Municipal Network in Aurora, Colorado Goes Gigabit Speed

"This newer wireless technology gives us the gigabit speed that we need, with performance and reliability significantly higher than we had before. The project was well within the budget, was delivered on time, and deployment was far faster than fiber infrastructure. We are pleased with the work from Castle Rock Microwave and equipment from Cambium Networks, and we are considering similar projects in the near future."

SCOTT NEWMAN,
CIO,
CITY OF AURORA, COLORADO

Overview

THE CITY OF AURORA, the third largest city in the state of Colorado, has been a connectivity customer of Castle Rock Microwave since 2018. Most recently, Aurora was given Coronavirus Aid, Relief, and Economic Security (CARES) Act funding through Arapahoe County, Colorado, which was allocated to improve IT infrastructure. The improved infrastructure would benefit public safety, voice and data, LAN extension, video applications and credit card processing. Castle Rock Microwave began planning to upgrade the disparate, aging variety of radios and solutions with Gigabit speed connectivity.

The Challenge

AS A RESULT OF THE CARES ACT, Aurora received funding through Arapahoe County to upgrade 31 aging links throughout their city. Aurora's previous unlicensed 5 GHz solution presented reliability concerns and did not offer the capacity the city needed. They needed an upgraded network to support remote operations including public safety, voice and data, LAN extension, video surveillance and credit card processing. Credit card processing was an important consideration due to the impacts of COVID and the increased move to remote service delivery. Thus, the solution needed to be Payment Card Industry (PCI) compliant.

Castle Rock Microwave, a leading microwave integrator in the Western United States, saw the opportunity to use gigabit speed 60 GHz cnWave equipment from Cambium Networks to replace the 50 Mbps links. Their plan was to make best use of the available spectrum and minimize total RF license costs by deploying a mix of licensed millimeter wave where required and using the unlicensed spectrum where available. The city found this an attractive solution to maximize total throughput while controlling costs instead of a "one size fits all" solution.

The Solution

THE UPGRADE INCLUDED a total of 31 60 GHz cnWave and 80 GHz PTP 850E links. Castle Rock Microwave decided to deploy 17 60 GHz cnWave links comprised of 4 cnWave V5000 Distribution Nodes (DN) and 26 cnWave V3000 High-Gain Client Nodes. Additionally, they deployed 14 hops of PTP 850E. Both microwave solutions were chosen specifically to handle the high-density area. The integrator chose 60 GHz cnWave links to support up to 1.8 Gbps and PTP

BEST PRACTICES

- Work closely with a great distributor, communicate with your regional sales manager, and maintain an open line of communication with the customer about the project's process. The customer needs to communicate with their partners, too.
- Anticipate bad weather days, days when the customer might not be able to let you onto the site and holidays. Contingency planning because of COVID has become a necessity; be prepared to have a plan for situations where a worker is sick or if an office is shut down.

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850E Radios at 10 Gbps. During the project planning stage, Castle Rock heavily used Cambium's LINKPlanner configuration tool and the online learning center's manuals and guides.

Project installation began on November 4, 2020. During this time, Castle Rock Microwave also had to navigate with other stakeholders in the city. While the city's IT group owns and operates the radios, those radios are installed in numerous facilities owned and operated by other city departments.

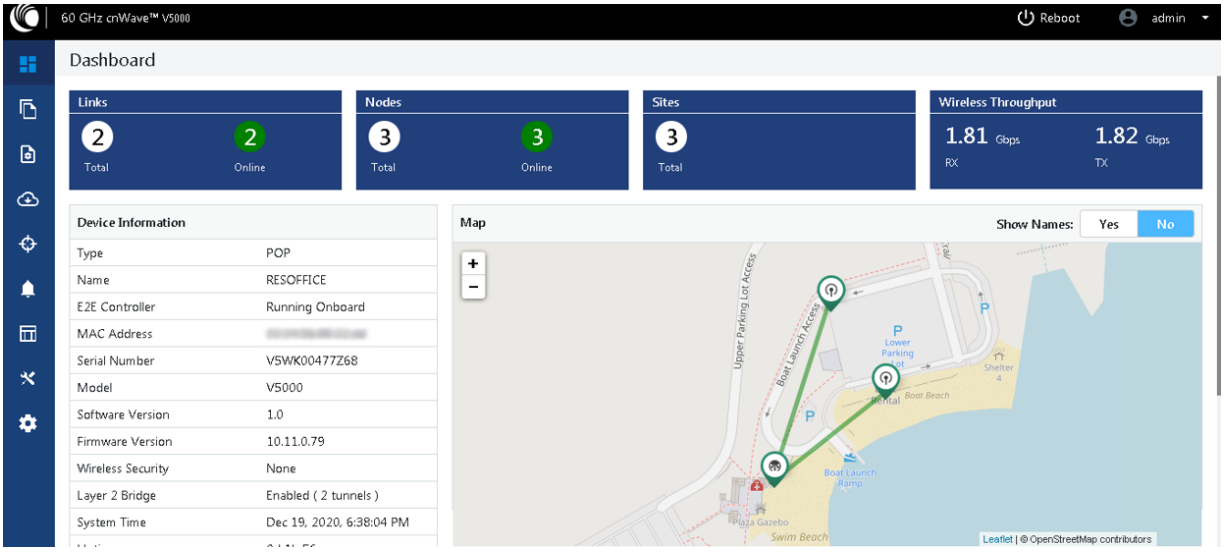
In January 2021, cutting the traffic over from the old links to the first cnWave links was simple; since the system was overbuilt (old links kept in operation), the customers went down for a very short period of time while traffic was moved over to the new links. The project was completed in March 2021.

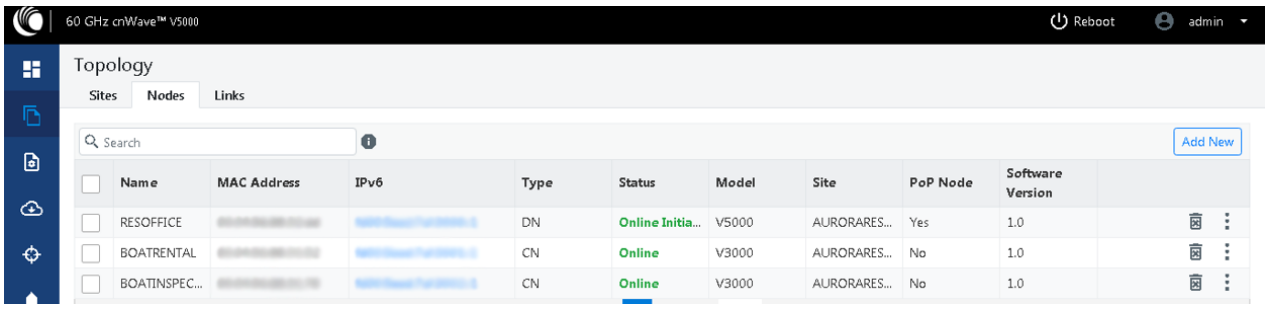
APPLICATIONS

- Wi-Fi Backhaul
- Video Surveillance
- Public Safety
- LAN Extension
- Credit Card Processing
- Connecting Parks & Sports Arenas

The Results

NOW, THE CAMBIUM EQUIPMENT is supporting densely populated areas, primarily benefitting public Wi-Fi, the City's enterprise network and credit card processing. Encryption on all the links





SUCCESS FACTORS

"Maintain templates of equipment you suspect that you'll need for similar projects in the future. Then, you can fill in the gaps depending on each customer's needs. Label a link by site, by hop and which side of the hop it is going to. This leaves no opportunity for parts to end up on the wrong side of a link for installation.

Another important part of this project for us was Cambium Care Prime, the highest technical support level offered by Cambium. The service has been of high value for the Aurora project, and we advocate that others use this service, too."

- Brett Bonomo, Founder & President, Castle Rock Microwave

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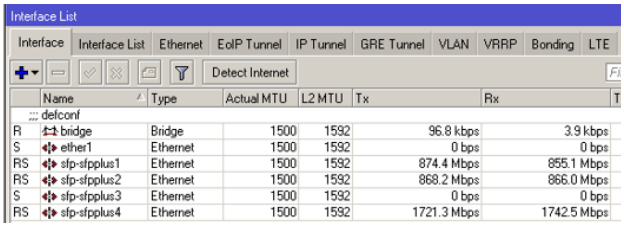
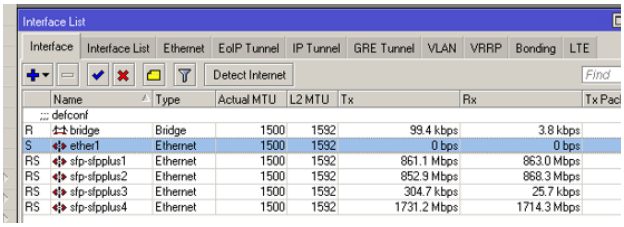
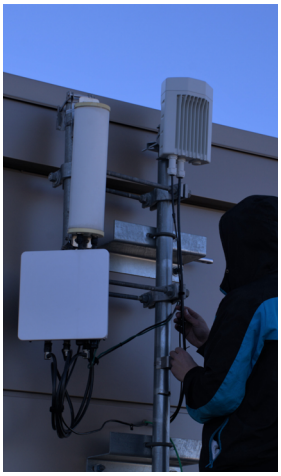
ensure proper security when transacting credit cards, whether at golf courses, sports park concessions or the Aurora Reservoir.

Initially, one of the driving factors behind the upgrades was the conversion of public facilities in Aurora to distance learning centers to accommodate more students. With COVID, creating better connectivity in additional spaces for these students was a high priority. Those benefitting are children who need to be supervised in a public setting with adequate distancing during school shutdowns.

With the project completed, Aurora has begun cutting over production traffic to the new infrastructure. The City of Aurora has been highly satisfied with the project, with positive feedback being given by the Chief Information Office of the city.



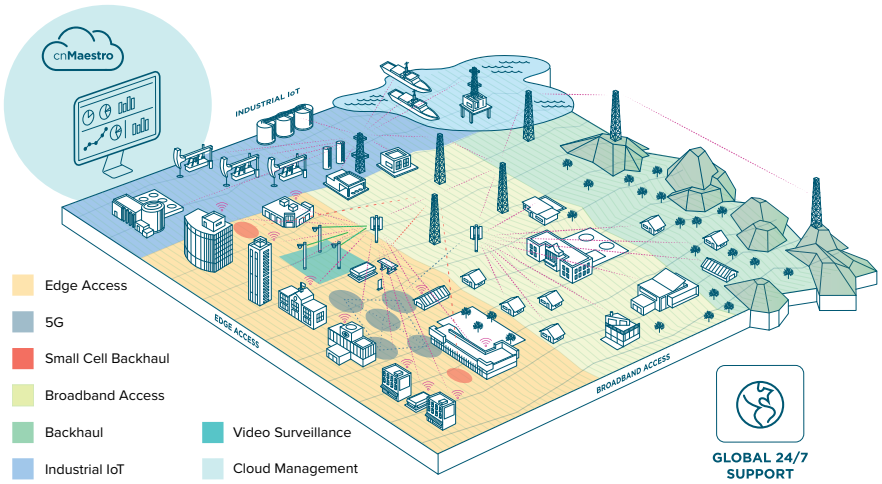




"The combination of 60 GHz cnWave and PTP 850E is allowing Aurora's enterprise network and community to benefit from multi-gigabit speeds. Planning and coordination between our team, Cambium Networks, the city of Aurora and Aurora's internal customers made this upgrade straightforward."

BRETT BONOMO,
FOUNDER & PRESIDENT,
CASTLE ROCK MICROWAVE

CASTLE ROCK MICROWAVE



Cambium Networks' Gigabit wireless solutions enable municipal, enterprise and service provider operators to tailor connectivity to meet exact requirements and grow as needs evolve.

ABOUT CAMBIUM NETWORKS

Cambium Networks delivers wireless communications that work for businesses, communities and cities worldwide. Millions of our radios are deployed to connect people, places and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud. Our multi-gigabit wireless fabric offers a compelling value proposition over traditional fiber and alternative wireless solutions. We work with our Cambium certified ConnectedPartners to deliver purpose-built networks for service provider, enterprise, industrial, and government connectivity solutions in urban, suburban, and rural environments, with wireless that just works.

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