

Pennsylvania Cable Network Case Study

Replacing Satellite Transmission
with Reliable Internet-based
Distribution Solution

VideoFlow's DVP Enable Pennsylvania Cable Network (PCN) to Replace Satellite Transmission with Reliable Internet-based Distribution Solution

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"Using VideoFlow's DVP products to distribute PCN programming to our cable headends over IP, we get the same high level of reliability we had with satellite, together with enhanced visibility and insight into network issues."

Mrs. Debra Sheppard
COO
Pennsylvania Cable Network

PCN's Drivers for Satellite Replacement

Pennsylvania Cable Network (PCN), a non-profit statewide cable television network with 10 million viewers, uses direct fiber connections to distribute live programming from its main HQ site in Camp Hill to the Comcast and Verizon cable systems and previously used satellite links to distribute to an additional 30 headends across the state.

According to Dean Vaccher, PCN Engineer, a key driver for replacing the satellite-based transmission with distribution over IP was the addition of high definition (HD) channels to PCN's channel lineup. Previously, it only distributed standard definition (SD) NTSC 525 channels over C-band satellite links, with a yearly cost consuming a large chunk of its network operations budget. By replacing its satellite-based transmission with distribution over IP, PCN would be able to add HD channel distribution at a significantly lower cost than satellite.

"As we began to roll out HD to our headends, we realized that we needed a more affordable solution for distribution without sacrificing reliability," said Debra Sheppard, PCN's COO. "If we had continued to use a C-band satellite for HD video delivery, our monthly costs would have been considerably higher."

Another advantage of replacing satellite transmission with an IP network is that the latter enables bi-directional communication (unlike satellite) for network monitoring. PCN wanted better control and visibility of network issues and the ability to receive proactive alerts on potential issues. "We wanted to know ahead of time if there was a problem, rather than waiting to receive a call from our viewers and then scrambling to respond," said Vaccher.

VideoFlow Enables PCN to Leverage IP Network Distribution Economics

With these requirements in mind, PCN evaluated alternative distribution methods before selecting VideoFlow's Digital Video Protection (DVP) products for video distribution over managed and unmanaged IP networks. DVP met all of PCN's requirements in terms of cost-effectiveness, reliability, confidence monitoring capabilities, and ease of use.

Using DVP, PCN has replaced its satellite links with a highly reliable distribution network over IP. VideoFlow's Emmy® award-winning technology delivers broadcast-quality SD and HD video by making sure no packet is lost. Also, DVP provides PCN with advanced features such as real-time ETR290 stream monitoring and visual confidence monitoring, to simplify operations, reduce the meantime to repair, and further reduce total cost of ownership (TCO).

Reliable Live Broadcast over IP

PCN engages in public affairs programming and does not receive tax dollars. Its business model is entirely dependent on payments from cable TV companies based on the number of cable subscribers. For that reason, 99.999% (five nines) service availability is crucial. If its distribution network is down, cable systems are not receiving PCN's programming, and millions of viewers are getting a black screen.

"Not only does VideoFlow's solution for content distribution over IP achieve reliability levels comparable to satellite links, it also enables us to know sooner when the system is down," said Vaccher. "VideoFlow DVP lets us constantly monitor the amount of bandwidth being used, so we can immediately and proactively react to any issue that may arise, rather than responding to a call from our viewers after the fact."

Ultra-Fast Deployment and Remote Management

Following its decision to deploy VideoFlow's IP-based distribution solution, a failure occurred with the C-Band satellite PCN used for transmission. To accommodate this unexpected situation, PCN decided to expedite the VideoFlow deployment.

To meet the accelerated timetable, PCN engineers drove around the state and deployed the system at each of the 30 headends. The entire distribution network was up and running **in 3 weeks instead of the original 6-month rollout plan** and has been working smoothly ever since. "VideoFlow's highly professional technical team had our back through every stage of the deployment, helping us to bring up the network in a remarkably short period," said Vaccher.

In addition to delivering sustained, high-quality video distribution, DVP built-in monitoring features make it easy for PCN engineers to identify and troubleshoot issues across the network. "Our engineers appreciate DVP's confidence monitoring and management capabilities," added Sheppard. "With satellite, there were times our engineers had to drive out to remote sites and manually realign the satellite dish after a storm. DVP's remote access and configuration definitely save maintenance time and money."

Looking Ahead: Cloud-Based Disaster Recovery

PCN currently operates two redundant VM servers (each with a VideoFlow DVP sender instance) at its NOC in high availability (online/standby) mode for 24x7 service continuity, as well as one DVP receiver at each cable headend. Two dedicated 300 Mb/s fiber links connect the NOC to the internet, each connected to a different ISP to ensure no single point of failure.

PCN is considering adding VideoFlow's fully redundant configuration to the cloud to support disaster recovery and further augment service continuity. Adding a cloud-based distribution point means that if PCN's main building fails, it could immediately recover by sending the content to the cloud from any location.

Results and Benefits

With the VideoFlow DVP solution operating 24x7, PCN has been able to reduce costs and simplify operations:

- **Reduced operational costs** – PCN leverages IP network distribution economics by replacing expensive satellite transmission with standard internet.
- **99.999% availability** – DVP's patented Emmy® award-winning technologies help PCN achieve reliability levels comparable to a satellite link.
- **Simplified operations** – PCN engineers at the NOC remotely access, configure and manage DVPs at cable headends, thereby streamlining maintenance activities.
- **Better network control and visibility** – Real-time network and stream monitoring enable PCN to proactively respond to distribution issues rather than wait for a call from its viewers or cable headends.

About PCN

PCN is a non-profit cable television network available to 10 million viewers in more than 3.2 million homes across Pennsylvania. With its beginnings in educational television, today PCN offers live coverage of Pennsylvania public affairs, high school sports, and history and culture. PCN prides itself on technology innovation and is committed to utilizing best-of-breed technology to best serve Pennsylvania's citizens.