CommScope's home-field advantage delivers a home run for North Carolina Research and Education Network

Customer

MCNC

Country

United States of America

Challenges

A two-phase project consisting of running 442 miles of fiber from strategically-located areas within the state's interior to rural nodes closer to the periphery, and connecting the outer nodes with a 1,300-mile fiber loop.

CommScope solution

North Carolina is one of just a handful of states with an open-access, middle-mile fiber network available to economic developers, businesses and broadband service providers.

"CommScope's great team went beyond expectations to make the GLRBI construction phase a success."

—Joe Freddoso, President and CEO, MCNC

From February 2010 to August 2013, North Carolina's public broadband infrastructure underwent an amazing transformation, increasing in size by more than 800 percent!

The growth was fueled by an all-fiber diet, supplied by CommScope. Today, individuals, businesses and public facilities in the most remote parts of the state have high-speed access to a future that is brighter than ever.

The North Carolina Research and Education Network (NCREN) is North Carolina's broadband infrastructure for education, research and economic development. The network is built, owned and operated by the private nonprofit MCNC. In 2007, it consisted of 72 endpoints and about 200 miles of fiber. Of the state's 115 public school districts, fewer than 10 had access to NCREN and the educational resources on it.

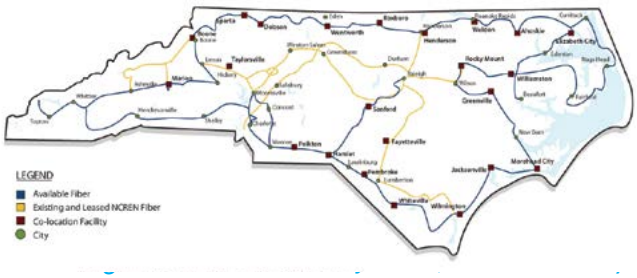
In February 2010, MCNC embarked on a massive statewide expansion of the network. Known as the Golden LEAF Rural Broadband Initiative (GLRBI), the $144 million project aimed to deliver affordable high-speed broadband to more than 1,500 community anchor institutions and 180,000 businesses, and reach more than 300,000 underserved families in North Carolina.

Bring high-speed access to a significant number of technologically-underserved areas

The GLRBI was funded through grants from the U.S. Department of Commerce's National Telecommunications and Information Administration's (NTIA) Broadband Technology Opportunities Program (BTOP). Significant matching funds were provided from private donations and investments, including a $24 million investment from the Golden LEAF Foundation and $10 million from the MCNC Endowment. No state funds were utilized as matching funds for the MCNC awards. This project remains one of the largest single investments in middle-mile broadband infrastructure in North Carolina history. MCNC needed an infrastructure provider who was up to the task. In selecting North Carolina-based CommScope, MCNC got the strength of a global player and the passionate commitment of a native son.

"With CommScope, we got state-of-the-art materials, but we also got the strong commitment of a North Carolina-based company and its employees."

—Joe Freddoso, President and CEO, MCNC



able to deliver product within 48 hours."

—Eric Edwards, Global Commodity Manager, CommScope

Phase one tests distribution capabilities

The GLRBI project consisted of two phases. Phase one involved running 442 miles of fiber from strategically-located areas within the state's interior to rural nodes closer to the periphery. Phase two consisted of connecting the outer nodes with a 1,300-mile fiber loop.

The first phase, lasting 20 months from September 2010 to April 2012, called for 442 miles of fiber and conduit, 600 hand holds, 10,000 couplers, 100 splice cases, 750 marking posts, and 100 grounding rods. While some of the companies vying for the project could supply the demand, CommScope offered a unique advantage.

A key criterion for selection was the ability to distribute materials to multiple job sites across the state. Here, CommScope was able to leverage its Cable Transport division (one of the only in-house trucking fleets in the industry) and its centrally-located distribution hub in Statesville, N.C. With most of the trailers equipped with on-board cranes, materials could to be off-loaded directly at the job site instead of having to be broken down at the loading dock. This translated into significant savings in construction time and money.

The large distribution hub in Statesville also served as a major staging area during phase one construction. By involving its purchasing department, CommScope was able to purchase and stock all needed third-party materials at the Statesville location for distribution to each site. "Once we got the order from the job site, we were usually able to deliver product within 48 hours," said Eric Edwards, who helped coordinate the massive project for CommScope.

Phase two showcases CommScope's design expertise

Phase two called for 1,300 miles of new broadband infrastructure that would bring much-needed high-speed access to a significant number of technologically-underserved areas. A critical requirement was the ability to maximize bandwidth capacity within a relatively small conduit. MCNC's plans dictated the use of a single, 2" diameter conduit to serve the current and future bandwidth needs of thousands of schools, research facilities and other state-owned institutions.

Within eight weeks, the CommScope design team had engineered and tested an innovative tri-duct solution. It consisted of three, 3/4", high-density polyethylene (HDPE) conduits under one common jacket. Each 3/4" conduit could accommodate CommScope's TeraSPEED® 144-count, singlemode nonarmored fiber—each strand capable of delivering more than 100 Gigabits of data per second. By utilizing just one of the 3/4" conduits, MCNC was able to satisfy their current capacity needs, leaving two conduits for future growth and expansion.

Not only did CommScope provide the preferred engineering solution, it had the capacity needed to produce the 1,300 miles of conduit and fiber for phase two. All conduit and cabling for the project was manufactured in North Carolina at CommScope's Statesville and Claremont facilities. Over the 30-month course of phase two, these two facilities produced an average of 150,000 feet of finished product per month.

Combined, both phases of the GLRBI involved multiple departments working together. "It was a highly-coordinated effort involving representatives from customer service, sales, enterprise, supply chain, operations and purchasing," said Edwards.

Laying the foundation for a high-speed future

Today, NCREN serves more than 450 connectors, including all K-12 public education in North Carolina; many private education institutions and charter schools; most of the state's leading research institutions; other government, judicial and public safety customers; and more than 100 health care providers—including nonprofit hospitals and public health clinics. Due to the GLRBI, North Carolina is one of just a handful of states with an open-access, middle-mile fiber network available to economic developers, businesses and broadband service providers. According to MCNC Chief Operating Officer Tommy Jacobson, the work of connecting the state is ongoing.

"There are still major areas of the state, particularly rural areas, where citizens do not have access to basic broadband. Through our work with partners like CommScope, we're able to deliver broadband to those parts of North Carolina who really need it," Jacobson said.

As for CommScope, a company accustomed to performing on the global stage, being able to use its deep and broad capabilities to improve the quality of life in its own backyard has been a gratifying experience.

"We were honored to be chosen by MCNC to assist with this important project," said Ric Johnsen, senior vice president of broadband solutions at CommScope. "Our selection is a validation of CommScope's capabilities and willingness to support MCNC's efforts to bring an advanced network to the State of North Carolina."

Everyone communicates. It's the essence of the human experience. *How* we communicate is evolving. Technology is reshaping the way we live, learn and thrive. The epicenter of this transformation is the network—our passion. Our experts are rethinking the purpose, role and usage of networks to help our customers increase bandwidth, expand capacity, enhance efficiency, speed deployment and simplify migration. From remote cell sites to massive sports arenas, from busy airports to state-of-the-art data centers—we provide the essential expertise and vital infrastructure your business needs to succeed. The world's most advanced networks rely on CommScope connectivity.

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