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VIAVI Solutions



Brochure

# VIAVI
## PathTrak™
Video Monitoring System for Cable TV

## Track performance all the way to the RF edge with the PathTrak Video Monitoring System

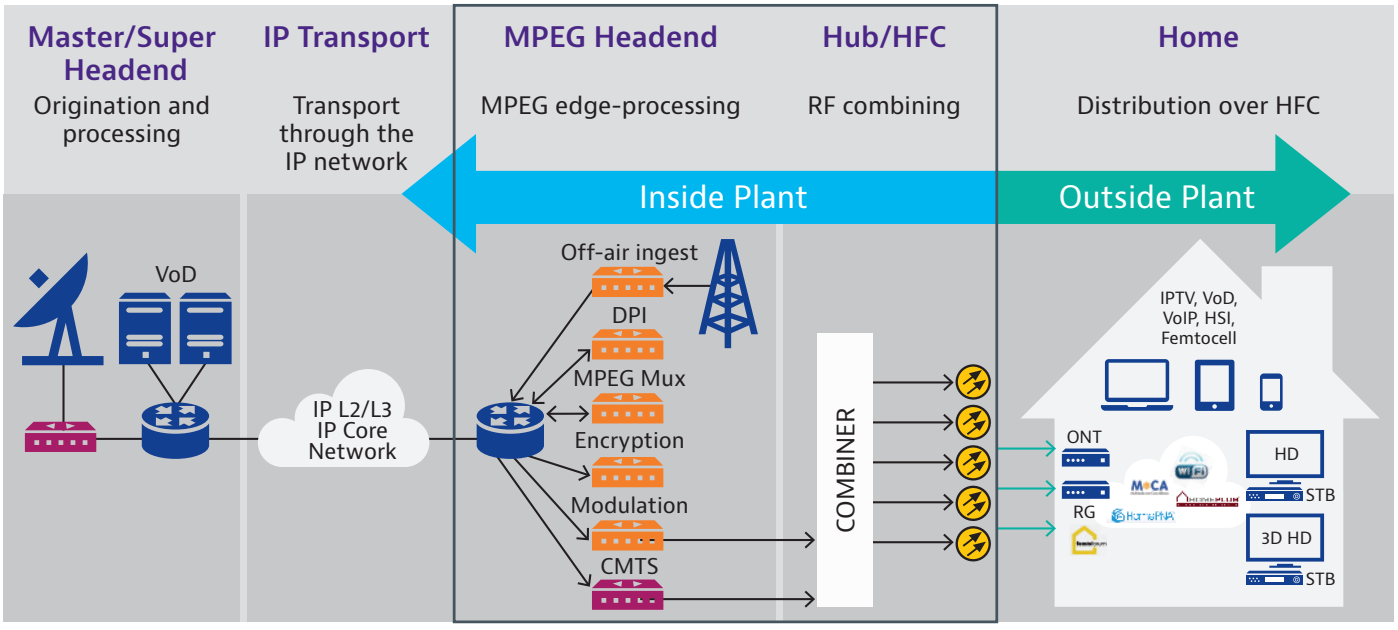
Recent studies of telecommunication service providers' digital video test, measurement, and monitoring solution requirements revealed:

- 84 percent reported video quality monitoring as critical or a very important part of their video initiative
- 90+ percent were notified about service quality problems from subscriber calls
- 77 percent say poor video quality is a main reason for customer churn.

These results support the fact that service quality is no longer a differentiator—it is a prerequisite to competing in the video market. Operators must identify and isolate service issues quickly in the face of increasing complexity and subscribers' expectations. Video-delivery networks are becoming harder to monitor and troubleshoot. Streams are delivering to a remote, converged cable edge in an increasingly dynamic and often complex multivendor environment. And, delivering video is a one-shot process with the potential for errors that can degrade quality beyond what subscribers will tolerate, especially for premium high-definition and 3D services.

Without edge visibility, service providers can spend multiple truck rolls and weeks isolating problem sources.

Providers who monitor only Internet protocol (IP) or only radio frequency (RF) parameters can miss problems at the MPEG transport stream layer or potentially misdiagnose problems at the RF cable edge.




IP video reference network

**QoE Issues Arising from Video Transitions**

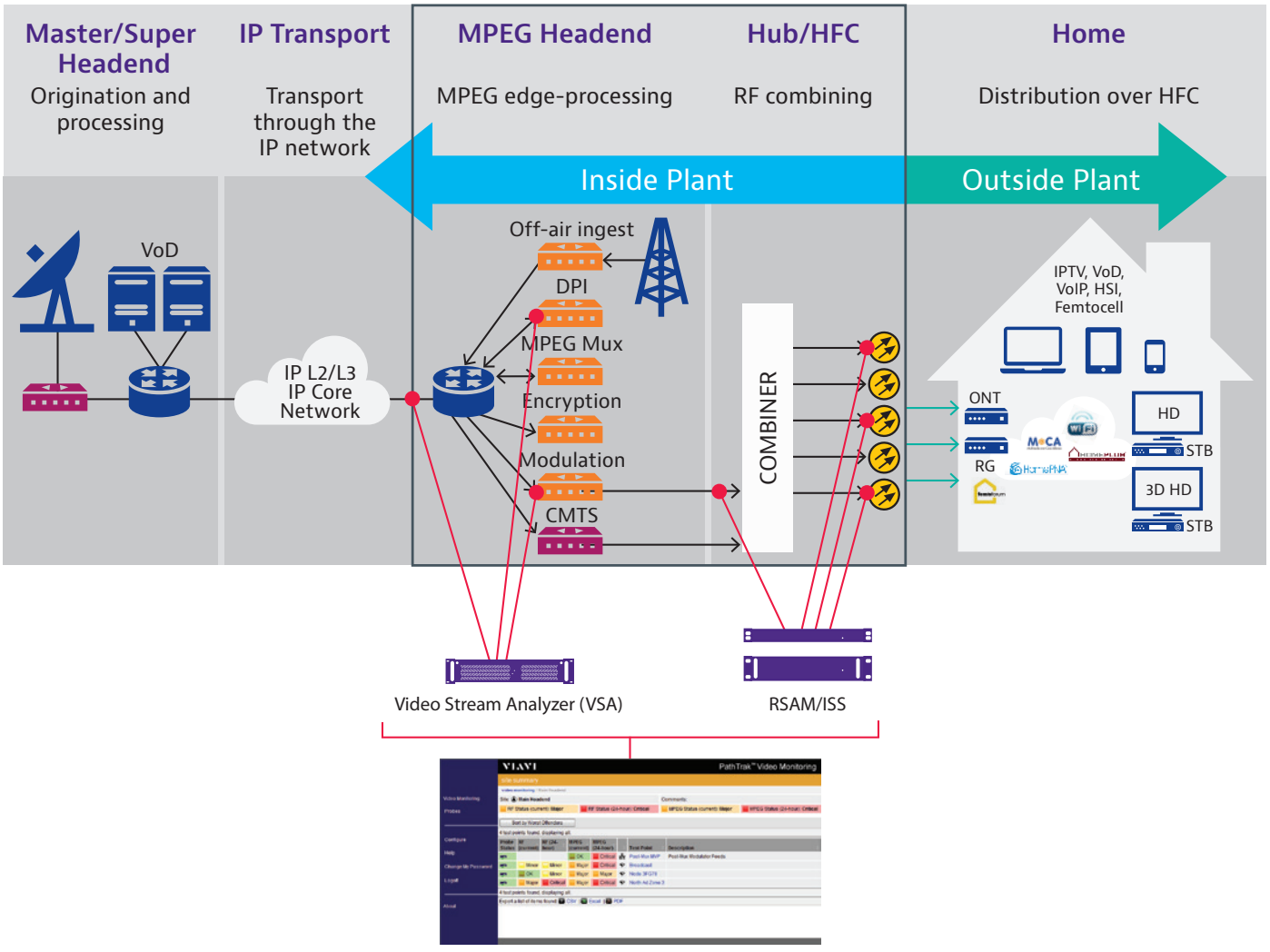
| Function | Issues |
|---|---|
| Local off-air ingest | Provider issues<br>Antennas<br>8-level vestigial side band (8-VSB) receivers<br>Muxes to groom for regional networks |
| Multiplexing | Streams from regional networks<br>Grooming<br>Transrating<br>Over compression<br>Equipment configuration<br>Program identifier (PID) mapping errors |
| Program /ad insertion | Quality of ad being spliced<br>Program clock reference (PCR) discontinuity<br>Failure to return to content after ad splice<br>Decoding/timing of digital program insertion (DPI) information |
| Encryption | Encryption not enabled<br>Equipment configuration |
| Modulation | IP to RF<br>Equipment configuration<br>Oversubscription |
| RF combining | Poor cabling<br>Poor isolation<br>Loose connectors<br>Driver/isolation amp issues<br>Level balancing |
| Other | Channel line-up changes, hardware upgrades, content provider issues |

## PathTrak Benefits

- Own the RF cable edge by getting visibility into the quality of content before and after modification and handoff to the hybrid fiber coaxial (HFC) network
- Reduce customer churn by proactively monitoring and troubleshooting quality issues. Don't let customer complaints be your quality troubleshooting tool!
- Reduce operational expenses by eliminating unnecessary truck rolls to hubs with complete remote analysis

An edge-monitoring solution decreases trouble tickets for video, VoIP, and high-speed data services, and proactive monitoring can identify impending service issues.

To be effective, video-monitoring systems must monitor critical points. And, monitoring the transport backbone doesn't cover all the way to the edge—that leaves the most vulnerable spot in the network in the dark. On the other hand, some RF edge monitoring solutions are unreliable—assurance requires a dependable, carrier-grade tool. An edge-monitoring system decreases trouble tickets for video, voice over internet protocol (VoIP), and high-speed data (HSD) services, and proactive monitoring can identify impending service issues.




IP video reference network with PathTrak



## VIAVI Solutions™ PathTrak Video Monitoring

The award-winning VIAVI PathTrak Video Monitoring (PVM) system segments video problems in minutes—not hours—by proactively monitoring video, VoIP, and HSD carriers for RF and MPEG impairments.

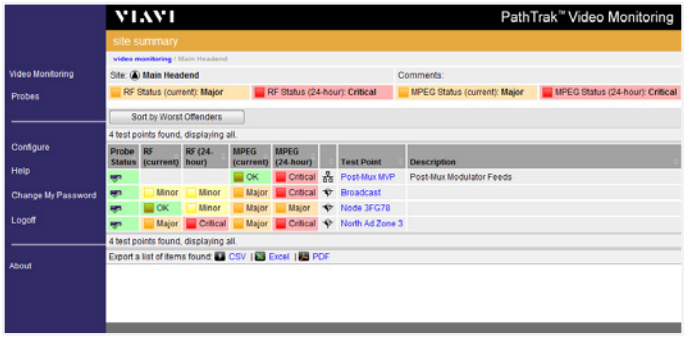
Video performance monitoring requires "wrapping the edge," which gives visibility to entering and departing signal quality. Optimized for the edge, the PVM solution consists of:

- the VSA probe that tests full line-rate MPEG over Gigabit Ethernet
- the RSAM-5800 probe, a robust and full-featured carrier-grade probe that covers digital video RF, analog video RF, data over cable system interface (DOCSIS®), and MPEG
- an optional, rack-mounted 16x1 RF input selector switch (1 rack unit) that adds additional input test points to the PVM system
- simple, lightweight, and centralized PVM software.

## System Components

### PVM System Software

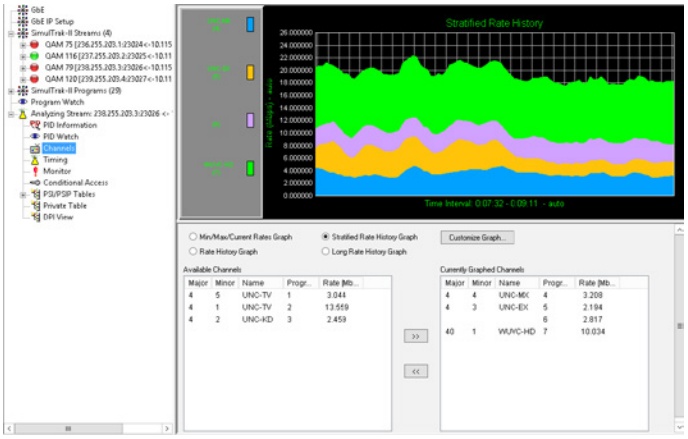
- A short learning curve with a simple graphical user interface eases configuring channel plans and alarm thresholds (Alarm on Critical, Major, Minor, and Warning) for RF and MPEG probes
- Web-based server software simplifies access for remote users
- Open access to data with performance-history measurements stored in a MySQL relational database allows identification of transient problems and correlation with other network events
- Live displays for real-time troubleshooting speed time-to-repair
- Remote user access privilege administration eases security management




### Video Stream Analyzer (VSA) MPEG2 Probe

(Supports 1 and 10 GE)

The VSA combines VIAVI digital video monitoring software with commercially available, off-the-shelf hardware to create an easily-maintained, upgradable video probe. Specifically developed for video service providers who must ensure quality of service (QoS) and QoE, VSA is a highly cost-effective, scalable solution that addresses the needs of both a system-integrated monitoring probe with all the features of a stand-alone digital video analyzer.




Now monitor MPEG digital video with a breadth, depth, and accuracy never before available with VIAVI SimulTrak™ monitoring. Loudness monitoring proactively alerts providers to loudness issues, thus stopping customer calls, saving time and effort responding to complaints, and saving money by avoiding fines.

- Increase vigilance and catch issues early with 24x7 Gigabit Ethernet circuit monitoring:
  - monitor thousands of programs simultaneously per probe
  - monitor hundreds of audio streams for CALM compliance
  - eliminate the need to scan programs on Ethernet
  - monitor each program's PCR timing health for accuracy, offset, jitter, and drift on full line-rate Gigabit Ethernet, ensuring the quality of MPEG-2 video-stream rendering
  - monitor video, audio, timing, tables, and other data within the stream for loss and see the impact on each element
  - perform TR 101–290 and extended-timing health measurements.
- Supports complete deep-dive analysis for more effective troubleshooting:
  - does not impact the monitoring function
  - allows engineers to troubleshoot network elements
  - eliminates the need to purchase separate analyzers.
- System-support and local-client GUIs operate simultaneously:
  - integrates into third-party systems for 24x7 monitoring
  - includes a client GUI for direct troubleshooting and deep dive analysis.

## RSAM 5800XT Analog/QAM and MPEG RF Probe

(Analyzer with QAM RF input — 2 rack-unit chassis)

The RSAM 5800XT provides remote RF and MPEG monitoring and analysis to quickly identify real customer-affecting issues down to the individual program without having to deploy specialists to distant hub sites. The RSAM provides detailed views of channel performance to field, headend, and network operations center (NOC) technicians via a web browser.

- Rack-mounted QAM RF probe for deployment in hubsites and headends
- Configured via PathTrak Video Monitoring (PVM) software
- Ethernet connectivity for device management, alarms, and event information
- Web-based access to live and historical analog, QAM RF, and MPEG measurements
- Simple network management protocol (SNMP) trap forwarding
- Field upgradeable to add an MPEG video option:
  - monitor MPEG stream errors (TR 101 290 Priority 1, 2, and 3) and drill down to analyze the performance of each individual program
  - identify RF and MPEG trends in QAM carriers from a common edge device to isolate problems
  - compare MPEG parameters in transport streams down to the program level from common headends to segment problems to hub or headend.



### ISS-5116A 16-Port RF Input Selector Switch

(Optional direct-control 16-port RF input selector switch)

- Rack-mounted 16x1 RF input selector switch (1 rack unit) adds cost-effective input test points to the RSAM probe
- Enables cost-effective monitoring and troubleshooting all the way to the edge



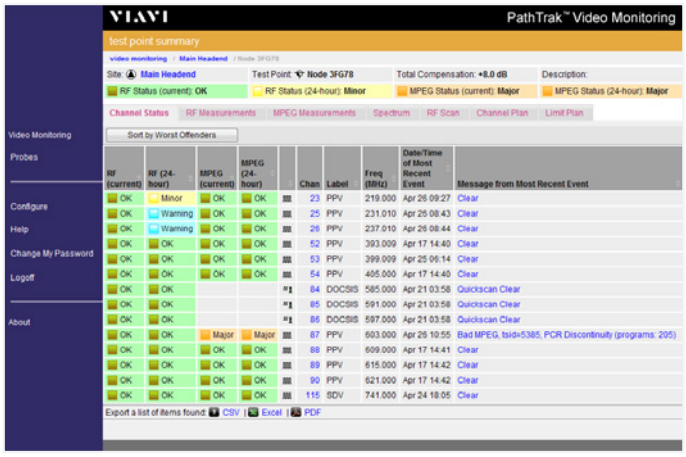
## Applications

### Identify and Segment Problems using Intuitive Displays

| Probe Status | RF (current) | RF (24-hour) | MPEG (current) | MPEG (24-hour) | | Test Point |
|---|---|---|---|---|---|---|
| | | | OK | Critical | | Post-Mux MVP |
| | Minor | Minor | Major | Critical | | Broadcast |
| | OK | Minor | Major | Major | | Node 3FG78 |
| | Major | Critical | Major | Critical | | North Ad Zone 3 |

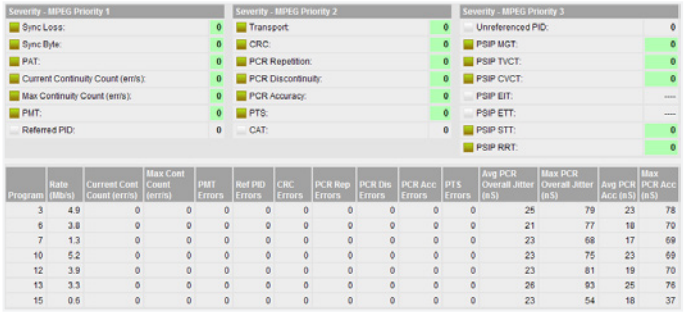
- RF or MPEG?
- Outside plant, headend, or source issue?
- Widespread or localized?
- Intermittent or persistent problem?
- Assure quality-of-content after modification at cable edge (handoff to the HFC network)
- Verify network availability and service uptime
- Monitor and troubleshoot analog RF, QAM, and DOCSIS services
- Reduce customer churn by proactively monitoring all services

### Advanced Troubleshooting Finds Root Causes




- Status by channel
- Click an event or status bar to get a live display, RF or MPEG
- Browse archived eventsSend Updates to External Systems

### Send Updates to External Systems



A detailed management information base (MIB) provides information to network monitoring systems

## VIAVI PLUS™ Services Portfolio

The PLUS Services Portfolio optimizes productivity by protecting your investment, ensuring its availability and functionality as well as providing expert support and education. PLUS Deployment and Support services include:

- Gold, Silver, and Bronze hardware support plans
- calibration: factory and onsite
- express loaner program
- technical assistance
- managed inventory
- installation and commissioning services
- software upgrade services and maintenance
- product training.

PLUS Gold, Silver, and Bronze support plans streamline repair, calibration, and loaner processes, making support costs predictable and cost-effective while greatly alleviating your administrative burden. VIAVI support plans provide peace of mind with hardware investment protection and assurance that your equipment is available, functional, and up-to-date.

VIAVI understands that your support needs vary; therefore, VIAVI will work with you to find the right hardware service support plan to fit your needs. Our Gold, Silver, or Bronze support plans provide various levels of support for repairs, calibration, express loaner, advanced replacement, technical assistance, and product training.

VIAVI maintains service centers throughout the world to rapidly and effectively service equipment for our global customer base. These centers can process thousands of pieces of equipment each month that encompass a variety of sophisticated test equipment and instruments.

This core competency that VIAVI offers in conjunction with our nationwide partners ensures coverage of your entire installed base of test equipment and provides you with the highest quality of service.




### PLUS Gold

Tailor your support plan to include the combination of services you need from the list below:

- Product repairs (fault or no fault) including updates of all proprietary engineering changes
- Priority service for all transactions
- Basic or premium technical assistance
- Basic and/or advanced product and technology training
- Express loaner program

### PLUS Silver

- Product repairs including updates of all proprietary engineering changes
- Product calibrations
- Priority service for repairs and calibrations
- Basic technical assistance
- Basic product training

### PLUS Bronze

- Product repairs, including updates of all proprietary engineering changes
- Priority service for repairs and calibrations
- Basic product training
- Basic technical assistance

VIAVI Solutions

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