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Monitoring & logging redefines broadcast T&M

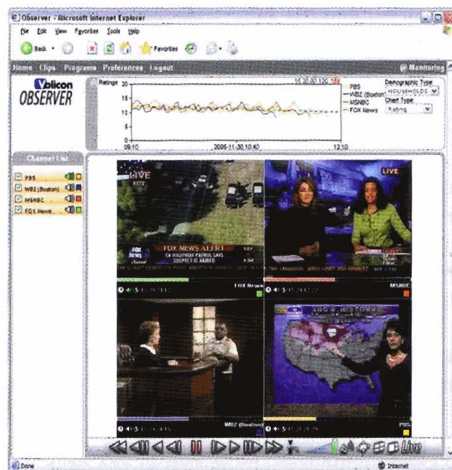
JOHN HOOKER, marketing project manager for Volicon, reports.

Quality of service and quality of experience have never been more important to broadcasters and cable operators, who today face growing competitive pressure to convert to fully digital operations and provide high definition offerings to discriminating viewers. For these broadcasters, test and measurement is taking on broader dimensions than its traditional realm of validating broadcasting equipment or network designs. Savvy broadcasters are now placing more emphasis on the viewing experience, and on finding solutions that will enable them to test the outgoing signal and troubleshoot video faults and errors before they become customer complaints.

By enabling broadcasters to deliver the highest quality viewing experience possible, today's leading-edge video monitoring and logging solutions offer a powerful competitive weapon, and as such, they are redefining the world of broadcast test and measurement. This article will explore the application of advanced video monitoring and logging in a broadcasting quality management and testing environment, as exemplified by the Volicon Observer.

In a broadcasting environment, test and measurement traditionally refers to those functions or procedures for validating implementation of designs, whether for a piece of equipment or an entire network. This type of testing occurs before the equipment has been placed into production, and involves spot measurements with tools such as MPEG analysers, SDI waveform analysers, or handheld circuit testers to determine that the design meets expectations or if additional adjustment or redesign is necessary.

After the equipment is validated, how can broadcasters ensure that video quality is maintained once the system goes live? For decades, the most basic approach to this problem has been to videotape broadcasts and then subject the recordings to human eyeballs. Since it's impractical to commit hours of an operator's time to manually reviewing tapes, and no human operator is capable of catching every fault, this approach is falling out of



favour in many broadcast environments. Considering the massive shelf space required for tape storage, tape-based monitoring is incongruent with today's increasingly file-based digital broadcasting operations.

These challenges have led to the emergence of a small-footprint, automated solution completely dedicated to content recording, monitoring, and fault identification. This solution combines an off-the-shelf server with adequate storage capacity and a powerful but easy-to-use software package, that extends 24/7 access from a standard Web browser running in the corporate network. Other features of such a system include searches based on closed captioning text, the ability to drive tunable video sources like set-top boxes, and the ability to send email alerts. The system provides continuous recording of the signal and issue alarms when video faults are identified, such as macroblocking, black screen, or missing audio. The operator may then replay the video at the timestamp in which the alarm was issued, to troubleshoot and remedy the problem.

In contrast to spot testing equipment, these monitoring and logging systems give operators the ability to test signal quality downstream, installed at multiple points in a live, production broadcast stream. This makes it easier for engineers to identify the stages at which errors begin to appear as new components are

introduced. The monitoring systems are designed to operate as passive components that work outside of the main broadcast chain so as not to interfere or interrupt the production workflow.

Boosting quality of service at Cable Onda

Such a tool is the Volicon Observer, an advanced desktop media monitoring solution that captures, stores, and indexes broadcast content from multiple channels, offering users simultaneous, 24/7 access to video from their desktop computers. The Observer brings new levels of efficiency to such tasks as monitoring and troubleshooting transmissions, ensuring compliance, verifying advertising broadcasts, and tracking and analysing viewer ratings and PR information. Volicon offers a specialised version of the Observer, the RPM (Remote Program Monitor), designed specifically for cable television MSOs, independent cable operators, IPTV, and satellite providers.

Cable Onda, Panama's largest cable and broadband services company, is among those providers. Recently, Cable Onda installed two Observer RPM systems to automatically scan and troubleshoot the company's complete lineup of more than 200 digital and 100 analogue channels. The Observer RPM systems enable Cable Onda to monitor its transmission proactively from its central NOC for more efficient operations and a better quality of service. The Observer RPMs are installed at the company's headend in Panama City, with plans to deploy the system to remote hub sites located throughout Panama.

At Cable Onda, the Observer RPMs cycle through the entire channel lineup 24 hours a day, briefly scanning each channel to detect faults, such as low or missing audio, black or static screen video, or missing video. When a problem is detected, the system automatically generates and sends a text message to the responsible operator's cell phone and an e-mail with a direct link to the problematic content, enabling the operator to actively diagnose the problem. The Observer RPM system's intuitive Web-based interface gives operators total video control with the ability to search, retrieve, view, analyse,

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annotate, share, & export video from the desktop.

"Previously, we were having to check the lineup manually at least six times in every 24-hour period, a task that was tying up two to four engineers for 20 to 40 minutes each time," said Harold Brady, Cable Onda's headend manager. "Now, those engineers are free to concentrate on verifying other equipment, and since the Observers are constantly scanning, we have a much more consistent and reliable method for identifying and correcting failures before they become customer complaints."

SKY Italia adds compliance monitoring

Like Cable Onda, SKY Italia has implemented the Volicon Observer to improve quality of service. In addition, this Italian digital satellite TV provider has identified another compelling application for the system: proof of compliance with government communications regulations. As a replacement for SKY Italia's former tape-based monitoring process, the Observer archives instantly accessible content from 52 channels for up to 90 days via RAID-5 storage hardware, with four spare recording channels at the ready. The move to server-based monitoring eliminates the need to change out videotapes manually and saves space, occupying a smaller footprint than the facility's old VCR systems and requiring no external storage area, as the broadcaster's tape archives once required. The system can easily be scaled to accommodate additional channels, and SKY Italia's plans include future expansion to monitor as many as 120 channels.

Through their Web browsers, Observer users across the SKY Italia facility are able to access multiple channels of live and archived content simultaneously from their desktops. Users can log broadcasts, as well as search, retrieve,

analyse, and export video clips with metadata, locally or remotely as required to demonstrate proof of compliance with broadcasting regulations. The export functionality of the Observer makes it easy for operators to share assets internally. In addition to compliance recording and archiving, the Observer provides 24/7 monitoring and fault detection.

"With the Observer installed in our Milan broadcast facility, we streamlined our monitoring capabilities and are experiencing much greater flexibility in identifying and accessing recorded clips," said Ben Leenders, SKY Italia's engineering manager.

Going digital at Télé-Québec

For a final example, we'll turn to leading French-Canadian broadcaster Télé-Québec. Based in Montréal, Télé-Québec chose the Observer as a key component in its upcoming migration to HD broadcasting driven by digital, file-based technologies. Like SKY Italia, Télé-Québec had a pressing need to automate and streamline its processes for meeting federal regulations for video archiving. The station also needed an easy method for demonstrating proof-of-service to advertisers.

Télé-Québec purchased a two-channel Observer system; the first is already in use to provide around-the-clock monitoring and recording of the current SD broadcast, and the second channel will be used for the station's upcoming HD launch. By automatically recording up to 60 days of aired broadcasts, the Observer greatly simplifies Télé-Québec's ability to respond to public inquiries and comply with Canadian broadcasting regulations for content archiving.

"Because the Observer is file based and utilises our existing IT network, it's right in line

with our strategy to adopt digital systems in support of our upcoming migration to HD broadcasting," said Bernard Langlois, technical director of Télé-Québec. "By replacing inefficient, manual tape-based processes, the Observer will make it much easier for us to stay in compliance and remain accountable to our customers and viewers."

A strategic advantage

Despite their geographical diversity, Cable Onda, SKY Italia, and Télé-Québec have tapped into a theme that is becoming common with broadcasters worldwide: the need to redefine the test and measurement function to serve broader business objectives such as quality of service and quality of experience, accountability to governmental bodies and the public, and competitive advantage in a rapidly changing and ever-more-complex industry.

The best example of this trend is Cable Onda, where the Observer RPM systems are helping the company to maintain its market dominance and reinforce customers' loyalty at a time when they are given more choices by a growing number of emerging Panamanian cable providers. Cable Onda has made very effective use of its Observer RPM systems, proactively ensuring the quality and integrity of services delivered to viewers.

"With the Observer RPMs, we have seen massive improvements in the overall quality of our reception and our up-time percentages, as well as our response time to outages," said Cable Onda's Brady. "We have also seen a marked decrease in the number of inbound calls to our call centre, a real indicator of improved customer satisfaction. Satisfied customers and more efficient operations translate to real competitive advantages."