



## Cisco Optical Solutions Deliver Reliable and Manageable Carrier Services to Wisconsin Independent Networks

### Executive Summary

#### Customer Name

Wisconsin Independent Network

- Eau Claire, Wisconsin, USA

#### Industry

Network Service Provider

#### Business Challenge

- Expand network capacity to meet growing customer demands.
- Improve network administration and reliability to meet mission-critical customer needs.
- Provide a flexible, scalable foundation for new intelligent carrier service offerings.

#### Network Solution

- Cisco ONS 15454 delivers SONET and dense wavelength-division multiplexing (DWDM) support on an integrated, manageable platform.
- Automated wavelength signal and power conditioning functions increase network reliability and accelerate service deployment.
- Automated network topology discovery, setup, and wavelength additions reduce maintenance tasks.

#### Business Results

- Single-platform solution eases management and enhances operational efficiencies.
- Advanced ROADM improves operational simplicity, flexibility, and reduces costs.
- Resilient Packet Ring (RPR) support enables more efficient delivery of differentiated services to meet customer demand.

Cisco® Optical Networking solutions provide a manageable, carrier-class platform that enables Wisconsin Independent Network to serve a growing customer base and deliver sophisticated new IP services.

### Business Challenge

Wisconsin Independent Network, LLC (WIN) is a premier network provider in Wisconsin, Minnesota, and Illinois. Formed in June 1997 by 31 local telephone companies in Wisconsin, WIN focuses on serving interexchange carriers and other telecommunications providers as well as the wireless market. WIN operates 42 points of presence over its SONET-based, all-fiber network. In 2005, facing a rapidly growing customer base, WIN determined that it would need to further expand its network to accommodate the soaring demand for high-speed services.


“We’ve had a high level of success over the past year selling this network to carriers and have exhausted our capacity,” explains Scott Hoffmann, executive director of WIN. “Fortunately, we anticipated these capacity issues in advance, which gave us time to plan the next phase of our infrastructure’s evolution.”

WIN sought a platform that would offer superior administrative control and could deliver the high reliability expected by its customers for their business-critical applications. Strategic planners at WIN also saw an opportunity to add more flexibility, performance, and intelligence to its network to meet changing customer needs more effectively.

“We’re seeing more and more data requests from our customers,” says Matthew Yach, director of network operations at WIN. “That was a real driver, the integration and convergence of the SONET technology, traditional time-division multiplexing (TDM) circuits, and the new IP services that are now being requested of us by our customers, such as storage area networking, data backup, and potentially even voice.”

### Network Solution

WIN chose to augment its fiber network with a solution based on the Cisco ONS 15454 Multiservice Transport Platform (MSTP). Reflecting the platform’s variety of configuration options and functions, Cisco Systems® describes its MSTP capability as intelligent wavelength-division multiplexing (iWDM) technology. The versatility of the Cisco ONS 15454 MSTP reduces pressure to accurately predict traffic patterns when designing and deploying a transport facility. Service providers can use the same WDM configuration for



each node and add or drop any wavelength at any time. Many of the labor-intensive signal conditioning functions typical of static optical add/drop multiplexers (OADMs) are automated, providing unprecedented control over wavelength administration and service deployment.

“Being able to do SONET and DWDM on the same platform with the same provisioning system was instrumental in our decision,” explains Yach. “The single-platform approach provides a number of operational efficiencies, and was one of the key drivers to our migration to Cisco.”

Central to the Cisco ONS 15454 platform is its reconfigurable OADM (ROADM) technology. This enables network designers to build architectures that are dynamic and efficient, while radically simplifying operations and lowering operating expenses. ROADM technology allows networks to be built with a single node type that can add or drop any combination of the 32 wavelengths in the full optical spectrum. Individual wavelengths can be provisioned and managed remotely through software, and ROADM technology eliminates the need to reengineer the network for wavelength-service changes and system growth.

“Cisco has the most robust and well-developed ROADM solution in the industry, and was several steps ahead of the competition,” says Yach. “Cisco also offered superior functionality in its software packages, such as Cisco Transport Controller, which provides diagnostic capabilities and monitoring systems. The Metro Planner was also quite impressive. It lets us build a system on a software package, have that system completely develop a Bill of Materials, and enter the correct configuration into a live Cisco ONS 15454.”

The Cisco ROADM solution also enables WIN to easily provision new services to unlock potential new business opportunities. “The ROADM service has allowed us to provide a 2.5-gigabit wavelength service to a customer, something we weren’t able to do before,” says Hoffmann.

WIN is also using Resilient Packet Ring (RPR) technology to support video distribution over Gigabit Ethernet, as well as a statewide network initiative. A Layer 2 ring technology designed for metro networks with multipoint service requirements, RPR gives service providers the ability to apply packet classification and quality of service (QoS) to meet customer performance expectations. WIN implemented RPR with Cisco ML-Series Ethernet cards in its Cisco ONS 15454 MSPP nodes, greatly increasing the quality and efficiency of data services over its network.

“RPR brings a host of advantages to our organization,” explains Hoffmann. “One is the ability to oversubscribe on a network, whereas before we had to nail up specific channels. It also offers VLAN tagging capabilities, enabling us to assign a specific QoS to a specific service. RPR brings about a new realm of capabilities over a SONET network.”

## Business Results

WIN is performing a phased deployment of Cisco solutions across its network, and has already begun reducing administrative costs using advanced management tools from Cisco.

“The Cisco software release includes built-in test sets,” says Yach. “It supports Optical Time Domain Reflectometer and includes powerful optical signal-to-noise ratio diagnostic capabilities. Without these troubleshooting tools, we would need to travel to a site and bring down the network to take readings, which is time-consuming and expensive. The Cisco system provides that data on the fly, without disrupting the network.”

The Cisco ROADM implementation has paid dividends as well, helping WIN to consistently provide the carrier-class availability that its customers have come to expect. “We’re about five months into the ROADM rollout and so far it has been rock solid,” adds Yach. “The increased visibility into the network that ROADM provides is key for us. The ability to proactively identify and troubleshoot issues from a central location is very important.”

The Cisco ROADM solution also enables WIN to add, drop, or pass through any combination of available wavelengths by remote control, providing more efficient service. “We’re in a very dynamic industry, and customers need us to act quickly on their service requests,” explains Yach. “We try to deliver services not only as reliably as other competitors, but in a much more timely fashion. It’s one of the top differentiators that we provide our customers.”

Cisco engineers and professional services played an important role in the deployment process, and continue to provide peace of mind for WIN's network administrators. "For our first ROADM deployment, we had some of the Cisco top staff onsite from its optical transport business unit assisting us with the deployment, and they did a wonderful job," says Yach. "Cisco's high level of technical support was also one of the key decision makers for us. With Cisco, we know that someone will arrive onsite, we know they're going to be professional in what they do, and that our issue will be addressed in a timely fashion."

## Next Steps

WIN expects its upgraded network to open the door to additional market opportunities as demand grows for new applications. With its Cisco optical solution in place, WIN is poised to meet new challenges and opportunities in the years ahead.

"Next-generation service support by the Cisco optical platform will open new sales opportunities," says Hoffman. "Some examples include Carrier Ethernet, disaster recovery, SAN/NAS opportunities, IPTV, and increased core carrier sales associated with an OC-192 network that quadruples our current capacity. We expect a 40-percent growth in sales over the next year.

## For More Information

To find out more about Cisco optical solutions, visit: <http://www.cisco.com/en/US/products/hw/optical/index.html>.

### Product List

#### Routing and Switching

- Cisco ONS 15454 MSTP/MSPP
- Cisco Catalyst® 3750 switches

**Corporate Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

**Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Pacific Headquarters**

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on **the Cisco Website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica  
Croatia • Cyprus • Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR  
Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico  
The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia  
Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan  
Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Copyright © 2006 Cisco Systems, Inc. All rights reserved. Catalyst, Cisco, Cisco Systems, and the Cisco Systems logo are registered trademarks or trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0601R)

