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Broadband Media Access in Humboldt County

Utilizing Fiber to save time/money and increase services.

SITUATION: Rural communities are more impacted by rising fuel prices than urban and suburban communities, and remote rural communities are harmed even more. Humboldt County, California is one of the most rural and remote in the State (six hours north of San Francisco) and filling your tank costs 20% more here than elsewhere in the State. Located on the Redwood Coast, Humboldt County is larger than Delaware and Rhode Island combined and is served by a single Non-Profit PEG Operator, Access Humboldt. During franchise negotiations access to the cable television operator's wide area fiber network was fought for, and leadership at Access Humboldt has made it a priority to utilize this fiber network to accept both live and pre-produced video from over a dozen high-speed data drops in libraries, colleges, and municipal buildings up to 32 miles away from their office in the County seat of Eureka.

Due to its remote location, fuel costs are 20% than elsewhere in California.

PROBLEM: While Access Humboldt was already cablecasting multiple channels with a recent generation video server, it was not able to decode MPEG-2 Transport Streams being sent over the fiber as IP. Seeking to accomplish this with open standard encoders, Access Humboldt discovered that all TelVue Princeton Broadcast Servers decode standard MPEG-2 IP streams using the same high-quality hardware MPEG decoders used for file-based playout. This eliminates the need for a separate IP decoder and seamlessly integrates these live events into the primary playback schedule and simplifies reporting.

Future plans to implement kiosk-based DVD importing from locations around the county led Access Humboldt to seek out a server-based, cross-platform DVD import application. They were pleased to learn that every TelVue Princeton Broadcast Server includes, at no extra cost, a DVD Import hot folder for adding content from DVD's with a single drag-and-drop action.

- **Need to stream live video over IP directly on-air using fiber network.**
- **Desire for centrally supported, remote DVD ingest from kiosks.**
- **Linux based reliability and ease of remote scheduling.**

TelVue Princeton™ Series Servers

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SOLUTION: In July 2008, Access Humboldt purchased the four-channel TelVue Princeton B3400 and the new, small form-factor TelVue Princeton B100, along with numerous open-standard MPEG-2 IPTV encoders (including the Blonder Tongue IPME-2). Within days they had the B100 installed at the Cable head-end, were running the B3400 at Access Humboldt's new master control, and had begun setting up MPEG-2 encoders at remote fiber drops.

Julie Ryan schedules the server playback for later in the week while the broadband forum is simultaneously cablecast using the same fiber connection.

On August 18, 2008, Access Humboldt went to air with a live meeting from the Fortuna City Council chambers using the IPME-2 and TelVue Princeton servers for the first time. The IP stream travelled over 20 miles of fiber and went through the encoding and decoding process twice (once to get into Access Humboldt's master control, and a second time for the connection between Access Humboldt and the cable head-end). Visual inspection of the return signal showed marked improvement over content being broadcast over the traditional coaxial system using analog transport solutions.

Three days later, Access Humboldt broadcast a full-day regional forum on Rural Broadband needs from the Fortuna River Lodge, another location on the fiber network. Live coverage of the forum was streamed as IP to the server and cablecast making the event available in real time to folks around the County. A return feed in the conference hall showed a crystal-clear signal with less than a 10-second delay, even after being encoded/decoded twice. Presenters at the conference were able to speak to a broader audience and Access Humboldt was able to create value for dozens of agencies, while also demonstrating the benefit of broadband media networks for connecting communities across the County.

EVALUATION: Now that Access Humboldt has proven the effectiveness of IP streaming, they are turning on additional locations. Because they have dedicated fiber at each location they also have the ability to upload pre-produced video directly from DVD's using the DVD Import application. This allows content to be added much faster than real-time from Cities and other locations where the programs originate, saving substantial driving miles for those who previously participated in the "sneakernet" transmission method. Future plans include publicly accessible kiosk's at these distributed locations where community members and organizations can drop off content by dragging it into the drop folder. Because the DVD Import application is centralized (running on the server itself) this can be accomplished with any computer, including existing Windows PCs, Mac's used for other production, or low-cost portable Linux laptops. Importing can even be accomplished with a community member's own laptop or other device if they prefer to import the content from their car over free public WiFi – a service that Access Humboldt is also developing as part of their community broadband media access efforts with local cities, public libraries and community centers.

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