

Service Providers, Industry Partners Push Broadband Forward

At the **BROADBAND COMMUNITIES** Summit 2021, participants shared stories and expertise about new methods to build broadband to rural markets, new trends in broadband for MDUs and new applications for broadband, such as precision agriculture. Following are some highlights of conference sessions.

By Broadband Communities Staff

At the **BROADBAND COMMUNITIES** Summit 2021 – the first in-person event **BROADBAND COMMUNITIES** had hosted since fall 2019 – participants addressed a variety of methods to deliver and expand broadband availability. Because broadband penetration is lacking in rural and low-income urban areas, participants advocated collaborating to support federal legislation and programs that help communities access high-speed internet. In addition, the event addressed the multiple-dwelling-unit (MDU) broadband sector, particularly its evolution toward managed bulk Wi-Fi services, and the possibility that fiber penetration will upend cable’s long-dominant position in the broadband market.

MDU Residents Make High-Quality Broadband a Priority

As consumers consider where to live, broadband availability has become a key priority. When RVA LLC asked people about the features they seek when considering purchasing a single-family or multifamily home, the research firm discovered that high-speed internet is now the most important amenity. It found that broadband has surpassed other amenities, such as washers and dryers.

“The type of broadband influences how residents rate a community,” said Mike Render, president of RVA LLC, adding that property owners need to make broadband a key priority to attract new tenants.



Mike Render

“Broadband is critical, but not all property owners understand how important it is to market it,” he said. However, marketing broadband as a critical amenity is not always easy.

“Marketing broadband may be more difficult than location or [...] a certain kind of countertop because those things are more visible,” Render said. “Property owners need to do more to market broadband because it’s essential to a potential homebuyer’s lifestyle.”

SUPPORTING TELECOMMUTING

A key factor influencing in-home broadband performance is the rise of telecommuting prompted by the COVID-19 pandemic. RVA LLC found that 62 percent of respondents in its surveys reported they could work from home. What’s more, 58 percent *did* work from home during the height of the pandemic.

An August PricewaterhouseCoopers survey of 1,007 full-time and part-time employees revealed that the number of people who wanted to be fully remote

rose from 29 percent in January 2021 to 41 percent by August.

“This isn’t going away,” Render said. “There is a shift going on – more people

are working from home.” Increasingly, that shift means more people choose where to live based on the availability of high-speed broadband.

Fiber Will Erode Cable’s Broadband Position

Cable operators have long enjoyed a stronghold in the broadband race, adding new subscribers every quarter for the past several years as traditional telcos see their copper-based DSL base continue to dwindle.

However, the Fiber Broadband Association (FBA) said that the growing presence of fiber will start cutting into cable’s broadband lead. “Providers that are adding fiber will gain more subscribers, while those that still have cable and copper networks will start losing subscribers,” said FBA CEO Gary Bolton. He said that Wall Street expects that cable’s hold on subscriber additions, which rose sharply during the COVID-19 pandemic, will start to subside.

“Cable was adding subs up until 2020, when net subscriber adds peaked,” he said. “Now, Wall Street predicts that subscriber adds will start falling off as fiber becomes more available.”



Gary Bolton

CHARTER, COMCAST GAINS NARROW IN Q3

The two largest U.S. cable operators – Charter and Comcast – added more broadband subscribers during the third quarter, but the number of added subscribers narrowed from the peaks hit during the beginning of the pandemic. Charter added 265,000 broadband subscribers, missing analysts’ expectations of 343,000.

Tom Rutledge, CEO and chairman of Charter, told investors during the company’s third-quarter earnings call that “market churn remains historically

low such that net gains are being driven by much lower transaction activity.”

The cable MSO now expects full-year 2021 growth to be similar to growth in 2018 rather than 2019. However, Rutledge emphasized that it has plenty of room to expand its subscriber base.

“We have a long and robust runway of customer growth ahead of us,” he said. “Today, our network passes [more than] 54 million homes and businesses, and we’re doing business with approximately 32 million of them, leaving us with [more than] 20 million opportunities to create new customer relationships.”

Broadband continues to be the top source of growth at Comcast, but the company’s CFO, Mike Cavanagh, told investors the pace of growth during the third quarter of 2021 slowed a bit compared with 2019 growth. “What we’re seeing in the most recent past [...] is a little bit of slowdown in the net adds in the cable business,” he said.

Cavanagh added that totals for the third quarter “will likely fall behind what was a record third quarter of 2019,” but the company still expects full-year 2021 totals to surpass full-year 2019 totals.

TIER-1, TIER-2 FIBER GROWING

Though cable still dwarfs telco penetration of fiber-to-the-home (FTTH) subscribers, it’s hard not to notice the progress Tier-1 and Tier-2 telcos are making with subscriber penetration. Consider AT&T and Verizon. Pascal Desroches, CFO of AT&T, told investors during the company’s earnings call that most of the fiber customers it added were new to AT&T. “We had our highest-fiber gross adds ever, and we continue to win share wherever we have fiber,” he said. “We added 289,000 fiber customers

in the [third] quarter, and more than 70 percent of fiber net adds are new AT&T broadband customers [...] this gives us great confidence as we continue to build out our fiber footprint.”

Likewise, Verizon snapped up 98,000 new fiber subscribers. Another notable move came from Lumen. The telco reached a deal to sell off part of its copper and fiber local business in 20 U.S. states to Apollo Funds in a deal expected to close in the second half of 2022.

Lumen had about 2.5 million locations enabled with FTTH within the 16 states it retained and will continue to operate. The company typically enabled 400,000 locations per year and expects that pace will continue in the fourth quarter.

Jeff Storey, president and CEO of Lumen, said the company plans to increase its FTTH build. “As we accelerate our investment in Quantum Fiber, in 2022, we expect to ramp that enablement pace to [more than] 1 million new locations, on our way to hitting a run rate of 1.5 million to 2 million enablements per year as we exit 2022,” he said. “When deploying Quantum Fiber, we typically expect penetration rates of 40 percent or better, with an average build cost of less than \$1,000 per location enabled.”

Bolton said buildout commitments from prominent providers will drive the growth of FTTH. “What we see now is these big operators are publicly committed to 50 million homes passed over the next few years,” he said. “We’re going to see the industry going from 40 percent homes passed to about 60 percent homes passed in the next couple of years.”

Edmonds to Communities: Don't Be Afraid to Call out Washington

Last December, in an omnibus spending package, Congress allocated \$3.2 billion to the FCC for the Emergency Broadband Benefit program (EBB) program, designed to help low-income households pay for broadband services and devices amid the coronavirus pandemic.

National FCC programs, including the EBB, give low-income people affected by the COVID-19 pandemic an opportunity to get affordable broadband service, but the programs often don't take into account a community's unique nature.

This is evident in communities such as Detroit, which is experiencing economic and cultural revitalization. A vital issue is enabling the FCC and its nonprofit partners to offer resources that will help eligible people understand how the EBB works.

Joshua Edmonds, director of digital inclusion for Detroit, told Summit attendees that driving awareness about the EBB is a challenge. "As soon as we saw that there was this Emergency Broadband Benefit effort, we were stoked," he said. "Then, we started reading a bit more and found out there was no community funding."

Edmonds added, "How can the FCC expect our community, which is already understaffed and underfunded, to help people sign up for this program?"

CALLING OUT LEADERS

Whether the issue is EBB or another program, Edmonds encourages communities to call out federal leaders.



Joshua Edmonds

He criticized acting FCC Chairwoman Jessica Rosenworcel about the EBB.

"My relationship with Chairwoman Rosenworcel has grown to where I am happy about it," Edmonds said. "Initially, I called her out to media, and within a week, she sent her whole policy team to talk to me. I told them that this looks like something that the national folks do once again without taking into consideration the nuances of the local communities. They want to rush funding out, but they are not aware of how things work locally and how critical community funding needs to be."

Edmonds emphasized that communities should not be afraid of speaking out, especially if they don't agree with a new federal program.

"Being able to call out Washington is pivotal," he said.

DETROIT'S EBB'S IMPACT

Detroit was looking for ways to connect more residents via the Connect 313 initiative, which was created in 2020 to coordinate and support citywide digital inclusion efforts with a data-driven, community-based philosophy.

To help residents navigate the EBB program, Detroit launched a citywide campaign to streamline access to it. Kicked off at the PGA Tour's Rocket Mortgage Classic Media Day, the EBB 313 initiative created a hotline with the local 313 area code. Residents can call with questions about the program or application.

A growing number of Detroit residents are signing up. As of the middle of September, 45,000 Detroit families were connected to broadband via the program. They receive \$50 monthly stipends to help pay their internet bill or buy internet-ready devices.

City officials said that this translates to more than \$2 million in internet services every month, helping close the digital divide in the city. New Orleans is the only city that has signed up more families.

Though 45,000 is an admirable accomplishment, Detroit is set on getting even more people to take advantage of the EBB program. "Our goal is to have 100,000 households signed up for the program," Edmonds said. "I trust our ecosystem is going to pull that off."

Providers See Potential in Bulk Internet for MDUs

In the multifamily market, potential residents want immediate internet access upon move-in. This has created what industry pundits call the "instant-on" bandwidth concept.

Once users sign a lease for an apartment or purchase a condominium, they can immediately access broadband. Waiting for a technician to show up is no longer an issue.

NEW BANDWIDTH, USAGE EXPECTATIONS

Incumbent and competitive providers alike have had to adjust the ways they serve the multifamily market with bulk internet service arrangements and increasingly managed Wi-Fi.

Craig Walton, lead product manager at AT&T, said residents expect broadband to be a regular

feature. "When people move in, they want three things: water, power and internet," he said. "We're seeing a shift to accommodate each property by providing broadband internet."

He added that users also want services immediately and at higher speeds. "More and more people want the internet now and to be able to open up their laptops and connect," Walton said.



Linda Willey, vice president of business services at Camden Property Trust, leads a panel on multifamily managed Wi-Fi services.

“People also want more bandwidth.”

Joe Varello, vice president of national sales for Spectrum Community Solutions, agreed, but added that service delivery methods have changed. This comes as devices and Wi-Fi radios can accommodate more bandwidth and latency-intensive services. “We used to look at the business as a residential entertainment service, but it’s starting to look more and more like an enterprise service,” he said.

Varello said that although Spectrum thinks about delivering broadband from owners’ points of view, he realizes that owners are thinking about residents. “As the applications become more available, the demand for resident support becomes more critical,” he said.

SUPPORTING MULTIPLE DEVICES

How can owners equip new or existing multifamily properties with internet that

can support a growing array of devices? A recent Statista report indicates that 35.82 billion IoT devices will be enabled in 2021 and 75.4 billion by 2025.

AT&T, on average, is seeing 13 to 15 connected devices in each unit. “The number of connected devices in a home is expected to double or triple in the next five years,” Walton said. “The demand is drastically increasing [the bandwidth] we provide into the property.”

INDUSTRY PERSPECTIVES

“15 million students don’t have internet access at home.”
– Jack Lynch, COO, EducationSuperHighway

“There are two broadband speeds – fast enough or not fast enough.”
– Bryan Rader, EVP, Single Digits

“There was a long period when gigabit was just a buzzword.”
– Matt Passalacqua, Regional Business Development Manager, MDU, Wave Broadband

“Broadband is not a luxury.”
– Gary Bolton, CEO of Fiber Broadband Association

“There are a lot of opportunities to deliver broadband, and we’re going to see a lot of different paths to get there.”
– John Burchett, Head of Public Policy, Government and Community Relations, Google Access and Google Fiber

“We are a fiber ISP, and we saw that ISPs’ relationships with customers were broken.”
– Monica Webb, Head of Market Development and Strategic Partnerships, Ting Internet

“We want the best connection, and FTTH is that connection.”
– Ramiro Gonzalez, Director of Government and Community Affairs, City of Brownsville

“Fiber is the best way to get customers broadband connectivity.”
– Carter Old, President and Chief Growth Officer, Tachus Fiber

“Communities don’t want to run a network.”
– Sarah Davis, Senior Director of Government Affairs and Wholesale Strategies, Consolidated Communications

WhiteSky Communications sees similar trends. Student housing is an enormous, demanding segment of WhiteSky's business. In one instance, a WhiteSky student tenant had more than 30 devices. To support growing bandwidth demands, WhiteSky is moving forward with bulk-managed Wi-Fi services.

"In the bulk internet service space, managed Wi-Fi is where everyone is headed," said Melissa Morales, vice president of operations at WhiteSky. "A lot of this is being driven by the residents and from 5G."

She added, "residents want seamless and secure connectivity inside the unit and in the dog parks and throughout the property."

Providing residential connectivity is only one part of the equation. Varello said in-building networks need to support both residents and property owners. "We need a network to support

video and residential entertainment, and a property owner's IoT and other applications that are part of the residential experience," he said.

FUTURE-READY NETWORKS

Supporting current bandwidth consumption is crucial for multifamily property owners/operators, but the need for future-ready networks is even more pressing, mainly as more people work remotely.

According to Global Workplace Analytics, 82 percent of U.S. employees want to work remotely at least once a week. Only 8 percent said they do not want to work from home; 19 percent said they would like to telecommute full-time.

WhiteSky sees a 20 to 50 percent increase in bandwidth use across the properties it serves. Morales said that "speed and bandwidth are more than just a number," and the "key is to ensure that your network is future-ready."

By emphasizing a fiber-first strategy, AT&T can offer multifamily customers symmetrical services. Though it does not break out specific targets, AT&T aims to reach 3 million more residential and business customer locations. The telco plans to expand access in the more than 90 metro areas it currently serves.

"We're going to continue to invest in our network to support the ever-growing demand and the ever-growing demand capabilities we don't even foresee," said Walton. "We don't know what's going to happen and what the next technology is going to push."

For example, the telco enhanced its network to support Michigan State University's student housing units. "There were 700 students for 200 rooms," Walton said. "They pushed our limits, and we had to adjust and grow, but luckily we have a network that can accommodate the demanding student housing customer base."

Precision Agriculture's Success Requires Better Rural Broadband

As precision agriculture has emerged as a new solution to help farmers better plan, high-speed broadband is increasingly important.

According to Grand View Research, the global precision farming market value was \$6 billion in 2020. The research firm forecasts the precision farming market to expand at a

compound annual growth rate of 13.1 percent from 2021 to 2028. It attributed the growth to farmers' increasing use of IoT and advanced analytics.

Farmers can use advanced analytics to forecast data and ensure that crops and soil receive adequate nurturing. The need for precision agriculture is driven by an increase in population that will require an increase in food production of 70 to 100 percent by 2050. Nancy Shemwell, COO of Trilogy Networks, said the resulting land and water shortage will drive world food producers to rethink how they monitor and grow crops.

"This is going to require a turn force technology with an accelerated deployment and increased sophistication that will allow [farmers] to take those constrained assets and get more out of each acre," Shemwell said.

The technologies will support a multitude of farming practices. For row crops, precision agriculture will assist farmers with precision seeding, monitoring crops remotely, and the storage of grain as it goes through its life

cycle. Likewise, specialty crop growers will be able to better conduct weather modeling and intelligent irrigation.

"All of these technologies could drive billions of dollars to the farming community," Shemwell said. "To do this, [there will need to be] connectivity not just to the farm but across the farm."

RURAL INDUSTRIAL DILEMMA

The topology of networks will drive the ways they are used on farms, and the uses will constantly evolve. Today, a farmer can use drones to conduct simple activities, such as pinpoint where to spray solutions to eradicate a pest without harming a neighbor's crops.

"The fourth industrial revolution is a tsunami," Shemwell said. "It is taking place in the rural U.S. even more so than in the urban U.S. because when you think of the technology that can be unlocked with IoT, machine learning, AI and other devices, it is in a precision agriculture environment."

She added that new technologies won't effectively work in rural areas that have low-speed connectivity.

"These solutions are sitting in parts



Nancy Shemwell

of the world and the U.S. that are under-connected and underutilized,” Shemwell said. “These rural farms are served perhaps by satellite, which is not fast enough to unlock the value of the technology that the people in this room and at this conference are developing to market.”

Large companies, such as Cargill and John Deere, also need cloud-based solutions and ubiquitous reach across the rural U.S. “It is of no value for John Deere to create a tractor if it can’t run on its own and if it can’t be deployed in a large part of the company’s territories,” Shemwell said.

At the same time, hyperscale computing providers, such as Microsoft and Amazon AWS, and app providers need nationwide connectivity and edge computing capabilities.

Given the amount of space a farm covers, farmers will need an array of high-speed solutions. “You not only need to get broadband to the farm, but

then you also have to get it across the farm,” Shemwell said. “The solution is going to have to be multicloud, multitenant because that’s the only way the economies are going to work to get Google and Microsoft and other cloud providers into the rural markets.”

25/3 MBPS WON’T CUT IT

The USDA defines a rural market as an area with a population of 5,000 people. Providing advanced applications, such as precision agriculture, will require connectivity, computing and storage near users. Long-reaching networks are necessary. “You have to build a network across 1.5 million square miles of rural America,” Shemwell said.

Broadband expansion progress in the rural U.S. is happening. Today, 70 percent of service providers represented by the National Telecommunications and Information Administration (NTIA) have equipped the

communities they serve with FTTH. Today, 68 percent of the service providers can deliver a minimum of 100 Mbps speeds.

Though NTIA service members’ work in rural communities is compelling, it’s still not enough. “These networks only cover 37 percent of the landmass and 7 percent of the rural population,” Shemwell said. “One of the big challenges is large major carriers cover these areas, but there’s not any economic value for them to put broadband out there.”

She added that rural farms would need far more than what the FCC defines as broadband for properly supporting precision agriculture applications. “There’s a very long way to closing this digital divide, and that digital divide has to be more than getting them 25/3 Mbps,” Shemwell said. “That will not be enough to do the work that needs to be done out there.” ❖

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