



NEW DEMANDS. NEW TECHNOLOGY.

Cutting-edge data center solutions

EXFO



DATA CENTERS: FIBER-ENABLED GLOBAL TRANSFORMATION

Data centers around the globe are migrating to fiber.

And it's no wonder: the move to cloud services, massive virtualization, and the explosive growth in data have transformed the business role of data centers.

The result: dramatically growing bandwidth needs in the interconnect—even within the four walls of the data center, increasingly reliable infrastructure requirements delivering low latency and packet loss and a need for the best quality of service (QoS)/quality of experience (QoE) possible. The end result is a drive for innovation and technology to keep up with these changes.

The entire data-center sector has been impacted: webscale IT providers, traditional colocation providers, telco central office (CO) transformations, enterprise teams, contractors, structured cabling installers and consulting firms.

WHO DO YOU TURN TO FOR TESTING AND SERVICE MANAGEMENT?

**The answer is easy—EXFO.
The fiber and network experts.**

For over 30 years, EXFO has been the fiber-optic test and measurement market leader. Today, data-center customers are turning to our technology, training and expertise to certify right the first time, reduce mean time to repair and optimize QoS/QoE. Ride the data-center innovation wave with EXFO.



SEEKING THE RIGHT CAPABILITIES TO TRANSFORM YOUR OPERATIONS

01

EASY-TO-USE EQUIPMENT AND EXPERT GUIDANCE

Today's data center operators, contractors and consultants need test equipment that goes beyond the usual acceptance reporting.

Seek advanced onboard user-assistance features that make testing as effective and simple as possible. Ensure that your vendor equipment can fast-track the learning curve and improve technician efficiency. Look for built-in capabilities that prevent reference errors—the number one source of issues in fiber certification.

With EXFO, operators, contractors and consultants get easy-to-use equipment that instructs technicians how to get the work done right the first time. Trust EXFO for expert advice, leading-edge test equipment and methods of procedure.

INNOVATION: BECAUSE THE MARKET WAITS FOR NO ONE

In today's increasingly competitive market, you need product, process and business model innovation to gain competitive advantage.

Work with test-solution providers that meet emerging technology needs such as multifiber push-on (MPO) connectors, the latest transceiver form factors (CFP4/QSFP+/QSFP28) and wideband multimode fiber (WBMMF) capability testing. The right vendor will also provide step-by-step methods and procedures to speed up testing and increase productivity. Also, aim for OPEX/CAPEX savings with floating licenses and test function virtualization.

With EXFO, data center stakeholders get it all: innovative technology, training and expertise and OPEX/CAPEX spending efficiency.

02

03

A VENDOR WITH A 30-YEAR TRACK RECORD, INCLUDING PRODUCT BREADTH AND DEPTH

EXFO has been in the fiber-optic test and service assurance business for 30 years.

We are trusted by some of the biggest names in telecommunications and networks—from leading contractors, Fortune 500 firms and wireless service providers, to global network equipment vendors.

Now serving the data center and content service provider market, we help enterprise and cloud data center operators achieve their business, technology and testing objectives.

PERFORMANCE VALIDATION, FIBER AND SERVICE ASSURANCE: YOUR CUSTOMERS COUNT ON YOU FOR THE BEST

Building a network with the predictability to provide the best service assurance is not easy, but absolutely doable.

All it takes is proper planning, great execution and the right tools and procedures. Sound advice also helps.

The EXFO Xtract Open Analytics Platform leverages EXFO's industry-acclaimed, fiber-network-testing expertise to empower service providers with the ability to automate, accelerate, visualize and optimize their services and network lifecycle management.

04

FAST-PACED CHANGE: FIBER AND NETWORKS

FOUR KEY APPLICATIONS



Fiber certification: first-time-right

Data centers are moving from copper to fiber and 10G to 40G/100G, where LC and MPO connectors dominate. Can information technology (IT) teams and contractors keep up? Fiber certification is more important than ever. Test equipment and training must support first-time-right results.



Troubleshooting cannot wait

In this fast-paced world, no one can afford downtime. Fiber assemblies such as OM3, OM4 and OS1 are becoming more flexible, yet complex and more challenging. Data center teams need a troubleshooting game plan—not just the right equipment, but also easily accessed data from certification and acceptance reports.

40-100G

Transceivers are moving

With the vanguard of the data center world moving to 40G and 100G, transceivers are driving change. Look for easy-to-use solutions to validate the performance of CFP/2/4 and QSFP+ technologies. Seek out the ability to ensure sourcing predictability and smoothly manage transceiver moves, adds and changes.

99.999%

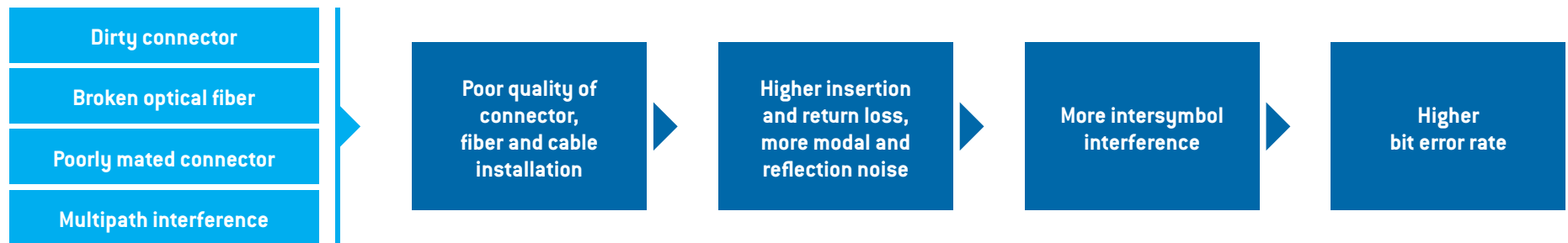
QoS/QoE is paramount

EXFO is here to help. We provide tools to perform optical and Ethernet/OTN performance validation, completed by full-stack monitoring and service assurance. Combine active and passive monitoring probes with EXFO's analytics capabilities for a full 360 view of your customer experience. When it comes to network monitoring, our tools have you covered.

DEEP DIVE: THE FAILURE CHAIN

How physical connectivity affects network performance

Many people think that packet loss is due to network congestion. In reality, poor physical connectivity is a major contributor and can result in a high bit error rate, as well as packet loss—leading to significantly reduced network performance. This is why EXFO equipment, methods and procedures address the entire fiber failure chain.



How network element configuration affects performance

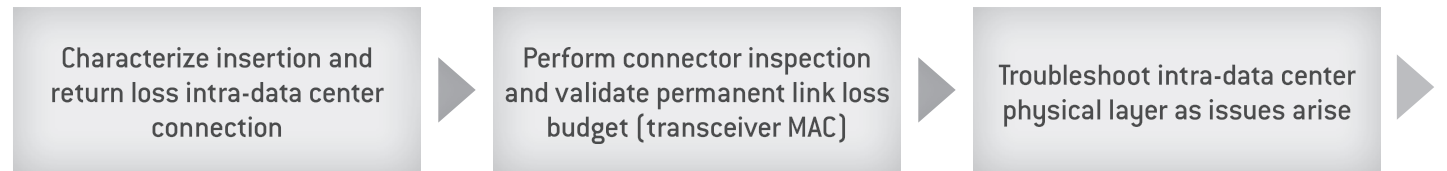
Combine the right elements with the wrong configuration parameters and you'll end up with reduced network performance. In the data center, class-of-services (CoS) switch configurations, as well as storage area network (SAN) and virtual database (DB) server settings, are important to the overall QoE. To address the monitoring of subscriber QoE, turn to service assurance and analytics solutions and procedures.



WHY EXFO?

WHAT?

CONSTRUCTION/OPERATION Fiber characterization



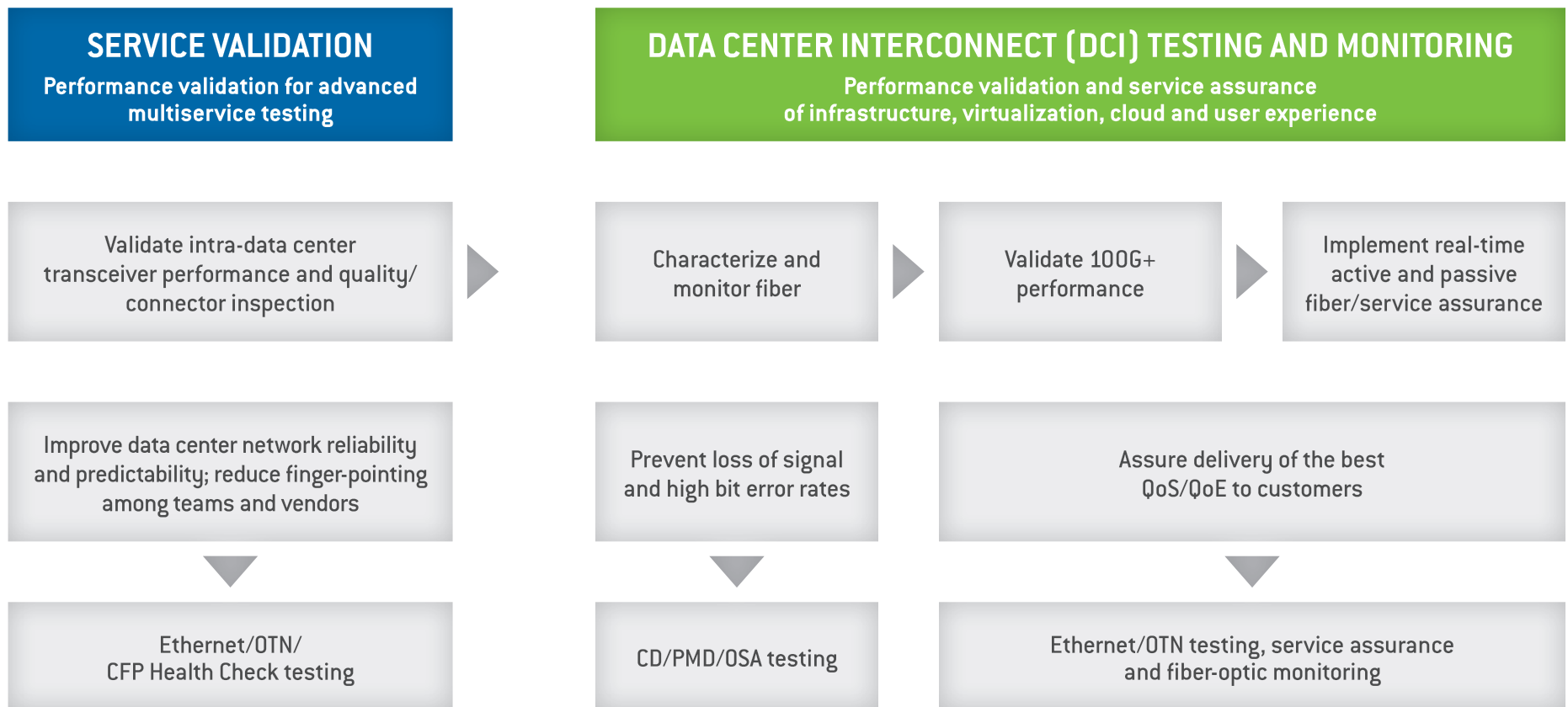
WHY?

First-time-right testing with proper documentation.
Record a baseline to simplify and activate troubleshooting when required and prevent downtime

HOW?

OTDR/OLTS inspection and testing

Innovation and expertise in fiber-optic testing, with fresh thinking for data center stakeholders. EXFO addresses the entire fiber testing and service assurance spectrum.



PRODUCT LINES FOR DATA CENTERS



FIP-400B Fiber Inspection Probe (USB or Wireless)

Fully automated inspection tool with embedded analysis

- Fully automated fiber-connection detection; image centering, focus adjustment and optimization, capture, pass/fail analysis and reporting
- Pass/fail LED indicator for immediate diagnosis of connector health with optimal digital image quality at three levels of magnification
- Inspect and reach recessed multifiber connectors in dense panels with the fully automated multifiber inspection tip



MaxTester 940/945 Fiber Certifier OLTS

Fast testing of total link loss, which is ideal for fiber certification or MAC transceiver link validation

- 100%-automated, one-step process with pass/fail analysis at both ends of the fiber; tests two fibers at two wavelengths in under three seconds
- Certifies to multiple industry standards at once, offers built-in Encircled-Flux (EF) compliancy and delivers superior results



MAX/FTB-700C OTDR featuring intelligent Optical Link Mapper (iOLM)

Available in three models: quad (multimode/singlemode), multimode quad-ready and singlemode only

- iOLM: One-touch multiple acquisitions with clear go/no-go results presented in a straightforward visual format
- MPO testing solution: Automatically characterize your MPO cables with the multifiber switch option



CONSTRUCTION/OPERATION



FLS-600 Light Source and FPM-600 Power Meter

First-class versatility, LED or laser models, with up to three singlemode wavelengths on one port and four wavelengths (850 nm and 1300 nm/1310 nm and 1550 nm) on two ports

- Automatic wavelength switching that recognizes the wavelength in use and switches to the proper calibration parameter
- EF-ready controlled multimode launching output; use with external launch mode conditioner for EF-compliant multimode results



LFD-300B Live Fiber Detector and TG-300B Tone Generator

A triple test tool including a live fiber identifier, live fiber detector and dark-fiber identifier

- Pinpoint a specific live fiber using EXFO's FiberFinder™ functionality
- Non-intrusive power measurement and fiber identification. Locates a particular dark fiber using tone recognition (270 Hz, 1 kHz and 2 kHz)



iOptics—Transceiver Validation Tool

Intelligent transceiver test application

- Comprehensive transceiver testing for next-generation 100G networks pluggables
- Rapid analysis of the optical interfaces and pass/fail evaluation
- Supports CFP/CFP2/CFP4 and QSFP+/QSFP28 optics
- Supported on all EXFO high-speed 100G products

CONSTRUCTION/OPERATION

SERVICE VALIDATION

PRODUCT LINES FOR DATA CENTERS



FTB-5700 Single-Ended Dispersion Analyzer, FTB-5800 CD Analyzer and FTB-5500B PMD Analyzer

Dispersion testing should be part of fiber characterization for 10G, 40G, 100G and 200G links

- DCIs longer than 10 to 15 km are prone to dispersion issues that can lead to bit errors
- Bad polarization mode dispersion (PMD) on DCI fiber may broaden pulses and cause consecutive pulses to overlap, which can lead to coherent-based transmission failure



FTBx-5245/5255 Optical Spectrum Analyzers

One-button operation for easy setup and automatic measurement

- First third-party 40G/100G+ Pol-Mux OSNR option on the market; compliant with the IEC 61282-12 standard
- Intelligent in-band OSNR measurement for 40 Gbit/s and ROADM deployments
- The FTBx-5245-P OSA and FTB-88100NGE 10M-to-100G multiservice module on the FTB-500 is the industry's only 100G commissioning, turn-up and troubleshooting test solution available on a single platform



FG-750 Fiber Guardian—Fiber Monitoring

OTDR-based remote fiber test system

- Scalable test solution for fiber network monitoring and management, from one stand-alone unit to centrally managed systems with one or hundreds of test ports
- Network fault correlation analysis; IPV4- and IPV6-compliant

DCI TESTING AND MONITORING



FTB-890/FTB-890NGE 100G NetBlazer

FTB-890/FTB-890NGE CFP4/QSFP+/QSFP28

- A complete, all-in-one DSn/PDH, ISDN, SONET/SDH, OTN, Fibre Channel (1x to 16x), and 10M-to-100G Ethernet handheld tester
- iSAM intelligent service activation methodology: Based on ITU-T Y.1564 and RFC 6349 standards, this tool simplifies and speeds up deployment of the DCI
- Pluggable CFP4 and QSFP28 optics to facilitate the testing of next-generation 100G networks



FTBx-88200NGE 100G Power Blazer

FTBx-88200NGE CFP4/QSFP+/QSFP28

- Advanced test functionalities to address multiple technologies, including OTN, Ethernet, SONET/SDH, Channel (1x to 16x) and CPRI
- Integrated CFP4 and QSFP28 interfaces to facilitate the testing of next-generation 100G networks
- 100G Ethernet Through mode monitoring

EXFO | Xtract



EXFO Xtract

Infrastructure and cloud monitoring, as well as subscriber analytics

- Infrastructure: Monitoring of elements, including power, heat, server, storage and networking
- Cloud: Interfaces with multiple operating systems, a hypervisor and platforms such as Linux, Windows, VMware, KVM and OpenStack
- Subscribers: Real-time and historical analytics based on live traffic analysis and subscriber profiling

DCI TESTING AND MONITORING

PRODUCT LINES FOR DATA CENTERS

EXFO | WORX



EXFO Worx

Verifier element management and test operational support system

- Network and service availability: Performance, trending, thresholding and alarming
- Vision: End-to-end video-over-IP service assurance solution for IPTV/over-the-top
- NGN: Comprehensive IP/MPLS and Carrier Ethernet monitoring solution



TestFlow

FastReporter 2 and TestFlow

Data management, post-processing and process automation software designed to increase productivity

- **FastReporter 2:** Generates reports and performs post-processing for connector endface inspection and all types of optical-layer testing. Intuitive graphical user interface and powerful batch processing and bidirectional analysis.
- **TestFlow:** Field test process automation and contextual analytics solution. Reduces testing cycles, optimizes field performance and accelerates time-to-revenue. Ensures compliance to test-process and network-design thresholds.

EXFO | Connect

EXFO Connect

EXFO software solutions that complement dedicated test solutions

- Cloud-hosted data management, equipment management and floating-license management

DCI TESTING AND MONITORING

SOFTWARE SOLUTIONS

EXFO AT A GLANCE

EXFO serves you well, with multiple locations across the globe, personalized service and unmatched expertise.

NO. 1

WORLDWIDE IN PORTABLE
OPTICAL TEST SOLUTIONS

LARGEST

ACTIVE ASSURANCE
DEPLOYMENT IN THE WORLD

+90%

OF THE WORLD'S TOP 100
COMMUNICATIONS SERVICE
PROVIDERS USE EXFO

1500+ EMPLOYEES IN 25 COUNTRIES AND CLIENTS IN 120 COUNTRIES. 30 YEARS OF EXPERTISE.

PROVEN LEADERSHIP AND AWARD-WINNING INNOVATION

FROST & SULLIVAN

Global Portable Fiber-Optic Test Equipment
(FOTE) Market Share Leadership



Elite Score of 4.0: Field Test
Equipment Category



Outstanding Test and
Measurement Vendor

Learn more at EXFO.com/



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Data Center Fiber

