CASE STUDY

PBS sIX

SERVICE INTERCONNECTION

ATEME

CASE STUDY

PBS is one of America's most revered networks. Updating the PBS technical infrastructure to meet the demands of a new digital distribution world was a vital initiative to ensure the long-term vitality of this important source of programming. Ateme, Inc. offered the ideal platform to meet PBS' objectives.

PBS sIX Objectives: The rationale behind the project

PBS had a vast IP network in-place connecting 170+ member stations. This network supports the sharing and distribution of non-linear file assets between stations. The MPLS circuits are provided by a leading connectivity partner, while the technology platform for the system is powered by a specialized provider. PBS had the option to expand the bandwidth on all circuits to support future applications.

The primary objective was to expand the system to support the migration from satellite, in preparation for the end of service of SES AMC-21. This transition moved content delivery between distributors and PTV sites to a terrestrial solution. Additionally, the project aimed to optimize delivery costs and pave the way for new service possibilities in the future. Each station would receive 5+ network feeds for integration into local ATSC 1.0 and ATSC 3.0/NextGen TV broadcasts.

Each station could also encode 2x HD streams. The main ".1" channel would be fed to YouTube TV, Hulu and other vMVPDs. Ensuring distribution on new digital platforms is critical to PBS' vitality. The second HD stream can feed an alternate stream to vMVPDs or be used to distribute live event content to other PBS member stations on a national or regional basis.

While satellite life-line service would be maintained, space segment costs would be reduced by approximately 50% by dropping from 2x transponders to 1x, needed only for backup or primary purposes. The vendor chosen needed to provide a solution to automatically default to satellite life-line service if there was a loss of signal from the MPLS circuit.

There were other important criteria as well including:

- Global monitoring and control
- Low-latency encoding with superb Picture Quality -PQ-
- Full redundancy, high reliability
- Flexible license model with multi-CODEC support
- Outstanding service and support organization

Ateme's TITAN Edge, combined with the Pilot Manager orchestration, proved to be the ideal platform for this project

The integration with Pilot Manager ensures efficient orchestration and seamless configuration for various use cases. TITAN Edge is a flexible and dense software solution leveraging COTS servers with a hardened Linux OS, offering versatile capabilities such as encoding, decoding, and gateway functions. It also introduces new features and enhancements, including frame rate conversion, HDR support, and more, all of which can be easily enabled through simple software upgrades..

Primary and Back-up servers can deliver genlocked streams that replace traditional satellite transmissions while also encoding 2x HD streams. A satellite receiver module can

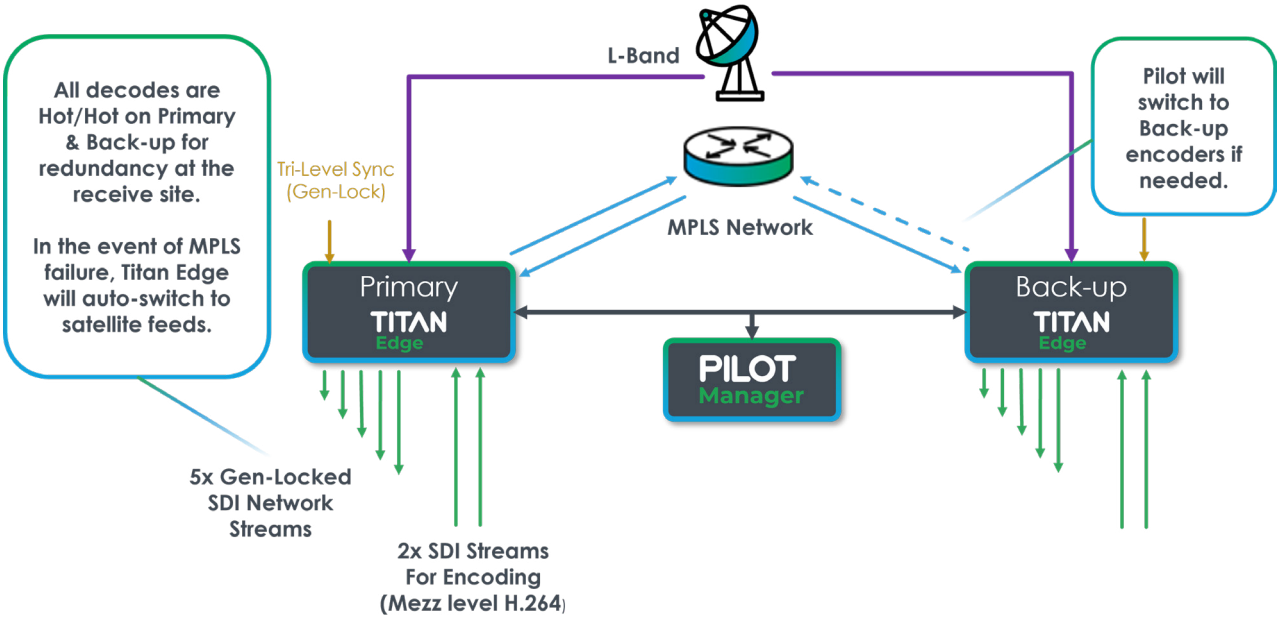
be added to tune the life-line satellite L-Band signal and automatically default to the appropriate satellite stream if the MPLS circuit has a failure, or reverse the process if the affiliate has chosen the satellite as the primary feed.

The encoded streams are low-latency with high PQ AVC encoding. The Ateme license model supports a future migration to a more advanced CODEC such as HEVC.

Ateme's Pilot Manager enables global monitoring and control of the entire system to ensure optimal performance 24/7/365. Pilot Manager runs in the AWS Cloud and connects via the MPLS circuit to all devices.

Ateme was also selected due to our superb service and support organization and demonstrated ability to work cooperatively with other vendors in the ecosystem.

System Architecture at each of the 170+ PBS Member Stations



Summary

While there were numerous proposals received during the RFP process, Ateme technology proved to be the winning formula. The project has been a success.

Many lessons have been learned throughout the course of the project. This knowledge will be valuable to other networks that want to migrate away from satellite to IP-based distribution. Key takeaways include the importance of addressing latency differences between delivery methods, adopting a phased migration approach to allow time for overcoming unforeseen challenges, and ensuring the technology is equipped to handle the inherent packet loss and jitter in IP networks.

As C-Band satellite space is harder to procure and other paths such as Ku-band have inherent issues such as rain fade and sun outages, IP delivery becomes an ideal alternative. Ateme is ideally positioned to work with our customers and channel partners to architect solutions to meet this growing need.