



Streaming Media QoE • Video & Voice

Benefits

Total Streaming Visibility

- Capture and monitor signaling & media for analysis
Head-end, gateway, aggregation, and customer sites
Continuously or on-demand

Rapid Fault Isolation

- Correlate transport, session signaling, and user experience metrics to identify root cause and accelerate resolution
Complement remote capture with integrated active test and troubleshooting capabilities

Triggered In-Depth Capture

Capture full media sessions for in-depth analysis when:

- Excessive jitter, packet loss, or delay predict poor QoE
- Signaling analysis shows unresponsive or interrupted media sessions: repeated call failures, 'channel surfing' lag, repeated buffering, and more
MGCP / H.323 / SIP / IGMP

FlowBROKER gives centralized analyzers segmented and local access to video flows throughout an operator's network, allowing them to isolate where media sessions deteriorate or disconnect.

Video and audio quality can degrade at any point along the transmission path. From IPTV delivered over residential access networks to ViLTE over mobile, FlowBROKER allows analyzers to decode control and media KPIs from any point in the network. Operators can also capture streams for replay and in-depth analysis.

Operators offering differentiated access to partner content providers (CDN), zero-rated bundles, or multi-screen broadcast and streaming services can ensure that the user experience meets customer expectations, while also ensuring that premium content excels against over the top (OTT) applications. And, they can assure business conferencing solutions offered as a value-added service.

By performing targeted capture on real-time protocol (RTP) streams, operators can quickly isolate video quality issues stemming from sequence gaps, out-of-order, and lost packets. Where data is encrypted, packet-level QoE and DPI heuristics can give an accurate view of what's being streamed, codecs used, subscriber count, bandwidth used, and user experience by context.

FlowBROKER's microsecond-precise time stamping allows analyzers to identify excessive jitter for any particular flow. This allows the provider visualize how jitter develops along the transport path, to isolate packet drop locations, and to optimize jitter buffers where the most loss occurs.

FlowBROKER can help identify changes in RTP transport configuration that can impair video QoE, including loss of packet prioritization (DSCP / CoS marking / Bearer QCI), and routing changes. It also offers insight into common causes of video degradation: transcoding issues, insufficient streaming rate, and IGMP signaling latency.

Programmable capture can be automatically triggered by analyzers detecting repeated failures in IGMP / SIP / IMS messaging, excessive latency, packet loss or jitter, or degrading video MOS user experience scores.

Use FlowBROKER to Identify:

- RTP flow sequence discontinuity & gaps
- Changes in RTP transport (DSCP / TTL / Rerouting)
- Misconfigured transcoders, network elements, caching servers, and content delivery networks
- Limited streaming bandwidth, excessive loss or jitter, high utilization, IGMP latency, interfering applications



400% Faster Troubleshooting ¹

80% Reduced Cost ²

Going Beyond

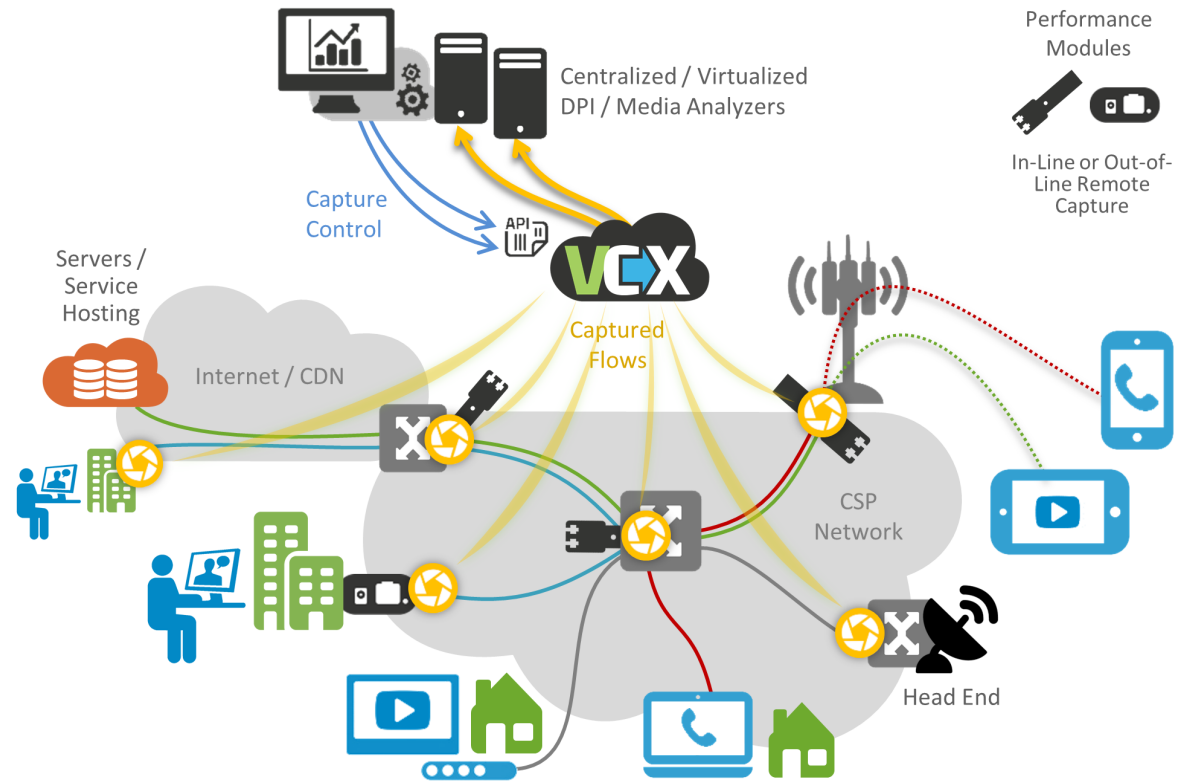
FlowBROKER™ is the only distributed packet broker with:

- lossless capture
- 100% better bandwidth efficiency³
- μsec precise time stamping at point of capture
- scalability across national networks

ERSPAN, Remote PCAP, and proprietary approaches can't deliver without loss. Result: poor quality, unreliable results.

Exceptional Value

- Instrument entire networks instead of a handful of locations.
- Avoid vendor lock-in by decoupling data access from analysis.



Lossless, remote tapping locations - just Plug & Go™ to add visibility



Accurate time-stamping permits per-flow jitter calculation & location-based signaling latency analysis

¹ Without requiring technician dispatch to capture data from remote sites, troubleshooting can be reduced from hours to minutes.

² Savings depend on number of analyzers required, number of capture points, and number of packet brokers and dedicated data-plane appliances. FlowBROKER can replace nearly all remote capture hardware, packet brokers, and data plane elements, and permits the large-scale use of virtualized analyzers that can scale with cloud resource.

³ Other methods send each frame—one at a time—to analyzers. Adding an additional header to each small signaling packet can more than double transmission bandwidth. FlowBROKER bundles frames together to reduce transmission overhead to the minimum.

SKYLIGHT™ The fully virtualized Performance Platform that redefined what for service providers can see: QoS & QoE at every location, every layer, with high definition granularity and precision, second by second, over large scale, multi-vendor networks.



FlowBROKER™

The first virtualized, distributed packet broker solution, FlowBROKER offers cost-efficient, microsecond precise, lossless flow capture and relay to centralized and virtualized analyzers, analytics platforms, security and policy enforcement systems. Now operators can optimize QoE & network efficiency with the complete picture — and complete confidence.

