

INTEGRATED MEDIA SYSTEMS CENTER
A National Science Foundation
Engineering Research Center at the
UNIVERSITY OF SOUTHERN CALIFORNIA

PRINCIPAL INVESTIGATOR

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Streaming: Yima - A Scalable Real-Time Streaming Architecture



Client Example



Server Example



BRIEF DESCRIPTION OF TECHNOLOGY DEMONSTRATION

Yima is a **scalable real-time streaming architecture** that enables applications such as video-on-demand and distance education on a large scale. Yima incorporates lessons learned from first generation research prototypes and it also complies with industry standards in content format (e.g., MPEG-2, MPEG-4) and communication protocols (RTP/RTSP). The Yima server is a scalable cluster design where each cluster node is based on off-the-shelf personal computer hardware. The Yima server software manages the storage and network resources to provide real-time service for many media streams. In order to recover from potential packet-loss with standard networks, we integrated a selective retransmission protocol into Yima's RTP server. The different Yima clients support a variety of display bandwidths from less than 1 Mb/s to more than 45 Mb/s. Yima pushes the industry envelope by supporting HDTV and multi-channel panoramic clients over standard IP networks such as the Internet.

The following list of media types have been successfully demonstrated:

- 5 channels of synchronized panoramic video
- 16 channels of synchronized audio (10.2 channel system)
- DVD, MPEG4, HDTV streaming
- Integrated synchronized HDTV and 10.2 channels of audio

