

STREAMPILOT OVERVIEW

StreamPilot is Edgeware's cloud-based delivery control platform for multi and single CDN environments. The platform enables a number of services, all of which are delivered as managed services, hosted and operated by Edgeware.

StreamPilot is a server-side system controlling the delivery of streaming media from the CDN to the requesting client. Its position in the network - between the client and the CDN - makes it 100% agnostic to both client and CDN.

Current services and service packages offered on the StreamPilot platform:

- Initial CDN Selection
- **QoE Monitoring**
- QoE-based Initial CDN Selection
- QoE-based In-stream CDN Switching



DIAGNOSE AND TROUBLESHOOT QOE PROBLEMS IN REAL TIME WITH AI-BASED QOE MONITORING!

QoE-Monitoring is a cloud-based service available on Edgeware's StreamPilot delivery control platform. It provides extensive and real-time quality of experience (QoE) and network performance metrics offering invaluable insights to diagnose experienced quality problems. The session data and network metrics are processed using Edgeware's Algorithmic Session Tracker (AST) using artificial intelligence (AI) technology to troubleshoot potential problems affecting end viewers' QoE. QoE Monitoring is offered as a managed service, hosted and managed by Edgeware.

OVERVIEW

The QoE Monitoring service offers real-time QoE metrics based on extensive data from ongoing streaming sessions and advanced data processing to aid diagnosing and troubleshooting video quality issues.

The service measures QoE for all – or parts of – the streaming traffic using Edgeware's AST capability and the concept of QoE agents.

By using QoE agents selected sessions are measured, e.g. certain subscribers or content, or the clients within a particular geography.

With the powerful AST capability, the data collected by the QoE agents coupled with AI, hotspots and intelligent alarms, will identify – in real time – the common denominators and root-cause of quality-related problems. The problems can be pinpointed down to a certain geographic area, a type of client, a content format, or the content file itself.

These insights simplifies troubleshooting and gives customer support personnel better and more adequate information for end customers experiencing quality problems.

The QoE metrics can be grouped and categorized based on severity levels and actions on how to avoid problem hotspots are presented.

When combining QoE Monitoring with CDN selection, all new sessions can be directed to another CDN as a means to avoid hotspots causing delivery problems.

The vast amount of session data provided with QoE Monitoring gives invaluable information about viewing habits, such as which devices are most frequently used, which content is viewed and the locations of viewers etc.

KEY FEATURES & BENEFITS

- ✓ Provides extensive and accurate real time (less than 3 sec) QoE session data and network performance metrics
- ✓ Presents key data to optimize the delivery path across the network avoiding problem hotspots
- ✓ Flexible selection from wide range of monitoring parameters
- ✓ Gives visibility of traffic patterns, potential network problems and viewing trends with AI technology and machine learning
- ✓ Provides key insights fueling development of innovative TV services, conducting A/B testing or designing marketing campaigns
- ✓ Client and CDN agnostic avoiding complex client integration and CDN vendor lock-in
- ✓ Fast set-up and time to service (TTS) in a SaaS manner with 24/7 monitoring

ALGORITHMIC SESSION TRACKER (AST)

AST is a key enabler of the QoE Monitoring service. The powerful combination of real-time session data, AI/machine learning to process the vast amount of session data along with intuitive and intelligent alarms helps streaming providers to diagnose and troubleshoot quality-affecting issues. By correlating and processing session data, the common denominator for a quality problem can be identified. For example, session length can be

one early indicator that end users are experiencing quality problems. By correlating this with other parameters, the common determinant can be identified, e.g. a corrupt source file, ISP congestion or CDN performance.

By identifying "hot spots", problem free or problematic areas in the network are found.

A problem hotspots can be caused by CDN performance issues, or network issues outside the CDN, such as ISP network congestion.

With this information, the best delivery path across the network can be identified.

The challenges that many QoE monitoring systems face, such as huge amounts of and complex data, or delayed problem reporting, are addressed with Edgware's real-time monitoring service.

The combination of the powerful AST capability and option to integrate it with StreamPilot's CDN selection service, gives streaming providers the means to control the delivery ensuring an optimized QoE.

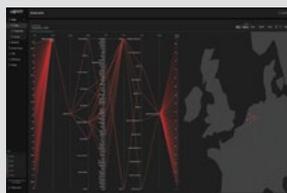
ALGORITHMIC SESSION TRACKER (AST) ELEMENTS

REAL-TIME DASHBOARD



Real-time session data incl integration with existing data lake.

AI PROCESSING/MACHINE LEARNING



Recognize and analyze traffic patterns to identify clients experiencing quality issues.

HOTSPOTS/RECOMMENDED ACTIONS/ALARMS



Alarms designed using a "Dark NOC" concept, only showing alarms requiring immediate actions, and directing traffic based on network "hotspot" intelligence.

SERVICE DETAILS - QOE MONITORING

QOE MONITORING PARAMETERS

Bitrate delivered
Bitrate trends
SESSION SELECTION PARAMETERS
Client geography
ISP/ASN
IP address
Content
Live
VoD
User agent (url)
Time of day

VIDEO FORMATS SUPPORTED

HLS
Live
VoD
MPEG-DASH
Live
VoD
MSS
Live
VoD

CLIENTS SUPPORTED

Client agnostic - HTTP redirect required on clients
Tested against all major players
OPEN API
REST APIs for integration and control

FOR MORE INFO ON THE STREAMPILOT PLATFORM, PLEASE SEE:

- [StreamPilot Solution Brief](#)