

Video Monitoring at Cable Edge Helps Ops Address SDV Issues

June 2, 2008 – One of the major challenges affecting cable TV quality-of-service performance in next-gen infrastructures appears to have been addressed with introduction of a video edge monitoring system from Mixed Signals.

Cable operators are implementing capabilities in their distribution hubs associated with advanced QAMs (quadrature amplitude modulators) supporting switched digital video (SDV) and modular CMTS (cable modem termination system) functionalities that make it extremely difficult to know whether everything is performing properly in the switched video streams. Achieving a cost-effective monitoring capability on video output as operators vastly expand the number of QAMs per hub is a daunting task.

“That was our biggest challenge,” says Eric Conley, CEO of Mixed Signals, which has become a world-wide supplier of video performance monitoring technology. “As operators reduce the size of their service groups, they have to add QAMs. Where today there might be an average of 15-25 service groups per hub, we’re seeing plans calling for 40-50 per hub.”

In the cable hybrid fiber coax architecture distribution fiber is extended from hubs out to nodes where coaxial cable connects to customers. Discrete distribution paths over the coax determine the number of households that share the coaxial RF bandwidth, with each service group gaining more available bandwidth per user as the number of users in the group is reduced. By reducing the number of households in a service group and introducing switched digital video capabilities at the hubs operators are able to make far more HD and standard broadcast and VOD channels available to customers than was the case previously.

But SDV, where a group of RF channels is assigned to deliver whatever programming network one or more users are requesting at any given time, requires accurate responsiveness to commands from the Service Resource Manager that sets up the programming mix to be delivered over the SDV channels. And the SDV process must assure fast channel access at the set-top so as to avoid disruptions to the user experience as customer go from the broadcast channels to the switched channels.

“Operators need a monitoring system at the edge that works with whatever types of SDV and QAM devices are out there and that scales efficiently as they add more QAMs,” Conley says.

Mixed Signals’ Sentry Edge platform, developed with close cooperation of three unnamed MSOs, links with SRMs over standards-based communications interfaces to determine exactly what QAMs are being instructed to do and then monitors output of the QAMs to

ensure the performance meets expectations. The monitoring capability applies to performance on unicast VOD channels and, indeed, all QAM other outputs as well. This serves as a complementary second-level monitoring capability to the core monitoring performed by Mixed Signals' widely deployed headend Sentry system.

At the core Sentry looks at decrypted video and all the added components in the stream, including locally inserted advertising, closed captioning and other data feeds, to determine whether everything in the video channel is precisely synched and operating at required viewing quality levels. At the edge the focus is on the encrypted output where the concern is whether everything that's supposed to happen at the edge has occurred rather than on whether the quality of the content itself is acceptable.

To accommodate scalability requirements as the QAM counts multiply the Sentry Edge unit employs very dense RF input capabilities to run all the outputs from all the service groups through its combiner, Conley says. And the Sentry Edge software is selective as to what it is monitoring, since monitoring every output from every QAM all the time would incur prohibitively high processing costs.

"Sentry Edge can be smart about what it's monitoring by prioritizing channels and focusing on what the SRM says is being switched," Conley says.