Mobile core network transport monitoring

Meet 4G and 5G low-latency targets—
and detect issues before your customers notice

EXFO

In the age of 5G, insight into user experience is critical

Minimize latency

Meet latency budget

Identify impact of issues

Mobile operators need to minimize latency in the mobile core and meet demanding latency "budgets" with little or no variation for latency-sensitive 4G and 5G services. Customers see problems immediately and can be lost in seconds, impacting churn and Net Promoter Scores (NPS). With the growth of edge computing and cloud applications, operators need to better understand and quickly identify when transport issues impact the mobile end-user experience.
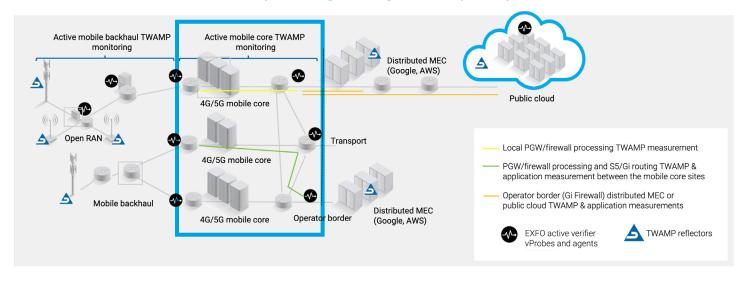
Emulate user experience to see performance issues before they happen

Layer 3 testing in the transport layer provides granular visibility and KPIs into how the network is performing but not how the end user experiences the mobile core network via the GPRS Tunnelling Protocol (GTP) tunnel. This insight into user experience is critical data that enriches network analytics and informs the orchestrator which, once issues are detected, automates fixes and reroutes traffic.

By using a unique mini simulator and active Layer 3 TWAMP testing in the GTP tunnel, operators can easily emulate user experience and pinpoint where performance issues are occurring. Transport planning and mobile core operations teams can simulate actual end user experience by gaining visibility into the GTP tunnel that's established between the user device and the core network. This end user experience visibility also supports SLA reporting, distributed MEC deployments and cloud application access to Microsoft Azure, Amazon Web Services and Google Cloud.

4G and 5G mobile core: putting things into perspective

EXFO's active monitoring addresses mesh mobile core performance by injecting test traffic into an active GTP tunnel.
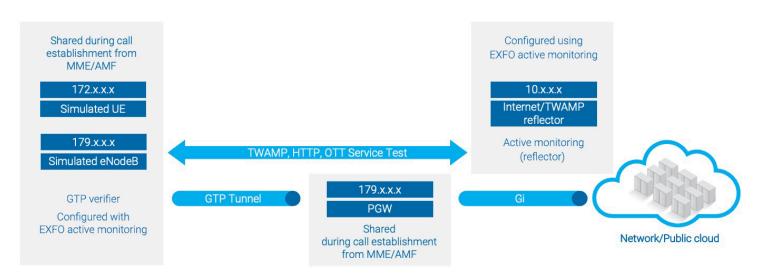
How it works

EXFO's active verifier probes test user experience in the GTP tunnel in 4G and 5G networks.

The GPRS Tunnelling Protocol (GTP) tunnel is used to encapsulate user data when passing from the user device to the evolved packet core (EPC) network.

Virtual test probes can be instantiated to simulate a node and a user SIM to create a tunnel through the packet core and provide granular per-second visibility in user plane traffic.

The test instance can be located close to the packet core to get accurate segment monitoring results, for example between the service layer router and the virtualized packet core including the Gi firewall.

The tested service segment is the same as real customers are using through the APN configuration.
The figure describes the simulation procedure and parameter exchange.

Features

- **Real-time, per-second user QoS visibility** measures UL/DL latency, UL/DL packet loss, jitter and availability
- **Real-time QoE active tests** including HTTP, DNS, OTT-video and speed tests can be executed through the GTP tunnel
- **Modern architecture** with KAFKA streaming capability, open APIs and virtualized architecture framework
- **Support automation and zero touch operations** by providing high quality "sensor data"

Benefits

Reduce mean time to repair (MTTR) by getting end-to-end visibility of the service layer router through to the packet core and the Gi firewall.

Prevent outages by gaining early warning on degradations and anomalies in EXFO's adaptive service assurance platform.

Identify and detect issues impacting the core transport network:

- Processing delay in virtualized, cloud-based mobile core elements
- Delay for S5 and Gi routing through the mobile core across several locations
- Increased latency, packet loss and jitter caused by broken Ethernet bearers, logical aggregation groups or firewall configuration issues

Provide meaningful SLA reports for the project teams responsible for distributed MEC introduction and SLA reporting to cloud partners (e.g., Google, AWS).

REVEAL THE INVISIBLE.

EXFO adaptive service assurance

The EXFO adaptive service assurance platform combines performance data from networks, services, devices and users with machine learning-enabled analytics to deliver unique insight and diagnostics into networks and services. Open integration and third-party data analysis—including network topology—adds context to enrich troubleshooting and minimize latency.

Learn more about mobile
network transport monitoring
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