BV-1500 Verifier

PART OF ETHERNET One

SPEC SHEET

Multifunction service assurance verifier with integrated turn-up, monitoring and troubleshooting capabilities.

KEY FEATURES

- Real-time performance measurement of IP and Ethernet services
- End-to-end service testing
- Network-to-application layer testing
- Flexible worldwide time synchronization options
- Carrier-class design
- Operational simplicity for “lights-out” management
- IPv4 and IPv6 support

BENEFITS

- Optimize network performance and customer satisfaction throughout the service lifecycle
- Turn up Ethernet services “first-time right”
- Continuously monitor performance to identify service degradation before it impacts subscribers
- Troubleshoot effectively to reduce MTTR and optimize service performance
- Optimize QoS and QoE while reducing churn and OPEX

VERSATILE ACTIVATION, QoS/QoE MONITORING AND TROUBLESHOOTING PROBE

The BV-1500 Verifier is a single integrated instrument that supports all three phases of the IP and Ethernet service lifecycle: service turn-up, monitoring and troubleshooting. It enables operators to not only turn up new services quickly and efficiently, but to also monitor the quality of those services and thus assure a high quality of experience (QoE) for the end user. Carriers can use the BV-1500 to turn up new circuits simultaneously, in addition to measuring the real-time performance of data transport, wireless backhaul, metro Ethernet, VoIP, mobile and video services.

The extremely competitive value and performance of the BV-1500 makes it ideally suited for deployment in a wide variety of service provider and enterprise locations, including metro hubs, regional headends, PoPs, mobile switching centers and data centers.

THE ONE SOLUTION FOR ENHANCED ETHERNET SERVICES

The BV-1500 is a key part of EXFO's Ethernet One solution for optimizing Ethernet service delivery. In conjunction with EXFO NGN Next-Generation Service Assurance Software, the BV-1500 can simultaneously perform monitoring functions across the core and access, while also initiating remote or automated service turn-up tests. The result is a single platform that fulfills the requirements of two or more hardware devices in competing solutions. By initiating turn-up tests from a central location to service endpoints, operators can avoid costly and time-consuming truck rolls. The BV-1500 allows service providers to deploy one device in a central location to perform turn-up testing and then seamlessly evolve to real-time performance monitoring or vice versa—all with minimal capital expenditures.

With unprecedented test scalability to many thousands of locations, the BV-1500 ensures complete end-to-end network visibility without requiring new hardware to accommodate network growth. When combined with the comprehensive reporting and analytics capabilities of EXFO Worx and its ability to seamlessly integrate with the operator's OSS, the BV-1500 leverages EXFO's Ethernet One solution to provide unmatched service lifecycle management capability and service assurance functionality.

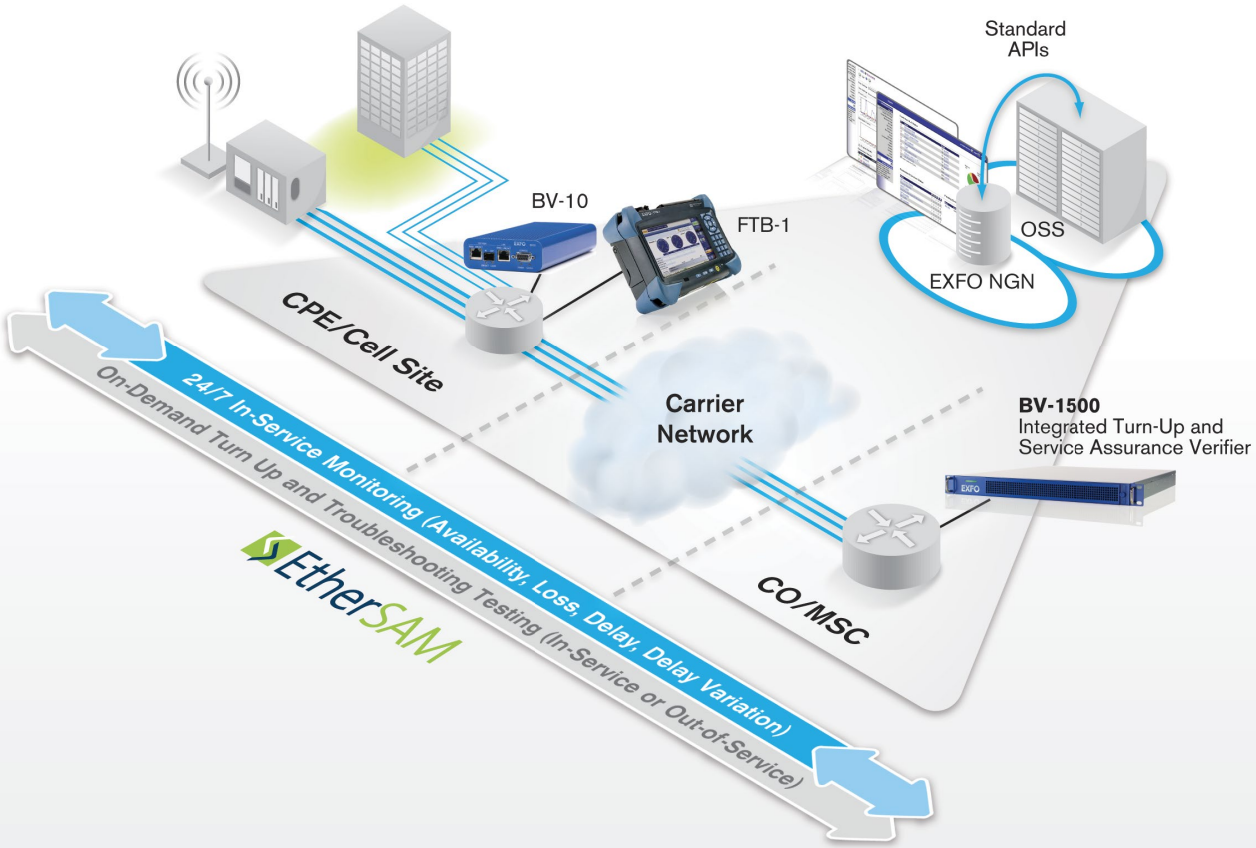

FIgure 1. The BV-1500 as part of EXFO's Ethernet One solution for end-to-end Ethernet testing and monitoring.

CRITICAL COMPONENT OF END-TO-END SERVICE TESTING

The BV-1500 Verifier is a critical component of EXFO's end-to-end service testing approach. It delivers both the essential end-user quality of experience (QoE) monitoring along with the visibility and detail network administrators need to easily troubleshoot performance problems and identify their root causes.

The BV-1500 enables simultaneous core-to-core, edge-to-core and edge-to-end-user testing. By deploying the BV-1500 Verifier at key locations in the network core and edge, and by leveraging industry standards, network administrators can effectively segment the network in order to gain the needed visibility into the enterprise, access, core and backhaul networks. Tests can be performed to any other EXFO Verifier or to third-party equipment such as network interface devices (NIDs) or cell site routers (CSRs) using industry standards such as 802.1ag, Y.1731 or TWAMP. By leveraging the operators' existing equipment, CAPEX costs are reduced and operational efficiencies are maximized.

CONTINUOUS SIMULTANEOUS MONITORING OF THOUSANDS OF LOCATIONS

The BV-1500 Verifier is capable of continuously monitoring thousands of endpoints simultaneously. This unique capability not only offers service providers the very high flexibility they need to test performance across multiple service classes, but also unprecedented scaling capacity when growing their networks. Whether monitoring service performance at many hundreds of endpoints at multiple service classes or thousands of locations at just one—BV-1500 is ready to grow with your network.

OPERATIONAL SIMPLICITY

EXFO's BV-1500 Verifier delivers the reliability and management features required in carrier environments, combined with the ease of complete "lights-out" operation. Installation requires simply plugging in Ethernet cables for connectivity and connecting the power source—the verifier completes the rest. Upon power-up, the BV-1500 Verifier performs system integrity checks, automatically discovers its EXFO Worx server and then downloads all system configurations, test modules and test schedules over a secure, encrypted connection from the server.

TURN-UP AND TROUBLESHOOTING

The BV-1500 Verifier supports turn-up tests, utilizing industry-standard methodologies such as ITU-T Y.1564 or RFC 2544. These tests can not only be performed concurrently with service monitoring tests, but also over the same test ports. EXFO utilizes a unique "preflight" mechanism to monitor both the available verifier resources and the available test port bandwidth to ensure that turn-up tests never negatively impact any currently running active SLA monitoring tests.

TRANSPORT-TO-APPLICATION LAYER PERFORMANCE MANAGEMENT

EXFO's BV-1500 Verifier supports a comprehensive suite of more than 70 active tests. These tests address a wide array of network transport protocols and IP services, including Carrier Ethernet, IP, VoIP, video, VPN, wireless and Web-based applications, as well as a variety of performance tests. The BV-1500 calculates a deep set of performance statistics by measuring transport quality and the performance of transport and application-specific protocols. The proactive tests precisely simulate network and user-level activity. Moreover, the BV-1500 Verifier offers a unique capability to run Layer 4-7 performance monitoring tests over a 3G or 4G wireless interface to enable carriers to monitor true end-user quality of experience.

CARRIER-CLASS DESIGN FOR IN-NETWORK DEPLOYMENT

The BV-1500 Verifier is designed from the ground up as carrier-class equipment, offering features such as AC and redundant DC power options.

All EXFO verifiers, including the BV-1500, are centrally managed and provisioned using the EXFO Worx system. All communications between the verifier and EXFO Worx are encrypted and secure. As well, communications between the verifier and the server can be offloaded from the production network onto a management network through the dedicated 10/100/1000 Mbit/s Ethernet management ports.

PATENTED TIMING ACCURACY FOR REAL-TIME SERVICES

In addition to industry-leading performance, the BV-1500 features exceptionally accurate timing capabilities to support the sub-millisecond precision required for today's performance-sensitive services. All time measurements take advantage of the BV-1500 Verifier's patented hardware packet timestamp engine, eliminating the variations caused by user or kernel-level software-based timing schemes. This combination provides the most accurate one-way measurements in the industry.

A variety of timing options, including external clock input, provide accurate, worldwide synchronization of BV-1500 timestamps to as low as microsecond precision. This allows service providers to identify low-latency intra-metro or regional issues and enforce extremely stringent service-level agreements.

SIMPLE, INTUITIVE REPORTING

The BV-1500 supports a wide array of turn-up, troubleshooting and monitoring tests that provide operators with valuable network status data. EXFO Worx provides a number of customizable reports and dashboards that turn this data into accessible and actionable information. These web-based reporting tools make it easy for operators to quickly and intuitively understand the test results and therefore, eliminate the need for expensive training. Moreover, since the reports are all web-based, they can be easily presented to subscribers as proof that SLAs are being met.

GLOBAL PROVIDER

EXFO is a global provider of converged service assurance solutions that allow the world's largest service providers and enterprises to offer reliable and high-quality experiences in voice, video, data and mobile services to their customers, partners and employees. The company 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 are converged service assurance solutions that 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.

SPECIFICATIONS

SUPPORTED TURN-UP AND TROUBLESHOOTING TESTS

RFC-2544/Y.1564 tests
› Layer 2
› Layer 2 OAM
› Layers 3, 4 IPv4/IPv6

SmartLoopback L2-L4
802.1ag and Y.1731 loopback and linktrace

IP ping and traceroute

Ports can support a mix of ITU-T Y.1564, RFC 2544 and active tests

And many more

INDICATORS AND INTERFACES

Two test ports:
› 1G fiber SFP
› 10/100/1000Mbit/s copper SFPS
› Auto-sensing, auto-negotiating
› Hardware packet timestamp engine
› Link and activity LEDs

Two management ports:
› 10/100/1000Mbit/s fixed RJ-45 copper
› Auto-sensing, auto-negotiating
› Link and activity LEDs

1PPS external clock input

Console port (EIA-232)

AC or dual feed DC power

System status LED (green/amber)

SUPPORTED MONITORING TESTS

Carrier Ethernet	802.1ag, Y.1731
IP transport	TCP, TWAMP, UDP
VoIP	H.323, MGCP, NCS, RTP, SCCP, SIP
Video	H.323, RTP, RTSP
VPN	Full-mesh availability/performance
Network infrastructure	DHCP, DNS, SNMP
Applications	HTTP, e-mail, FTP, NTP, SFTP, TFTP
QoS and VLAN support	
One-way performance, path analysis	
And many more	

PHYSICAL

Dimensions (H x W x D)	43 mm x 425 mm x 485 mm (1 ¾ in x 17 in x 19 in)
Weight	8.43 kg (18.56 lb)
19-inch rackmount (front or slide rail mounted)	

POWER

AC power	100-240 VAC 240W at 2A at 120V
DC power	–48 V dual feed 240W at 5A at –48VDC

ENVIRONMENTAL

Temperature	operating	–5 °C to 55 °C (23 °F to 131°F)
	storage	–40 °C to 70 °C (–40 °F to 158 °F)
Relative humidity		90 % non-condensing
Operating altitude		4000 m (13 000 ft)

REGULATORY

EMC standards	IEC/EN-61326-1; FCC CFR Title 47, Part 15, Subpart B; ICES-003
Safety	IEC/EN CSA/UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use—Part 1: General Requirement
Certification marks	CE; cCSAus

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EXFO serves over 2000 customers in more than 100 countries. To find your local office contact details, please go to **www.EXFO.com/contact**.

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