Improving the world of communications
Around the globe, communications companies look to JDSU for the best in effective, innovative solutions for the development, installation, maintenance and optimization of their networks.
For optical, telecom access, wireless and data networks, JDSU provides the world-leading products and services necessary to enhance competitive advantage.

Total solutions for fiber optics
JDSU has a wide and comprehensive portfolio of fiber optic products that includes handheld light sources, power meters, loss test sets, attenuators and visual fault locators, remote fiber test systems (RFTS), optical measurement systems for device calibration, OTDRs as well as a range of DWDM test solutions from optical spectrum analyzers to optical network testers.

More communication, lower cost
As the drive for ever more complex and powerful networks continues, the demand for lower running costs, fast restoration times and good network security grows. Continuous network monitoring using ONMS delivers impressive, cost effective improvements in system performance.
ONMS – Adding value to the network

Improved network availability

Real-time network status and performance

The JDSU ONMS (Optical Network Management System) increases workforce productivity and facilitates the management of large optical networks with fewer technicians through remote testing and accurate network documentation.

Customer satisfaction is also increased through better network monitoring and service provisioning. The management of service level agreements (SLA) and quality of service (QoS) is simplified, and customers can quickly be given precise information on service status.

ONMS delivers efficient asset management by guaranteeing that fiber optic cable is ready for use when required, and that performance levels are up to scratch.

The system monitors the network continuously, alerting operators and managers to faults as they occur. Events are logged and details regarding faults (for example fault location) are provided to the network management center where the appropriate maintenance teams are automatically alerted.

As a result, network downtime, maintenance resource requirement and costs are dramatically reduced enabling network operators to improve the quality of their services and maintain cost effective service agreements.

Faster, low-cost service provisioning

More than just a fault finding system, ONMS allows network operators to add value to their service offerings with efficient preventative maintenance schedules.

Continuous monitoring of the fibers allows the system to flag when degradation of the cable starts to affect performance beyond user-set limits. Proactive maintenance carried out with this knowledge forms the basis of efficient asset management for significant competitive advantage. By monitoring dark fibers, operators can ensure network integrity and guarantee performance levels before systems go live.

ONMS generates service reports providing valuable information on the long-term performance of the network. A comprehensive cable documentation database that includes geographical information and ensures fast location of reported faults.

Cable data entered directly into the ONMS database can then be made easily available to engineers and managers for analysis and/or reference. Power levels, attenuation and wavelength parameters can be measured remotely and without field technicians to validate new services. Network performance can also be verified and confirmed with customer and management documentation.
ONMS comprises a series of optical test units (OTUs), a central server and a number of client stations.

**Remote test units**
ONMS RTUs (OTU-9500) are installed at strategic points throughout the optical network.

Each stand-alone RTU includes an optical switch to connect to individual fibers, plus one or two optical modules – for example optical time domain reflectometer (OTDR), optical spectrum analyzer (OSA) – for measurement and initial data processing.

Fibers are monitored in real time, 24 hours a day, seven days a week according to user-programmable schedules.

**Central server**
At the heart of the ONMS system is the central server, an Oracle database that stores and manages all the system information.

Data polled from RTUs in the field is mapped to the central database, and combined with routing records and geographical information. Precise fault location details are then made available to maintenance teams.

**Client stations**
Client stations are connected to the central server by an IP or switched network.

They provide access to all system data for use by management and engineering centers, and support the setup and documentation of network structures. Alarm management and network availability reporting functions are also provided.

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**ONMS system architecture**

- **Customer OSS**
  - (Compatible TMN)
- **Customers OSP**
  - 'OSS: Operation Support System
  - 'OSP: Outside Plant
- **Server**
- **Oracle Database**
- **GIS Database**
- **Web Client Station**
- **24 hr. On-Duty Management**
- **Reports**
- **SNMP/CORBA**
- **Alarm**
- **ISDN/PSTN**
- **TCP/IP**
- **Intranet**
- **OTU-9500**
- **OTU-9500**
- **OTU-9500**
ONMS – Leading the field

Comprehensive monitoring
ONMS monitors the physical and optical layers of the fiber network from a single, stand-alone remote test unit platform (JDSU OTU-9500).
The ONMS OTDR module for the OTU-9500 provides optimized monitoring for all types of fiber optic networks from metro to very long haul. Measured and reference traces are compared. Should user-defined limits be exceeded, an alarm message is routed automatically to the maintenance supervisor.
The ONMS WDM module for JDSU OTU-9500 provides all the test functions needed to analyze the quality of a DWDM network of up to 12.5 GHz channel spacing, alerting the operator in event of low power, missing channel or network degradation beyond user-defined limits.

Live database
For fast, accurate database population, ONMS is able to use all data gathered from the field to automatically generate a comprehensive network schematic.

Web enabled
ONMS is accessed via the familiar environment of a standard web browser, so the need for additional specialist software or training is removed. Management of maintenance schedules and contracts is simple, with just the right level of information presented in a readily understandable format.
A series of user-defined codes and passwords guarantee the security of the system, with a range of privileges assigned from the server station. Customers of dark fiber providers, for example, may be assigned view-only privileges that enable them to check the status of the network at any time.

Open architecture
The open architecture design of the ONMS together with the use of industry standard SNMP and CORBA protocols ensures smooth transmission of alarm data and cable documentation to other systems. ONMS can be easily integrated into geographic information system (GIS), operation support system (OSS) and workflow system packages.
Rapid detection and accurate location of faults
In the event of a network problem, the RTU sends an alarm message to the central server detailing the date, time, distance and nature of the fault. An alarm text box is flashed onto the screen and audio warnings triggered to alert the operator.
With one mouse-click, the operator has direct access to the OTDR trace and a cable schematic on which the alarm event is highlighted.

Pro-active maintenance
ONMS can be programmed to perform regular pro-active maintenance cycles on the fiber network. In this mode, the RTU performs a detailed scan of the fiber links for signs of degradation and component ageing. The information can then be used to generate customer and management reports.

Comprehensive network documentation
ONMS manages and documents the network, using a GIS for the identification and labelling of each fiber and cable. The GIS catalogue includes a wealth of information including location, year of installation, lists of any conduits or poles, details of splice locations, status, equipment service details, end-to-end view, and length. An innovative drawing tool makes the construction of simple network schematics easy by using the drag-and-drop component icons provided. Cable routings and outside plant can all be logged with their geographical co-ordinates for future fault location.

Full analysis functionality over the web
ONMS offers full test and analysis functionality from any station running industry standard web browser software. Tools for remote analysis of the OTDR trace and/or DWDM statistics are provided in a readily understandable format on easy-to-use web pages.

Duty rosters and alarm management
Faults detected by ONMS are logged on a central server that then sends an alarm message together with details of the fault to the appropriate maintenance supervisor.
The ONMS duty roster can be used to schedule work shifts and manage maintenance teams, and is easily configured using intuitive drag- and drop techniques. The duty roster logs individual working hours and takes account of staff availability and holidays. It also stores the contact information for each engineer and selects the best contact medium – SMS message, fax, pager, email – for each individual.

DWDM network performance and service provisioning
The maintenance and provisioning of DWDM networks requires accurate knowledge of the optical spectrum. The individual channel power and wavelengths are required primarily at critical points along the optical link, such as at the end terminals, optical amplifiers, add/drop nodes and cross connects.
The capability of ONMS to measure real time performance enables the operator to identify degradation or failure. It can also be used to check the performance of new installations, validate network set-up, or monitor changes in performance over time.
**ONMS – Flexible, effective, secure**

**Designed to grow with your network**
From small, centralized installations to regional networks and national operations, the modular ONMS system can grow according to individual needs.

A minimal configuration installed initially for small scale maintenance can be easily and inexpensively expanded at a later date with additional RTUs and optical switches. ONMS can alternatively be set up from the start as a multi-user system for large-scale network management.

**Dark and active fiber monitoring**
ONMS is ideal for the monitoring of dark fibers and active networks with multi-mode or single-mode cable.

ONMS uses a wavelength different from that of the service transmission to achieve continuous monitoring of active networks without interruption to services. The system is able to detect and locate almost 100% of faults and degradations on active fiber networks. Monitoring dark fiber is simple and effective, with the system detecting more than 80% of cable faults.

**System security**
The ONMS system provides various levels of security to ensure sensitive data is protected against unauthorized access. The administrator manages all security through a single centralized database. Centralized management simplifies security administration and reduces the possibility of errors that could result in security loopholes. Data integrity is ensured via a range of advanced server hardware and Oracle database mechanisms, such as automatic back up and mirroring.

**ONMS – Leading the DWDM wave**
The WDM module for the OTU-9500 provides all the test and analysis functions necessary for validation of the quality of DWDM network channel spacing. Functions include accurate spectral analysis and measurement of individual channel power and wavelengths.

With the DWDM module installed in the OTU, DWDM performance can be validated from any ONMS client station or via web browser. Users can observe if a channel is missing, low in power or if the entire network has been degraded without the need to involve field technicians.

**Value from experience**
ONMS OTDR and DWDM modules are fully compatible/interchangeable with JDSU’s market leading MTS-5000® family of field optical testers.

Optical modules can be used in the MTS-5000® and the ONMS RFTS
Application engineering
JDSU works together with customers at the outset of all ONMS projects to assess and identify their needs, and specify the optimum system to meet individual requirements.

All relevant details including network topology, dark or active fiber, communication protocols, the number and location of OTUs and network control workstations required are carefully considered during the process.

An experienced team
An JDSU project manager, appointed at quotation stage, will manage the defined project right through to acceptance of the installed system, with the help of a team of experienced JDSU engineers, product managers and system specialists.

Training your staff
A wide range of training options are available from JDSU to ensure that engineering staff and field maintenance teams are able to maximize the advantages of the ONMS system.

After-sales support
• Minimizes system downtime through proactive system check-ups and guaranteed turn-around times
• Improves system functionality and keeps systems up to date with scheduled software enhancements
• Protects investment with continuous system maintenance and updates
• Avoids unplanned budget expenses for failures with extended hardware warranty and optional on-site repair
• Offers tailored technical support from system experts within business hours or 24 x 7 x 365
• Delivers faster fault detection and support via remote system access

For more information on JDSU SystemCare, please consult our website under http://www.JDSU.com/products(descriptions/Services/Sys_Care/index.html.

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