

AVC-Group Jumps on the PungaNet

New Zealand Broadcaster Replaces Outdated System Using Telos iPort

USERREPORT

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AUCKLAND, NEW ZEALAND — AVC-Group operates a large, national, audio contribution/distribution network for 23 radio stations in New Zealand, called "PungaNet." This service allows the 23 indigenous Maori radio stations to share and distribute content in real time. It's very different from your standard one-way distribution network.

Four years ago each station used an ISDN codec connecting over 128 kbps, x.25 synchronous circuits to a native MPEG router of our own design. Then Telecom NZ announced the end of x.25 circuits, and a fortuitous chat with Steve Church of Telos Systems saw the genesis of the Telos Zephyr iPort MPEG Gateway.

GENESIS

The Zephyr iPort is a 2RU box with eight IP codecs inside. Studio-side audio

I/O is via Axia's Livewire IP audio.

For convenience, there are two RJ-45 Ethernet connections on the rear, one for Livewire and the other for the Wide-Area Network (WAN) connection for the encoded audio streams. Each internal IP codec can be configured separately at different bitrates, sample rates, even different algorithms including AAC, HE-AAC, AAC-LD, MP3, apt-X, MPEG Layer II and uncompressed PCM. Each can provide point-to-point or point-to-multipoint (using multicast) studio connections, act as an STL link or provide an encoder for in-house audio distribution and Internet streaming.

In New Zealand's PungaNet, iPort codecs have replaced the old, single-channel ISDN codecs. WAN IP circuits of 2 Mbps have replaced the 128 kbps x.25 links. And where before there was one feed per station, now there are eight bidirectional stereo codecs that can operate simultaneously. PungaNet's 25 iPorts have been operating continuously for just over two years and haven't missed a beat.

Conveniently, all stations had previously upgraded to Axia studio systems,

so adding an iPort to each station's Axia network was simple. We plugged each iPort to the Axia Livewire network using a Cat-5e Ethernet cable, then plugged each iPort's WAN connection into a Cisco router.

The iPort also offers mixing capabilities through the built-in V-mixer and V-mode functions. Familiar to Axia Livewire users, these are virtual mixing and audio mode configuration tools. Eight of each are inside the iPort with each V-mixer capable of controlling levels and mixing five inputs to a single stereo output, or provide five independent gain controls.

For Axia users, control of levels and channel on/off is provided remotely following an Element mixing control surface. This allows talent in a booth miles from the studio to hear a clean-feed in their headphones, as if they were connected directly to the console.

V-mode provides manipulation of audio channels including down-mix, up-mix left to right, right+left to left, surround to left and right, and other combinations. If you want to create a talkback source that would go only



Igor Zukina and several Telos Zephyr iPorts

to the left channel of the host's headphones, V-mode will do it.

Any of the sources in an Axia studio, or the iPort's own sources such as the decoder outputs, V-mix and V-mode outputs, can be routed to any encoder input or any V-mixer input. This creates a fully controllable and functional audio router.

The Zephyr iPort is straightforward

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that we establish an IP address and answer a few questions about the connection requirements. Of course it was a big help that we had plenty of Cisco experience, as setting up a router can be trying if you haven't done it before.

RELIABLE

We tested the entire arrangement on the workbench thoroughly, sending audio out one channel and looping it back through the other channel with no issues. After a few days of trouble-free operation, and given that our other choices were less desirable, we issued a PO to purchase the demo units Tieline had sent us.

We have now been using the Bridge-IT on our T1 STL line for about half a year with no significant issues. They

simply work all the time.

When our T1 line goes down we are able to log in to either of the Bridge-IT units as well as our routers and see what is happening. We have our own error statistics, and we are no longer at the mercy of Verizon. We can tell them what kind of error we are experiencing and what end of the line it is on; we can tell when it has been fixed.

This is radio in the computer age, using readily available computer hardware and techniques to achieve the same goal, and doing so easier and better.

A word of caution about quality of

service: If you are also using your T1 line for data, you will need to handle QoS priorities in the router configuration. This means being sure that the Bridge-IT always has priority and that the UDP packets are never delayed.

We found this out the hard way when we went to transfer a few big files through the line and it really garbled our audio. We were aware of this ahead of time but never got around to doing what was required to assure that the Bridge-IT always got what it needed for our uncompressed stream. Our older legacy system handled this in the hardware, so you

could be assured your audio was uninterrupted, and data transfers were only accomplished with the little bit of extra bandwidth. Using standard routers and any type of audio to network converter box is going to require you to consider QoS when you set up your system.

In conclusion, we couldn't be happier. We have the real-time statistics and access that we need in a reliable device that gets the job done. Did I mention the price is real reasonable?

For information, contact Mary Ann Seidler at Tieline in Indiana at (317) 845-8000 or visit www.tieline.com.

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to install. It's configured primarily by its Web interface. Set an IP address on the front panel, then connect with your browser from anywhere on your LAN. Once set up, you can remotely back up and restore configurations via the Web interface. The iPort will write its entire setup into one file; restoring an iPort from a backup to a configured and working state takes less than a minute, including reboot time.

The iPort is designed to be connected over a managed IP network that provides Quality of Service (QoS) protocol. It's not intended for use over the public Internet; the Telos Z/IP codec is the tool for that job.

Multicast protocol can provide distribution of a single audio source to multiple receiving codecs. Be careful here because MPLS (a QoS implementation) does not support dynamic multicast routing using IGMP (Internet Group Management Protocol). It is technically possible but expensive for the telco, so usually only static multicast is supported.

At a cost of around \$650 per codec I believe the Telos iPort is an amazingly good buy. If you already have Axia studios, choosing the iPort is obvious. If you don't there is still a good option: a single Axia node (analog or AES/EBU) connected directly to the Livewire port will provide an interface for typical broadcast I/O.

For information, contact Telos in Ohio at (216) 241-7225 or visit www.telos-systems.com.

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