

**CASE STUDY:
STRATFORD MUTUAL TELEPHONE COMPANY**

After a Century of Copper, Stratford Mutual Makes a Clean Cut to Fiber

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“Fiber changes everything.” Randy Baker, GM for Stratford Mutual Telephone Company, Stratford, Iowa

After delivering copper fed services for over a century, Iowa-based Stratford Mutual Telephone Company recently made a wholesale cutover to an all-fiber digital network using the MXK, Zhone’s intelligent terabit access concentrator for FTTH services.

In this case study, Stratford Mutual’s GM, Randy Baker, and his team describe the ins and outs of securing RUS funding, the importance of getting community buy-in, and what a new generation of fiber services has meant to both their rural residents and their internal organization. So what’s it like going from kilobit to terabit?

Life on the farm will never be the same.



Stratford, Iowa

A CENTURY OF PROGRESS

The first phones installed by Stratford Mutual Telephone Company were heavy black boxes mounted on the wall with a receiver that dangled from a nearby hook. Some years later, Stratford residents got the candlestick phone which could be grasped in the hand and held directly to the mouth. To make a call required the help of the Stratford Central Operator. Later, the candlestick was replaced by sleek new cradle phones followed by the more modern dial phone, which gave way to push buttons then the cordless, and...what's next?

“Just about anything,” says Randy Baker, General Manager for Stratford Mutual who recently led the wholesale upgrade from copper to an all-fiber digital network using the MXK, Zhone’s new intelligent terabit access concentrator. Now Stratford residents living as far as 11 miles from the central office have gone from kilobit dialup connections to digital TV, interactive voice services and double-digit Internet speeds.

“There’s a time for everything and Stratford’s aging copper plant was proving to be more of a liability than an asset,” says David Fridley, VP of Engineering and Consulting for the Martin Group, the firm enlisted by Stratford to help with everything from the loan design, to securing RUS funds, to the fiber network plan and platform selection. Also, a FTTH solution would allow Stratford to provide a higher quality video product to its subscribers over the same network. After thoroughly defining the FTTH project scope with the Stratford team, the Martin Group sent out

*Randy Baker, General
Manager, Stratford Mutual
Telephone Company*



Stratford Mutual Telephone Company Facilities



RFQs to about a dozen vendors. Several made the first cut and detailed technical evaluations commenced between the Martin Group, the engineers from Stratford and each of the contending vendors.

“This is a high-stakes choice for our customers, Dave says. “A wrong move can put a small company out of business.” Since Stratford Mutual is the only lifeline serving its rural residents, making the right choice was all the more imperative.

“The contending vendors all offered strong solutions and each were very competitive,” Dave says. “In the final analysis, Zhone equipment was both competitive and leading edge and the MXK won the contract.”

The MXK provides twice the non-blocking capacity of other FTTH platforms — more and more critical for video provisioning in particular, where content is moving from simulcast delivery to streaming on demand.

In addition to the MXK, Zhone’s zNID would be installed at subscriber sites and the Tekelec 7000 Class 5 Packet Switch would replace Stratford’s old Class 5. Finalizing RUS funding took around four months. “In the event of an emergency, RUS can come through in a matter of weeks,” Dave said. “Three to six months is a typical turnaround for traditional RUS programs,” he says emphasizing traditional.

With the technology set, and the funds in place, the combined teams of Stratford, Martin Group and Zhone were ready to roll up their sleeves.

PAST TO FUTURE-PROOF

Stratford had previous experience with BPON using Zhone’s MALC and Zhone’s SLMS access operating system, so the engineers were already up to speed on the software interface.

“The platform and software were the easy part,” Randy Baker said. “It was the evolution from an all copper to an all fiber network that led to a complete culture shift in our organization. Fiber requires a different language, different tools and different skill sets.”

The enigmatic effects of fiber on Stratford’s organizational culture become apparent when you talk with some of the employees. Vance Cook is the Telephone Network Manager for Stratford. “Copper is a static medium and you had to learn to work within its limits,” Vance says. “With fiber, you can always add more services so the network is constantly evolving. Fiber is limitless. That means, you never think of the project as done,” he says with a laugh.

Since the MXK operates with Zhone’s SLMS software, Vance has seven years of feature development out of the box, paired with enough bandwidth to deliver 3,600 homes 100 Mbps of GPON. Put another way, Stratford Mutual has the capacity to deliver 1 Gig service to every household in town.

Vance handled the cutovers from copper to fiber at the subscriber sites and reports that while every house is different, Zhone’s zNID design has saved Stratford Mutual hundreds of man hours in installation time. zNID uses the latest version of HomePNA which delivers Ethernet, VoIP, HD or standard IPTV at around 100 Mbps over regular coax, phone wire or Ethernet. For the customer, the interfaces are intuitive set top boxes and regular wall jacks. Best of all, according to Vance, the zNID is the only end terminal that doesn’t require a bulky cable to deliver power and alarms to the ONT. AC battery power and alarm signaling are delivered via 19 gauge thermostat wire which is run discreetly. This further reduces the risks and costs of drilling holes through customer’s walls to run in-home cable. “No conduit,” Vance says. “Something our technicians and customers can all appreciate.”

KEEPING THE COMMUNITY IN THE LOOP

When Randy Baker is asked, what advice he’d give to other service providers planning to upgrade from copper to fiber, he recommends staging the initial technology trials on board members and employees, and to keep the community involved and informed about the project every step of the way.

Stratford held regular open houses and published op-eds in the local paper emphasizing project milestones. They also included inserts in monthly statements keeping customers informed about planned construction. “Community partnership is vital when you’re digging up the streets,” Randy says. “Now, there’s a shared excitement that our town has built a state-of-

the-art IP infrastructure and our network in Stratford is faster than anything you'd find in any major city in the world.”

The town's excitement is evidenced in the speed of adoption. Stratford reports a hockey-stick curve on the take rates for high-speed broadband and digital TV.

“Stratford's new network has led many residents to start home based businesses,” according to Brian Wilde of the Stratford Community Development Corporation. “And the TV is great,” he adds.

The school system is also installing “Smart Desks” to give each student personal high-speed Internet access. The Financial Future Committee maintains that Stratford has a public school with technology enrichment programs much like an exclusive private school.

So what's next for Stratford Mutual Telephone? “Just about anything,” Randy Baker says. “The opportunities are limitless.”
