



GIGABIT FIBER CREATES ECONOMIC VALUE AND SOCIAL GOOD FOR CHATTANOOGA

Summary

Company:
EPB

Industry:
Utilities

Business Challenges:
Deliver low-cost gigabit Internet to the homes and businesses of Chattanooga to revitalize the community.

- Technology Solution:**
- MX10008, MX10003, and MX204 Universal Routing Platforms
 - ACX710 Universal Metro Router
 - SRX Series Services Gateways
 - QFX Series Switches
 - EX Series Ethernet Switches

- Business Results:**
- Created \$865 million to \$1.3 billion in net economic value and social benefits due to fiber network
 - Offered free Internet to underserved students during pandemic to reduce the digital divide
 - Shared expertise to fuel success of other rural community broadband projects
 - Developed new revenue streams with expanded network capacity
 - Simplified network operations with a shared infrastructure for electrical power and broadband

Electric Power Board (EPB) is a municipal utility that operates as an independent board of the City of Chattanooga to provide electric power and fiber optic services to the greater Chattanooga area. In 2010, EPB became the first company in the U.S. to offer 1 Gbps Internet, 200 times faster than the national average at the time. In 2015, Chattanooga implemented the first communitywide 10 Gbps Internet service, available to all homes and businesses in a 600-square mile area, earning the nickname “Gig City.”

EPB has played a critical role in transforming Chattanooga into a vibrant smart city. With affordable gigabit fiber available to all homes and businesses, Chattanooga is fueling economic growth.

Shane Sexton, executive corporate technical consultant, and Joe Freeman, network engineering manager, have been at the heart of this transformation as they design and build EPB’s network.

“The capability that EPB brings is a game changer,” Sexton says. “EPB offers gig circuits that are incredibly affordable, especially compared to other cities.”

EPB’s roots date back to 1935, when the Tennessee legislature enacted legislation to allow cities to establish municipally owned utilities, and residents of the city voted to form the company. Today, EPB is one of the largest publicly owned power distributors in the U.S. It serves more than 170,000 homes and businesses with gigabit fiber, delivering triple play services to residential customers, business services, and wholesale services to other service providers. EPB’s fiber network has been built on a foundation of Juniper routing since the start.

“Implementing new capabilities with the MX10000 line of routers has given us the ability to peer with Ashburn and Atlanta facilities so we are less reliant on transit providers. Because we now have a presence in the carrier hotels, we can offer last-mile services to other carriers.”

- Joe Freeman, network engineering manager, EPB

Economic Growth Revitalizes City

With gigabit fiber available to every home and business, Chattanooga has created economic growth that has revitalized the city. Fast, affordable broadband has transformed Chattanooga into a technology and research hub and has attracted many new employers and start-up ventures. Seven venture capital funds are now located in the city, as are 600 health-related companies. New business parks and housing have popped up around the city as well.

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A citywide fiber network has delivered an estimated \$865 million to \$1.3 billion in net economic and social benefits to Chattanooga in the first five years after fiber deployment, according to the University of Tennessee at Chattanooga. That's a greater return on investment than EPB anticipated at the start. The university study also found that during that same initial period, between 2800 and 5200 jobs were created directly because of the fiber network. Residents also received between \$2400 and \$3700 in value due to lower Internet prices from increased competition and avoided utility rate hikes due to a smart power grid.

The community has attracted \$110 million in federally funded research for smart cities because of the gigabit infrastructure and expertise. The Chattanooga Smart Community Collaborative brings together EPB's gigabit network with expertise and research facilities at the University of Tennessee at Chattanooga, Erlanger Health System, the Tennessee Aquarium, and other local institutions.

Community Internet Reduces Digital Divide

Equitable access to Internet has always been important, but the COVID-19 pandemic revealed the shocking persistence of the digital divide. Remote learning doesn't happen without broadband Internet at home. EPB's community-wide fiber network is essential to breaking down this divide.

HCS EdConnect was launched in July 2020 to provide Internet service at no charge to 28,500 economically challenged students in Hamilton County Schools. The \$8 million project will provide at least 100 Mbps Internet speeds for 10 years to students who qualify for nutrition assistance. The initiative is funded by local private and public partners along with state funding and is made possible by EPB's network.

Hamilton County Schools has reached out to families who qualify for the Internet initiative at no charge, and EPB delivers the service. “We've had really good uptake,” Sexton says. “We are knocking on doors and trying to get qualified students this educational Internet service by the end of the year.”

Share Rural Broadband Best Practices

EPB is an innovator in rural broadband, and that expertise is highly sought after by other digitally underserved communities. EPB provides consulting services to help other communities design their own smart city networks. “We can show other communities how we got where we are and provide the benefit of our experience, so they don't have to start from the very beginning,” Sexton says.

EPB also provides customer and network operations services to other community service providers. “We provide network monitoring and tech support for other providers nationwide,” Sexton says. “Smaller communities don't want to hire their own call center, and we can provide customer support and network monitoring.”

Increase Capacity and Offer New Services

Most recently, EPB expanded its Internet edge to enhance its peering and transit connections to support growing demand for residential and business services. To support increased redundancy and capacity at the edge, EPB deployed Juniper Networks® MX10008, MX10003, and MX204 Universal Routing Platforms.

The expansion of the Internet edge with Juniper allows EPB to create new revenue opportunities. “Implementing new capabilities with the MX10000 line of routers has given us the ability to peer with Ashburn and Atlanta facilities so we are less reliant on transit providers,” Sexton says. “Because we now have a presence in the carrier hotels, we can offer last-mile services to other carriers.”

Gigabit fiber delivered between \$865 million and \$1.3 billion in net economic and social benefits to Chattanooga in the first five years.

Simplify Network Operations

EPB operates one of the most advanced smart power grids in the nation, which shares the same underlying fiber as its Internet services. Chattanooga's smart grid minimizes service disruptions by automatically rerouting power to prevent or reduce an outage duration. For instance, when tornadoes and severe storms ripped through the area in April 2020, the smart grid instantly prevented 44,000 customers from experiencing an outage.

Creating Social Value

As a member of the community it has served for 85 years, EPB is a different kind of company. "Prior to joining EPB, I spent the better part of my career creating shareholder value," Freeman says. "EPB is all about community value. It's a fresh view and a completely different perspective."

For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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