VIAVI

The Video Service Assurance (VSA) Platform — IP/Cable TV

Scalable, virtualized solutions providing comprehensive network intelligence and visibility

Key Benefits

- Reduce churn by identifying issues before customer call-in and speeding MTTR

- Reduce OpEx by eliminating truck rolls for headend and hub certification and troubleshooting

- Reduce CapEx by scaling with software rather than hardware

- Verify and document conformance to regulatory requirements

- Streamline workflows using the open platform's powerful APIs to integrate with in-house systems

Key Features

- Powerful headend monitoring identifies issues impacting the video MOS

- Integrated MPEG monitoring identifies transport and encoding problems

- Integrated video protocol analyzer troubleshoots tough problems

- Access is available via 1/10 G Ethernet, ASI, and RF for monitoring across the network

- Simultaneously monitors thousands of programs using off-the-shelf hardware

The video service assurance (VSA) platform is a highly cost-effective, scalable solution for IP and cable TV that gives visibility at every strategic and critical network location. It combines video assurance monitoring software with commercially available, off-the-shelf hardware to create easily deployable points of presence in headends, networks, and end-user devices.

The platform addresses the most demanding assurance and analytics applications requirements. Its extremely efficient data collection, state-of-the-art flow, and transaction analytics engine, combined with in-memory processing for all analysis and correlation functions, add unparalleled scalability. Extremely flexible service modeling and policy management capabilities let VSA components easily scale as needed when adding new network device types, types of services, or service level agreements (SLAs).
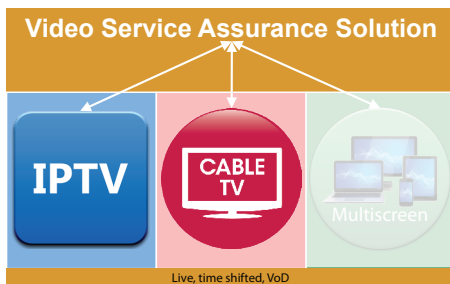
The VSA IP/Cable TV application

The VSA Platform

Video service providers who ensure quality of service (QoS) and quality of experience (QoE) face substantial challenges. With exponentially increasing traffic and few corresponding increases in revenue, they must:

- Increase internal efficiency and productivity

- Decrease OpEx and shorten mean-time-to-repair

- Launch new services faster

- Converge legacy video with high-speed IP data networks

Video MOS Score	Quality Defect Perception
5	Imperceptible
4	Perceptible
3	Slightly Annoying
2	Annoying
1	Very Annoying

How customer experience impacts customer satisfaction

Yet providers and operators need more. Visibility into a subscriber's quality of experience is key to reducing churn by providing improved customer service, the primary factor impacting customer satisfaction. The VSA platform enables a view of MOS as video traverses the network, helping operators understand how their networks are contributing to the end customer experience.

VSA Components

The VSA platform consists of a number of components that scale to perform with virtually any network configuration.

Component	Description	Implementation
VSA Monitor	Manages all video probes to provide real-time and historical information to remote work-groups using a powerful HTML5 user interface	Software running on off-the-shelf server or virtual machine.
VSA Streaming	Real-time probe used for monitoring and troubleshoot-ing video streams as they are ingested, manipulated and transported across the network	Software running on off-the-shelf server or virtual machine
VSA-RF100	Real-time monitoring and trou-bleshooting solution for radio frequency (RF), MPEG, and data over cable service interface specification (DOCSIS®) services which also carry multiscreen	RF probe with switches

VSA Monitor also supports the RSAM-5800 family of RF monitoring probes and MVP-200 digital video probes, enabling customers to transition to newer generations of probes seamlessly.

VSA Monitor

HTML5-based VSA Monitor is the element management system (EMS) for all VSA components. Supporting multiple workgroups, it provides remote access to historical and live displays of sites, test points, programs, and assets in its event viewer dashboard. Alarming uses simple network management (SNMP) protocol trap forwarding, sending SNMP traps when alarm states change. Published APIs simplify customizing and incorporating external data sources.

VSA Streaming

VSA Streaming is a real-time MPEG video analyzer for parallel troubleshooting and monitoring of multiscreen performance. It cost-effectively and scalably monitors:

- Video artifacts such as black/frozen screens

- Audio problems like loud commercials or silent audio PIDs

- Closed-captioning verification

- MPEG problems which cause tiling and macroblocking

- IP and RTP transport problems

It supports unique thresholds per stream and program to minimize false alarms. In addition, it performs ingest and pre-/post-transcode for multicast video, displays video MOS for simplified results, captures multiple streams with pre-triggering, and provides remote video viewing.

VSA Streaming ensures that monitoring results are consistent with troubleshooting information, enabling a seamless transfer of information to Tier 2 and 3 groups. This prevents repeat investigations with different tools.

It scales across the network quickly, flexibly, and economically:

- 2X10 G ports   →   5,000 programs

- 16X1 G ports   →   4,000 programs

- Intel NIC   →   Low-cost edge monitoring

- ASI   →   IRD and legacy monitoring
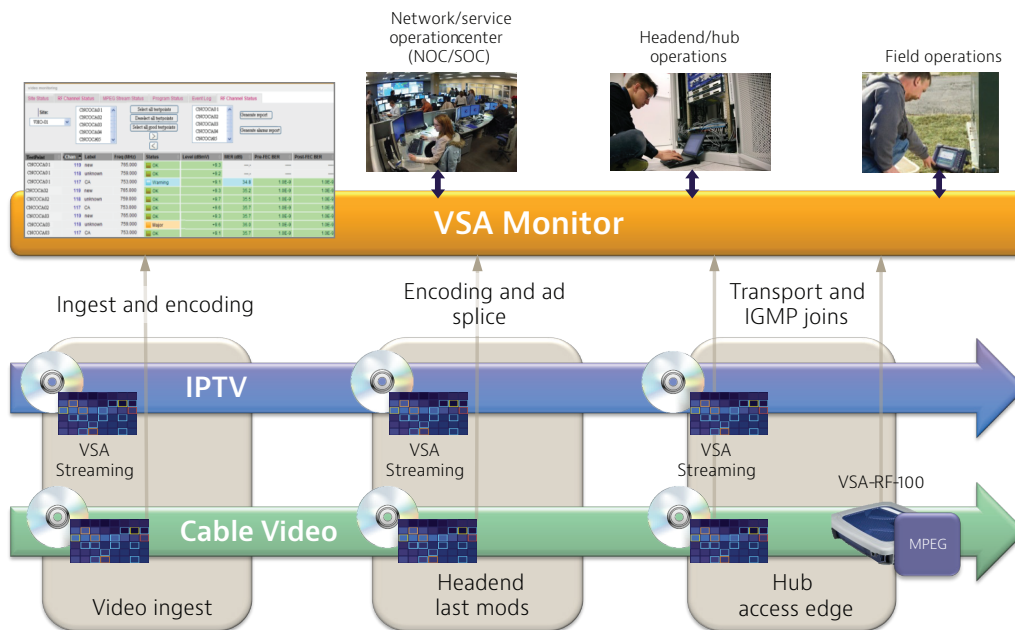
VSA components implemented for IP/Cable TV
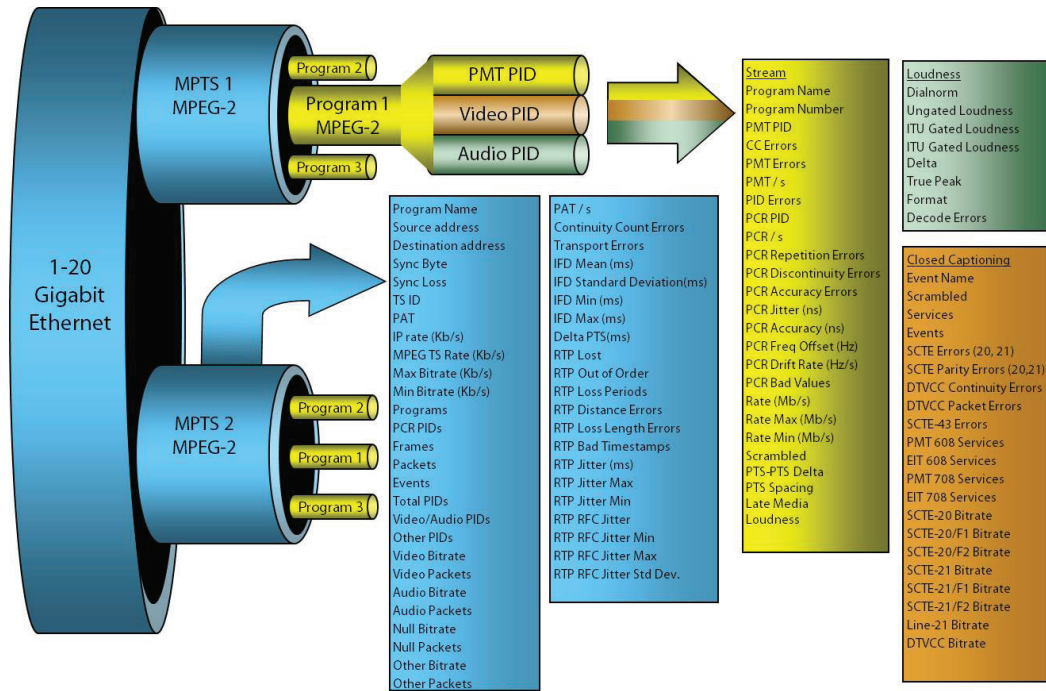
All programs on all streams all the time

VSA-RF100

The VSA-RF100 provides remote RF, MPEG, and DOCSIS® monitoring and analysis of forward path signals and is ideal for remote, unmanned hub sites and headends in a cable environment. It monitors service levels to identify packet loss, missing audio, and missing programs—not just RF health. And, it uniquely sees RF issues invisible to other systems, including bursty events and ingress under the carrier.

Additional features include:

- Deep RF for more-demanding downstreams
- 44 dB MER analyzer-grade measurements
- DQI to identify bursty problems
- Troubleshooting to find root causes
- Scrambling/encryption verification
- Missing or insufficient audio/video PIDs
- Ingress under the carrier to identify the cause of MER degradation
- Service-level packet loss

RF health summary

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