

EXFO NGN Solution Overview

- 24/7 monitoring of the performance and quality of real-time Ethernet and IP services.



KEY FEATURES

Enables carriers to provide a service-quality advantage through scalable, converged service-assurance solutions for next-generation networks

Supports proactive monitoring of Carrier Ethernet networks, IP/MPLS cores and Metro Ethernet and IP services, including business services and wireless backhaul

Provides automated turn-up tests and reports with central repository of test results for validating installations

Vendor-agnostic solution with a standards-based architecture for end-to-end monitoring of service quality, performance and 24/7 availability from the network core to customers

Improves mean-time-to-repair (MTTR) by segmenting the network to quickly isolate problems

Scalable solution establishes multiple service levels and monitors service-level agreements (SLAs) with minimal CAPEX investment

Provides open APIs into the system for seamless OSS integration

Performance monitoring of large and complex networks, and sub-second polling for near real-time performance assessment

END-TO-END SERVICE ASSURANCE STARTS WITH THE NETWORK

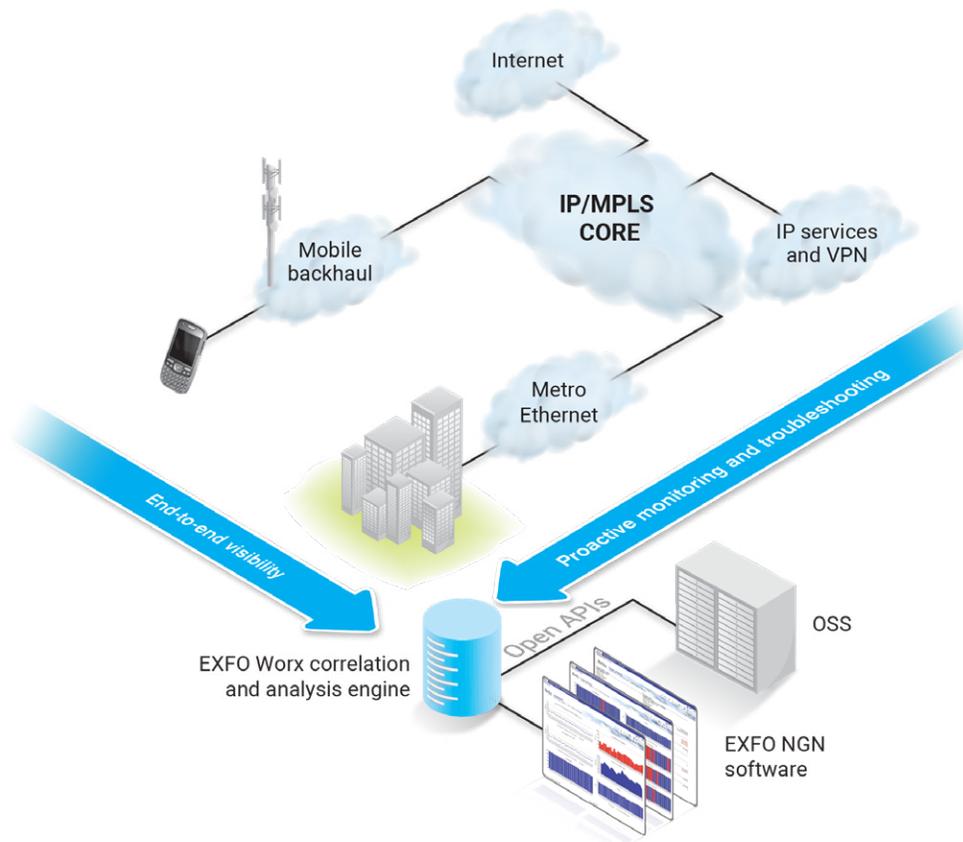
The future of business and residential communications and entertainment is based on the convergence of IP-based voice, video and data services. Both wireline and wireless service providers are transitioning their service delivery and backhaul networks to next-generation IP/MPLS and Carrier Ethernet technologies. These next-generation networks provide the foundation for converged services, such as Metro Ethernet services, enterprise connectivity, voice-over-Internet protocol (VoIP), IP video and Internet access.

Providers see many benefits in transitioning to next-generation networks, including lower capital and operational expenses, a more efficient delivery of dynamic service packages that increase the average revenue per user (ARPU), as well as increased service quality, which in turn results in less customer churn. However, providers face new service-management challenges as they must focus on service quality and meeting high customer expectations. Adding to these challenges, providers increasingly need to monitor the performance of each service across the network to validate that they are meeting technical, business and customer needs, and to ensure that the interaction of these revenue-sensitive services are properly managed and adjusted to accommodate demand and service anomalies.

To succeed, providers have to differentiate their service offerings on quality, rather than merely competing on price. End-to-end network and service visibility is a requirement for meeting performance and quality objectives and ensuring stringent SLAs. Without the necessary visibility, providers are at serious risk for crippling service degradations and outages, which lead directly to an escalation in customer care costs, eroding profit margins, increased customer churn and severely damaged reputations.

Assuring that their network is performing at its peak is at the heart of quality service delivery and where successful providers' service assurance strategies start. To effectively guarantee end-to-end SLAs and meet customers' requirements, providers must implement a service assurance solution that provides visibility not only from the provider edge to end-users, but also across the core, while allowing segmented views of service quality for problem isolation. By continually monitoring the performance and quality of Carrier Ethernet and IP transport, as well as real-time IP services, EXFO's EXFO NGN provides the most effective service-assurance solution.

With EXFO NGN, providers can continuously collect, correlate, analyze and visualize critical quality of service (QoS) and quality of experience (QoE) data from the network core to the customer endpoint for capacity planning, verifying service turn-ups, and identifying, diagnosing and quickly resolving network as well as service-performance issues before they affect customers—thereby guaranteeing quality.



NETWORK AND SERVICE PERFORMANCE MONITORING

EXFO's highly scalable and modular converged service-assurance solution is designed to support the most demanding service provider networks. Leveraging a comprehensive family of measurement appliances (EXFO Verifiers), as well as third-party devices and industry standards, the EXFO solution provides 24/7 network and service-performance monitoring.

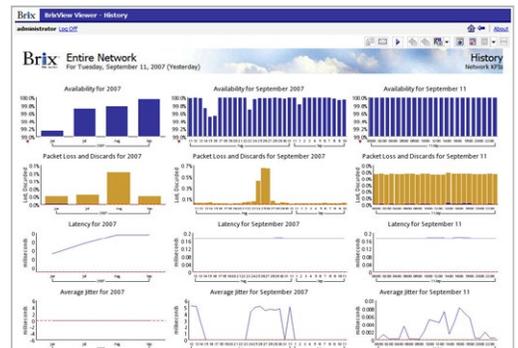
The EXFO NGN software module performs continuous, proactive monitoring of the network core, extended Ethernet and IP networks between partners and customers as well as data and infrastructure services, including email, web-based applications, file transfers, etc. With EXFO NGN, providers have the required visibility into their network and the service performance and quality to prove service-level objectives. EXFO NGN evolves network monitoring and engineering functions from a break/fix reactionary method to a proactive approach, enabling early detection and quick resolution of service-affecting issues.

When layering additional voice and video services on the service delivery network, providers can also seamlessly implement the optional EXFO Call and EXFO Vision modules, respectively, to monitor the performance and quality of all of their converged IP services from a single, unified platform.



TROUBLESHOOTING AND PROBLEM ISOLATION

EXFO NGN allows providers to establish strategic points of demarcation that can be used to quickly identify and isolate problems. These strategic points can be located at any point in the network—core, edge and customer premises—to give you unprecedented visibility of every point in your network. By continually monitoring critical key performance indicators (KPIs), such as availability, latency, packet loss and jitter, providers can set thresholds and alarms to alert them of potential service degradations and indicate where in the network they are occurring. EXFO NGN collects this information from EXFO Verifiers or other standards-based devices. Standards such as 802.1ag, Y.1731 and TWAMP are used to isolate problems through network segmentation and provide a cost-effective method of measuring service quality. With EXFO NGN, providers have the information they need to significantly improve MTTR, reduce trouble tickets, and provide more effective and efficient customer care.



NETWORK CAPACITY PLANNING AND TURN-UP VERIFICATION

EXFO NGN allows providers to proactively monitor and baseline network traffic patterns, throughput and link paths to ensure new services can be properly supported over next-generation networks.

During turn-up EXFO NGN ensures fast time-to-market and makes it easier for operators to monetize their investment as quickly as possible. New circuits can be deployed quickly and efficiently from a centralized location using a combination of EXFO portable test sets, EXFO verifiers and existing standards-based infrastructure. Fast, repeatable and uniform test procedures performed from a central point minimize required truck rolls and reduce costs and errors.



SERVICE-LEVEL MANAGEMENT

When providers leverage best-effort data delivery systems such as Ethernet for their services, real-time SLAs are a requirement. The EXFO NGN module feeds the EXFO Worx correlation and analysis software engine with the performance and quality information to produce the advanced analytics and visualization (real-time dashboards, historical reports and customer portals) to manage and continually prove SLAs. Reports address the needs of a broad audience from technical to executive levels to provide the business intelligence required for the organization to be successful. With EXFO delivering high-level, at-a-glance, audience-appropriate reports, deep diagnostic capabilities and customer-facing portals, providers can simplify SLA management as well as provide customer visibility into their SLAs.

The open architecture of the EXFO Worx also allows providers to seamlessly integrate this award-winning converged service-assurance solution with their existing operational support systems (OSS) and business support systems (BSS) to provide a complete unified view of network and service performance.

EXFO offers a suite of monitoring options to provide effective, end-to-end service assurance.



AVAILABLE TESTS

Carrier Ethernet tests

- 802.1ag loopback
- 802.1ag linktrace
- Y.1731 frame delay/delay variation/loss
- Ethernet throughput
- Passive CCM monitoring

Turn-up tests

- RFC 2544
- Y.1564 EtherSAM
- ExacTCP: TCP throughput

IP network and connectivity

- Ping, traceroute
- ICMP timestamp
- One-way latency, jitter, loss measurements
- TCP echo, connectivity and performance
- TWAMP
- UDP echo, connectivity and bandwidth

Layer 2/Layer 3 VPN services

- Site-to-site availability and performance
- Per-site traffic distribution monitoring
- Quality of service
- DiffServ, VLAN

Infrastructure services

- DHCP
- DNS
- LDAP
- NTP
- NNTP
- RADIUS
- SNMP

Third-Party device integration

- IP-SLA – Tests and KPI collection
- NID – KPI collection

Email servers

- Send and receive email performance
- SMTP, POP3, IMAP4

Web-based applications

- FTP performance and availability
- HTTP/HTTPS performance and availability
- SCP/SFTP performance and availability
- TFTP

ABOUT EXFO'S SERVICE ASSURANCE OFFERING

EXFO delivers converged solutions that allow the world's largest service providers and enterprises to deliver reliable and high-quality experiences in voice, video, data and mobile services. This offering brings a proven heritage of IP expertise unique to the service assurance marketplace, and collaborates closely with its customers and partners to assure the delivery of any IP-based service, over any network, to any endpoint.

EXFO's seamlessly integrated hardware and software products proactively monitor IP service and application quality. Network operators use these products to guarantee the successful launch and ongoing, profitable operation of their various IP services.

EXFO headquarters T +1 418 683-0211 **Toll-free** +1 800 663-3936 (USA and Canada)

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