Cambium Networks™

Wyoming.com Brings a Better Connectivity Experience to the Modern Household

"I've been a cord cutter for about a decade. Once we had a couple streams going, everything would downshift, including picture quality. So, we'd go from HD to SD, and then it would slowly work its way back up. Since we put QoE in, I haven't had issues. We can have four or five video streams going, and there's no hiccups."

ERIC NOWLAND,
PRESIDENT,
WYOMING.COM

80-90% of customers, or about 4,000 customers, utilize the appliance.

Overview

FOR THE MODERN HOUSEHOLD, it's essential that there is enough bandwidth to go around. Whether it's to work from home, do schoolwork, stream videos or play video games, connectivity needs to provide an optimal end-user experience for everyone.

For Wyoming.com, their customers were frustrated with videos buffering, having issues with simultaneous connections and could not afford satellite or broadband alternatives. Wyoming.com decided to offer their affordably priced services while increasing reliability with Cambium Networks' QoE solution.
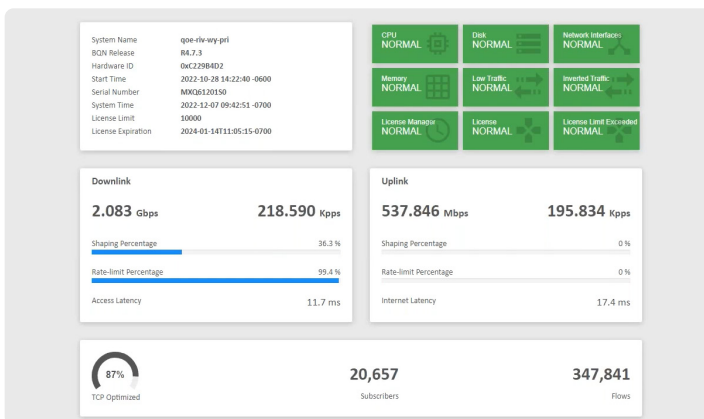
Challenge

WYOMING.COM FOCUSED on improving the quality of experience for video streaming applications. This was especially important because the cost of streaming video content escalated for homes outside the cities. Their goal was to offer customers better service than costly satellite or fiber/cable while also increasing the amount of bandwidth for home broadband subscribers.

Wyoming.com was founded in 1994 as an internet service provider in the southern half of Wyoming and has roughly 5,500 subscribers. A majority of their subscribers are residential, and they also serve some businesses. Before they started reinvesting in their network, churn rate was higher than they liked, and service wasn't performing as they expected. Something had to change.

Solution

WYOMING.COM DECIDED TO reduce or completely eliminate buffering issues with Quality of Experience (QoE) solutions from Cambium Networks. With granular application shaping, dynamic queue-based rate limiting, congestion management and application insights, broadband service providers have immediate

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access to the information and controls to optimize end user experiences. QoE would also prevent a second user at one location from taking up all the bandwidth. The entire deployment process was fast; within one and a half weeks, Wyoming.com started having the conversation about Cambium Networks' QoE, built the service profile, provisioned the system and tested the product.

Installation of the QoE solution was quick and easy—software was loaded up, they completed the configuration and dropped it in line within an overnight maintenance window.

Wyoming.com's most popular packages are 50 Mbps download and 5 Mbps upload. The highest package they offer is one gigabit download and one gigabit upload. This is mainly on point-to-point fixed wireless broadband and fiber technology.

Watch this webinar replay to hear network operators discuss how they are optimizing their overall network health and efficiency with Cambium Networks QoE solution.

QoE Features and Benefits

Feature	Benefit
TCP Optimization detects congestion based on the measured delivery rate, as described in our patent portfolio. Cambium's improved congestion detection algorithm allows our TCP to be more aggressive when there is no congestion and to back off in real congestion, carrying out this discrimination in challenging environments with shallow buffers, wireless links, packet losses or large network delays.	• Faster downloads and uploads • TCP proxy makes contents closer to the clients • Optimal speed in non-perfect networks • Patented and improved congestion detection algorithm • Average page loading time reduced by 30% among popular web services
Rate limiting with multi-queue approach enforces bandwidth limitations in a flexible and economical way, with the most advanced queueing technology in the market, which will deliver the best possible Quality of Service (QoS) and Quality of Experience (QoE).	• Reduced application latency • Prioritize interactive or real time applications

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Feature	Benefit
Automatic congestion management continuously monitors all network users, their speed, latency, and packet losses, while also detecting if they are reaching a congestion. When congestion is detected, it will just limit the speed marginally, which will reduce latency and losses, and avoid the congestion, providing a much better Quality of Experience.	• Reduce latency and eliminates packet drops during peak traffic time • Boost online game and teleconference experience during traffic congestion

Wyoming.com started demonstrating the capabilities with the one-gigabit appliance, where they built up queues and then switched over to the 10-gigabit appliance and put it right in the core where 80 to 90% of customer traffic flows. Now, they are able to drill down per customer, per IP level. They manage the QoE appliance themselves.

The QoE interface is easy to work with, and the web interface is more streamlined. It's easier to get data out of it, make configuration changes and set up new priority queues or optimization queues.

Results

Now, video streaming applications load almost instantaneously. Rather than waiting for a video to load, users can watch the show they were previously watching straight away. Approximately 80-90% of customers are utilizing the appliance, or about 4,000 customers.

So far, Wyoming.com has been able to measure their quality of experience by calls that were coming into their call center of people complaining about video buffering or insufficient speeds. They can look at their utilization and see that they were maxing out their bandwidth. Then, the team can explain to the customer that when they're maxing out their bandwidth.

The team has not received complaints from customers about speeds; previously, they had between five and eight calls per week prior to the QoE solution.

"We had somebody in with traffic originating from Brazil that was attempting to DDOS a good chunk of our network. That we were able to pretty easily identify with the QoE appliance in place and then put in some preventative measures to prevent that traffic from even getting into our network." – Eric Nowland, President, Wyoming.com

Next Steps

The next big step for Wyoming.com is moving traffic shaping for all customers back onto the QoE appliance and pulling it off the CPEs. They did a demonstration setup which was limited to a few select users and saw the bandwidth saving coming through the core of the network for customers. Wyoming. com has one of their in-house developers working on getting automated reporting to pull out and have sent out to the proper people.

Wyoming.com is in the process of pulling their average RTT from the QoE appliance out to Internet services like Prime, Netflix, CDNs, Xbox and others. Scripting will allow them to automatically publish

that information and automatically refresh it on their website. Based on the information that they are able to pull out of the appliance, Wyoming.com has the ability to monitor and provide an average RTT time from the customer out to the internet, as well as the QoE appliance back to the customer.

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.

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