Case Study

Transform Your Data Center Management Process with VIAVI ONMS DCI Monitoring

Challenge: According to survey results by the Uptime Institute, nearly one-third of data centers suffered an outage in 2018. Thirty percent (30%) were due to network failures and 33% were due to power outages. The remainder were caused by software failures and attacks.

How could an outage affect business operations?

- Thousands in lost customer business and disruptions to dependent operations

- Steep SLA violations and penalties

- Expensive network repairs that only increase with longer MTTR

  - $16,000 per minute in expense for the average outage according to the Ponemon Institute annual survey as of 2018.

  - Data synchronization recovery efforts often takes days of remediation

**Proactive Fiber Management Yields Performance Results, Reduces Outages and Protects Security**

Fiber plant degradation can impact speeds by causing reduced bandwidth throughput with increased retransmits and bit error rates. Poor bandwidth performance and can require that extra capacity is purchased to compensate, thereby increasing OPEX expenses. Very poor performance can cause lost transactions.

Proactively track network performance

- Ensure Data Center uptime

- Detect security tapping intrusions

- Maintain bandwidth

- Drive down OPEX through a 30–50% reduction in resolution time (MTTR)

Auto Detect Vulnerabilities in a Data Center Network
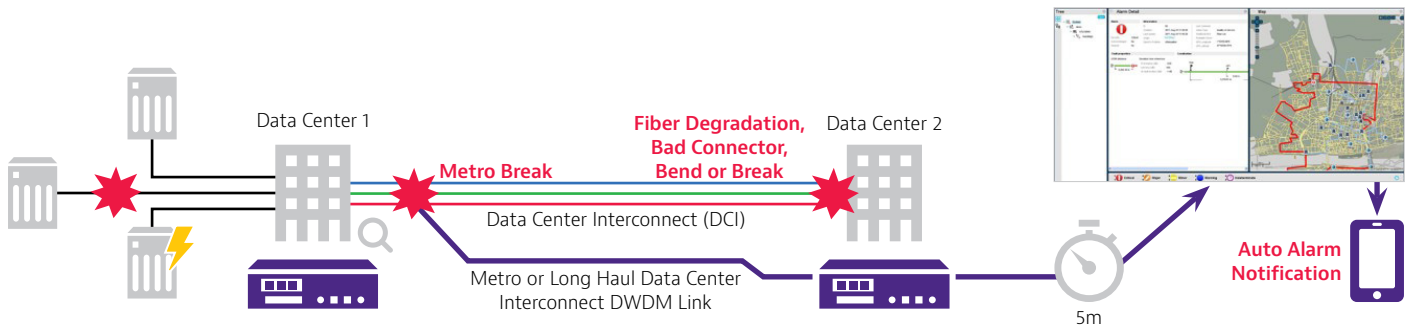
The VIAVI ONMS (Optical Network Management System) transforms your Data Center Operations by proactively protecting the Data Center Interconnect (DCI). Constant monitoring of DCI fiber links will push automatically alerts of fiber degradation, intrusion, and a cut or break. It can take days to identify and locate a cut without a diagnostic system. Often taps go undetected causing data and trust breaches for customers. Finally, accidental connector disconnections, and poor connector handling introduces performance issues. The longer the resolution period, the more data synchronization required after a restoration so minimizing MTTR will save millions in OPEX over time.

The VIAVI ONMS family with the OTU-5000 or the OTU-8000 test heads provide automatic alarms and visibility. You can often avoid outages altogether and restore service after an outage event by accelerating problem diagnostics and the requalification of repaired fiber links. This process detects:

1. Malicious physical vandalism such as tapping and destruction of fiber cables

2. Accidental network outages due to physical degradation, fiber flapping, cable cuts and breaks

The figure on page one illustrates a multi-data center network in which there are two primary centers along with some smaller edge computing datacenters in a campus setting, connected by redundant links. An optical test head is placed at each datacenter to rapidly scan and report on the fiber health against a baseline of the same fiber. Using a Google street view map overlay with GPS coordinates, pinpoint fiber events and dispatch to fix, not to find the problem.

Case 1: Avoid Performance Issues & Outages with Proactive Maintenance The majority of fiber problems are crushes, bends, taps, and bad connectors that have failed or degraded due to poor handling. Fibers are frequently impaired by temporary bends that can be remediated before an outage occurs. A loss of bandwidth throughput is often present, but a cause can't be located without visibility to physical fiber plant faults. Once an alarm hits the system, one can investigate, remove the bend, and prevent traffic outage. If a connector has become dislodged or contaminated when re-connected, proactive maintenance can eliminate this signal impairment. Recertify the fiber under maintenance remotely in minutes instead of sending someone to a center that may be unmanned. **Our customers report eliminating roughly 20% of outages.**

Case 2: Improve MTTR with Demarcation When an Outage Occurs
Determine the cause of an outage and rule out a fiber break or a power outage. If it is a fiber issue, an automatic alert allows immediate action. If the fiber is leased, a trouble ticket can be logged with the service provider. The MTTR (Mean Time To Restore) can be reported to manage the SLA. **Customers report a 30-50% MTTR improvement which has cascading savings associated due to less transaction/data loss, less repair and resynchronization time.**

Case 3 Enhance Data Security Preventing Physical Hacking & Tapping Tapping can't be seen by monitoring the data layer. Inexpensive fiber taps give access to 100% of in flight data. The VIAVI OTU detects the tapping signature with an ultra-sensitive anti-tapping algorithm that can detect a tap that is not disrupting traffic. **Customers report finding taps frequently using the VIAVI solution.**
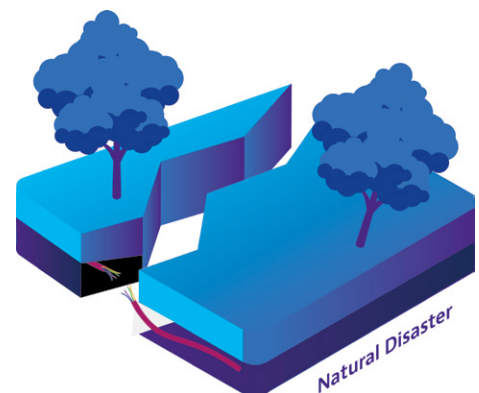
The ONMSi Solution Family Scales to Any Network

The ONMS family provides scalable tools several rack-mounted OTDRs. We offer two hardware and two software configurations that scale for a single point location or up to handle 550 test heads across multiple network domains and teams. SmartOTU software for point solutions can be run right out of the box with no training or IT configuration. When a fiber event occurs, it alerts users within minutes (email, SMS or SNMP) to help lower MTTR, improve network security, and boost SLA performance. Either SmartOTU or ONMSi provide effective alarming, notification, location and easy recertification after a repair. ONMSi adds a database and reporting tool that charts impacts, MTTR, locations of issues and history in the network over time. ONMSi requires a server or two if high availability is required. It allows integration into other network systems with an API. Both optical test heads support in-service monitoring or dark fiber monitoring depending on the wavelength you select. With the new tunable DWDM OTDR module, there are many in service troubleshooting options that are available for networks using diverse wavelengths.

Establish Your ROI: Proactive DCI Management can be calculated by adding up the below costs:

- Avoid 17–20% of outages and unplanned, reactive repairs
- Reduces 30–50% of dispatches with geolocation and view of alarms
- Reduces repair/restoration time by 30%-50%
- DCI: Average cost of lost business ($160,000 every 10 minutes)- calculate the savings of lost business
- Improve SLA management

Two Flexible Choices: Which hardware and which software is right for me?

OTU-5000

Up to 16 ports 1/3 RU wide and 1RU high

Optimized for Data Center, short and medium distances with 1625nm OTDR and small form factor and low power consumption

Or

OTU-8000

1 RU wide and 2RU high with 36 or 48 ports

Modular platform with multiple OTDRs to choose from, including the new tunable DWDM OTDR and high dynamic range OTDRS for long-haul and P2MP networks.

+

SmartOTU Software for Point Monitoring, no server needed
or
ONMSi Software for Network Wide Reporting, History Trending, Network Domains and Permissions. Server required. Optional high availability setup requires a redundant server in another location. Supports P2MP networks