zipping viewing clips across the Atlantic over a network to director John Woo for his approval. It was nothing short of a revolution in big-budget filmmaking. Previously, Mr. Woo would have had to wait for videotapes to be sent by air courier, often a two-day process.

In the coming months, a number of new high-speed data networks that connect major motion picture studios in Hollywood with film postproduction houses in Los Angeles, New York, London, and even Asia and Australia, will come online. Threshold Entertainment, [Lucent Technologies' GeoVideo Networks](#), and the University of Southern California (USC) Entertainment Technology Center's [HollyNet](#) have networks planned. The U.K.-based [Sohonet](#) as well as the telephone carriers [Pacific Bell](#) and [Verizon Communications](#) already have theirs online. The new networks are badly needed plumbing for the movie business. But the likelihood of oversupply looms, and the disappointing reality is that even these ultramodern pipes still aren't big enough to support the traffic needs.

SLOW MOTION

Such networks currently operate at only 270 Mbps. These networks aren't sufficient for transferring full-motion, uncompressed D1 video, the standard currently used by the film industry, which typically need to travel at speeds of up to 1.5 Gbps. With upgrades expected in the next 12 months, most of the new networks will soon be able to transfer digital video files at rates of up to 1 Gbps -- about 22,000 times faster than a 56.6 Kbps modem and about 650 times faster than a T1 line. The networks will give L.A. instant access to special effects wizards around the world -- an important task, since boutique postproduction houses around the globe carry out much of the specialized digital manipulation for Hollywood.

"Like the rest of the movie business, special effects is all about finding the right talent," says Larry Kasanoff, film producer and CEO of special effects house Threshold Entertainment. "I tried bringing special effects artists from London to L.A., but after a couple of months, they were either aching to go home or to make their own movies."

The solution, he says, is to hire the talent where the talent lives. Threshold has built a high-speed network with its technology partners [IBM](#), [NonStopNet](#), and [Sprint](#), and it now has access to more than 600 special effects artists globally. By spending several million dollars up-front on its own network, the company gains access to special effects artists in Europe, Israel, and Asia. Mr. Kasanoff estimates that the company can shave 20 to 50 percent off production costs.

Now Threshold is using its network to produce *Foodfight*, a new animated movie that the Korean animation studio Natural Image is investing equity in.

"We could not have made this movie five years ago," says Mr. Kasanoff. "It would have cost about \$100 million. I believe that we can make it now for around half that by creating high-speed connections between L.A. and Korea."

NET EFFECTS

But Threshold isn't the only game in town. Five years ago, a group of London-based postproduction houses that have worked on everything from *Jurassic Park* to *The Matrix* got together and decided to build a high-speed metropolitan area network. Their objective was to connect nearly a hundred special effects and editing studios in London's Soho district. Eventually, they hoped to build a high-speed link between London and Los Angeles. That way, when L.A. postproduction houses closed shop for the day, they could dump their work on the network and London could pick it up, work on it overnight, and have it back in Tinseltown in time for breakfast.

While that dream has yet to be realized, Sohonet is a local success. Most of the major postproduction houses in London use the company's network to transfer film and video footage. While the network connection with the United States is not sufficiently robust to transfer original footage (that still travels by air courier), it's good enough to send viewing clips (typically DVD quality) to directors and producers in Hollywood for approval.

Built on asynchronous transfer mode and IP technology, the international network uses fiber-optic cabling to squirt the data down the line at the speed of light. But organizing and reorganizing the information at each end slows the process down to 155 Mbps. So the company is turning to wave-division multiplexing (a method of using different colors of light to split the glass cabling into different channels). While until now the network has only been good enough to send viewing material across the Atlantic, within the next six months the company will upgrade the network so that it will transfer uncompressed original footage at speeds of 1 Gbps.

And while that is still short of the 1.5 Gbps needed, getting the data to L.A. is the easy part of the deal, according to Jon Ferguy, Sohonet's head of technology. "The difficulty is moving data from network hubs in L.A. across the last mile."

According to Cliff Schorer, CEO of GeoVideo, Los Angeles is behind London and New York in this respect. For one thing, L.A. is a much wider geographical area, and for another, true to the American style, many network providers have deployed incompatible technologies, limiting the functionality of every network.

In the short term, GeoVideo hopes to avoid this problem by creating a type of bureau service for the film, television, and digital content industries. For example, the company has built a 4,980-mile link between WNET in New York and KCET in Los Angeles, both affiliates of the Public Broadcasting Service. The network will run at 45 Mbps for the first six months but will undergo an upgrade to 10 Gbps, and later 40 Gbps, in the next two years. Content creators who need to send files between the two cities will do so through PBS stations, paying some sort of carriage fee. "It's kind of a Kinko's for the digital content industry," says Mr. Schorer. "Companies that need to get high-resolution content from one location to another can pop in to their local PBS affiliate."

In 2001, the company will add more U.S. cities, including Chicago, Dallas, and Philadelphia. London will become the first international hub in the

first half of next year, and by 2003 GeoVideo plans to have connections to more than 60 international locations.

Still, anticipating a meager response from professionals, the company is hedging its bets by planning to provide consumer applications as well. GeoVideo has penned a deal with **Sony** Entertainment to act as the delivery vehicle for Sony games, video on demand, and electronic cinema.

James Korris, CEO of USC's Entertainment Technology Center, says that in time, he will be able to remain in Los Angeles and oversee the production of on-location movies. Take the vision a step further and actors could perform on a virtual stage in New York, the director could be shooting on location in Canada, and the producers could oversee the project from their offices in Los Angeles.

It will be a while before that vision is realized. However, with the arrival of this new breed of networks, it should be possible among major metropolitan areas like London, New York, and Los Angeles.

But perhaps three major players, added to the bevy of offerings from telecommunications vendors like **AT & T**, Pacific Bell, and GTE is overkill. "It's easy to overestimate the amount of money that film entertainment has to spend," Mr. Korris says. "There's not enough business out there to support all of us." Which is not an uncommon phenomenon for new technology models.

ADDITIONAL RESOURCES

University of Southern California's **Entertainment Technology Center**, which is dedicated to developing technology that improves the Entertainment business.

This is an informational resource for people involved in or curious about the standards, techniques, and technologies involved in **digital video engineering**.

The **Advanced Television Systems Committee** (ATSC) is an international organization of 200 members that is establishing voluntary technical standards for advanced television systems. ATSC Digital TV Standards include digital high definition television (HDTV), standard definition television (SDTV), data broadcasting, multichannel surround-sound audio, and Satellite direct-to-home broadcasting.