

The staggering growth of Over-the-Top (OTT) video traffic continues to blur the line between traditional television and mobile broadband services. The resulting convergence of these services skews viewer expectations. Mobile viewers are quickly coming to expect the highly reliable, high-quality delivery they demand from traditional broadcast television or IPTV services.

Traditional methods of measuring video QoE are not suitable for OTT video since they are too computationally intensive for real-time monitoring of streaming services, and do not address the variety of streaming protocols and devices in the OTT ecosystem. Communication Service Providers (CSPs) around the globe are deploying Avvasi Q-VUE, a patent-pending system that supports all major OTT protocols, to enable real-time monitoring of video sessions and associated video quality over an entire network, including the largest tier-1 broadband and mobile networks.



- QoE presented as independent for Presentation and Delivery quality scores, along with a network performance rating
- Comprehensive OTT video protocol support, including progressive download, partial progressive download, HTTP chunked download, RTMP, HLS, Silverlight Smooth Streaming, Netflix Streaming, RTP/RTSP and others
- Powerful Analytics Reporting Client (ARC) for real-time analysis and troubleshooting
- Open, interoperability with OSS and BSS systems

## Real-time video traffic analytics and subscriber QoE

Avvasi Q-VUE® is a revolutionary video analytics solution eclipsing traditional deep packet inspection (DPI) based network analytics, offering highly detailed measurement capabilities that report video-based QoE, MOS-like scores that accurately reflect the subscriber's perceived experience with video content. Service providers around the globe are deploying Avvasi Q-VUE video analytics to understand the network impact of new devices and subscriber usage patterns, plan and dimension network expansion and optimization solutions, while reducing subscriber churn and maximizing revenue.

### Network-wide, real-time video analytics

Based on Avvasi's robust Xperium platform, Avvasi Q-VUE is a passive probe that provides real-time Video Network Analytics (VNA) and Video Service Assurance (VSA). Avvasi Q-VUE implements a patent-pending, zero-reference QoE model which is scalable, but unlike typical DPI probe technology, Avvasi preserves the accuracy offered by traditional broadcast quality measurement equipment. Avvasi analytics can be integrated into network operations and used to support revenue assurance and service planning activities.

display device, independent of the network conditions. PQS scores are rigorous enough to handle changes in the video quality introduced by adaptive streaming technologies. These scores can be aggregated into a Combined Quality Score (CQS) providing an accurate means of knowing what subscribers are experiencing. Avvasi Q-VUE also provides a Network Quality Score (NQS) which provides an objective snapshot of network performance by comparing the amount of time the video is played versus buffered.

### Unparalleled video QoE scores

Given the fragmented OTT video ecosystem, it is crucial to provide end-to-end QoE scores that encompass the quality of source content, the degradation of the quality by the delivery network, and impact of the device screen size.

Avvasi Q-VUE provides several QoE scores. The Delivery Quality Score (DQS) represents the impact of network delivery while deliberately ignoring the source quality. The Presentation Quality Score (PQS) measures QoE based on the source content quality relative to the

### Video Network Analytics

Avvasi Q-VUE Video Network Analytics (VNA) combines a high-performance (column-oriented) database with a powerful and flexible reporting tool allowing service providers to fully understand video traffic activity on-the-fly or perform more comprehensive offline data analysis.

- Understand the most popular streaming protocols and video codecs crucial to optimization planning
- Measure the precise impact of optimization: per-subscriber and session QoE scores
- Identify cell sites and backhaul links most congested due to video traffic
- Understand which content sites drive the most video traffic
- Understand how OTT service usage impacts on-deck services

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## Video Service Assurance

Avvasi Q-VUE Video Service Assurance (VSA) provides IPDR usage records for all video sessions flowing through a network. Records contain full analytics and QoE information on a per-session basis.

- Capture per-session records for video quality and collate on an aggregate basis
- Determine which subscribers of on-deck services have the lowest QoE and which are more likely to churn
- Use video QoE-based triggers to troubleshoot network
- Reduce complexity of too many KPIs that do not correlate to user experience
- Measure the video service quality being delivered to your subscribers on roaming partner networks
- Monitor MVNO subscriber performance and provide reports



Xperium 10 platform

Specification	Value
Network support	HSPA, CDMA, LTE, WiMax and IP networks
Application slots	2
Throughput	5 Gb/s of data traffic per blade
I/O ports	4 or 8 x 10 Gbps copper/fiber
Management ports	RJ-45 10/100/1000 Ethernet RS-232 Console
Height	132mm / 5.2-in (3U)
Width	483mm / 19in
Depth	420mm / 16.54-in
Weight	DC: 11.60 Kg / 25.57 lbs AC: 12.00 Kg/26.45 lbs
Power requirements	DC shelf: -42.0 VDC to -72 VDC US and Canada: -42.0 VDC to -60 VDC AC shelf: 90 VAC to 254 VAC
Operating temperature	+5° C (41° F) to +40° C (104° F)
Relative humidity	5% to 90% non-condensing according to environmental requirements
Environmental standards	UL 60950-1, EN 60950-1, IEC 60950-1 CAN/CSA C22.2 No 60950-1
Safety standards	ETSI ETS 300 753, ETSI EN 300 019 series, designed to NEBS Standard GR-63-CORE
Power standards	ETSI EN 300 132-2
EMC	AS/NZS CISPR 22, CISPR 22 and CISPR 24, EN 55022, EN 55024 and EN 300 386, FCC Part 15, Industry Canada ICES-003, NEBS Standard GR-1089 CORE, VCCI Japan

## Video demographics and video QoE

- Output UDRs for ingestion into higher-level systems
- Real-time data capture allows you to identify current trends and create revenue-generating offerings
- Interactive data analysis
- Accurately measure subscriber QoE
- Early detection of users likely to churn as a result of poor user experience

## Media session information

- Multiple QoE Scores: 1 – 5
- Bandwidth: 300Kb/s - 1Mb/s etc.
- URL/Sites such as: YouTube™ and Netflix® etc.
- Device Info: Category, OS, etc.
- Video Resolution: 1920x1080, 640x480, etc.
- Video: codec, profile, frame rate, etc.
- Duration: 30s, 15+ mins, etc.
- Audio: codec, sampling rate, etc.

## Video streaming formats

- RTP/RTSP
- Flash FLV, MP4 RTMP, RTMP-E, etc.
- Silverlight™, HTTP Live Streaming, Netflix

## Subscriber information

- Cell location (cell ID)
- Subscriber ID (IMSI)
- IP address
- IMEI
- MS-ISDN

## Simplified network management

- Manage system through a streamlined Cisco/Juniper-like CLI
- Access system via SSH or local network login
- Consolidated view into system status and management, element management, service status and performance
- Interface offers full-fault, configuration, administration, performance and security management

## About Avvasi

Avvasi is the award-winning company helping fixed and mobile service providers understand and leverage the opportunities created by the surge of internet-based, Over-the-Top video. Avvasi's revolutionary video analytics eclipse traditional deep packet inspection (DPI) based network analytics, offering highly detailed measurement capabilities that report video-based QoE, a MOS-like score that accurately reflects the subscriber's perceived experience with video content. Service providers around the globe are deploying Avvasi OTT video analytics to understand the network impact of new devices and subscriber usage patterns, plan and dimension network expansion and optimization solutions, while reducing subscriber churn and maximizing revenue. For more information, please visit <http://www.avvasi.com>.

