

A Range of Choices

With a new 10 Gigabit Ethernet ring, Sierra Telephone expands its lineup of business and residential services.

BY M.J. RICHTER

Northern California's Mariposa and Madera counties boast a lot of natural attractions, including rich farmland, scenic views of the Sierra Nevada Mountains and Yosemite National Park. Last year, Sierra Telephone, which serves parts of both counties, added a major man-made attraction: One of the fastest telecommunications networks in the country.

With its new 10 Gigabit Ethernet (GigE) ring, enabled by Tellabs® Business Services Solutions and based on the Tellabs® 8800 Multiservice Router (MSR) Series, Sierra Telephone will be capable of transporting its business and residential customers efficiently. In the future, the company plans to boost speed offerings to 100 Mbps.

Sierra Telephone began work on the network's first phase in early 2008, and by November, it had installed and turned up four nodes. The second phase, slated to be completed this spring, includes deploying the last two nodes. The third and final phase — migrating Ethernet and DSL customers from an OC-48 ATM ring to the new network — will begin shortly thereafter. The goal is to move all data customers over by Dec. 31, 2009.

114 YEARS IN THE MAKING

Upgrading its data-transport network to 10 GigE is part of Sierra Telephone's ongoing effort to satisfy current communication demands while preparing for expansion of broadband services that its customers will need.

With approximately 23,500 access lines and 210 employees, Sierra Telephone — which traces its roots back to 1895 — operates within an 870-square-mile territory that stretches across eastern Madera and Mariposa counties. In addition to providing wholesale DSL connections to ISPs, including an affiliated company, Sierra Telephone offers data and voice services directly to both business and residential customers.

Recognizing early on that its customers inevitably would demand broadband services, the company in 1991 began to build a route-diverse fiber-optic network, with 341 route miles lit so far. Recalling the evolution of the company's optical infrastructure, Central Office Network Manager Jeff Busto said Sierra Telephone started with a 150 Mbps linear drop-and-insert system, migrated to an OC-12 linear system and then moved on to an OC-12 BLSR.

"By 1996, our data traffic had exhausted our one ring, so we added an OC-48 BLSR," Busto said. "Now we have

multiple rings, both BLSR and UPSR, up to and including the Tellabs® 8860 Multiservice Router 10-GigE platform."

EVERYONE WANTS ETHERNET

As is the case with nearly all service providers today, the primary driver for Sierra Telephone's network upgrade is ever-growing customer demand for more bandwidth at lower costs. That means Ethernet.

Initially, Sierra Telephone plans to offer Ethernet over copper but also is considering Ethernet over fiber. Central Office Special Services Supervisor Doug Miller said many of Sierra Telephone's enterprise LAN customers, which include government and private-sector entities, utilize older, higher-priced technologies that impact their bottom line cost of doing business. Those customers are looking for the best they can get at the cheapest price.

"With the NECA tariffs we adhere to, the price is very competitive for customers to start thinking about doing their LAN operations over IP," Miller said. "We're positioning Sierra Telephone to provide these competitive services for our customers at the same high level of service quality that they have grown accustomed to."

Sierra Telephone also wants to provide these services at the lowest pos-



sible cost to the company, as well, Busto said. The capital and operating expenses incurred with ATM-based technology also pushed the company to move to a packet-based network.

“As data demands increased, the cell taxes and equipment costs associated with the ATM platform became too costly to maintain,” Busto said.

MANAGING THE MIGRATION

After settling on a 10-GigE ring architecture and evaluating the capabilities and prices of potential solutions, Sierra Telephone chose the Tellabs 8860 MSR. Miller said company executives were particularly attracted to the Tellabs 8860 MSR’s ability to handle multiple protocols, enabling a smooth migration from existing Sierra Telephone platforms.

“We can bring ATM in on one blade and take that same signal and ship it off as IP or Ethernet,” Miller said. “We can bring in Frame Relay and do the same thing. It’s the only platform out there that gives us the ability or the opportunity to plug in everything we have now and slowly migrate to an IP-based system, eventually eliminating the older technologies.”

When fully deployed, the Tellabs 8860 MSR also will enable Sierra Telephone to boost the capacity of DSL connections for ISP customers. Many of the company’s current uplinks from the access network — which is largely based on the Tellabs® 1000 Multiservice Access Platform (MSAP) — are OC-3 connections. By consolidating the access traffic into GigE uplinks, the Tellabs 8860 MSR effectively provides Sierra Telephone a means to start leveraging more Ethernet in its network.

“Consolidating services onto a single multiservice platform with common management enables Sierra Telephone to save operating expenses,” said Director of Product Management for Tellabs Advanced Data Products, Tim Doiron. “Tellabs Business Services Solutions enable Sierra Telephone to leverage its installed base while migrating to a more Ethernet and IP-oriented network — at a pace right for Sierra Telephone.”

Another deciding factor behind Sierra Telephone’s choice of the Tellabs 8860 MSR was the company’s 2007 investment in the Tellabs® MetroWatch®



Sierra Telephone is using the Tellabs 8800 MSR series to enable new services. Pictured from left to right from Sierra Telephone are Special Services Technicians Patrick Richardson, Eric Thome, Jim Sumrall, Dennis Womack, Carl Duerksen and Central Office Special Services Supervisor Doug Miller.

Integrated Network Manager (INM), originally purchased to manage its Tellabs® 5500 Digital Cross-Connect System and Tellabs® 5320L Digital Cross-Connect System. Because Tellabs MetroWatch INM also manages the Tellabs 8800 MSR series, it enables Sierra Telephone to leverage its investment in and experience with the network manager, and minimize what Miller called “element management system overload.”

“The more vendors you have involved, the more management systems you have to buy, the more you have to maintain and the more you have to make sure that you have the software upgrades in place,” Miller said. “If you can manage more equipment with the same management system, such as with the Tellabs MetroWatch INM, you’re better off. Handling the software upgrades and maintenance for one application versus taking care of multiple applications running on multiple servers made sense to us.”

A GOOD NIGHT’S SLEEP

Sierra Telephone’s lengthy relationship with Tellabs helped solidify the company’s decision to go with the Tellabs 8800 MSR series.

“We’ve had very good experience with Tellabs over the years, both with the products and with the support,” Miller said. “That was a big plus.”

Busto summed up his company’s choice: “The Tellabs products we use enable Sierra Telephone employees to sleep well at night.”

In addition to assisting Sierra Telephone with the details of the deployment, integration and migration plans, a team of Tellabs engineers from Tellabs® Global Services team helped to install the new network, from initial assessment of cable lengths and hardware required for mounting to installation of the power systems. A new team then came in and made the connections between systems and did the acceptance testing.

The migration of customers to the new 10-GigE ring “will be a slow, thought-out process with Tellabs engineers and professional services helping us,” Miller said. “We want to get all the nodes in place first, get the ring happy and then start small and work our way up. Speed is not the issue here — it’s to get it done correctly and with the least amount of service interruption.” ■

ATM: Asynchronous Transfer Mode
BLSR: Bidirectional Line-Switched Ring
DSL: Digital Subscriber Line
IP: Internet Protocol
ISP: Internet Service Provider
LAN: Local Area Network
NECA: National Exchange Carrier Association
UPSR: Unidirectional Path-Switched Ring