

Seeing Into a Signal

MONITORING | *You've Got Mail—From a Transmitter*

by Deborah D. McAdams

Did you hear the one about the chief engineer who logged onto the WiFi network at Starbucks and fixed lip-sync problem at a station half-way across the country?

No, you did not.

The broadcasting business is not there yet, even though it seems a logical capability, if not down right pedestrian. People can bank, trade stock, buy cars and search outer space for signs of life from a laptop in a coffee shop.

"We'll see TV engineers at the Starbucks with their BlackBerrys, receiving messages from monitoring system alerting them to things that are going wrong," said Michael Steele, director of monitoring, control and channel release systems at Harris Broadcast, headquartered in Mason, Ohio. "We're working with just that very type of system."

It may be a year or two down the road, but that's about the time folks making test and measurement gear and remote monitoring software expect demand for those technologies to pick up steam. Ralph Bachofen handles product management for Triveni Digital in Princeton, N.J.

"T&M is all nice and dandy, but the priority is to get the signal out *now*," Bachofen said. "In 2009, when they start getting calls from viewers that can't see their signals, they'll start thinking about T&M... In 2009, if my digital signal goes down, I start to lose revenue."

Triveni offers individual devices for situating at critical signal points that can either be eyeballed or tracked with a recently introduced hierarchical device.

For the time being, however, it's not unusual for stations to monitor their signals with a set-top box of some sort. Take the Defense Media Center of the Armed Forces Network in Riverside, Calif. The sprawling complex at March Air Reserve

Base is the home of the distribution point for all of the military's radio and television transmissions, which go to bases and seagoing vessels around the world.

MAIN MENU The DMC is in the midst of installing Observer, a desktop signal monitoring system from Volicon in Burlington, Mass. The installation represents a significant shift from the facility's technology.

"We we're using modified TiVos, and they are very time consuming when going back to see what happened on any particular channel, date and time," said Jerry Shorter, DMC chief of broadcast engineering.

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—Jerry Shorter, Defense Media Center

Gary Learner describes the TiVo as a passive application, versus the active capabilities of online remote monitoring.

"It might be hours or days before a problem is detected," he said.

Potential problems cover the spectrum, so to speak. One early digital multicast in the Washington, D.C. area reported an outdoor temperature of 943 degrees for several hours before it was reported by an at-home ocular monitoring system.

No one actually roasted, and revenues were left intact, but not all such scenarios are merely amusing.

"If I am the station management," Learner said, "and one of my clients, the local Ford dealership, called and said, 'I ordered a spot on this local news broadcast to advertise my sale this weekend, and I didn't see it.'"

At that point, someone can either be tethered to the TiVo, perform a keyword search of the closed-caption stream, or better yet, nothing. Like many remote-monitoring systems, Volicon's can be programmed to issue an alert when something isn't where it should be.

"The notification is immediate," Learner said. "We are not going to wait for the customer to call up."

NATURAL PROGRESSION The application of remote monitoring in broadcasting is reaching that nexus where infrastructure, resources, cost and functionality intersect. TV station infrastructures are increasingly networked on Ethernet and IP layers, which in turn support Simple Network Management Protocol, the basis for all network remote monitoring functions.

The result is that stations rarely function like islands any longer; several might share a single back office similar to early models of mainframe computing.

Monitoring technology adapted accordingly. Steele said Harris's initial software applications were geared mostly toward Harris products.

"It's moved beyond that now. Because of SNMP, we can look at more of the whole workflow in the whole broadcast chain, across the whole transmission path, in the facility, out of the facility and on remote sites," he said. "You can see problems and see the devices that are causing problems."

Russell Wise, vice president of worldwide sales at Volicon pointed out another catalyst driving awareness of remote monitoring.

"There are other factors in business making people take notice of this technol-



PHOTO COURTESY OF VOLICON

The American Forces Network Broadcast Center in Riverside, Calif., where monitoring was being done with a modified TiVo before the facility was migrated over to a Volicon Observer system.

ogy," he said. "They're almost forced to, because staffs are getting smaller. There's no one to eyeball the signal all day long."

MULTIPLE APPLICATIONS The ways to apply remote monitoring technology are limited only by imagination. Volicon's evolved out of a project the company did for CBS when the network wanted to keep an eye on what competitors were streaming on the Internet.

"Then someone wanted to superimpose user ratings," said Vice President of Marketing Julius Perl. Another wanted to monitor a secondary audio feed.

The technology is also being used to keep tabs on local ad insertion and to track signal quality through cable and satellite distribution. Screen Subtitling Systems of Ipswich, England, developed an Internet-based remote application to monitor its own systems, according to its chief technology officer, Simon Hailes.

"Subtitling as a broadcast process is often the last thing considered during a new build, and it's more complex than anticipated by many customers," he said. "Specifically, once the system is up and running for a particular customer, the engineering staff rarely need to visit or understand [it] in detail, which inevitably leads to the local engineering not having sufficient knowledge to diagnose a complex

issue when it occurs—any amount of training does not prepare an engineer for in-depth technical diagnosis if the first issue he comes across happens 18 months later.

"Prior to use of remote access technologies, supporting the products was a combination of telephone, e-mail and postal support. A typical issue may have taken three to four hours of telephone support over a number of days."

The company's system is being used by The Metropolitan Opera for its live, global HD broadcasts.

Genesis Networks in New York also applies remote monitoring to its own product—worldwide bandwidth-on-demand transmission. Paul Dujardin of Genesis explains.

"We have built a system in-house that we call 'Iris,' which allows customers complete control and monitoring of the broadcast video transmission network we have built," he said.

Iris maintains a real-time inventory of network bandwidth, as well as encoder, decoder, router and converter capacity. The Iris interface handles both monitoring and booking.

"There is another tool that Genesis provides, which allows a customer to view the video and audio content of their feed at various points across the network using a streamed output of a wave-

form/vectorscope," Dujardin said. "This allows a visual look at the actual content as it traverses the network. This is also accessible via the Internet."

ROUND PEGS, SQUARE HOLES The uses for remote monitoring go on, but the means to apply it remain limited by reality. As much as everything is IP-based, formats and functions branch off into every conceivable direction. Nowhere do issues of interoperability become more apparent than applications intended to oversee entire systems.

Steele said Harris is creating a lab in Toronto for the sole purpose of addressing interoperability.

"If you're designing an application that has to monitor all kinds of different products—and it's guaranteed every body's doing something different—it isn't a slam dunk to say, 'I'm SNMP-enabled.' You need to spend a fair amount of time making sure you're capturing the data and interpreting it correctly."

The interoperability lab will focus on the broadcast facility and the "workflow throughout the plant," Steele said. "There are so many aspects in the workflow that it can be off just enough so that it can really cause problems."

Perhaps that grande latte is only a few interface tweaks away.