

# Small North Carolina Community Launches Network on Its Own Terms

After considering several ISPs, Cullasaja found the right partner to deliver high-speed, reliable internet.

By David Daugherty / *Clarus Broadband*

**C**ullasaja is a small residential community in Highlands, North Carolina, a town that sits on the Highlands-Cashiers Plateau high in the mountains of western North Carolina. The plateau is home to a number of residential communities such as Cullasaja, which are havens for southern residents eager to retreat



from sweltering summers and find relief in cool mountain breezes. “Cullasaja is 10 to 15 degrees cooler than Atlanta, and maybe 20 degrees cooler than Miami,” observes Sid Nurkin, past president of the Cullasaja homeowners association (HOA). “It is a popular place for folks from Florida, Louisiana, Texas, Georgia and Alabama to escape the summer heat.”

Nestled in Cullasaja is Cullasaja Club, a separate, membership-only club with an 18-hole championship golf course, tennis courts, croquet courts, a wellness center and pool, and a clubhouse with multiple dining venues.

“Cullasaja is the first community on the plateau to offer fiber-to-the-home (FTTH) internet service to every home,” says Nurkin, chief broadband evangelist during the due diligence and fiber construction. Named CullasajaNet, the network is provided to residents as part of their annual HOA dues. It is wholly owned by the Cullasaja HOA and managed by BalsamWest FiberNET, a small, private internet service provider (ISP).

CullasajaNet is an FTTH GPON system that currently provides residents with 250 Mbps/50 Mbps and can be easily reconfigured to deliver up to 1 Gbps of symmetrical service. Residents enjoy a wide range of web-based communication and entertainment services,

including TV streaming, voice over Internet Protocol (VoIP) telephone, and home alarm and camera monitoring.

The network is a real boon to the community, but launching it – on terms the community members were amenable to – was not a quick or easy process. This is the story of how it came to be.

## A FAMILIAR STORY

Cullasaja was built in the mid-1980s and now has about 287 homes. The original telecom provider, a predecessor of Northland Cable, was granted a 15-year easement to deliver cable television.

“When they installed the infrastructure back in the ’80s, they didn’t put it in conduit, they direct buried the cable,” says Nurkin. “So, every time we had to repair the roads, we ended up cutting the cable.”

The original easement expired in 2002, but the company continued to provide internet, television and VoIP telephone service over the original coaxial cable network. Frontier Communications also provided plain old telephone service (POTS) over twisted pair copper lines and a low-speed DSL internet. Internet speeds available in the community ranged from 3 Mbps to a top of 25 Mbps. However, as the systems aged and were cut, spliced and degraded by the elements, service reliability dropped substantially.

“Cullasaja residents were frustrated and often mad,” recalls Nurkin. “Before we installed fiber, you could walk into our clubhouse on any given day and find half a dozen people in the conference room trying to get to the internet using the club’s Wi-Fi because their home internet was down.”

From the ISP’s perspective, there were too few subscribers in Cullasaja to justify investment in infrastructure. “The incumbent provider was looking at Cullasaja as a 300-home community,” says Nurkin. “It didn’t realize that for five to six months out of the year, the population on the plateau grows to more than 20,000.”

The breaking point for Cullasaja came when a subcontractor cut the main feed for the clubhouse and

administrative offices. “We called the service provider, and they installed a temporary service line across the clubhouse parking lot,” recalls Nurkin. “Every time a truck made a delivery to the clubhouse, the internet would go down.”

At this point the HOA and the general manager could not find a suitable alternative to incumbent providers and finally decided to join the ranks of broadband DIYers. This was the beginning of a three-year education odyssey for the HOA. The ensuing parade of would-be service providers and the emotional rollercoaster for residents should serve as a warning to any community trying to solve the internet problem. The Cullasaja HOA and community were lucky – they had the financial resources and motivation needed to deploy fiber in their community.

## IF AT FIRST YOU DON’T SUCCEED

“We had a couple of objectives when we started the project,” recalls Nurkin. “First, we wanted to own the network. Second, we needed TV content since the mountainous terrain made satellite service unavailable to a large number of residents.” Before CullasajaNet launched, about 40 percent of the community relied on Northland Cable to provide video (with a limited number of high-definition channels) and the other 60 percent used DirecTV or DISH Network.

“When we started our due diligence, we thought we needed a new cable television provider,” says Nurkin. “We talked to all sorts of people for the first 12 months, just trying to figure out our options.”

**Enter ISP #1.** Cullasaja initially focused on video services, so the first prospective service provider in the door was a bulk satellite television provider. “This was a DirecTV distributor, and we were all excited,” recalls Nurkin. “The provider proposed the installation of the headend and satellite dishes at the clubhouse. Then all of a sudden, they stopped returning phone calls.” This was about the same time that

DirecTV and AT&T started talking, and the distributor pulled out of discussions with Cullasaja.

**Enter ISP #2.** The second prospective service provider the HOA engaged was a rural telephone company that provided residential broadband services, including high-definition television, to communities about 75 miles away. “We got pretty far down the path with these guys,” recalls Nurkin. “They proposed to come in and build a network that we would pay for and own, and they would provide content, including high-definition television.”

About halfway through negotiations, however, the prospective provider informed Cullasaja that it would build the network only if the HOA provided certain financial guarantees. “The real deal-killer was that it also imposed a transmission fee of several hundred thousand dollars annually,” says Nurkin. “We just couldn’t absorb that kind of expense.”

**Enter ISP #3.** Nurkin says that about the time the deal with ISP #2 fell apart, the town of Highlands had been talking to a nationally recognized service provider and suggested that Cullasaja join the discussion. “From the very first phone call, Cullasaja stipulated that it had to retain ownership of any network. We got all the way through a membership vote with 90 percent approval.” The club manager had never witnessed such a high membership vote of approval in his 20 years of managing clubs.

However, when ISP #3 sent the proposed service agreement to the HOA, it detailed the design and installation of cable television services in a high-rise condominium, not a buried FTTH system. The word “fiber” appeared only once in the agreement. It also stipulated that ISP #3 would retain ownership of the network in perpetuity. Even after expiration of the service agreement, ISP #3 retained the right to solicit business in Cullasaja. When ISP #3 refused to change its position on ownership of the network, the HOA terminated discussions. This was a low point for Cullasaja residents and HOA officials.



“By this time, we had been working on this for close to three years, and I was actually pulling my hair out,” Nurkin says.

**Enter ISP #4.** Northland Cable came back in and proposed to bring fiber into the entrance to the community, upgrade the legacy cable system, and provide residents with up to 100 Mbps of cable internet access. When asked about pulling fiber throughout the community, Northland explained that FTTH was not a supported service model. Cullasaja residents were out of luck yet again.

**Enter ISP #5.** “At that point, I picked up the phone and called a local company called BalsamWest FiberNET,” recalls Nurkin. BalsamWest is a privately owned company. Over the years, it built a 400-mile, redundant, self-healing internet backbone throughout the mountains of western North Carolina that provided commercial-grade services for institutional and governmental customers. It provides western North Carolina with multiple and diverse Tier-1 connections to the internet.

“When I first spoke with BalsamWest early in our due diligence, I learned it did not provide residential services,” Nurkin said. “So, after we had been through the bulk TV guys, the rural telephone company, and the ISP #3 disappointment, I called them back and explained that I was at my wits’

end and asked if they had any ideas.” BalsamWest said the timing of Nurkin’s call was perfect – the company had recently made the decision to launch its residential service offering.

In January 2018, Cullasaja and BalsamWest began negotiating a contract for the design and construction of an underground FTTH network and for BalsamWest to provide bulk internet services over that network. “We were in a very fortunate position,” recalls Nurkin. “We had substantial financial reserves and could basically pay for the network and then replace the reserves over time. BalsamWest had shovels in the ground at the end of September of 2018.”

## CULLASAJANET LAUNCHES

BalsamWest designed and installed the fiber optic network along the roadways, installed all field electronics and the headend, and used Cullasaja landscaping personnel to install all the fiber drops to the homes. “Since this was BalsamWest’s first residential deployment, we both learned how to build a residential service,” Nurkin says. “The BalsamWest service agreement included performance criteria that enables Cullasaja to terminate services if BalsamWest ever fails to meet the performance criteria. It was the contract we wanted.”

“Because this was a bulk service agreement, Cullasaja was not a

significant departure from our commercial service model, and we were all excited about our first residential deployment,” notes BalsamWest’s business development director, Ryan Sherby.

Sherby says that the most significant decision they made was choosing their construction contractor. BalsamWest outsourced fiber construction to McClure’s Communications out of Murphy, North Carolina. “We have a long working relationship with them,” says Sherby, “and they have a great deal of experience with mountainous terrain.” McClure’s used a variety of construction methodologies during the Cullasaja deployment, including microtrenching with flowable epoxy and directional boring.

“Cullasaja takes great pride in their landscaping, and the grounds are gorgeous. So, we had to go in with a light hand,” recalls Sherby. McClure’s understood the importance of working with the community to maintain the landscaping and to keep disruptions to existing utilities to a minimum and executed flawlessly. It always used microtrenching for road cross connects.

Cullasaja had a superb relationship with BalsamWest before construction began. The network is all underground, and BalsamWest had to drill through an enormous amount of rock. “Whenever you start something like this, you hope things work out perfectly and

are surprised when they actually do,” Nurkin says. “Our project came out as close to perfect as we could expect, and we are very happy with BalsamWest.”

“The contract signed in mid-August, deployment completed, and services lit by May 30, 2019,” recalls Terri McElroy, CEO at BalsamWest.

“We broke ground sometime in September and never looked back.”  
Curb to the residence drops turned out to be the most problematic element

## PROVIDING BROADBAND TO UNDERSERVED MARKETS

One of the most persistent problems in the broadband industry is the lack of suitable broadband service offerings in underserved markets. This problem has grown even more acute with the rapid increase in use of the internet in human commerce, especially telemedicine and education.

In the October 2018 issue of **BROADBAND COMMUNITIES**, I explored the mission-critical role for broadband in master-planned communities ([www.bbcmag.com/multifamily-broadband/broadband-do-it-yourselfers](http://www.bbcmag.com/multifamily-broadband/broadband-do-it-yourselfers)). Specifically, I discussed how master-planned community developers address the need for “utility-class” broadband in new developments.

The basic problem is that the development and maintenance of communications infrastructure is typically not within real estate developers’ areas of expertise. Faced with a deluge of new technology, an ever-increasing appetite for bandwidth, and a lack of acceptable service alternatives, developers have been exploring different ways of sourcing bandwidth for new communities. Many ISPs struggling with diminishing profit margins and an increasingly unhappy customer base are not investing in new community infrastructure. They are shifting business priorities to 5G backhaul for larger cellular service providers.

### SERVICE MODELS

Over the years, ISPs have used a variety of service models to address demand in a rapidly evolving marketplace. This began with a one-size-fits-all retail service model for basic internet services that evolved from POTS. It has evolved into a robust, living communications system with tentacles in every aspect of human commerce.

In the first significant departure from the retail service model, ISPs used third-party-managed services subcontractors to address specialized markets. A good example of managed services is in student housing. Student housing is characterized by very high turnover (most students move in and out at least twice a year), high device counts (typically eight to 10 devices for each subscriber) and high bandwidth consumption. Student housing is among the most challenging broadband service markets in existence.

From a purely technical perspective, any time you put several thousand bandwidth-consuming devices

on a single network, existing residential retail service models fail. It turns out that the device-centric demand for bandwidth and access to the internet in student housing is a good foundation for next-generation internet of things (IoT) services.

The next evolutionary phase for internet service models emerged to address differences in the business model (and the cost of fiber deployment) for ISPs and real estate developers. Real estate developers cannot always depend on retail or managed service models to deliver utility-quality broadband to residents. As a result, many of them have partnered with ISPs to form in-house broadband companies (IBCs).

Although IBCs solve the access and service stability problems for master planned communities (MPCs), they often are too expensive for smaller existing communities in underserved markets. Underserved markets are created when incumbent service providers cannot achieve minimal return on investment (ROI) for investments in infrastructure. There are too few customers in a neighborhood to justify the cost of retrofitting existing (brownfield) infrastructure.

This is where rural broadband cooperatives and public/private partnerships (the fourth business model) come into focus. The foundation of any successful broadband service model can be achieved in underserved markets in several ways.

- Providers can expand the number of subscribers in a target market to a point where expected take rates achieve minimum acceptable ROI. This can be done within a single community or by aggregating smaller, separate but physically adjacent communities.
- Providers can secure some form of bulk service agreement or service exclusivity within the target market that restricts competitive overbuilding. This protects investors until the initial capital outlay required to deploy infrastructure has been repaid by expanding the service market to include several smaller underserved communities and by securing some kind of exclusive service period.

The most common problem in the deployment of rural broadband is funding. In an upcoming article we will explore how deployment costs change once an underserved region has been seeded.

of construction because most of the homes are nestled into a mature forest. “It’s a gorgeous community,” observes BalsamWest sales executive Jason Maples. “They really take a lot of pride in the grounds, so most of the fiber drops had to be hand dug, and many of them made their way through rhododendron understory.” Because of geographic barriers and the inability to follow the driveway, the path of least resistance from curb to home was often very difficult.

Before construction began, the HOA sent all residents a questionnaire asking where they wanted the router located within their home and what type of home Wi-Fi they had. The questionnaire asked other questions pertinent to planning for speedy in-home set-up. When residents started showing up in May for the summer, they were greeted by a BalsamWest technician who promptly installed their preconfigured router as directed. Many residents used this as an opportunity to upgrade their in-home Wi-Fi systems to mesh networking systems.

## KEEP IT SIMPLE

At some point during the process, the HOA elected to keep things simple and drop the TV service. “We realized that over-the-top television was the future,” Nurkin says. “I’ve been streaming personally for six or eight years, and I love it.”

Losing TV service certainly simplified the service agreement, but it presented the HOA with another problem. “I think I’m pretty sophisticated about streaming,” observes Nurkin. “But we knew many residents would require a fair amount of coaching and handholding about streaming devices and live TV services.”

The HOA conducted a series of weekly seminars before and after the network went live. “We would gather in the clubhouse for a streaming class,” Nurkin says. “Some of the people would come in three or four times. It was fun because many of our neighbors were self-professed Luddites who wanted to learn how to hook up a Roku and log on. We showed them the

popular streaming devices and five or six different live TV streaming services with different features.”

BalsamWest worked closely with the HOA and helped host these customer education seminars. “I can tell you anecdotally that when we conducted these town halls, the residents were very excited about all of the web-based streaming services,” recalls Maples.

## THE DEFINITION OF SUCCESS

“Anytime you see a technology-averse 75-year-old excited about learning how to stream television on a Roku device, you know you did something right,” Nurkin says. “Since we deployed CullasajaNet, I can’t walk from one end of the clubhouse to the other without someone telling me how great the internet service is and how they have really adapted to streaming live TV.”

After only three months of service under their belts, the contrast of service experience pre- and post-deployment is very pronounced. All the residents are streaming or learning to stream television and are being introduced to VoIP telephone services.

“Internet is our latest utility,” observes Nurkin. “We are providing 250 megabits of bandwidth to every household, whether they want it or not. We also provide water and sewer, and all utilities are included in their HOA dues.”

## FEEDBACK

From a business perspective, one of the more important aspects of any business is proactive feedback. As a matter of fact, any business without feedback is unpredictable. In the case of CullasajaNet, feedback for internet services takes the form of a residential town hall meeting – essentially Tupperware parties for the digital era.

The HOA also assembled a list of tech-savvy residents who are willing to help their neighbors learn streaming or upgrade their in-home Wi-Fi. “Aside from the fact that we have a wonderful new internet utility, it’s a great way to get to know your neighbors and build a better sense of community,” Nurkin says. “I’m on the list and have already visited a couple dozen homes to

help people improve in-home wireless coverage and connect their stuff.”

## IMPROVED PROPERTY VALUE

One unexpected benefit for Cullasaja has been its emergence as a “telehood.” “It is currently the only fiber-connected community on the plateau,” Nurkin says. “We also have a growing number of new residents who want to live in a beautiful community in the mountains with great amenities and robust internet access typically found in more urban areas.”

FTTH has helped Cullasaja become one of the hottest communities in the North Carolina mountains. “Other communities on the plateau are trying to replicate our infrastructure,” observes Nurkin. “Most of these communities don’t have a core group of residents with the time and technical acumen to mount a three-year campaign required to sell it within the community and make sure it works.”

Given the time and cost required to retrofit an existing community, Cullasaja feels it has a significant head start over neighboring communities. “We were fortunate in having a core group that did most of the heavy lifting, and now we feel we’ve got a lead of a couple of years. This gives us a marketing advantage in our real estate operations. Our inventory of homes for sale is at its lowest point in years because homes sell very quickly in our community now,” says Nurkin.

With the striking physical beauty of the North Carolina mountains and connection to the world through high-speed internet, Cullasaja is an ideal place to live, work and play. Cullasaja homeowners are very proud of their internet. “Bottom line,” Nurkin concludes, “this project has taken us from a 1986 era to being a ‘with it’ community today.”

Special thanks to Sid Nurkin and the Cullasaja community for sharing this story. ❖

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