



CMS Internet Delivers 100 Mbps Service on a Modest Budget

ePMP 4500 - A versatile solution Using 5 GHz to profitably deliver 100/20 service to rural locations

Fiber overbuild is not a concern for CMS Internet. With the ePMP 4000 at 5 GHz today and 6 GHz tomorrow they profitably deliver 100/20 service at less than \$60 per month in a highly rural area. Fiber, satellite and proprietary fixed wireless technologies will be challenged to compete with these economics. CMS Internet in Michigan is pushing the envelope of what can be achieved with fixed wireless along with holding their own against an aggressive government funded fiber overbuild, and ePMP 4500 enabled their success.

“Our customers have been satisfied with our service for years, so we need to stay on top of the technology,” says Tyler Emmons, Field Operations Manager, CMS Internet in Michigan. “We looked at our technology options. ePMP 4500 fixed wireless is the best fit for serving lower density environments.”

“When deploying our next-gen tiers, that’s where ePMP 4500 comes in. We’re using it to deliver a minimum of 100 by 20 mbps with the hope people will appreciate the speeds and good pricing whether that’s \$50 or \$60 a month, and they’ll be happy with it.”
- Tyler Emmons, Field Operations Manager, CMS Internet



The Challenge

To keep their customers and grow their business, CMS Internet needed to offer speeds that support video streaming and gaming, and to reach locations that could not be cost justified using other technologies.



ePMP 4500 Fixed Wireless Deployment Results

- Packaged offered: 100 Mbps down/ 20 Mbps up on a 40 MHz channel
- 4500L 2x2 Access Point (AP) serving 26 subscribers and expanding with upcoming software to the platform capability of maximum 120 subscribers.
- 4500 8x8 MU-MIMO Access Point with beamforming serving 15 subscribers (plans to grow to 60 subscribers still leaving room for future growth)

“My dream has always been to provide new customers the same speeds and price, regardless of whether they’re getting fiber or fixed wireless from us. Looking at trends and looking at everything else else, if you can deliver someone 100 Mbps with excellent latency, boy, it goes a long way. We understand the game, and the long game, we know that we have to start delivering or giving the options for these faster speeds.” -Tyler E., CMS Internet

The Solution

CMS Internet needed a solution that could provide the coverage needed and also support the business case for their particular customer base. They explored many options to deliver 100 Mbps / 20 Mbps baseline service. While there were many technology options, their requirements included:

- Network infrastructure availability
- Cost efficient coverage for low and medium subscriber density environments
- Equipment total cost that fit the business model for lower density environments

One of Tyler’s core competencies is to study and evaluate all the options and tools available to help grow CMS Internet. When evaluating what technologies to use across his network to bring it into the multi-hundred megabit era, the price of these tools is of great concern. Most of CMS’s potential customers are within a few miles of each tower site, but most of these sites are low to medium density. While there are certainly more expensive tools he’s considered, ultimately it did not make fiscal sense. The hybrid fiber, ePMP 4500, 4600, and 60 GHz approach is serving CMS Internet and their customers very well. They can mix or stack some or all of these tools and achieve higher margins and greater ROI with limited capital outlay. The ability to choose the right tool(s) for each site makes CMS a more agile, profitable company.

Tyler has blazed a trail with early access ePMP 4500 firmware, loading up some AP’s with as many as 20+ subscribers, all on 100/20 plans using a single 40 MHz channel, and with plenty of room to grow.

The ePMP 4500 solution is a perfect fit to support their service plans and customer population. CMS Internet is able to deploy more APs that are closer to the customers. They deliver high-speed plans while maintaining an attractive price structure for their subscribers with a long-term strategy that isn’t reliant on government funding.

Their plan is to replace their older fixed wireless equipment with Cambium Networks ePMP 4500. They are going house to house and upgrading the radios to the new platform.

The Results

“We can now deliver 100 Mbps/20 Mbps plans efficiently,” said Emmons. “This is good for our customers who choose CMS Internet for reliable service at competitive prices. It is also good for us because our customer base continues to be pleased with their service.”

Best Practices and Tips

- “Get as close to the customer as you possibly can. Most of our subscribers are between 1-4 miles from a tower. If you are within 4 miles of the customer, you can easily provide service tiers from 100 Mbps up to 1000 Mbps when incorporating next gen wireless equipment. For medium density areas, this microPoP deployment strategy is superior from a cost comparison to other competitive solutions that require 150 subscribers per sector to justify the high AP cost.”
- “For greenfield areas, I would deploy both ePMP 4500 and 4600. For subscribers within line of sight (LoS) and less than 4 miles, the 6 GHz solution will work just fine. Those that are further out or with near line of sight (nLoS) will be on the 5 GHz 4500.”

Looking Ahead

CMS Internet is planning for when the FCC opens the 6 GHz band. This new spectrum will make it even easier to support the growing demand for bandwidth. With an experimental license from the FCC, they have been testing the ePMP 4600 that leverages 4x4 MU-MIMO, dual overlapping sectors, downlink beamsteering, 160 MHz channels to deliver up to 4 Gbps total aggregate capacity to as many as 120 subscribers.

Based on their experience with ePMP 4600, CMS Internet is ready to deploy the higher throughput solution. “Once the FCC gives 6 GHz the green light, we will put up the ePMP 4600 on each tower we have in open farmland areas,” says Emmons.

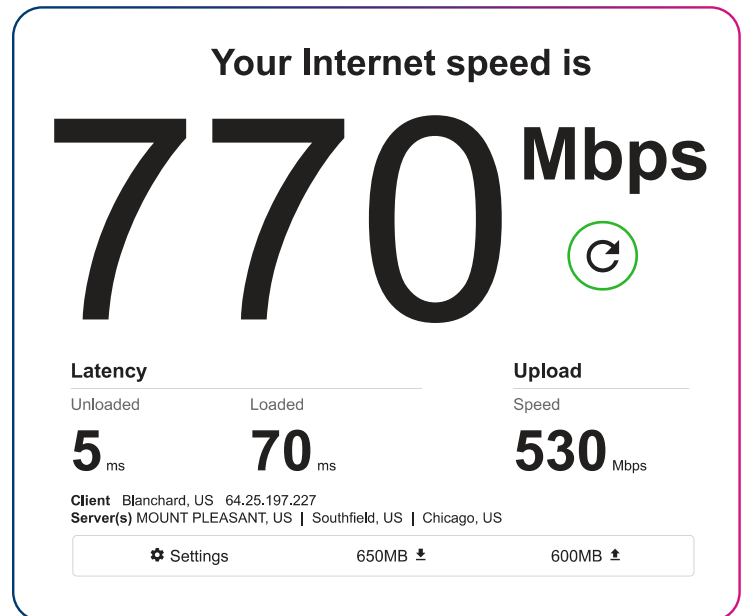
CMS Internet knows their customers and the broadband technology options available. They are now able to effectively compete with larger service providers on speed delivered while they continue to satisfy customers with excellent service and attractive pricing options.

Cambium’s ONE Network

ONE Network enables excellent online experiences with fewer resources and IT personnel. Enterprises, managed service providers, broadband service providers, and government agencies can shift to managing the network holistically, freeing up IT resources to focus on their business and specific applications.

“When deploying our next-gen tiers, that’s where ePMP 4500 comes in. We’re using it to deliver a minimum of 100 by 20 mbps with the hope people will appreciate the speeds and good pricing whether that’s \$40 or \$50 a month, and they’ll be happy with it.”

- Tyler Emmons, Field Operations Manager, CMS Internet

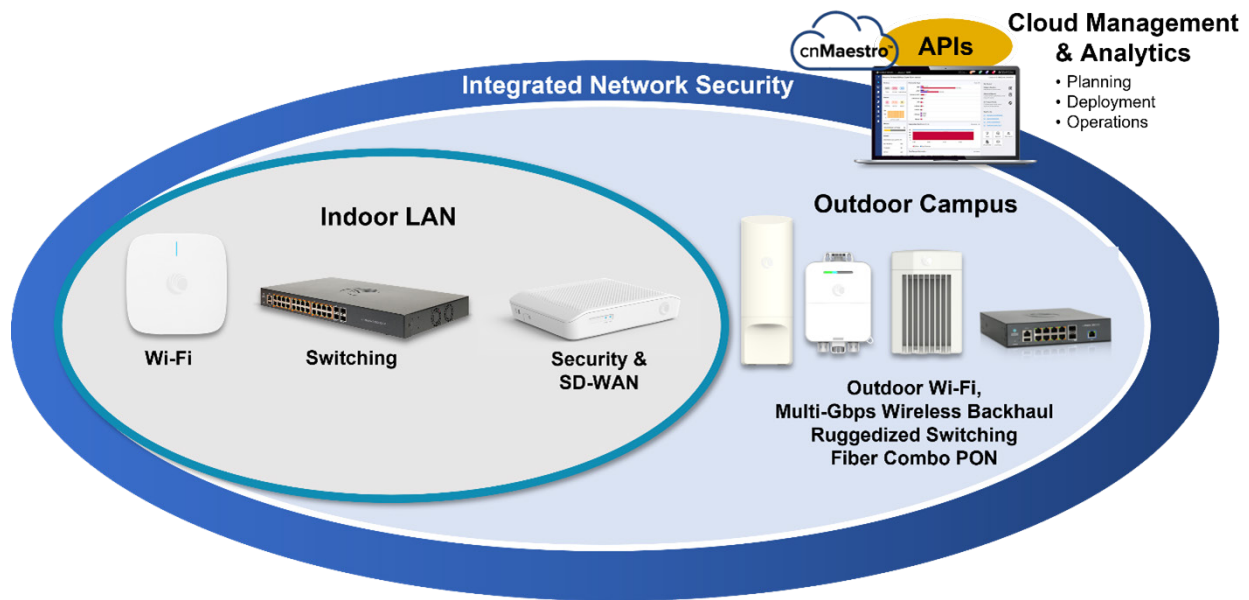


ePMP 4600 Fixed Wireless Current Results

- 850 Mbps down/800 Mbps up on an 80 MHz channel
- Range of 2 to 3 miles
- Serving 18 subscribers per AP



Our broadband fabric weaves together numerous networking standards and reduces complexities, helping network operators create purpose-built, reliable networks that are cost efficient and secure.



About Cambium Networks

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences, and device connectivity, with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We deliver connectivity that just works.