BV-41XX Series

Provides real-time monitoring of live customer VoIP, IMS rich-media and video-calling traffic with full visibility across transport, signaling and media performance layers.

SPEC SHEET

KEY FEATURES

Enables real-time data collection and monitoring of live VoIP, IMS and IP video traffic

Provides network operators detailed service visibility to ensure quality from the network core to the customer

Utilizes standards-based call and video quality measurement capabilities

Measures both signaling protocols and bearer traffic quality

Real-time monitoring and troubleshooting of live VoIP, IMS rich-media and video-calling traffic

Carrier-class, NEBS-certified design; fully remote lights-out management

EXFO | Service Assurance

REAL-TIME MONITORING OF SERVICE PROVIDER NETWORKS

The BV-41XX series Verifiers are the mainstream processing engines in EXFO's passive (i.e., live traffic) monitoring equipment family. They offer 1 Gigabit Ethernet (1GE) connectivity, high-capacity signaling processing and hardware-accelerated RTP media stream tracking. Also included are carrier-grade availability enhancements, such as redundant power supplies and integrated hot-swap disk modules. The BV-41XX 1GE series complements and is fully compatible with the BV-42XX 10GE series of passive Verifiers (see separate datasheet).

Like all EXFO passive Verifiers, the BV-41XX series delivers real-time monitoring of live customer voice-over-Internet protocol (VoIP), IP multimedia subsystem (IMS) and IP video traffic—enabling full visibility across transport, signaling and media performance layers. BV-41XX/42XX Verifiers are key components of EXFO's integrated service assurance product family, which includes the EXFO Worx correlation and analysis software engine, as well as EXFO Call VoIP/IMS performance analysis software. The combined system closes the visibility gap between expected network performance and actual customer experience by efficiently monitoring, assessing and reporting the quality of voice and video traffic throughout operational VoIP and IP-video networks.

With EXFO Call, providers can accelerate VoIP, IMS rich-media and video-calling deployments with confidence, troubleshoot live network events, and ensure greater profitability from IP-based voice and video services. By combining the BV-41XX/42XX series with EXFO Call, network operators will obtain detailed service visibility and live call analysis, allowing them to ensure quality of service (QoS) across the core network and quality of experience (QoE) to customers. EXFO Call provides real-time signaling ladder diagrams of the entire network with media visibility, including the ability to capture troubled calls for detailed off-line analysis.

INDEPENDENT, SCALABLE MONITORING

Today's networks are characterized by multipoint access to multiple services. The BV-41XX series provides the measurement layer, creates service demarcation points for analyzing revenue-sensitive services, and enables end-to-end service visibility across the network. Each EXFO Verifier independently monitors the bearer and/or signaling channels of the service for central correlation and analysis by EXFO Worx. The result is a system that provides unprecedented visibility into the customer's QoE. Each call is correlated to a single rich-media voice and video call quality record (CQR) on a per-channel and per-location basis.

Whether deployed in a network where traffic is beginning to build up or in a high-capacity scenario, EXFO Worx scales with the provider's needs through a highly distributed, multiple-tier architecture.

STANDARDS-BASED VOICE AND VIDEO QUALITY SCORING

For voice-over-IP (VoIP) service monitoring, the BV-41XX series with EXFO Call software features listening and conversational mean opinion score (MOS) and R-factor score voice quality measurement based on the scalable ITU G.107 E-model algorithm. G.107 calculates an MOS of overall call quality on a scale of one (bad) to five (excellent), based on network impairments that degrade call quality.

For IP video call monitoring, the BV-41XX series with EXFO Call software features individual audio and video-stream quality for service-impacting impairments, yielding key performance indicators (KPIs) to produce a patented video quality index. VQI indicates the percentage of renderable video that is directly correlated with the user's QoE.

PROACTIVE PERFORMANCE ALERTING AND VISUALIZATION

Using the EXFO Worx Correlation and Analysis Software Engine, service providers establish thresholds for various performance metrics to proactively alert operational staff of voice or video quality degradations or service outages. These thresholds can be standardized network-wide or customized for individual locations, depending on the business requirements. Additionally, EXFO Worx translates, simplifies and visualizes large amounts of complex IP service performance data into actionable business intelligence, including take-up, retention and churn rates.

Aggregate reporting and visualization of the information is available through the EXFO Worx analytics engine. Reporting by various dimensions of the data—from location to time of day to various number groupings—is available for use by multiple user organizations, from network engineering to network operations to product marketing and senior executives.

CARRIER-CLASS DESIGN FOR DEPLOYMENT IN PRODUCTION NETWORKS

The BV-41XX Series comprises carrier-class units that are easily installed in production networks for complete lights-out operation, unlike competitive testing tools that were designed for use only in laboratory environments. The BV-41XX Series also offers AC or DC power options, and multiple test and management ports for deployment flexibility. The devices can be remotely managed through the Web-based EXFO Worx user interface.

Administrative communication between the BV-41XX Series and the server is offloaded onto an IP-based management network through dedicated dual 10/100/1000 Mbit/s Ethernet management ports, with no need for direct device access after installation.

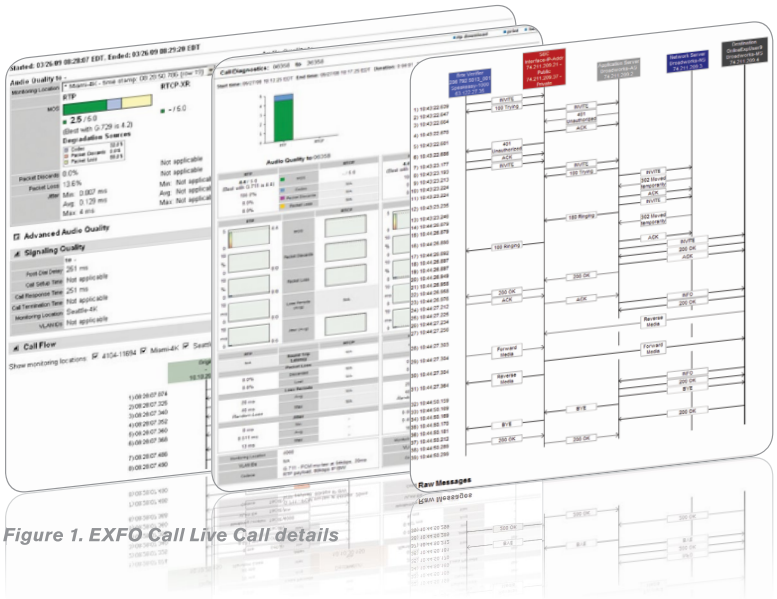

Figure 1. EXFO Call Live Call details

VERIFIER MODELS

BV-4100

- Two-port 1GE passive verifier, signaling (no RTP acceleration)
- Test ports: 2 x 1 Gigabit Ethernet, 10/100/1000 Base-T copper only
- Management ports: 2 x 1 Gigabit Ethernet, 10/100/1000 Base-T copper

BV-4104

- Four-port 1GE passive verifier, signaling + RTP acceleration
- Test ports: 4 x 1 Gigabit Ethernet, SFP copper or fiber terminations
- Management ports: 2 x 1 Gigabit Ethernet, 10/100/1000 Base-T copper

VERIFIER SPECIFICATIONS

Protocol Support

- Transport protocols
  - IPv4, IPv6 (including dual-stack support), VLAN, DSCP
  - TCP, UDP, SCTP, Sigtran adaptation layers
- Call signaling protocols
  - SIP/SIP-I/SIP-T, H.323, NCS, MGCP, H.248, SS7 Sigtran
- Authentication/translation protocols
  - DIAMETER, DNS/ENUM
- Bearer protocols
  - RTP, RTCP, RTCP-XR
- Audio codecs
  - G.711 A-law/mu-law, G.722, G.722.1, G.723, G.726, G.729
  - GSM-HR, GSM-FR, GSM-EFR, AMR, AMR-WB
  - EVRC, EVRC-B, EVRC-WB, iLBC
- Video codecs
  - H.261, H.263, H.263+, MPEG-4

Network Connectivity

- Test port terminations
  - 1GE SFP 1000 Base-T copper Ethernet
  - 1GE SFP MM fiber, 850 nm, 300 m range
  - 1GE SFP SM fiber, 1310 nm, 10 km range
- Management ports
  - 2 x 1 Gigabit Ethernet 10/100/1000 Base-T copper
  - Autosensing, autonegotiating
  - Combined link/activity LED

Network Management

- SNMP agent v1, v2c

GENERAL SPECIFICATIONS

Size (H x W x D)	88 mm x 435 mm x 546 mm (3 ½ in 17 ¼ in x 21 ½ in) Two rack units (RU) high Rackmount rails included
Weight	15 kg (33 lb)
Power	Redundant 500 W AC or DC power supplies Peak power consumption: 301 W
Temperature Operating Storage	 0 °C to 40 °C (32 °F to 104 °F) 20 °C to 70 °C (68 °F to 158 °F)
Relative humidity	5 % to 95 % non-condensing
Operating altitude	–60 m to 2000 m (–196 ft to 6565 ft)
Certification/marking	NEBS (DC units only), cULus, CE, GS, C-Tick
Safety standards	UL 60950-1, CSA C22.2 60950-1, IEC/EN 61010-1, IEC/EN 60825-1
Electromagnetic compatibility	IEC/EN 61326-1
Immunity standards	EMC Directive 89/336/EEC, EN 55024, EN 61000-4-3:2002, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
RoHS compliance	Yes

Accessories

Additional or replacement SFP modules are available.

SYSTEM AND SERVICE ASSURANCE

EXFO's Systems and Service Assurance Division offers 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. The division 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.

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