Case Study

FRBA provides backhaul for WiMAX, WiFi and other access networks in Florida

Overview

The Florida Rural Broadband Alliance (FRBA) is a private, for-profit business formed through a partnership between Opportunity Florida and Florida's Heartland Regional Economic Development Initiative. Representing rural and economically disadvantaged communities located throughout 15 counties within Florida's Northwest Rural Area of Critical Economic Concern (NWRACEC) and the South Central Rural Area of Critical Economic Concern (SCRACEC), these regional economic development organizations collaborate with local governments, economic development agencies and private businesses.

In 2010, FRBA was awarded $24 million from the Broadband Technology Opportunities Program to deploy broadband connectivity throughout these two regions that represent nearly 20% of the land area of Florida and have a total population of 438,000, but only 39% have broadband access. Throughout these two regions, FRBA is deploying a middle-mile backhaul network. The Alliance turned to Ceragon Networks to design and provide the microwave backhaul networks to connect broadband services throughout the regions.

FRBA Florida Rural Broadband Alliance

The Challenge

- **Capacity:** The new network delivers up to 1000 times the existing broadband capacity within the coverage areas. The backhaul network had to meet capacity requirements of up to 200 Mbps across many links and branches.
- **Rapid Deployment:** FRBA required construction of the entire backhaul network to be completed within six months.
- **Harsh and Unusual Conditions:** The microwave backhaul equipment must function in a wide variety of conditions in line-of-site (LoS) and non-LoS conditions, and in licensed K-bands and unlicensed, sub-6GHz spectrum.

"Ceragon was able to meet all the demands of this project with their advanced FibeAir product series and their ability to deploy rapidly. Ceragon's design services complemented the excellent performance and cost-effectiveness of their equipment."

-- Gina Reynolds
Co-Manager of FRBA

The Solution

Ceragon worked with FRBA to design a combination of microwave backhaul solutions that would meet all the customer's requirements including capacity, rapid deployment and reliable performance in harsh conditions. Upon approval of Ceragon's innovative design, FRBA began deploying microwave equipment including Ceragon's innovative FibeAir IP-10G and FibeAir 2500 backhaul solutions. Despite the stringent rapid deployment requirements, FRBA was able to implement a fully functional backhaul solution in plenty of time.

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Implementation

FRBA's goal is to extend broadband access to approximately 860 community anchor institutions and public safety entities, 174,000 households, and 16,400 businesses. FRBA is deploying middle-mile, cost-effective broadband infrastructure and capacity to areas that are underserved or without service to advance economic opportunity and to serve anchor institutions and last-mile providers. The infrastructure links large-scale service providers with local, retail service providers who provide broadband access to improve education, public health and safety services, and a host of other benefits.

WiMAX and WiFi High-Capacity Backhaul

The new broadband network services a combination of wireless technologies, mainly WiMAX and WiFi, that are backhauled over microwave to fiber optic aggregation points. The two RACECs are known for periodic harsh weather conditions and diverse terrains. The backhaul network must be able to operate in harsh conditions in LoS and nLoS modes.

Ceragon designed the microwave part of the backhaul network. Operating in licensed spectrum, 120 Ceragon FibeAir IP-10Gs provide high-capacity, point-to-point microwave backhaul from the access networks deployed throughout the regions to fiber cable aggregation points. The distances of the microwave links vary from a few miles to more than 12 miles. Ceragon's microwave backhaul solution utilizes breakthrough asymmetrical traffic delivery to enable higher download capacities in asymmetric scenarios.

Operating in licensed and sub-6GHz unlicensed spectrum, 200 Ceragon FibeAir 2500s are providing point-to-multi-point connectivity delivering high-performance microwave backhaul to numerous access networks. The FibeAir 2500 sector base stations carry up to 200Mbps of backhaul capacity providing the highest end-user capacity in the market to support data and other applications. By delivering high capacity over a single radio unit, the FibeAir 2500 solution saves valuable tower space, eases maintenance and reduces total cost of ownership per megabit.

FibeAir 2500
Robust, high-capacity radio
Operates in licensed and license-exempt spectra

Conclusion

The Florida Rural Broadband Alliance has embarked on a very aggressive program to deliver broadband connectivity to underserved rural regions in Florida. Comprising hundreds of miles of broadband capacity throughout the regions, the new network requires high-capacity and cost-effective backhaul over microwave to link to fiber optic aggregation points. Ceragon was able to deliver a complete solution for all of the microwave backhaul requirements including design and rapid deployment of a high-capacity and low total-cost-of-ownership network that even provides a cost-effective upgrade path for future growth.

FibeAir IP-10
MEF certified high-capacity

About Ceragon

Ceragon Networks Ltd. (CRNT) is the #1 wireless backhaul specialist. We provide innovative, flexible and cost-effective wireless backhaul solutions that enable mobile operators and other wired/wireless service providers to deliver 2G/3G, 4G/LTE and other broadband services to their subscribers. Ceragon's high-capacity, solutions use microwave technology to transfer voice and data traffic while maximizing bandwidth efficiency, to deliver more capacity over longer distances under any deployment scenario. Based on our extensive global experience, Ceragon delivers turnkey solutions that support service provider profitability at every stage of the network lifecycle enabling faster time to revenue, cost-effective operation and simple migration to all-IP networks. As the demand for data pushes the need for ever-increasing capacity, Ceragon is committed to serve the market with unmatched technology and innovation, ensuring effective solutions for the evolving needs of the marketplace. Our solutions are deployed by more than 430 service providers in over 130 countries.
For more information, please go to www.ceragon.com.

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