Performance Analysis

Understanding your network’s ability to deliver critical services to network users and applications

MARKET OVERVIEW

A new generation of network users has higher expectations about what they expect from their network operators; consequently, it is vital that network operators understand the network’s performance through metrics including key performance indicators (KPIs) and key quality indicators (KQIs).

Today’s subscribers are adamant about getting the quality of service that they are paying their provider for. But their concerns go beyond price points: they now want to know who has the best network and who delivers the best subscriber experience, and if their operator is not meeting their expectations, they will likely leave for a competitor.

A significant challenge for operators has been being able to accurately measure and assess the quality of experience (QoE) of subscribers on their network. Historically, subscriber QoE has been assessed using various speed tests, but these metrics are incomplete and do not provide insight into how to improve the network. While operators struggle to assess their network’s performance, others are creating the narrative: Over-the-Top (OTT) video providers like YouTube and Netflix have begun to rate operators with their own speed and performance indexes, and consumers have taken to using services like Speedtest to make snap judgments.

To overcome these challenges, operators need a proactive solution that provides end-to-end network visibility, application awareness, and subscriber and QoE awareness.
SOLUTION OVERVIEW

Using KPIs and KQIs, Sandvine’s Performance Analysis enables operators to understand network performance for crucial network services, applications used on the network, network elements, and individual customers. Access to this granular data enables operators to proactively monitor, troubleshoot, and fix performance issues before they impact subscribers.

The solution is built around five (5) critical pillars:

Access Network Characterization

Performance Analysis integrates with access network elements to obtain topology awareness and last-mile KPIs such as signal strength, signal-to-noise ratio, and coding errors. Topology changes can include subscribers moving across cells or WiFi clients moving to new APs; this information can be exposed to create measurements and expressions to be used through Control Center and Network Demographics reports.

Network & Service Availability

Sandvine monitors key network functions to gauge network and service availability. By analyzing critical IP services such as DHCP, DNS, RADIUS, GTP-C, and Diameter on an individual transaction basis, the use case can help diagnose the root cause of customer issues.

Key Network Metrics

The use case also monitors peak utilization, throughput, and latency. Utilization metrics of key network elements are tracked and compared against the historical norm to detect abnormal conditions such as performance degradations through historical reports.

Application & Per-User Scoring

Most applications do not share the same network resource requirements: a high bandwidth network may be able to deliver high-definition videos, but if latency and packet loss is high, real-time gaming and VoIP applications will suffer. Sandvine scores each network location based on its ability to deliver different types of applications.

The score is calculated for the following application categories:

- Web
- Video streaming
- Social media
- Real-time entertainment
- VoIP
Similar to network location scoring, each subscriber is assigned a QoE score that represents the average application score. Using a normalized quality score from real-time network-based traffic analysis, it shows statistics related to real-time traffic and the capacity of network devices to deliver a high-quality user experience, including information about negative factors such as:

- Stall detection in progressive video
- Bitrate shifting in the adaptive video
- Server response latency

Operators can use this analysis to gain a deeper understanding of their network’s QoE, and why the QoE score for one region, Content Delivery Network (CDN), or content provider differs from others.

Analytics Reporting

Sandvine’s analytics reporting and customization tools enable operators to instantly identify and respond to network-related issues and verify the network changes or fixes with post-checks. Sandvine’s tools like Network Demographics, Control Center, and Power-View provide rich reporting capabilities for operation teams. This enriched network data can be integrated with operators’ existing big data deployments to avoid unnecessary investments in infrastructure.

Equipped with this information, operators are able to improve operational efficiency by proactively identifying issues and reducing time to resolution. It also enables operators to make data-driven decisions to improve subscriber experience, create competitive differentiation, gain market share, and reduce customer churn.