



Nortel Networks

Application Brief

Managed Wavelength Services for Enterprises

Capacity for rent

Now you can get all the extra network capacity you need with Managed Wavelength Services, powered by Nortel Networks

Managed Wavelength Services offered by your provider are a new and economical high-capacity solution that meets the needs of enterprises seeking to extend their network and deploy new applications quickly and easily, with minimal capital investment. Featuring full protocol independence with variable bit rates, Managed Wavelength Services can handle multiple services and applications on dedicated wavelengths and are typically more economical than traditional private lines. Native protocols including ATM, IP, Frame Relay, Fiber Channel, ESCON, FICON, and Gigabit Ethernet are fully supported.

Outsourcing your bandwidth requirements to Managed Wavelength Services is an ideal solution for applications that call for bandwidth beyond the normal capacity of existing Metropolitan Area Networks (MANs) or Wide Area Networks (WANs). These include disaster recovery, DI Video, data mirroring and vaulting, Storage Area Networks (SANs), and Local Area Networks (LANs) internetworking.

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How the world shares ideas.

Managed Wavelength Services will provide the capacity and service options you require to support a broad range of services, when and where you need them. Whether it's high-speed Internet access and Storage Area Network connectivity or other applications, you just 'rent' the capacity you need.

Benefits

- **A reliable, scalable solution**—You can lease as much or as little managed network capacity as you need, scaling bandwidth and bit rates to meet changing network requirements with carrier-grade solutions.
- **Concentrate on your core business**—Your service provider is responsible for operating, maintaining, and managing the wavelength you lease. The need to hire and train additional network personnel is eliminated, allowing your staff to concentrate on core business activities.
- **Quick and easy "plug-and-play" implementation**—Point-and-click provisioning allows remote adjustment of connection managers through a centralized network management console, eliminating the need to send technicians to perform manual patches. Modular circuit cards enable routers and ESCON equipment to support LAN and SAN applications. Service providers can quickly provision or change Managed Wavelength Services *without* field visits.

What is a Managed Wavelength Service?

- A high bandwidth (155 Mbps up to 10 Gbps), protocol- and bit-rate independent connection over dedicated wavelengths offered by service providers with optional levels of protection
- An economical alternative to private line (T-3/E-3) connections with minimal capital investment in equipment and space, depending upon the service arrangement

- **Minimal up-front investment**—Depending on your service arrangement, you can often eliminate the need to buy equipment or lease lines. Just connect to Managed Wavelength Services via any ATM switch or IP router port you already have at your location.
- **Eliminates technology obsolescence**—Since the service provider buys the equipment and maintains the network, the user is protected from the threat of technology obsolescence. New services can be rapidly provisioned to meet changing user demands.
- **Pay only for the protection you need**—Multiple service levels let you pay only for as much protection as you require. Levels range from unprotected bandwidth for non-critical applications, to dedicated bandwidth for mission-critical applications. Protection is available using either standard SDH/SONET mechanisms or at the optical layer on a per wavelength basis. For custom protection, you can also connect your equipment within the service provider's co-location facilities.
- **Network monitoring**—Reports identify trends in SLA and network activity to aid troubleshooting and improve performance.

Extending your business across MANs

Managed Wavelength Services easily extend key applications across MANs:

- To extend ESCON for remote connectivity across the MAN, traffic no longer needs to be throttled down to a DS-3 connection, dropping data checkbits—ESCON data is carried in its native format to ensure data integrity.
- As ESCON migrates to FICON (at 1 Gbps), Managed Wavelength Services enable smooth migration to FICON through the Universal Optical Channel Interface (OCI) without having to re-provision the network.
- The need to network Fibre Channel across the metro is similar to the requirement for ESCON extension—to enable business continuity if a catastrophic event occurs at the primary data center.

- Rather than isolating DI Video traffic on an overlay network to accommodate uncompressed 270-Mbps rates, Managed Wavelength Services enable transport at wirespeed through a common Universal Optical Interface (UOI). And upgrading to HDTV is a snap—as easy as point and click.
- Managed Wavelength Services can offer businesses up to 30 percent cost savings in one-time costs and less than one year ROI compared to leased fiber without DWDM (Dense Wavelength Division Multiplexing) and private lines.

And many more applications and features are supported!

“Information is the business”

A major investment firm, with a business model based on data, is experiencing an annual increase of 30 to 100 percent in traffic growth. And, at \$3 million a minute in lost revenues, downtime is unacceptable.

The CIO is up nights wondering how to link Storage Area Networks (SANs) in New York and New Jersey (sites are an average of six miles away) while upgrading to FICON and Fibre Channel as she maintains ESCON. The upgrade starts next week but the service provider requires 12 weeks to provision a T-3. In addition, converting from ESCON to FICON, with T-3 connectivity between sites, requires dropping critical checkbits, and reduces data integrity.

She wishes she can get this service up and running in the needed timeframe—without compromising existing data and infrastructure. “Information is the business,” her boss has said.

She hears that her service provider offers a new managed wavelength service that can provide scalable bandwidth between SANs over native interfaces. The CIO calls the service provider and reserves network capacity on the spot. She learns:

- Fibre Channel, ESCON, and FICON data requirements are all carried transparently by the optical service, with scalable bit rates fully supported (unlike a T-3 configuration that adds additional headers and trailers, and occasionally drops packets in the network).

- She can now roll out additional optical services quickly across the MAN, within hours if new hardware is not required. Because of the scalable nature of the service, forklifts are also avoided.
- The company better controls its destiny; it can add new services, applications, and protocols without waiting three to six months for the carrier to provide services and/or bandwidth.

The CIO goes to bed in peace that night, and the next week, the upgrade is completed without a hitch.

Managed Wavelength Services at a glance

Managed Wavelength Services offer key benefits to businesses considering purchasing traditional private line services and leased dark fiber without DWDM.

ATTRIBUTES (DEPENDENT ON PROVIDER/SERVICE AGREEMENT)	MANAGED WAVELENGTH SERVICE	PRIVATE LINE	LEASED DARK FIBER
Cost per bit	\$	\$\$\$	\$/\$\$
Scalable bandwidth	155 Mbps to 10 Gbps	No	CPE dependent
Protocol independence	Yes	Requires T-3/ E-3 interfaces	No
Bit rate independence	Yes	No	No
Dedicated wavelengths	Yes	No	No
Minimal capital investment (CPE, Co-location)	Yes	No	No
Variable protection levels	Yes	Full protection premium	CPE dependent
Customer management options	Yes	No	No
Provisioning speed	Fast	Slow	Slow

A portfolio of Managed Optical Services
Managed Optical Services, powered by Nortel Networks—an industry-leading suite of optical services, including Managed Wavelength Services—will provide your business with capacity solutions, whenever and wherever you need them. Managed Optical Services offered by your service provider will support a broad range of applications such as Storage Area Networks and high-speed Internet access. Seamless provisioning, end-to-end connections, and flexible contracts will help your provider offer you the economical, differentiated services you want. Call Nortel Networks today to find out more about these exciting services.

Solutions by Nortel Networks

The world's most reliable Managed Wavelength Services are based on carrier-grade optical network technology from Nortel Networks.

Efficient designs maximize fiber utilization, providing the industry's lowest cost per managed bit. Route diversity and self-healing topologies automatically reroute traffic if a network element fails, ensuring uninterrupted service. Our network and business solutions are supported by industry-leading global professional services for planning, building, and operating networks worldwide.

Nortel Networks is the undisputed world leader in terrestrial optical networks, with a breadth of optical networking solutions unmatched in the industry. Now Nortel Networks is redefining the economics and quality of networking with advanced optical network technology that promises a new era of collaboration, communications, and commerce. Let Nortel Networks help everyone in your organization communicate more effectively and work more productively.

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