

Globecomm and SES AMERICOM Set the Pace in Satellite-Delivered IPTV

In September 2005, SES AMERICOM launched its IP-PRIME™ satellite solution enabling telephone companies in the US to bundle hundreds of television channels with their voice and broadband services. The service launch was quickly followed by the announcement of agreements with the National Rural Telecommunications Cooperative and the National Telecommunications Cooperative Association and their more than 1,000 telco members, as well as with Bell South.

To realize the ambitious vision of IP-PRIME, SES needed to engineer a program acquisition and distribution system for the new world of IPTV. Called a Super Headend, the facility would have to ingest content provided by fiber, satellite and tape, and then manage, encode, schedule and encrypt it for distribution, all with a high degree of automation.



Broadcast and IP Network Experience

To meet the challenge, SES AMERICOM selected Globecomm to design and integrate the Super Headend, and Scientific Atlanta to supply the network management system that runs it.

SES AMERICOM chose Globecomm based on the company's long experience with traditional

broadcast systems as well as its unique expertise in building next-generation IP networks. Scientific-Atlanta was selected to provide the MPEG-4 encoding system for the network and its ROSA Network Management System.

Making Next-Gen Work

Much of the world's television and radio programming moves through digital transmission systems and studios built by Globecomm. The company earned its reputation by developing up-link, program acquisition and digital video broadcast systems for DTH, cable and broadcast networks including DirecTV, CBS, ASkyB, Fox, Nile-Sat, Shinawatra, TVB/ERA, and Israel DBS.

In the past decade, Globecomm has also developed a specialty in engineering and operating next-generation IP networks that involve "a little bit of satellite." In theory, next-gen networks offer high performance with less complexity at a lower cost. But achieving these goals can be challenging, because most of today's network devices, particularly for broadcast video, were designed before IP became a dominant standard. Satellite links themselves can offer an inherent challenge to IP, because the time that signals take to reach the satellite and return is longer than IP was originally designed for. Unless the network is conditioned to handle these challenges, performance can suffer and costly bandwidth can be wasted. In developing networks for a broad range of applications – from military comms-on-the-move to video distribution – Globecomm has built expertise in managing the many protocol translations and "tweaking" the network interfaces for maximum throughput.

Designing for the Future

With a new broadcast center serving a completely new market, the one certainty is change, according to Tom Parish, Globecomm's Vice President for Broadcast Technology and leader of the broadcast center project for IP-PRIME. The facility had to be engineered to acquire content from multiple sources. It needed a stable and robust technology platform that could be adapted and scaled as

Executive Summary

In September 2005, SES AMERICOM selected Globecomm to design and build the Super Headend for its new IP-PRIME service. Drawing on years of experience developing traditional broadcast facilities as well as designing next-generation IP satellite networks, the company delivered a complete program acquisition and distribution facility designed to adapt smoothly to the changing demands of the new service. ■

needed. And, it all had to meet the high availability and reliability criteria required by SES AMERICOM, and the quality standards that program providers and operators would expect.

Globecomm covered the satellite access requirements with a 7-meter Simulsat multi-beam antenna from ATCi capable of accessing up to 37 satellites within a 75 degree arc at the same time. Supplementing this was a 4.5-meter motorized antenna capable of accessing the entire domestic arc. Feeds from the antennas were directed to Low Noise Block (LNB) down-converters located in an environmentally-controlled cabinet, and the resulting signals routed via Foxcom's Sat-Light L-band interfacility links to the broadcast center.

The flexible design included Integrated Receiver Decoders (IRDs) for over one hundred programs in full 1:1 redundancy, with ability to scale as needed. The design featured IRDs for standard definition (SD) analog NTSC, SD Analog NTSC with VideoCypher II, SD Digital with encryption

and SD Digital DVB without encryption. The integration included cabinets housing up to 10 IRDs with L-band divider-splitter assemblies for signal processing and video and audio monitoring equipment. The facility is HD-ready throughout.



To meet SES AMERICOM's demands for extensive and instantaneous quality control, Globecomm integrated SA's ROSA network Management System, its own AxxSys Network Management system for the program acquisition hardware, and the Evertz MVP Multi-Signal Monitoring Solution, which provides automatic monitoring of the video and audio feeds.

As the systems integrator for the IP-PRIME broadcast center, Globecomm worked closely with SES personnel to define the end-to-end design, as well as on construction, hardware and software acquisition and testing, integration, documentation, training and specification of spare parts. The company also coordinated closely with Scientific-Atlanta to ensure that its systems integrated seamlessly into the Super Headend solution.

The IP-PRIME assignment made Globecomm one of the first companies to design and deliver an all-IP, MPEG-4, satellite IPTV Super Headend. With the industry demand for IPTV-based services, the SES AMERICOM facility is certain to see heavy use in the months and years ahead. ■

A little bit of satellite goes a long way



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IPTV Expected to Be Video Growth Market

A selection of forecasts from research and consulting organizations around the world suggests that IPTV will be a strong contributor to growth in video:

- IPTV subscriber revenues worldwide will top \$9.9 billion in 2009 (Multimedia Research Group, *IPTV Global Forecast 2009-2009*, September 2005)
- The number of IPTV subscribers in North America will increase 12,895% from 2004 to 2009, when there will be 53.7 million subscribers worldwide. (Infonetics Research, *IPT Equipment and Services Market Outlook*, November 2005)
- The number of IPTV subscribers in Europe is poised to increase to 8.7 million by 2009, up from just 658,000 today. (Screen Digest, *European IPTV: Market Assessment and Forecast*, November 2005)
- Satellite-based revenues from IPTV between 2005 and 2010 are expected to exceed \$1.6 billion, while terrestrial services will produce over \$7 billion in 2010 alone (Northern Sky Research, *IPTV Via Satellite*, September 2005).