



Banking on Optical Networking: A case study in networking for mission-critical financial services

OPTICAL NETWORKS FOR ENTERPRISES

Optical networks used to be the sole domain of the telecommunications carrier community. However, dramatic changes are under way, and as time goes by, more and more enterprises are deploying private optical networks to give them the scalability, simplicity, control, and security they need.

Each year, enterprises are forming a larger percentage of the overall optical networking market. According to Eve Griliches, research manager of telecom equipment for industry analyst firm IDC, "In 2005, enterprises represented 16% of the overall market. By 2006, the enterprise segment grew to 18% or \$540 million."

The enterprise market segment comprises numerous vertical industries — financial services, federal government, state and local government, education, and healthcare. Deployments of optical networks by banking and securities firms represent one of the largest groups, with estimated deployments of \$200 million or almost 36% of the enterprise segment in 2006.

"We're seeing strong growth across all vertical industries, but the banking and securities industries are leading the way with 50% year-over-year growth," said Griliches.

With the significant technological advances of the last few years, optical networks have become easier to deploy and manage. Financial services organizations are finding that they can manage their own networks and realize the cost savings inherent in a private network.

**DRIVERS FOR CHANGE IN
FINANCIAL SERVICES
ORGANIZATIONS**

Changes in regulatory requirements and business continuity concerns are primary driving forces behind the increase in optical network deployments by financial services firms.

In 2003, regulatory agencies in the United States proposed that critical financial institutions should have fully operational recovery sites located 200 to 300 miles away from their primary data centers. This initiative was seen as an important means of strengthening the resilience of the US financial markets. In the final regulations, the agencies did not specify absolute mileage requirements, but they strongly recommended “sufficient geographically dispersed” sites. As a result, many financial services firms turned to optical technologies to connect the longer distances between their data centers, and today, the most common distance is approximately 100 km.

Another regulatory influence is the Sarbanes-Oxley Act, which was introduced in 2002. Originally, the act required that financial correspondence had to be retained for a five-year period, and this was later amended to seven years. As a result, the storage requirements for many organizations are doubling every year, with no leveling off in sight.

What sets financial services organizations apart from other industries is the value of the information in their networks. Consulting firm Contingency Planning Research estimates that the average hourly cost of downtime can range from \$89,500 for an airline reservations center to \$6.5 million for a large brokerage firm. To protect such valuable assets, financial services firms have embraced reliable optical networking to provide high-speed, synchronous connectivity between geographically dispersed data centers.

**MANAGED SERVICE OR
PRIVATE NETWORK?**

Whether a financial services company opts for a managed service or a private network is largely an issue of economics and location.

As a rule, private networks can provide organizations with substantial financial advantages over managed services from carriers. With storage needs and bandwidth requirements growing exponentially, monthly recurring fees for a managed service continue to climb with each incremental expansion. By contrast, a private network infrastructure works on a fixed-rate model for the monthly dark fiber cost, as does the initial capital cost for the equipment to light the fiber.

Once the private network is in place, capacity can be expanded with no additional increases in monthly operating costs. In addition, securing funds for capital investments is often easier than seeking increases in monthly operating budgets.

Today’s optical networking systems are significantly easier to design, deploy, operate, and maintain than they were even five years ago. As a result, it is now extremely practical for enterprises to run their own private networks. The biggest barrier limiting the deployment of private networks is the availability of dark fiber in certain locations.

In some cities, such as New York, the dark fiber market remains healthy, and there are a number of incumbent and alternate carriers offering dark fiber at competitive prices. In other cities, such as London and Toronto, dark fiber is extremely scarce and becoming prohibitively expensive, if available at all. Furthermore, the recent consolidation in the industry (for example, Level3 acquiring Looking Glass Networks, Qwest acquiring OnFiber) may remove competitive influences on certain routes in the United States, further affecting the affordability of dark fiber.

Aside from the economic advantages of a private network, financial services organizations strongly prefer dedicated, private networks. Due to the sensitive nature of the information being carried on their networks, they do not want any risk of security breaches. Nor are they willing to tolerate any outages that are not 100% related to their own network.

BENEFITS OF PRIVATE OPTICAL NETWORKS

- *Dramatic cost savings compared to managed service*
- *Secure, rather than shared with other organizations*
- *Delivering economies of scale—with a fixed cost for dark fiber lease and optical equipment, capacity can be expanded with no increase in monthly operating costs*

CUSTOMER SUCCESS STORY: RBC FINANCIAL GROUP

RBC Financial Group is one of North America's leading diversified financial services companies and Canada's largest bank. Faced with ever-growing bandwidth demands, RBC needed to add capacity to its existing OC48 network. RBC was using one OC48 circuit, provided as a managed service, to connect its data centers located approximately 100 km apart in southern Ontario. RBC estimated that they would need to expand from the single OC48 to six or eight times that capacity over the next ten years. Anticipating that a managed service for the additional bandwidth would be expensive, RBC began to consider a private network.

The two key challenges were acquiring the dark fiber, and finding the right optical networking equipment to meet the criteria of being scalable, secure, and "enterprise-manageable," as well as fitting within the overall business case. According to Dominic Paré, the bank's manager of WAN infrastructure, "The single most pivotal point was securing the dark fiber. We had been shopping for years and only secured the facilities we needed in areas just as we needed them."

After evaluating various vendor offerings, RBC selected the Agile Optical Networking portfolio of products from Meriton Networks: the 7200 OSP (Optical Switching Platform), the 3300 OSM (Optical Services Multiplexer), the 8600 NMS (Network Management System), and 1455 OFAs (Optical Fiber Amplifiers).

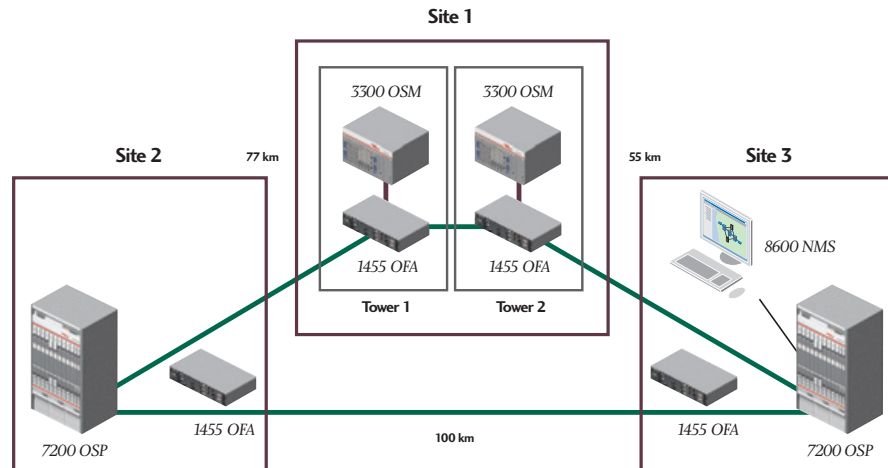


Fig. 1 The secure private network of RBC Financial Group is powered by the Meriton Networks Agile Optical Networking portfolio

7200 OSP

- As an integrated WDM switching and transmission system that scales up to 320 Gb/s of capacity in a single shelf, the 7200 OSP provides RBC with plenty of “head room” in their network
- The 7200 OSP is ideal for transporting Gigabit Ethernet (Gig E) and 10 Gig E wavelengths according to RBC’s requirements, providing excellent growth opportunities for the future
- With its support of multi-degree connections, the 7200 OSP enables the migration from ring to efficient mesh architectures
- A key advantage for RBC was that the 7200 OSP, with its cost-effective OEO switch fabric, gathers and reports performance monitoring statistics at every node, and requires very little engineering (similar to SONET link engineering)

3300 OSM

- The affordable, transparent optical add/drop multiplexer in the portfolio, the 3300 OSM is located in the corporate offices, providing high-speed Internet access and e-mail support on the secure network
- The 3300 OSM interworks directly with the 7200 OSP and is managed by the 8600 NMS, providing a complete networking solution

8600 NMS

- An intelligent network management system, the 8600 NMS greatly simplifies the operations, administration, and provisioning of optical networks for enterprises
- The point-and-click provisioning and intuitive interface make it easy for enterprise operations teams to have complete control over the network

1455 OFA

- To meet future growth, RBC wanted an infrastructure that could support 32 or more channels at 10 Gb/s over DWDM.
- To accommodate the speeds and distances involved, 1455 OFAs were deployed for optical amplification and integrated dispersion compensation

RBC'S BUSINESS CASE

For RBC, the private network provided payback in less than 12 months.

The business case examined the monthly recurring cost of an expanded managed service to meet RBC's capacity needs over five years, compared to the cost of the dark fiber lease and the equipment from Meriton Networks. The payback period for the private network proved to be less than one year.

Dick Swadley, executive vice-president, IT Infrastructure for RBC Financial Group recently remarked, "As a bank, we're naturally focused on the bottom line, and we're very pleased with the financial benefits we're already deriving from the Meriton solution."

PRIVATE NETWORK DIFFERENTIATORS FOR RBC

- Scalability — up to 320 Gb/s
- "Enterprise-manageable" with easy-to-use NMS and SONET-like link engineering for the equipment
- Lowest total cost of ownership
- A complete networking solution

CONCLUSIONS

Optical networks continue to gain popularity with financial services organizations because of their high-speed, high-bandwidth capabilities, which are used to address the burgeoning demand for capacity.

Choosing between a managed service and a private network is a question of location (dark fiber availability and pricing) as well as economics. For many organizations, the benefits of cost savings, control, and security that come with a private network outweigh the convenience of a managed service.

As shown by RBC's selection of the Meriton portfolio, the latest generation of optical networking equipment provides enterprises with cost-effective systems that are powerful, yet easy to deploy and manage.



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ABOUT MERITON NETWORKS INC.

Meriton Networks Inc. has developed the industry's first unified end-to-end Agile Optical Networking (AON) architecture, a crucial element for carrier and enterprise migration to next-generation IP services networks. A flexible, scalable, future proof infrastructure capable of multi-service, multi-topology support, the Meriton AON architecture equips telecommunications networks with the capabilities needed for the Broadband Revolution, including rapid service deployment with one-time node engineering and zero-touch, automated provisioning under a unified control plane. With metro access, metro core and regional extension products, all fully managed by a best-in-class suite of network planning and management tools, Meriton Networks gives network operators a single source for the rapid, cost-effective delivery of high-speed services.

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