



Small Town Co-op Albany Tel delivers Big Time Bandwidth and Future-Proofs their network with Active Ethernet

CASE STUDY

Background

The citizens of Albany, MN, like so many of their counterparts in rural communities throughout the United States, have always understood that their long-term prosperity depends in part on having access to telecommunications services. It was that knowledge which prompted them in 1951 to band together to establish the Albany Mutual Telephone Cooperative, at a time when “telecommunications services” meant plain old telephone service delivered over twisted-pair copper lines. More than half a century later, people in both rural and urban areas increasingly depend on what now are called “advanced telecommunications services,” which include all-digital TV offerings such as IPTV, high-definition TV (HDTV) and video on demand (VoD), as well as high-speed Internet access and, of course, basic voice service. Not surprisingly, Albany Tel, in keeping with its original mission, is gearing up to deliver those services, too.

Located in central Minnesota, Albany has about 1,800 residents and comprises one of three exchanges operated by Albany Tel; the other two are in the nearby towns of Freeport and New Munich. Linked by a fiber-optic ring and a 250-mile toll network, the three exchanges together serve about 3,800 access lines. The vast majority of Albany Tel’s access lines consist of relatively new copper, with some segments only 20 years old and others deployed as recently as 2003. However, even when combined with ADSL2+ access technology, copper can deliver best case speeds of only 20 Mbps, which is also distance sensitive and obviously not enough to support bandwidth-intensive video and advanced data services. That limitation, plus the likelihood that a cable-TV competitor would begin offering triple-play video, data and voice services, prompted



the telecom cooperative to work with ADC's Professional Services to plan a fiber-to-the-home (FTTH) network, the first phase of which Albany Tel began to deploy in June 2008. By the end of 2008, roughly 85 percent of the cooperative's network will consist of copper lines, and the other 15 percent will be fiber. Network Operations Manager Tom Eveslage says that if everything goes according to plan, "within the next five years, you can probably flip-flop those numbers."

The plan calls for both greenfield fiber deployments—primarily in new-home developments—and overbuilds of existing copper lines. The major drivers for the upgrade to FTTH are the demands for HDTV and VoD services and the telecommuters' needs for ever-higher data speeds. Although Albany Tel now offers fiber-based data rates in excess of 10 Mbps, Eveslage says that "if the customer demanded it, I would give them a gig's worth of pipe to the home." As the fiber reaches more homes and businesses, most Albany Tel customers will have access speeds of 100 Mbps.

Eveslage selected an active-Ethernet architecture, rather than one based on passive optical networking (PON), mainly, he says, because active Ethernet makes it easier to troubleshoot the network. "If there is a problem, you're only interrupting one customer, versus however many PONs you have there—8, 16, 32—that you'd be interrupting every time you want to test something." In Eveslage's opinion, active Ethernet also is more future-proof than a PON-based solution, with each customer having dedicated, rather than shared, access to the FTTH network.

So Much to Do, So Little Time

As service providers of all sizes know too well, designing and engineering an FTTH network consumes a lot of time and labor—two resources that no provider has to spare. Albany Tel is a small company and, Eveslage says, "for the most part, everyone in operations can do everyone else's job. There's not a whole lot of wiggle room, as far as time for doing design, engineering and those types of things." After considering one other vendor, he decided to work with ADC's Professional Services, which consists of three functional teams: Project Management; Detail Engineering; and Field Resources. The organization offers multivendor/multiservice/multitechnology capabilities to all of its clients and, depending on the agreement with each service-provider client, provides skilled engineers and technicians to help with any and all phases of a network upgrade.

Eveslage chose ADC's Professional Services because the organization was "able to supply me with installation and give me a compact footprint that gave me room to grow." A compact equipment footprint was important to him not only because it conserves central-office space but also because he is admittedly "kind of particular when it comes to my central office. I like to have it look nice."

Specifically, he wanted a design and the appropriate cable-management equipment that avoid single jumpers between the access gear and the active fiber. Given the fact that Albany Tel can serve 432 subscribers from a single access chassis, Eveslage did not want to contend with all those jumpers in all three central offices. "Looking at the Albany central office alone, we have about 2,000 subscribers," he says. "That's 2,000 jumpers." He also wanted to avoid the headache of having to fish the right fiber out of that huge bulk every time Albany Tel does adds/moves/changes.



An Innovative—and Tidy—Solution

Albany Tel deployed in its central offices the ADC FiberGuide fiber-management system and OMX splice bays and, in its outside plant, ADC's Next Generation Frame (NGF), its 24-fiber multifiber cable assemblies and its RiserGuide cable-management system. That makes Albany Tel one of the first ADC customers to place the multifiber assemblies and RiserGuide solution alongside the active equipment in an Ethernet deployment.

"Multifiber assemblies allow me to group—in this case—24 fibers, which is half an access card," Eveslage explains. "So with two fiber assemblies, or 48 fibers, I'm able to take those to a frame, and it's done, you'll never have to go back and mess with it. If I don't have to re-visit things, that saves me time and money. Then, the only thing that has to happen is a cross connect at the NGF. I realize there's a little bit of expense to that [approach], but I hope to recoup that in the long run."

As for the NGF, Eveslage says that he also likes the pay-as-you-grow flexibility it offers. "This is hopefully the first year of a five-year project, so I can grow as I need it," he explains. "Right now, I have enough NGF frames and fiber assemblies to satisfy this year. Going forward, my capital expenditure will be considerably smaller because all I'll have to do is add fiber assemblies. When I fill them up, it will be just a matter of taking off an end plate, adding a frame, putting that plate back on, and then I will have opened another 1,152 fiber ports. That initial capex was a stinger but, going forward, I know I'll have minimal capex to satisfy my central-office needs for my FTTH deployment."

More Bandwidth is Not the Only Benefit

In addition to its ability to deliver more bandwidth to its customers and maintain tidy central offices, Albany Tel expects to achieve other benefits from deploying ADC solutions in its FTTH network. In fact, one surfaced right away in the form of the equipment installation by ADC's Professional Services. Eveslage applauded the installers for doing "a great job, a nice, clean installation." Further, he says the group designed the installation so well "that the only changes that had to be made were requested by me, some things that just popped up. Within a few days, the equipment was here. They've just got a good product."

Finally, Albany Tel's ability to combine ADC's central-office and outside-plant gear with the cooperative's existing access platform means less reliance on ADSL2+ technology. That, in turn, means fewer truck rolls for Albany Tel and therefore lower operating expenditures. "We've seen it already with our greenfields FTTH deployments," Eveslage says.

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