Chautauqua County Nursing Facility Gets a Fat Pipe on a Thin Budget with Patton's IPLink™ Inverse Mux

"Blazing speeds" of 300 to 400 bits per second were common during the days of a single T1 connection to the Chautauqua County Home skilled nursing facility.

The low-speed microwave link to county headquarters in Mayville—where all the clinical, financial, email and Internet application servers reside—made day-to-day computer operations a challenge for the staff at the skilled nursing facility in Dunkirk, New York. Gary Hemmer, Personal Computer Specialist at the nursing home, knew he needed a **fatter pipe**.

"The equipment is working flawlessly. We've seen at least a 70 or 80 percent increase in speed. Patton's Inverse Mux has made a world of difference. These are the most cost-effective units I have ever seen. Dollar for dollar, they deliver!"

Gary Hemmer, PC Specialist
Chautauqua County Information Services

Disconnect. Reliability of the existing T1 circuit was also a problem. Chautauqua weather conditions, such as rain and snow, often degrade microwave signal quality, and at times, even break the connection. In Gary's words, "we had T1 issues on a weekly basis. When the T1 would go down I'd get a barrage of phone calls." So, along with more bandwidth, Gary needed redundancy to ensure survivable communications.

Thin budget. Capital equipment costs would have to be kept low. Since the county owns a T1 microwave network, leveraging that resource would help to control ongoing expenses. "In today's economy," Gary observes, "we want to

Brian Beadle   Don Schultze   Gary Hemmer

give county residents the biggest bang for their tax dollar we can. We have to be mindful of expenses." So Gary, assisted by the county's staff of Personal Computer Specialists, launched a search for the most cost-effective solution for delivering reliable, high speed, connectivity.

Google it. Senior PC Specialist Don Schultz searched the Internet for a low-cost T1-aggregating device. Googling for Ethernet over T1 multilink, he found Patton's IPLink Model 2888 Inverse Mux that bonds up to 4 T1 (or E1) cir-

"Before, if I had a T1 go down I'd get a barrage of phone calls. Now if a T1 goes down I would never know it. The radio department can tell me on a monthly report, 'yeah, we had a T1 failure.' Since we put in the Patton Inverse Mux I haven't had a single call."

Gary Hemmer, PC Specialist
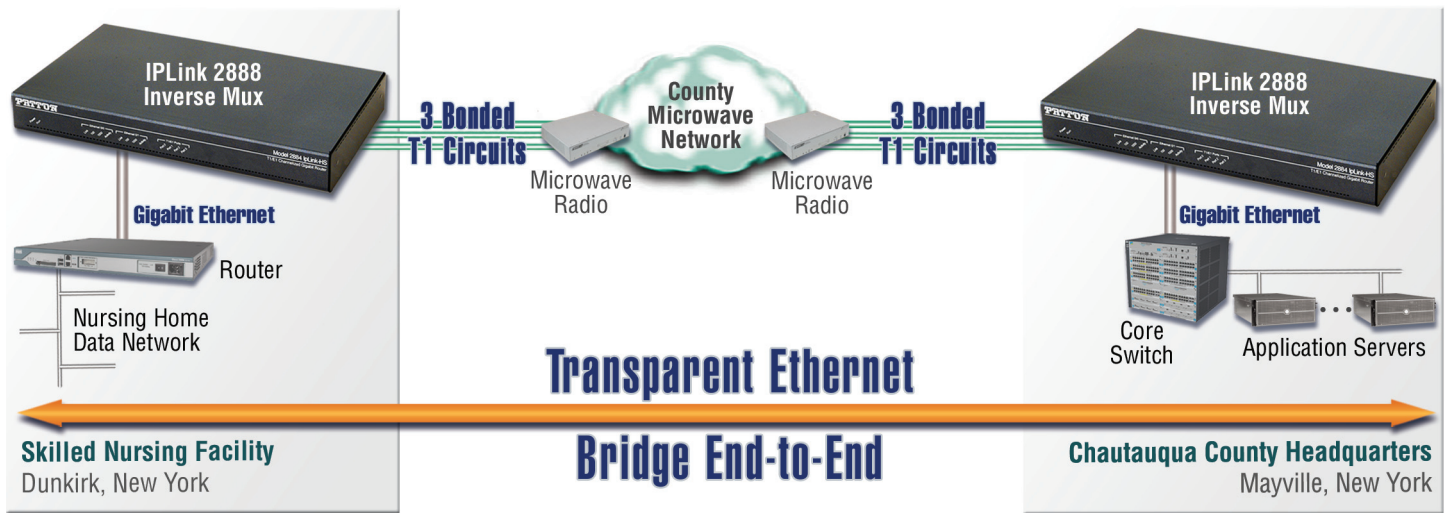*Chautauqua County Information Services*

cuits into a single high-speed channel at up to 8 Mbps. Employing Multi-Link Point-to-Point Protocol (MLPPP), Patton's Inverse Mux builds a transparent Ethernet bridge with load-leveling and self-healing redundancy.

Key Benefits of Using Bonded T1/E1 Solutions with Patton's IPLink™ Inverse Mux

✔ *Transparent Ethernet bridge up to 8 Mbps*

✔ *Self-healing, load-balancing, multi-link redundancy for survivable communications*

✔ *Easy, plug-and-play turn-up*

✔ *Easy-to-manage network device*

✔ *VLAN-tagged & Jumbo frames support next-generation equipment and protocols*

✔ *Patton's first-class tech support…FREE!*

IPLink 2888 Inverse Mux

3-Bonded T1 Circuits

County Microwave Network

Microwave Radio

Microwave Radio

3-Bonded T1 Circuits

IPLink 2888 Inverse Mux

Gigabit Ethernet

Router

Nursing Home Data Network

Gigabit Ethernet

Core Switch

Application Servers

Transparent Ethernet Bridge End-to-End

Skilled Nursing Facility
Dunkirk, New York

Chautauqua County Headquarters
Mayville, New York

Compared with alternative solutions from other suppliers, the IPLink Inverse Mux provides additional features and functions (see chart at right) at a lower cost. Gary recalls, "Patton's 2888 appliance cost much less than the Cisco solution and provided multi-link where the Cisco did not." From his prior experience in the communications industry, Don Schultz knew the Chautauqua team could count on Patton's legendary "world's-best" technical support to ensure the whole system was up and running end-to-end.

"I really can't say enough good about Patton's support department. Tshaka Scott was fantastic!"

Gary Hemmer, PC Specialist
Chautauqua County Information Services

Setting it up. "Patton provided great support and help during our initial setup of the appliances," Gary remembers. "Setup turned out to be quite simple once we explained our application to our support specialist. When the [front panel indicator] light came on we started screaming. It was clear to see when the link came up."

Inverse Mux Feature	IPLink™	Others
1.5 to 8 Mbps over 1 to 4 T1/E1s	Yes	Yes
Bridged Protocol Transparency	Yes	No
Jumbo Ethernet Frames	Yes	No
Dual Gig-Ethernet Ports	Yes	No
VLAN-based Active QoS	Yes	No
Fractional nx64 T1/E1s	Yes	Yes
Self-healing, load-balancing multi-link	Yes	Yes

Working together. Because the IPLink interoperates seamlessly with all the existing and previously-installed equipment, no additional hardware expenses were incurred. A Cisco 2811 router connects the nursing home LAN to one of two gigabit Ethernet ports on the 2888. A pair of 25-year old Lynx microwave radios interconnects three of the four T1 ports on each model 2888 through the county's microwave network.

Fat Pipe. Today, operations at the 216-bed facility are running smoothly. Patton's Inverse Mux solution provides a reliable 4.632 kbps transparent bridged Ethernet connection over three bonded T1s with the Mayville, NY headquarters 40 miles away. "The only problem we've had," Gary reflects, "was when the Cisco

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2811 failed and I had to go in at four in the morning to reboot it."

Now, when weather conditions cause one or more T1 circuits to fail, the native MLPPP self-healing and load-balancing functions keep the communication link up, delivering traffic over the remaining active T1 circuits.

With Patton's low-cost Inverse Mux, you can leverage existing TDM infrastructure to...

✓ *Interconnect enterprise LANs with transparent, survivable Ethernet over n-by-T1/E1 at up to 8 Mbps*

✓ *Backhaul broadband traffic from remote PoPs (IPDSLAM, MPLS router, carrier Ethernet switch, etc.)*

✓ *Extend high-speed services to reach new subscribers users in outlying areas*