



## CUSTOMER SUCCESS STORY

# BRINGING ADVANCED DATA SERVICES TO INDIANA STATEWIDE

*Indiana Fiber Network Deploys Cisco ONS 15454 Multiservice Provisioning Platform*

## EXECUTIVE SUMMARY

### CUSTOMER

Indiana Fiber Network

### INDUSTRY

Telecommunications

### BUSINESS CHALLENGES

- High costs for independent rural telephone companies to reach Internet backbone
- Inability of independents to offer newer services such as video
- Need to offer both SONET and Ethernet services

### NETWORK SOLUTIONS

- Installed the Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) on a survivable, 1000-mile SONET/DWDM ring
- Deployed the ML-Series line card to support advanced services such as digitized video and VoIP
- Used Cisco Transport Controller to provision services across all Cisco ONS optical platforms

### BUSINESS VALUE

- Capacity to scale bandwidth and provide member companies with cost-effective services
- Ability to converge services on Cisco ONS 15454 MSPPs to lower CapEx and OpEx
- Facility to support future technologies and advanced data services

## BACKGROUND

Indiana Fiber Network (IFN) is a consortium of 19 independent Indiana, USA-based telephone companies whose mission is to bring advanced telephony services to rural areas. The consortium is deploying a dense wavelength-division multiplexing (DWDM) and SONET fiber network that spans more than 1000 miles within the state of Indiana in a survivable ring configuration.

## BUSINESS CHALLENGES

Independent telephone companies in rural Indiana face significant hurdles when they want to access the Internet backbone or deliver high-speed data services to their subscribers. They are dependent on other incumbent local exchange carriers (ILECs) or the inter-exchange carriers (IXCs) to connect their traffic to either a point of presence (POP) or customer outside their area.

Not only is the cost of gaining access to the Internet backbone very high, the ability for independents to offer newer services, such as video, is also very limited. Most independents cannot afford to purchase a headend device that will enable them to deliver video services to customers.

## NETWORK SOLUTION

By forming a consortium of independents, IFN's goal is to transform the business dynamics of its member companies by pooling resources to build a 1000-mile DWDM/SONET ring statewide.

An important platform in the SONET ring for bringing advanced services and economies of scale to rural areas is the Cisco® ONS 15454 MSPP. This multiservice platform efficiently supports the multiple SONET services that member companies need today while also preparing the network to support future technology advancements.

“The Cisco ONS 15454 MSPP is an excellent choice because of its ability to converge services,” says Wayne Sparks, Technical Committee Chairman. “We can come off the same shelf with DS-1, DS-3, or Ethernet circuits, and we can add new services by simply adding new

interface cards, rather than new platforms. This saves on capital costs. Also, the design efficiency of the platform itself, its small size, and low power consumption, save valuable real estate and power costs.”

IFN's network will include 32 Cisco ONS 15454 MSPPs installed statewide (refer to Figure 1), each with OC-48 interfaces. Member companies will initially use the Cisco ONS MSPPs to transport DS-1, DS-3, and OC-12 circuits, but soon expect to evolve to higher-speed services up to OC-192 and Gigabit Ethernet. The ring will consolidate circuits in Indianapolis for access to the Internet backbone.

**Figure 1**  
IFN Infrastructure



For the first time, member companies will have direct access to the Internet backbone across the IFN network.

“Members will see a number of benefits,” says Kelly Dyer, president of IFN. “First, they will save on transport costs by eliminating the connecting company ILEC. They also will be able to begin offering newer services that they couldn’t offer before, such as video over DSL. Finally, they no longer need the connecting company ILECs or IXC’s for provisioning. They’ll be able to provision new services now in hours or days instead of weeks or months.”

### **Cisco ONS 15454 ML-Series Ethernet Line Card Points to Future**

One of the deciding factors for selecting the Cisco ONS 15454 MSPP was the availability of the ML-Series line card that provides Layer 2 and Layer 3 functions. The Cisco ONS 15454 MSPP, when equipped with the ML-Series card, helps enable a high level of convergence by combining many types of services and increasing the revenue potential per fiber. ML-Series cards are available in 10/100-Mbps Ethernet or Gigabit Ethernet and can deliver packet multiplexing and quality of service (QoS) features. With these capabilities and Resilient Packet Ring (RPR) technology—which greatly increases the efficiency of services over a SONET/SDH network—the ML-Series card will help enable IFN to efficiently deliver the following applications over its network:

- Ethernet business services
- Voice over IP (VoIP)

“We were very impressed with the ML-Series line card and its ability to run RPR on our SONET rings,” says Sparks. “We see this as the future. As our customers demand more Ethernet services, we plan to deliver Internet over RPR. Because Cisco is an IP company, we knew there would be no abandonment of future functionality with Ethernet going forward.”

With its packet multiplexing and QoS mechanisms, the ML-Series line card will allow IFN to offer more economical Ethernet services to customers. Traditional Ethernet Private Line (EPL) services may be offered that guarantee Ethernet bandwidth through a SONET/SDH connection. But with the ML-Series line card and Cisco IOS® Software QoS features, IFN will be able to offer a variety of Ethernet services to businesses—services that are much more efficient and cost effective than EPL services.

Many of IFN’s member companies are also interested in delivering digital video to their subscribers. But the cost of housing the servers, video groomers, and converters in each POP or central office is too expensive. IFN will build a primary video POP with all of the equipment needed to receive video signals, convert them to MPEG2 streams, and then put them into IP packets for transmission across the network. Digital video distribution of broadcast video in place of traditional analog broadcast is also a powerful option thanks to digital’s improved efficiency, noise tolerance, and superior manageability.

While IFN is not planning to offer VoIP immediately, its members have noticed that the Cisco ONS 15454 MSPP with the ML-Series line card can deliver VoIP services. “Currently, we will use traditional switched services for voice,” says Rob Ramsey, network operations manager at IFN. “But as the market changes and the economics of VoIP become compelling, we’re happy to have a platform that will support it.”

For example, the ML-Series line card uses QoS to identify and mark VoIP packets and enforce these settings. Along with other networking traffic, the ML-Series line card places the VoIP packets into high-priority, low-latency queues for scheduling. The marking helps ensure that the packets meet delay and jitter requirements as they traverse the network. The operator can then also place standard data traffic from other commercial service offerings in another queue and provide service-level agreements (SLAs) using committed information rates (CIRs) and peak rates.



## **An Edge Strategy**

Another valuable benefit of the Cisco ONS 15454 MSPP is that IFN will be able to use a single management system, Cisco Transport Controller, to easily provision services across its many optical platforms.

“Part of our edge strategy is that we plan to put Cisco ONS 15327s or ONS 15310s at business premises,” says Dyer. “We will then be able to manage these edge devices using Cisco Transport Controller just like we manage our other ONS nodes.”

## **Traditional and Future Applications**

IFN is accomplishing its initial goal of providing its members with cost-effective access to the Internet and other services, but it is also excited about its plans for tomorrow.

“The Cisco platform is taking care not only of the traditional applications, but those we’ll be offering in the near-term, and those for tomorrow as well,” says Sparks. “It’s these new services—videoconferencing, distance learning, telemedicine, and off-site data storage, among many others—that will help our members redefine their businesses for future profitability.”

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