

JDSU WaveReady™ Ultra-Low Latency Managed Fiber Network



Learn how a latency-optimized dark-fiber network combined with the JDSU WaveReady ultra-low latency transport solution can dramatically reduce latency and improve the performance of your trading systems.

Key Features

- Managed fiber network with dedicated transmission equipment
- Carrier-grade certified DWDM transport platform with industry-leading equipment latency
- Scalable and fully transparent transport solution for 1 GigE and 10 GigE data services
- Highly available DWDM transport service backed up by a latency SLA
- Fully managed service packages including best-in-class NOC monitoring and industry-leading 30 minute mean time to repair (MTTR) SLAs

Network Latency is Trading Latency

In today's highly sophisticated trading environment, market efficiency is rapidly entering a new era. Market information is now available in machine-readable format within microseconds, and high-end servers can process complex trading algorithms and execute large volumes of trades without any human intervention. To maintain their competitive edge, brokers, hedge funds, and high-frequency trading firms are carefully monitoring their trading systems' latencies and are constantly looking at ways to increase the speed of their mission-critical operations.

Staying Ahead of the Competition

To gain access to market information, foreign exchanges, equities, futures, and options trading firms connect to multiple sites and exchanges which can be separated by thousands of miles. Although numerous factors influence trading-system latency, the latency introduced by a signal propagating through long optical fiber routes and optical transport equipment can be the most significant contributor. It must be carefully managed.

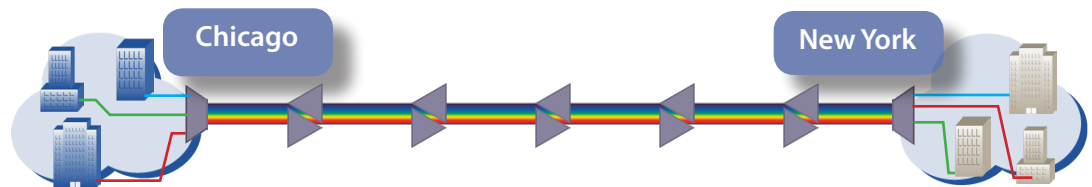
Optical fiber is the media of choice when transmitting large amounts of data over long distances. The only way to minimize fiber-related latency is to use the shortest fiber route between nodes in the network. Once engineers select the shortest fiber route, they must optimize the optical transport network configuration to minimize latency contributed by transport equipment modules such as electrical cross-connects, OTN wrappers, optical amplifiers, dispersion-compensation modules, and transponders.

WaveReady is Faster

A JDSU-managed fiber network includes WaveReady ultra-low-latency transport modules. A WaveReady DWDM system is a carrier-grade (NEBS level-3 certified) optical transport platform specifically designed to provide the lowest equipment latency for 1 GigE and 10 GigE services. Each transport module selected for a transport network is fully transparent and has a latency contribution measured in nanoseconds.

Flexible and Scalable

A WaveReady system can transport both 1 GigE and 10 GigE services over the same fiber while providing industry-leading equipment latency. Depending on the traffic mix, the system can scale up to 40 DWDM channels over one fiber.



Simplicity of Operations

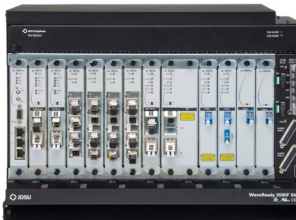
Plug-and-play JDSU WaveReady transport modules work with very little or no provisioning—considerably simplifying the operation of the system. A system also comes with standard management interfaces and includes an intuitive, graphic user interface to manage individual nodes and networks.



WaveReady Multi-Node Manager

Compact, Robust, and Energy-Efficient Transport Platform

The WaveReady optical transport platform included in the managed fiber network comes in a compact chassis (7 RUs) and has low power consumption. Its robust modules are designed for real-world installation conditions, offering maximum protection against ESD and mechanical damage. Depending on the configuration selected, terminal sites can occupy from 9 – 16 RUs and amplifiers or regeneration sites can occupy from 3 – 14 RUs. A small-footprint chassis combined with compact DWDM transponders and amplifiers creates a high-density DWDM system at a very attractive price.



WR3500F Shelf

Highly Available Optical Transport Solution

A JDSU ultra-low latency managed fiber network is a highly available transport solution. It combines an industry-leading mean time to repair (MTTR) service-level agreement (SLA) with transport equipment that is designed to achieve the lowest-possible equipment mean time between failure (MTBF). Furthermore, with over 10,000 transponders deployed around the globe, WaveReady is a field-proven solution that can be deployed with confidence when high system availability is critical.

Network Test Solutions

In addition to being an expert provider of optical transport solutions worldwide, JDSU is a leader in providing comprehensive, best-in-class DWDM test equipment that validates network performance end-to-end. The rugged, compact, and high-performance line of SMART handheld testers includes optical power meters, light sources, optical level attenuators, test kits, loss test sets, return loss meters, and optical talk-sets. The compact, lightweight T-BERD/MTS-6000A test platform is designed for all phases of the fiber-network life cycle and includes the industry's most compact 10 GigE multifunction tester for the installation and maintenance of carrier-grade Ethernet and IP services.



MTS 6000A Multifunction Optical Tester

Services

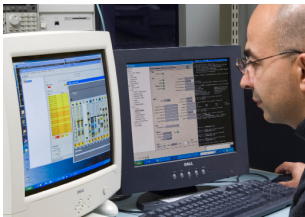
A JDSU managed fiber network offers a number of programs that help in all aspects of network management:

- network operations center (NOC) services
- field services
- installation services.

A JDSU customer program manager manages all of these offerings as a convenient, single point of contact.



24x7 Network Operations Center Services



JDSU offers intelligent real-time NOC monitoring and reporting services customized to meet your needs and ensure high network availability as the primary focus and goal. We do this by querying the status of the network and closely managing performance 24/7.

JDSU provides:

- a highly available network
- significant reductions in downtime
- fast responses to incidents occurring at any time
- immediate repairs during trading hours.

JDSU staffs its NOCs with experienced network engineers empowered by advanced monitoring technology, ITIL-based service procedures, and real-time reporting capabilities that enable complete confidence in the performance of your network—24x7x365.

NOC Service Offering

- Fully staffed 24x7 service desk
- 24x7x365 network monitoring
- Incident detection, notification, investigation, and resolution
- Service-level monitoring and Web-based NOC reporting
- Network equipment inventory and configuration management
- Customer Web portal
- Proactive problem prevention

Field Services

JDSU offers comprehensive field coverage for all equipment locations along the network route. Experienced engineers knowledgeable about the specifics of your network design and configuration are available 24x7x365 to respond to problems. This package includes 'hot-hands' capabilities that put engineers in all network equipment locations during trading hours to enable the fastest-possible corrections. This provides the best possible insurance that the network is fully functional during critical time windows.

JDSU field services offer:

- experienced engineers on location to resolve problems quickly
- immediate responses during trading hours with 30-minute repair targets
- four-hour mean time to repair (MTTR) during non-trading hours
- 24x7 coverage for field incidents
- maintenance activities during customer-defined time windows
- sophisticated preventive-maintenance strategies.

Installation Services

JDSU installation services provide a broad range of engineering, implementation, and management options that provide for the complete installation and delivery of a working solution to the customer. Our field installation and engineering teams work in conjunction with the NOC to bring all the elements necessary for a successful rollout of the final solution, enabling the customer to be completely hands-off apart from an oversight perspective. Beyond physical logistics and installation, we test and turn up the equipment and the network and ensure that it meets contracted performance goals and that the overall project meets the customer's timelines and budget limits.

Our comprehensive services package includes a broad range of optional services.

Engineering

- Fiber characterization
- Detailed site surveys/audits
- Engineering specification and scope of work
- Bill of materials

Testing

- Furnishing services
- Material procurement and management
- Transportation and delivery management

Implementation

- On-site inventory
- Rack and stack
- Infrastructure build out
- Full commissioning and test
- Alarm verification
- Redline/discrepancy report
- Project completion report



Customer Program Management

Our customer program managers provide the customer with a single point of contact with responsibility for getting the entire project delivered on time. The project manager will maintain regular contact with the customer with weekly or daily status calls to track progress on the project to ensure that any issues are communicated and resolved quickly. Once the solution is in place, our program managers can also monitor SLA compliance and escalate and resolve problems as they occur.



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