

Telpage Transforms Communications in Rural America Using Motorola Wireless Broadband Solutions



Service Provider Overview: Telpage

Telpage is a privately owned and managed communications company based in the Mid-Atlantic region of the United States. Created in 1986, the company is committed to delivering a wide range of communications solutions to its customers, including cellular, local and national paging, two-way radios, telephone systems, satellite television, Internet access, computer network infrastructure/system integration, and wireless communications. The company serves customers in virtually every field of business, from healthcare to banking and law enforcement to industrial development, as well as individual consumers and government users.

In 2002, the company began delivering broadband communications solutions to the underserved markets of southern Virginia and northeastern North Carolina. Since that time, Telpage has expanded its infrastructure from only a few towers covering a small area to a network that now includes dozens of towers and spans 1,250 miles across two states.

Telpage can now deliver broadband speeds ranging from 512 Kbps to 300 Mbps, thus removing the “last mile” obstacle for its rural customers. The company has pioneered the solution to one of today’s toughest broadband challenges: how to cost-effectively deliver innovative, affordable, scalable and sustainable service to rural communities.

The challenge: find a scalable, reliable wireless architecture to support high-quality communications in rural Virginia and North Carolina

In 2002, decaying telco lines made even dial-up access a challenge in most rural areas in southern Virginia and northeastern North Carolina. ISDN was only available in limited locations and DSL was nonexistent. As Telpage began to explore delivering broadband Internet access to this underserved area, the company quickly realized that it would have to build out 100 percent of the infrastructure needed to deliver these services. It chose to do so using wireless broadband equipment.

Telpage initially deployed wireless broadband equipment from a variety of manufacturers in the 900 MHz, 2.4 and 5.7 GHz frequencies to support point-to-point and point-to-multipoint applications.

But just four years after implementing that equipment, Telpage realized that the demand for bandwidth had increased tremendously and would eventually outpace the infrastructure’s capability. Unfortunately, the equipment in Telpage’s existing network could not reliably scale to support this increased demand.

CUSTOMER PROFILE

Service Provider

Telpage
Emporia, Virginia, USA

Industry

Communications

Motorola solution

- Point-to-Multipoint technology
- Point-to-Point technology

Solution features

- Broadband access
- VoIP
- Virtual Private Network (VPN)
- Video surveillance

Benefits

- Greater scalability
- Higher reliability and throughput
- Lower latency
- Enhanced interference resistance
- Reduced maintenance and installation costs



“From 2002 to 2006, the Internet became a completely different animal altogether,” says Mark Novey, director of information technology for Telpage.

“Multimedia applications had increased dramatically, and our customers’ quality of service requirements were much higher because they wanted to implement applications like voice over IP. The equipment we had in place simply would not be able to deliver the future bandwidth and quality of service we needed. At that time we started proactively planning for what I consider Telpage Broadband 2.0, our next generation network.”

So Telpage began looking for new wireless broadband equipment that would handle the higher performance demands that resulted from the company’s growing needs. Specifically, the company wanted wireless broadband equipment that would:

- Scale effectively to meet increasing bandwidth requirements
- Mitigate interference, decrease latency and increase reliability
- Offer outstanding security
- Be backed by superior support services
- Deliver growth options for the future

Ideally, Telpage also wanted the entire infrastructure solution to come from one vendor to simplify network management and maintenance.

The solution: a reliable, scalable and future-proof wireless broadband solution from Motorola that would provide superior communications to rural Mid-Atlantic customers

“After looking at a variety of vendors and testing a lot of equipment, we chose Motorola,” Novey says. “Motorola fit the bill for everything on our list.”

Today, Telpage has replaced much of its wireless broadband network with Motorola’s Point-to-Point and Point-to-Multipoint solutions in the 900 MHz,

2.4, 5.2, 5.4 and 5.7 GHz frequencies. In addition, the company is in the process of migrating all of its customers to the new platforms.

The company’s goal is to have a fully homogenous Motorola network by 2010. And with much of its network already installed with Motorola equipment, Telpage can offer a full suite of requested applications to customers, from VoIP to video surveillance, as well as support revenue-enhancers such as tiered service plans.

“The Motorola equipment gives us the opportunity to approach customers with a solution to an application need rather than just selling them wireless broadband service,” says Novey.

For instance, when the Israeli glass manufacturer Oran Safety Glass selected Emporia, Virginia, as the base for its U.S. operations and the location of an 82,000 square foot manufacturing facility, company officials were admittedly concerned about the quality of communications they would get in such a rural area. But the company’s fears were soon put to rest.

“One call to Mark Novey is literally all it took, and since that time we have been in the capable hands of Mark and his team at Telpage. They have successfully addressed every technology requirement for our manufacturing plant,” says Louis Mitchener, OSG’s vice president of U.S. operations. “I shudder to think what our experience would be here without Telpage’s involvement. We have truly formed a wonderful partnership.”

And the Motorola equipment has allowed Telpage to serve OSG even better by allowing it to save thousands of dollars on long-distance calls each month. To help OSG achieve these savings, Telpage installed a VoIP device at each site and connected it to the company’s existing phone system. OSG employees now make unlimited long-distance calls to Israel across Motorola’s wireless broadband network solutions and the Internet, and making these calls is as



“Not only does the Motorola wireless broadband equipment offer greater scalability, reliability and fewer interference challenges, our technicians find the Motorola equipment much easier to deploy than the hardware from other vendors. The equipment can also be installed 30 percent faster, which results in more installations per day per technician. We’ve also cut truck rolls 50 percent thanks to the Motorola equipment.”

— Mark Novey, director of information technology for Telpage



Wireless Broadband Helps Turn a NASCAR Driver's Family Barn into a Store – in Just Days

One big benefit that wireless broadband offers is its flexibility, and communications service provider Telpage takes full advantage of that flexibility to better serve its customers.

For example, Telpage uses Motorola wireless broadband equipment to set up a temporary communications network for NASCAR drivers Elliott and Hermie Sadler when they host their Sadler Barn Party. Held in the rural countryside of southern Virginia, the biannual barn party is

attended by thousands of Sadler Fan Club members. It lasts just one day and benefits the Hermie and Elliott Sadler Foundation.

It takes just a few days for Telpage to install Motorola equipment in and around the Sadler barn to support the sale of merchandise for the charity.

“It is a challenge because of the very remote location, line of sight issues, and the sensitivity of their applications. But the Motorola wireless broadband equipment, as well

as our technicians, are up to the challenge,” Mark says. “It is a great cause. We are happy to assist them with the project.”

“Telpage has always delivered a fast wireless Internet connection. It is a real asset to us and our ecommerce staff,” says Elliott Sadler, NASCAR Sprint Cup Series Driver. “I would definitely recommend Telpage as a solution provider. They are great to work with and always go above and beyond to help us and everyone else in this community.”

simple as dialing an extension. The total savings to the company is approximately \$50,000 annually.

In addition, OSG was able to extend its Israeli-based enterprise resource planning (ERP) infrastructure across the Internet to the Virginia plant. Previously, the company was considering implementing two independent systems to be hosted in each respective country.

Telpage also has several video surveillance customers and is looking at implementing many other applications for customers, from wireless meter reading to dispatch for law enforcement.

On the consumer side, many of Telpage's customers are leveraging their broadband connections to earn a living working from home. These job opportunities would not exist if Telpage did not offer broadband services in this rural area. One customer is teaching English as a second language via a videoconferencing link and many others are using their broadband connections to take advantage of distance-based learning programs given that very few brick-and-mortar educational institutions are located in the area.

The benefits: Motorola's broadband wireless solution offers greater scalability, throughput and reliability; lower latency; greater flexibility; and enhanced interference resistance

“The most obvious benefit that Motorola solutions deliver is that they are extremely scalable. When you are deploying a network on the magnitude of ours, it must scale to meet very stringent demands,” Novey says. “Motorola wireless broadband products are designed to accommodate significant bandwidth, dense deployments and exceptional quality of service.”

In fact, Novey notes that Motorola's Point-to-Multipoint radios currently support up to 21 Mbps. In contrast, Telpage's previous broadband equipment supported just 1.5 Mbps in each direction.

“When you move from a product that's offering a meg and a half each way to one that aggregates at 21 megabits, that's a big difference. If you combine that with lower latency and far less contention on the wireless networks, the change is fairly dramatic,” Novey says. “We also have Motorola Point-to-Point radios that support up to 300 Mbps. The depth and breadth of our radio solutions now make almost anything possible.”

The Motorola solutions have reduced network latency by about two-thirds, making it much easier to deliver high-quality, latency-sensitive applications such as voice and virtual private network (VPN) services, Novey says.

Delivering exceptional bandwidth and scalability are just two benefits that the Motorola solutions provide. They also provide outstanding interference resistance, which Novey admits he was skeptical about initially. In the largely rural area in which Telpage operates, interference is a particularly big problem, and Novey was concerned about the fact that Motorola's Point-to-Multipoint equipment relies on one fixed channel to transmit signals to the subscriber units. His concerns were, however, quickly alleviated.

“The competitor's equipment allowed us to delineate multiple frequencies in a frequency hopping, spread spectrum system. If one frequency was experiencing interference, the connection would not be dramatically impacted. The fact that Motorola's Point-to-Multipoint equipment relies on just one channel to transmit signals at first had us concerned,” Novey



“Even in congested bands, such as 900 MHz, the Motorola equipment gives us great penetration in the high foliage areas and mitigates interference amazingly well.”

- Mark Novey,
director of information
technology for Telpage

says. “But we found that the carrier-to-interference ratio on the Motorola system is so small that the system can operate with substantial interference and still maintain higher-quality service than alternative equipment. Even in congested bands, such as 900 MHz, the Motorola equipment gives us great penetration in the high foliage areas and mitigates interference amazingly well.”

The Motorola broadband equipment has reduced Telpage’s installation and maintenance costs significantly. Novey estimates that each new customer installation now takes 30 percent less time, and the company has also reduced the number of truck rolls required to address maintenance issues by an almost unbelievable 50 percent.

“We have fewer equipment failures and fewer calls for realignments and interference-related issues,” Novey says.

In addition, the Motorola equipment delivers costs savings in many overlooked but important areas, says Novey. For instance, the equipment can be hooked up using standard shielded outdoor Category 5 cable, while many alternative broadband wireless solutions require the use of more expensive and harder-to-manage large coax cable.

Thanks to the design of the Motorola wireless broadband infrastructure, all of the essential subscriber side equipment is weatherproof and located outside, meaning that cables don’t have to be run from an indoor radio to an outdoor antenna. This helps eliminate cable loss and thus offer superb system quality.

“The connectors for coax cable are expensive, the cable is expensive and it creates loss as the distance from the indoor radio to the outdoor antenna increases,” Novey says. The ability to use Cat 5 cables with the Motorola equipment is, “one of those hidden savings that lots of people wouldn’t think about,” he adds.

Perhaps the greatest benefit is that the easy-to-install Motorola infrastructure allows Telpage to expand its reach into other rural communities. In fact, the company has dedicated itself to transforming the landscape of the rural Mid-Atlantic by extending broadband services into many more rural communities in the region.

For instance, Virginia’s Greenville County and Telpage recently established a public/private partnership to deliver broadband services throughout the county’s 301 square mile area.

“Telpage has worked closely with the County to design an incredible system for us. They will collaborate with County staff throughout the construction and deployment, as well as manage the system on behalf of the wireless authority,” says Christopher Vaughan, Greenville County information technology specialist. “Telpage has a proven track record that demonstrates they understand the complexities of wireless broadband in a rural market. This relationship is a real win-win for everyone.”

“We are excited about the public/private partnership with Greenville County. I am convinced this broadband network will serve as a technological model for other communities and clearly demonstrate that public/private partnerships can work and work well,” Novey says. “Through our collective efforts, we can not only deliver broadband throughout the community but address the equally important challenge of making it affordable and sustainable.”

And Telpage has vowed to continue developing partnerships such as the one with Greenville County to bring reliable, high-quality broadband service to rural communities.

“We understand the plight of the rural communities and their struggles for broadband access. We know the challenges posed by the rural landscape and have engineered solutions that are proven, reliable and robust,” says Novey. “But great infrastructure is only half the battle, and that’s why we’re also working on educating and empowering our communities to understand the benefits of global connectivity through broadband. We have to ensure the end user knows what an enabler it can be.”



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