



## CUSTOMER SUCCESS STORY

# ENVENTIS TELECOM

### EXECUTIVE SUMMARY

#### CUSTOMER NAME

Enventis Telecom

#### INDUSTRY

Wholesale Transport Services Provider

#### BUSINESS CHALLENGE

With the rapid growth of Enventis' OC-48 metro rings converging at major POPs in Minneapolis and Duluth, the method the company employed to scale existing solution became increasingly cumbersome and complicated, requiring truck rolls, or onsite service calls, to add new services and slowing provisioning time.

#### NETWORK SOLUTION

Eventis installed a Cisco ONS 15600 Multiservice Provisioning Platforms (MSSP) in Minneapolis and one in Duluth, which allowed it to redeploy six Cisco ONS 15454 MSPPs from Minneapolis and four Cisco ONS 15454s from Duluth—which had reached their scaling limits—to the edges of the network. This seamless, investment-protecting network evolution significantly improved Eventis' network, enabling the company to provide faster service to its customers.

#### BUSINESS VALUE

As a result of the deployment of the Cisco ONS 15600, truck rolls were eliminated and provisioning time was reduced from days to minutes. In addition, the company regained valuable floor space, as the equipment footprint dropped from three racks down to one-third of a rack.

Finally, the price per OC-48 port was significantly reduced, allowing the company to remain competitive, and the network is now able to scale to future needs, without requiring a larger footprint, or service area.

**By redesigning its points of presence (POPs) in Minneapolis and Duluth with the Cisco ONS 15600 multiservice switching platforms (MSSP), Enventis greatly reduced its provisioning time and dramatically increased its scalability thereby gaining a competitive edge in its markets throughout Minnesota.**

### A STRONG MINNESOTA PRESENCE

While the name Enventis is not widely recognized outside of Minnesota, businesses throughout the state know the name well. Formed initially as a business unit of Minnesota Power and now a subsidiary of Allete (a US\$3 billion company in the automotive resale, energy and telecom services industries), Enventis owns 1700 route miles of fiber across Minnesota. The company has become one of the largest telecom providers in the state and serves many of Minnesota's biggest companies, who rely on Enventis to reach 75 percent of Minnesota's population for high-bandwidth and highly resilient transport.

To become the leading telecom provider in the state, Enventis built a highly flexible and resilient statewide optical network using Cisco® Complete Optical Metro Edge Transport (COMET) technology from Cisco Systems®. The Enventis network comprises more than 75 Cisco ONS 15454 multiservice provisioning platforms (MSPPs) in its POPs and metro access networks, and 14 Cisco ONS 15800 Series dense wavelength-division multiplexing (DWDM) platforms for long-haul DWDM transport.

### GROWTH PRESENTS CHALLENGES IN MINNESOTA AND DULUTH POPS

Over the last several years, Enventis has built a multiservice, multiregional network based on the flexible and scaleable capabilities of the Cisco ONS 15454 MSPP. Enventis deployed the Cisco ONS 15454 throughout the edges of its metro core network to groom and aggregate time division multiplexing (TDM), optical, and IP traffic. The company also took advantage of the midsize, cross-connect capacity of the ONS 15454s in its Minneapolis and Duluth service POPs to converge and aggregate multiple OC-48 metro rings. But because the Cisco ONS 15454s are intended to groom traffic at the outer edge of the metro core, minimizing the need to backhaul traffic across the network, as traffic volume throughout the network increased, the need for cross-connect capacity in the POPs grew exponentially—exceeding the design limits of the ONS 15454.

To address the need for greater cross-connect capacity in its POPs, Enventis linked multiple Cisco ONS 15454s together to create a single cross-connect fabric, capable of scaling with demand. While this solution initially satisfied Enventis' scaling needs, it also created an increasingly cumbersome virtual network design to switch traffic between the individual shelves. By 2003, Enventis' hub-and-spoke design comprised 12 OC-48 rings converging in

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Page 1 of 3

Minneapolis, and the company had reached a point of diminishing returns. In addition to consuming three racks of valuable space in the POP, more than 40 percent of the service slots on the Cisco ONS 15454s were being used to provide cross connection to the network, rather than to deliver services.

As a result, the network provided slow provisioning time—a liability in a competitive market where fast service turn-up is imperative. In order to connect a customer in the upper regions of the state with a branch office or a regional site in the southern part of the state, for example, the customer's circuits needed to traverse multiple OC-48 rings in Minneapolis. But the ports for those rings were spread out across 12 Cisco ONS 15454s in three racks in Enventis' Minneapolis POP. A customer coming in on one port on an ONS 15454, therefore, would need to be cross-connected to another port on a Cisco ONS 15454 that linked to that area of the state.

To make new connections, Eventis' IT managers had to rely on spreadsheets to track which synchronous transport signals (STS) came into which metro ring on which ONS 15454. They then had to determine which ports were available on the ONS 15454 that was designed to reach the desired destination and whether sufficient capacity was available. If capacity was calculated incorrectly, the circuit would block and not function properly. Once capacity was determined, Enventis IT would have to schedule a technician to physically visit the POP and install a DS-3 or OC-3 cross-connect between the platforms as well as install any additional cards required to provide interconnect ports.

"It would take between two and three days before the correct interconnects were determined, the technician was scheduled and the equipment was procured to install the cross connects," says Ed Proetz, senior systems engineer with Enventis. "And this was hurting us in two ways: it required many man hours, which hurt productivity, and it delayed delivery of service to customers."

The other problem with this approach was that almost 40 percent of the service slots on the ONS 15454s were being used to interconnect platforms, rather than to deliver profitable services. "Not only was this costing us revenues at the time, it wasn't scalable and we knew it would only get worse," he adds. "As we continued to grow we'd only clog up more and more service slots with interconnects." What the company needed was a single device with the scalability and software provisioning ability of a MSPP-like device, that was specifically designed to have the cross-connect capacity typically seen in POPs and COs where multiple transport loops converge. This would eliminate the hardwiring within the cross-connect fabric and would provide the valuable benefits of remote provisioning.

#### A Technology Leap in Bandwidth Aggregation

The Cisco ONS 15600 Multiservice Switching Platform (MSPP) was designed to address these challenges. Because a single shelf of the Cisco ONS 15600 offers 128 OC-48 ports or 6144 non-blocking STS-1s, switching is accomplished in silicon—eliminating the need to stitch together multiple devices to scale cross-connect capacity. Enventis engineers can now add new service by simply using the mouse to point and click at management workstations to light up ports without needing to schedule a technician to visit the POP and install cross-connects. This also allowed Enventis to redeploy the Cisco ONS 15454s from its POP locations into its metro network to solve service delivery, aggregation, and metro-edge cross-connect functions more suited to the design capacity of a MSPP.

"We are now provisioning new services within minutes and hours rather than days," Proetz says. "What's more, we're no longer wasting all those slots on the ONS 15454 that were being used only for interconnects, because all our core switching is handled within the one ONS 15600 shelf."

Enventis is also saving valuable floor space in the POP as it has eliminated three full racks of ONS 15454s and replaced them with a Cisco ONS 15600 that takes up only one-third of one rack. The company has also seen a reduction in the cost of heating, ventilation, and air conditioning (HVAC) to cool the systems and the need for power.

The Cisco ONS 15600 is the only product that is fully interoperable with Cisco ONS 15454s in both Unidirectional Path Switched Ring (UPSR) and Bidirectional Line Switched Ring (BLSR) networks. This allows the Cisco 15600 to provide simplified network architecture and faster provisioning times when integrated within Enventis' existing ONS 15454 protection schemes.

“We’ve been able to redeploy the spare ONS 15454 equipment to other rings on the edge,” says Proetz, “and this has made the per-port price on the ONS 15600s less than the ONS 15454s—so we actually come out ahead financially.”

In fact, the economics of the ONS 15600 recently played a crucial role in Enventis’ ability to gain six new customers that it might not otherwise have been able to add.

“While the ONS 15600 is more costly initially, it gives me sixteen ports of OC-48 per card,” says Proetz. “The value is that as we start loading it up with OC-48s we reach a break point at five or six rings where it becomes cheaper to add rings than it would’ve been with the ONS 15454s. And this price difference has been the deciding factor in our ability to be competitive and to profitably take on six new customers.”

Also, Enventis knows that, with the scalability of the ONS 15600, the footprint in the POP will remain fixed, even as it adds hundreds of new customers.

“This is a big benefit,” adds Proetz. “Now, I can continue to grow our network and add many more customers and still have the same central office footprint.”

Having evolved its network, Enventis has not only improved its operations, the company has also positioned itself to gain new customers and provide new services—making it more competitive in the marketplace.



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