

### Success Story

*CIENA's CN 2000™ provides higher application performance and significant network and operational savings*

#### BUSINESS CHALLENGE

The Independent Electricity Market Operator's (IMO) storage extension infrastructure, primarily composed of channel extenders, was unable to support the additional applications and throughput required to meet their Business Continuity (BC) goals.

IMO is the hub of the wholesale electricity marketplace in Ontario, Canada. IMO connects all its participant's generators that produce electricity, transmitters that send electricity across the province, retailers who buy and sell the electricity, industries and businesses that use electricity in large quantities, and local distribution companies that deliver it to residential customers.

IMO's core data center infrastructure is built around a redundant data center approach with two central sites located 50 km (31 miles) apart. IMO relied on traditional channel extension

technology to support their remote BC and Disaster Recovery (DR) solutions.

They were leasing an OC-3 from a service provider, and using their own ATM switch to share the bandwidth between EMC's Symmetrix® Remote Data Facility (SRDF®) software in synchronous copy mode and other data center applications. However, IMO reached a performance ceiling with this architecture and required an overhaul of their storage extension

design. They could no longer add applications using synchronous replication without a substantial increase in WAN bandwidth due to latency.

*"Moving away from traditional channel extenders and moving to a CIENA storage extension solution has increased our application performance and saved us a lot of money, while giving us the scalability to grow the network as our needs change."*

Norm Dang  
Technical Architect  
IMO

#### SOLUTION

Comparing the cost of purchasing additional WAN bandwidth to the effort of overhauling their storage extension design with a new generation storage extension platform, IMO recognized that CIENA's CN 2000™ Storage Extension Platform allowed them to streamline their storage performance, reduce their yearly maintenance costs, monitor their application performance, and postpone the purchase of additional WAN bandwidth.

The CN 2000 was an ideal solution for IMO to realize a much improved storage extension network. The ATM switch was replaced with a SONET multiplexer, which enabled a clean end-to-end SONET connection between data centers. The SONET multiplexer also allowed IMO to provision their own T1 lines without incurring additional bandwidth costs. The CN 2000 was then connected to the SONET multiplexer via a standard DS3 link. The EMC Symmetrix disk systems were then connected to the CN 2000 to support the remote SRDF disk mirroring application.

This new network design brought many advantages to IMO:

**Lower Operational Costs:** Traditional channel extenders require ongoing maintenance and continual vendor support for software upgrades, configuration changes, and fault isolation. These operational costs become the majority of the total cost of the storage

# CIENA Case Study

extension solution. The CN 2000 greatly simplifies the operational model for storage extension, enabling a plug-and-play, end user managed implementation without requiring complicated IP, ATM, or optical engineering.

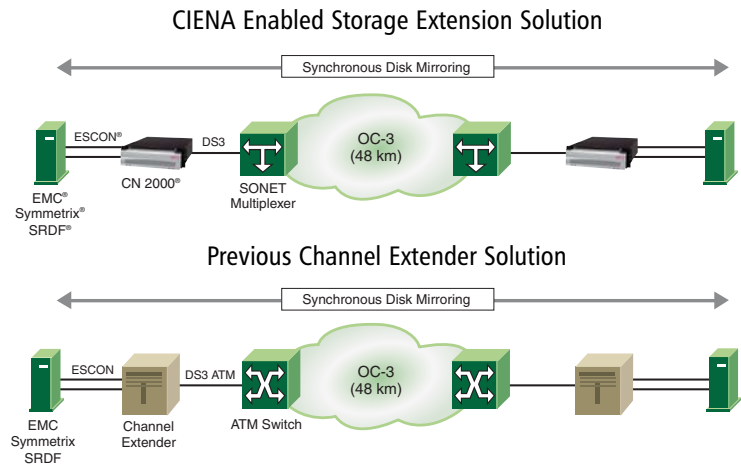
**Higher Application Throughput:** The throughput across the WAN increased from 10 MB/s to 27 MB/s, enabling IMO to delay the lease of additional WAN bandwidth and saving them thousands of dollars per month.

**Lower Latency:** The low latency of the CN 2000 reduced the application response time from 2,700 microseconds to 500 microseconds, enabling IMO to add additional applications using synchronous disk mirroring, greatly improving their BC/DR solution.

**Protocol Flexibility:** Unlike channel extenders and FCIP products, the CN 2000 supports all four major data center protocols: ESCON<sup>®</sup>, FICON<sup>™</sup>, Fibre Channel (FC), and Gigabit Ethernet (GbE). This flexibility will allow IMO to migrate in the future from ESCON to FICON/FC, and add GbE transport with the CN 2000's integrated hardware based data compression, available for all protocols.

**Scalability:** IMO's initial deployment of the CN 2000 supports a single DS3 for connectivity. However, the same CN 2000s will also support an additional DS3, as well as OC-3/12/48, DWDM, and dark fiber connectivity.

**Increased Visibility:** The CIENA CN 2000 and its network management system, the ON-Center<sup>™</sup> CN 2000 Manager<sup>™</sup>, have given IMO an unprecedented view of the throughput, latency, occupancy, and health of their end-to-end extension services. The CN 2000 Manager continually monitors



both the data center and WAN networks, automatically notifying IMO of any network degradations or failures, which allows them to manage their own network, decrease downtimes, and increase overall application availability.

In summary IMO received the following benefits:

- 170% increase in application throughput
- 82% decrease in application response time
- Lower maintenance costs
- No additional WAN bandwidth required
- Improved disaster recovery model by enabling EMC SRDF synchronous disk mirroring
- Guaranteed performance
- Flexibility in protocol support and growth potential

#### ABOUT INDEPENDENT ELECTRICITY MARKET OPERATOR (IMO)

IMO is a not-for-profit organization formed in 1998 as part of the restructuring of Ontario's electric power industry. It operates and regulates the new wholesale electricity market to ensure it is fair and effective. More than 200 organizations participate in Ontario's wholesale electricity market including generators, transmission companies, local distribution companies, local retailers, energy brokers, and direct customers. Maintaining reliability and protecting the integrity of the market are just some of the priorities of the IMO. More information about IMO's services can be found at [www.theimo.com](http://www.theimo.com).



1201 Winterson Road, Linthicum, MD 21090  
1-800-921-1144 Fax 410-694-5750  
+1 410-865-8500 (outside U.S.A.)  
email: [sales@ciena.com](mailto:sales@ciena.com) [www.ciena.com](http://www.ciena.com)