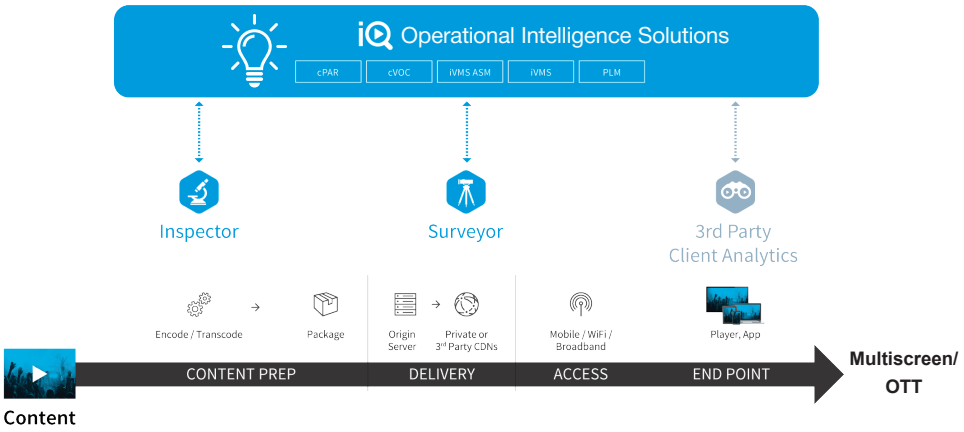


Operational Intelligence Solutions for Adaptive Bitrate Video Distribution

Real-time Monitoring of Multiscreen/OTT Streaming Video

MARKET CHALLENGE

Delivering adaptive bitrate video to your viewers – wherever they are, on whatever device they are using – is difficult. You need to know if the source content is good. You need to be sure all of the different bit rate and format variants of that content are being prepared correctly and published properly to your origin servers. At that point, the only thing separating your content from your viewers are the networks; the internet, transit/interexchanges, fixed/mobile ISP networks, and of course, the viewer's own local network. And from the networks' perspective, your video looks like bits, bytes, and packets – no different from email, web pages, VoIP, other video, etc. But video data is more sensitive to network performance issues than other types and requires more care.

As a video provider, your ability to manage your viewers' experience in this OTT environment can seem impossible. It is not.

THE IQ SOLUTION

Telestream iQ provides operational intelligence solutions for adaptive bitrate video to put control back in your hands. From validating the content to checking the availability and playback quality from ISPs and CDNs, our solutions go beyond merely detecting and reporting problems. They allow you to pinpoint where those problems originate, so that you can quickly diagnose and fix them, often before your viewers even notice.

The system easily pays for itself through reduced OPEX, customer support costs, and higher viewer satisfaction, engagement, and retention. Whether you monetize through subscription, transaction, or advertising, the operational intelligence provided by iQ solutions will give you the knowledge you need to successfully drive your video business.

The Telestream iQ solution for ABR operational intelligence begins with the acquisition elements that gather metrics from the critical points along your video distribution chain.

Inspector LIVE checks your content at the head end of your system for problems that would affect the viewer experience. It first makes sure that the incoming live video stream meets your quality requirements, then scores your encoder/transcoder output from 1-5 using an exclusive iQ-MOS non-reference-based QoE scoring algorithm. Inspector also checks for proper encoder boundary point demarcation, closed captioning CALM act compliance, and a variety of other tests for quality verification. And beyond the expected array of QoE-oriented tests, Inspector also performs QoS monitoring on the output, to verify that the encoder is not bursting packets in a way that could cause downstream buffering, latency, or loss problems. It can be applied to appliance-based, cloud-based, or hybrid head-ends.

telestream

Surveyor ABR Passive consists of three separate products – Publishing, Intra-CDN, and End Client. Surveyor ABR Passive offers insights into the complex solutions and various networks used to deliver adaptive bitrate video. By monitoring at multiple demarcation points in the network, S-ABR Passive collects context-specific metrics, calculates performance based on multiple dimensions, and when necessary, raises alarms to alert you of critical events for further investigation. S-ABR Passive provides publishing validation in the head end and monitors post-origin for 24x7 coverage of streaming assets, and end client monitoring of user sessions and cache performance. Unlike solutions that rely on streaming the content for measurement, S-ABR Passive monitors without drawing on critical resources required to serve client devices.

Surveyor ABR Active provides content availability and network performance (QoS) testing by acting as your most critical viewer. Each Surveyor ABR Active element comprises 50 to 500 synthetic agents, which each act as a "simulated viewer". Agents can request any content in all bit rates and formats of your choosing, check availability and QoS, and either remain on those streams, or rotate to others. This ACTIVE solution allows you to test every bitrate variant of every video asset in your care, whether VoD, Live, or Linear. And you can set the amount of attention given to any asset based on how often and how long you test it. High priority Live and Linear assets may get 100% coverage, while VoD content could be tested in a sampled fashion. This allows you to focus your testing on the assets with the most value – a truly customizable solution. By distributing multiple Surveyor ABR Active elements across your delivery infrastructure – before and after your CDNs, at different Access/ ISP networks, in many different geographic locations- you can identify if each video asset is good - and when/where it is not.

While the Acquisition elements gather data, the **iQ management systems** collect it, correlate it, and present it to you in ways that provide knowledge and insight. There are multiple systems designed for different tasks.

The **Intelligent Video Management System for Adaptive Streaming - iVMS® ASM** - provides a comprehensive, real-time view into the health of your adaptive streaming video services.

The user interface provides quick health assessments and deep dive drill-down to rapidly identify, isolate and fix problems. iVMS ASM collects statistics from your acquisition elements, performs program-level correlation across the aggregated data, and presents an easily understood end-to-end visualization of video service performance. iVMS ASM alerts you when quality and performance falls below custom-defined thresholds, and dramatically simplifies your ability to identify and pinpoint the root cause. This is the key to identifying which teams or vendors (CDNs, encoders, etc.) to work with for performance restoration and optimization.

Program Lineup Manager– PLM - gives you the ability to quickly and easily configure your acquisition elements to monitor the program assets that you are focused on, all from a central point. PLM dramatically reduces the number of hours spent matching configurations between the service delivery network and service monitoring systems, ensuring that program identification and alarm templates across your acquisition elements are synchronized.

Consolidated Performance Analytics and Reporting – cPAR – aggregates iQ-collected video quality data over long periods – even years – from iVMS ASM to generate business intelligence (BI) reports based on iQ -collected Quality of Service (QoS) and Quality of Experience (QoE) data. With cPAR, you can create and customize dashboards and trend-based reports to identify opportunities for improvement in your video operation.

FEATURES AND BENEFITS

A Single, Comprehensive View of your Video Operations
The power of a network increases with its connections. By distributing acquisition elements across your delivery pipeline and geographic footprint, you gain faster issue detection, reduced diagnostic time, and greater confidence in your operational quality. Visualizing all of this data from an asset or location perspective lets you harness that power in real time– and easily collaborate with team members who can access the same network-wide video intelligence.

Industry-Leading Technology
These solutions leverage the patented VeriStream metric for network Quality of Service (QoS), and iQ's proprietary non-reference iQ-MOS algorithm for Quality of Experience (QoE) scoring. These metrics provide a very simple to understand 1-5 score for your video quality, so you can spend less time trying to understand what the measurement system is telling you, and more time on optimizing your video operation.

Location-based Algorithms and Metrics
Unlike competing "one size fits all" quality assurance solutions, Telestream iQ acquisition elements collect different KPIs based on WHERE in the video pipeline the measurement is being done.

- Leverage content inspection/iQ-MOS and Passive, 100% test coverage closer to the content sources
- Collect network QoS/VeriStream and Active, "sampled" test coverage further downstream, as the content moves closer to the viewers.

By combining these metrics and varying test coverage, comprehensive, highly accurate coverage can be provided efficiently.

Virtual or Appliance – Your Choice

All of the acquisition elements and iVMS ASM are available as either virtualized software or appliances to fit wherever your video measurement is needed. Appliance-based POPs, virtualized datacenters, cloud-based infrastructure – we have a solution that fits.

Start Where Your Need is Greatest

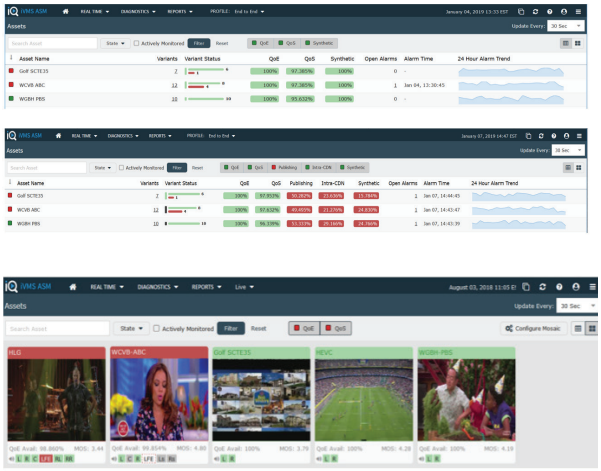
If content quality and headend preparation is a trouble-spot, start with Inspector LIVE or Surveyor ABR Passive. If network/CDN performance is your most urgent issue, start with Surveyors. Each element has its own browser interface.

Scalability

Each element offers flexible asset licensing, so you can start monitoring a small number of video assets, and increase video asset support as your needs grow. In addition, new acquisition elements can be easily integrated into your single comprehensive view with iVMS ASM.

Financial Flexibility: OPEX, CAPEX, or both

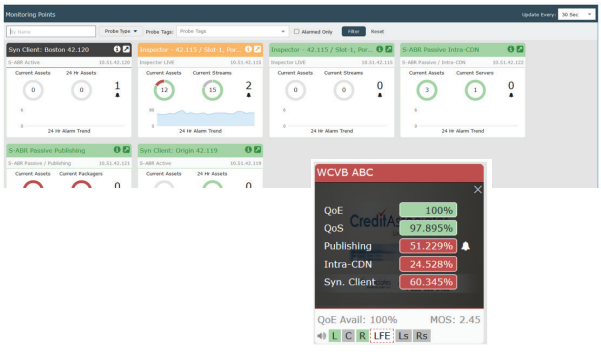
Telestream iQ offerings can be tuned to your financial needs. You can own your platform, leverage a subscription-based model, or combine the two into a base "owned" capability and a subscription-based "extended" capability which can all be managed through the same iVMS ASM.



SPECIFICATIONS

A single iVMS ASM system can collect data from up to 1,000 acquisition elements. The system can be scaled beyond that using the Consolidated Video Operations Center (cVOC)

- Supports Apple HTTP Live Streaming (HLS), Microsoft Smooth Streaming (MSS), Dyanmic Adaptive Streaming over HTTP (MPEG-DASH), and Adobe HTTP Dynamic Streaming (HDS) stream packaging formats.
- Detects a broad spectrum of Adaptive streaming errors
- Encoding errors
- Content errors
  - Loudness
  - Closed captioning
- Real-time Live/Linear non-reference-based content scoring: iQ MOS
- Patented VeriStream QoS metric collection across the network for all program streams
- Network-wide impairment event tracking and aggregation (HTTP errors)
- Appliances offered with:
  - Multiple power options
  - Multiple Ethernet interface options
- Acquisition Element License Scaling
  - Monitor from 50 to 600 different program asset variants (bit rates) from a single element instance



Comprehensive, real-time views by Intelligent Video Management System for Adaptive Streaming - iVMS® ASM

www.telestream.net | info@telestream.net | tel +1 530 470 1300