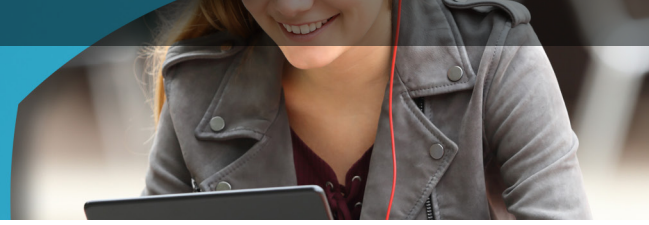


Video QoE Analysis



KEY BENEFITS

- True and holistic view of end-user video experience:** This Use Case combines traditional KPIs with video specific indicators and tackles encryption by leveraging ML capabilities to provide a holistic view of the video experience
- Easily identify high ARPU subscribers:** Video QoE Analysis allows service providers to know whether their high ARPU subscribers are being served good quality video services and how video is impacting their network. It also provides the contextual awareness to directly address issues, which is the first step to video management
- Trends and Outliers:** Sandvine helps service providers understand the video traffic trends by different contexts such as subscribers, devices, location, etc.
- Advanced Metrics for QoE:** Different types of video are taken into consideration such as live streaming, video streaming, and social video
- Support Adaptive Bitrate Streaming:** Measure all contributing QoE factors, the video QoE solution needs to go beyond traditional measurements and can categorize the video streaming of adaptive bitrate streaming, which provides service providers a more accurate measure of QoE

Consumers evaluate network performance based on how they perceive the quality of their video experience. With more than half of all world's traffic being video, operators need to understand how well it is performing.

Video quality is a direct indicator of network quality. It is heavily impacted by congestion. Operators are losing visibility into video traffic and quality. In addition, existing analytics solutions lack comprehensive end-user experience visibility and are ineffective when it comes to encrypted video. A new approach is required.

SOLUTION OVERVIEW

Sandvine's Video QoE Analysis enables service providers to measure the key video QoE metrics and KPIs for the video applications and services that are driving the purchase of higher value service plans in their network.

Video QoE key performance indicators measured include:

- Throughput:** Also known as bitrate – calculated every 250 milliseconds (captures spikes and sudden bursts needed to download chunks of video) and aggregated over five minutes
- Latency:** User side – calculated every five seconds and aggregated over five minutes
- Packet Loss:** User side – calculated every five seconds and aggregated over five minutes
- Video Resolution:** Possible values are SD, HD, FHD, and UHD
- Streaming Health:** Indication of video stalls (measured on a scale of one to five, with one indicating high stalls/longer stall occurrences and five indicating no stall occurrences)
- Startup Health:** Qualifies streaming health experienced at the beginning of video streaming or playback
- Video QoE Score:** Measures the above metrics such as throughput, latency, and packet loss, along with advanced metrics such as video streaming and startup health to calculate a score for video (as well as other critical services)

This Use Case provides three key views in [Sandvine's ANI Portal](#). These aid in understanding how video is performing and where potential action should be taken:

Figure 1

Video QoE Analysis – Usage



Figure 2

Video QoE Analysis – Locations



Figure 3

Video QoE Analysis – Trends and Outliers

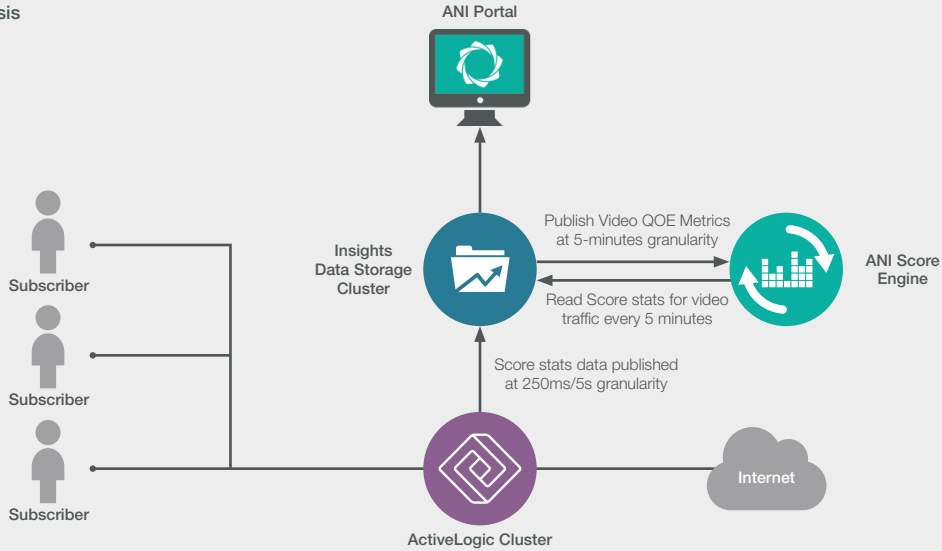


REQUIRED SOLUTION COMPONENTS

- ActiveLogic
- Maestro Policy Engine
- Insights Data Storage
- Video Score Engine
- Deep Insights
- Elements

Figure 4

Video QoE Analysis



ABOUT SANDVINE

Sandvine's cloud-based Application and Network Intelligence portfolio helps customers deliver high quality, optimized experiences to consumers and enterprises. Customers use our solutions to analyze, optimize, and monetize application experiences using contextual machine learning-based insights and real-time actions. Market-leading classification of more than 95% of traffic across mobile and fixed networks by user, application, device, and location creates uniquely rich, real-time data that significantly enhances interactions between users and applications and drives revenues. For more information visit <http://www.sandvine.com> or follow Sandvine on Twitter @Sandvine.



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