Incompas 2020 Policy Summit: Unraveling Broadband Challenges And Opportunities for Competitors, Communities

The Incompas 2020 Policy Summit, held in Washington, D.C., in March, covered key issues for competitive broadband providers. Topics included the homework gap, the modernization of UNE rules, the need for workforce training, and new partnerships between service providers and electric utilities.

By Sean Buckley / *Broadband Communities*

Broadband Plan Influenced Google Fiber, Incumbent Upgrades

The Federal Communications Commission's (FCC) 2010 National Broadband Plan's influence was far-reaching in encouraging new competitors and incumbent providers to step up broadband investments. For example, the plan encouraged Google Fiber, AT&T, CenturyLink and Comcast to make fiber to the home (FTTH) and DOCSIS 3.1 investments.

For all its troubles in recent years, Google Fiber's initiative to wire Kansas City, Missouri, neighborhoods and other select spots with 1 Gbps as a standard speed raised consumer perceptions of what internet speed could be. Google Fiber set a high bar by offering 1 Gbps for $70 per month in select markets.

What was more telling about Google Fiber were incumbent telco and cable industries' responses. Many incumbents said Google Fiber had no influence on their FTTH and 1 Gbps plans, but AT&T launched its own FTTH plans in 2016, and Comcast kicked off the cable industry's migration to DOCSIS 3.1.

After AT&T introduced FTTH, the company committed to building out FTTH to 14 million premises as part of an agreement to acquire DirecTV that it reached with the FCC. During the Deutsche Bank 2020 Media, Internet and Telecom Conference, AT&T CFO John Stephens said that having sold into 4 million premises, the company has "a significant opportunity to expand that base to move toward a penetration rate that's closer to 50 percent or above."

Likewise, Comcast began to roll out 1 Gbps services via DOCSIS 3.1 in various markets. In 2018, the service provider completed the 1 Gbps rollout to nearly all the 58 million homes and businesses in its 39-state territory. A new cable standard will pave the way for cable operators

National Broadband Plan co-author Blair Levin sees broad influence of the 2010 plan.

to offer 10 Gbps speeds over existing hybrid fiber coax (see "Decoding the 10G Opportunity," May/June 2019).

Blair Levin, policy analyst at New Street Research and nonresident fellow at the Metropolitan Policy Program at the Brookings Institution, said during the summit that these elements largely were influenced by the National Broadband Plan team's conversations with the private sector.

"While everyone thinks of Google Fiber as a business, there's no question that it accelerated the next-generation networks from AT&T and CenturyLink as well as the cable industry," Levin said. He asserts that despite these achievements, the plan lacks a process to provide accountability on whether providers are providing the best speeds.

"We did not suggest an institution that would have responsibility for constantly upgrading," Levin said. "I think that's a problem, particularly in the back half of the plan."

Broadband Is Not Just About Entertainment

Getting more bandwidth into rural and urban communities is not just about enabling consumer entertainment but also about empowering communities to build businesses and advance residents' career prospects.

Through its Airband Initiative, Microsoft is working with rural communities to address how broadband can enable citizens to learn digital skills so they can better compete in the workforce.

It partners with equipment makers, internet and energy access providers, and local entrepreneurs. Microsoft and its partners are working with organizations such as the National 4-H Council and Future Farmers of America to drive digital skill creation.

"As our partners deploy, we use the strategic partnerships we have with those organizations to provide training to the community," said Erica Myers, business operations and program management leader for the Microsoft Airband Initiative. "What we find is that when the training comes, adoption follows."

Many rural areas the initiative partners with have no internet access, so connectivity enables citizens to start businesses. "It is not a case of build it, and they will come because these people have been living without access to high-speed broadband," Myers said. "We want to show how it can empower them and how they can start businesses."

Myers added that Microsoft is helping people realize that broadband is not just a foundation for entertainment."Sometimes, our partners are hearing 'I need broadband for my kids,' or 'I don't need broadband because I don't watch Netflix,'" Myers said. "We want to make sure people know how broadband can improve their lives and realize it's more than providing access to Netflix."

UNEs: Building Bridges to Facilities-Based Competition

For competitive carriers that have built successful businesses, unbundled network elements (UNEs) have been important to establishing facilities-based networks. UNEs, which consist of an ILEC's copper and related network infrastructure that can be purchased wholesale, are used where competitors do not have their own infrastructures. For example, beginning its life as a reseller of voice and DSL services, Sonic leveraged AT&T (at the time SBC) copper to roll out broadband.

Offering voice and data over copper and fiber, Sonic found that UNEs were key to getting its company off the ground. Unlike traditional cable and telco providers, Sonic offers unlimited voice to 66 countries and unlimited broadband services to consumers and businesses.

"Our business has been growing for all of those years despite all of the changes in the industry," Dane Jasper, CEO of Sonic, said during the summit. "We have adapted and evolved as we move deeper and deeper into the infrastructure deployment process."

FOCUS ON FIBER

By using UNE loops to enter the California market, Sonic was able to immediately offer voice and data services. But as it continues to build customer base, Sonic has been rapidly migrating customers onto its own fiber.

Residential FTTH is only one part of Sonic's fiber drive. The service provider will also extend fiber to nearby businesses and schools.

Following buildouts in San Francisco and the East Bay, Sonic expanded its gigabit fiber service in the Monterey Peninsula. It also launched a big FTTH project in the North

Sonic's Dane Jasper (right) sees UNEs as a path to facilities-based competition.

Bay, in Petaluma. The expansion enabled it to reach 19 new Bay Area cities and neighborhoods.

"As we accumulate market share, we'll start the process to engineer a fiber-to-the-home network," Jasper said. "We'll connect businesses embedded in those residential areas and supply services to schools via the E-Rate program, so it is a multimodal solution."

Whether residential customers are on copper or fiber, they pay only $40.

"When we migrate customers from copper to fiber, they pay the same price," Jasper said. "We're not approaching customers and asking if they would like to upgrade to gigabit fiber for $70 per month but instead are telling them our fiber has arrived, and we're ready to migrate them onto our own infrastructure."

INCUMBENT TELCOS THREATEN UNES

The advent of UNEs has been helpful not only to Sonic but also to other competitive providers that are transitioning their customers to fiber broadband.

Providers such as Louisiana-based Hunt Telecom, Socket Internet and Gorge Net all got their start with UNEs.

"Being on the board of different trade groups, what I find is that there are innovative builders deploying infrastructure," Jasper said. "There is a common story: the use of interoffice transport to reach markets, UNE loops to reach market share and optical infrastructure."

But for all the progress Sonic and other facilities-based competitors have made, large incumbent telcos and USTelecom want to put an end to selling UNEs.

In 2018, USTelecom filed a petition that sought nationwide forbearance from the unbundling and resale mandates in section 251(c) of the 1996 Telecom Act. Specifically, the petition sought to modernize the unbundling rules for local loops, dark fiber transport and other types of network elements, such as access to poles, ducts, conduits and rights of way. USTelecom proposed a long-term transition giving CLECs three additional years to build or negotiate agreements before the mandates expire.

Jasper said one of his key concerns about USTelecom's petition was that it assumes UNEs aren't used for residential customers. "One of the points I found disturbing in USTelecom's petition is the statement that the residential market would not be impacted by this forbearance proceeding," Jasper said. "I do think the majority of UNEs are being used for business services, but many providers serve residential customers."

In August 2019, the FCC granted the remaining UNE forbearance requests from the petition USTelecom filed in May 2018. FCC Commissioner Geoffrey Starks partially dissented, and Commissioner Jessica Rosenworcel dissented on the measure.

At that time, the FCC granted certain legacy telephone companies (price cap incumbent local exchange carriers) relief from outdated and burdensome requirements from the Telecommunications Act of 1996, designed to foster competition in the market for local telephone service. These included a requirement to offer competitors "analog voice-grade copper loops" on an unbundled basis at regulated rates and a requirement to offer legacy services for resale at regulated rates. The order does not, however, relieve unbundling obligations enabling the provision of broadband services. Jasper lamented that fighting this measure has been a bit of a distraction.

"We're back to the start, and we have to reengage in this advocacy," he said. "I think this is my 12th trip to the FCC in the last year to advocate on this issue, and that's the last thing I would like to do. We're focused on building networks, and I would like to get back to that."

FCC's Carr: Workforce Training Is Key to 5G

As the wireless industry moves forward with its 5G plans, the need for a more skilled workforce will be key to achieving the goals the wireless industry has set for itself. FCC Commissioner Brendan Carr told attendees during the summit that to be 5G-ready, the industry will require more network installers and tower climbers.

"When we think of these next-gen networks, a lot of time the industry thinks of engineers and people who are building amazing inventions on top of these networks, which is important," he said. "We also have to make sure we have the skills and workers in place to build the network out, or none of those other jobs or opportunities are going to take place."

In particular, the wireless industry needs to address a potential shortage of tower climbers. This number could reach more than 100,000 and include linemen and fiber splicers.

"We have about 27,000 tower climbers in the United States right now," he said. "The industry could almost immediately hire another 20,000 to complete the 5G build, so nearly double the amount of tower techs we have now."

FCC Commissioner Carr (right) advocates for 5G workforce training.

COMMUNITY COLLEGES STEP UP

To solve the wireless workforce shortage, the FCC launched a jobs initiative in partnership with community colleges.

Carr is working with the National Wireless Safety Alliance to establish training programs for future telecom tower technicians (TTT-1), a designation and certification developed by the safety group.

This is modeled on a program launched by Aiken Technical College in Graniteville, South Carolina, which hosts the Basic Tower and Wireless Installation Program – a practical and classroom-based regimen focused on telecom workforce development.

Participants learn a mix of classroom and climbing skills needed to get a tower industry job. Participants who complete the program can start with an estimated $60,000 annual salary with a path to advance into a management position.

Meanwhile, the South Dakota Board of Technical Education approved the creation of the Wireless Infrastructure Technician Certification program at Southeast Technical Institute in Sioux Falls in partnership with Vikor Teleconstruction.

"I am looking to expand the number of community colleges that offer this program," Carr said.

CONGRESSIONAL SUPPORT GROWS

Support for 5G workforce training is mounting at the congressional level.

In February, Sen. John Thune (R-S.D.) introduced bipartisan workforce legislation that's part of his broader effort to continue laying the groundwork for nationwide 5G deployment. "My Telecommunications Skilled Workforce Act would help increase the number of workers enrolled in 5G training programs and identify ways to grow the telecommunications workforce to meet the demands of 5G," Thune said in a statement.

Carr acknowledged that although these efforts are key, they are just a first step. "Senator Thune has introduced a bill that would build on a lot of those efforts by convening different stakeholders, whether it's this community college model or reorienting the Department of Labor support," he said. "We have work to do, but I am glad that the steps and progress are underway to get this workforce in place."

Providers Expand Reach Through Community, Private Partnerships

As providers look to gain a foothold in a new market, a key remaining challenge is to get access to public rights of way and utility poles. This means that providers are engaging with onetime competitors. For instance, service providers are seeking partnerships with electric cooperatives, investor-owned utilities and even municipalities. By partnering with these entities, service providers, such as Fatbeam and C Spire, have been able to accelerate their time to market.

Greg Green, CEO and founder of Fatbeam, a competitive provider that serves the Pacific Northwest, said during the summit that to get to market quickly and reduce costs, the company needs access to public facilities.

"The most important thing for us is speed to market as costs continue to increase," Green said. "It seems as though everyone hears about 5G, but even the cities feel like there's a land grab. We can all make this happen, but I think what I call 'coopetition' is key to that."

Fatbeam's Greg Green addressed construction costs and time-to-market challenges.

Microsoft's Erica Myers sees broadband as a tool to boost rural businesses and career opportunities.

Likewise, Microsoft, via its Airband Initiative, is working with various partners in the vendor, service provider and community domains. "The idea was that Microsoft would partner with ISPs across the country," said Erica Myers, business operations and program management leader for Microsoft Airband Initiative. "Initially, we focused on 12 partners to bridge this divide, and in 2018 we expanded that target to cover 25 states."

ELECTRIC COMPANY PACTS

One emerging trend is service providers' partnering with electric companies. These partnerships provide benefits for both sides: The service provider can rapidly expand its service reach, and the electric cooperative can have fiber capacity to improve its electric operations. Cincinnati Bell and C Spire are two service providers engaging in such partnerships.

Cincinnati Bell and Butler Rural Electric Cooperative forged a partnership enabling the telco to expand its fiber network and deliver Fioptics internet service to parts of Rural Electric Cooperative's electric service territory.

The telco already launched phase 1 of the partnership, which will make Fioptics internet available to more than 2,000 additional Butler Co-op members over the next 16 months. The companies will notify members as addresses become eligible for Fioptics internet and are evaluating additional business and residential addresses for future phases.

In addition, Cincinnati Bell will provide fiber-based services to Butler's substations and other equipment to enhance reliability. "Partnering with Cincinnati Bell to bring high-speed fiber-based internet to our members fulfills the cooperative's mission of improving the quality of life in our communities and enhancing our electric reliability," said Michael L. Sims, Butler Rural Electric Cooperative general manager, in a release.

C Spire is being no less active, establishing partnerships with Entergy and Alabama Power. Already operating its own fiber network in Mississippi, C Spire completed an $11 million fiber infrastructure project with Entergy, an integrated energy company that delivers electricity to 2.9 million utility customers in the South. C Spire said this agreement will "pave the way for advanced broadband internet services in rural areas of Mississippi."

C Spire is also working with Alabama Power, an investor-owned utility, to bring broadband to large areas of metropolitan Birmingham, Shelby County and other parts of Alabama. Ben Moncrief, senior vice president of strategic relations for C Spire, said that partnerships with private-sector entities, such as Alabama Power and others, are key to expanding broadband to more areas.

"Alabama Power has deployed fiber to improve the resiliency and recovery time for the electric grid," Moncrief said. "We have contracted with Alabama Power to use a portion of that fiber to reach communities in the lower two-thirds of Alabama." He added, "This agreement substantially reduces our time to market and substantially increases the number of places I can take my service because electricity is just about everywhere."

SEEKING COMMUNITY PARTNERS

By educating citizens about the value of broadband, service providers can not only access more residents and businesses but also drive new economic development opportunities. Providers are also working with public utility districts (PUDs) or cities that have hatched their own broadband plans.

Fatbeam has sought other carriers as well and typically builds fiber to schools via the E-Rate program. It developed a new market development group that focuses on E-Rate opportunities. This allows the provider to build a fiber business case with an anchor tenant customer. From there, it will sell fiber – including dark fiber – to hospitals and state and local government agencies.

"We leverage E-Rate to get into new markets," Fatbeam founder Green said. "We have also been talking to utilities, PUDs and cities that want to build their own broadband." Whether installing fiber aerially on existing utility poles or underground, Green noted, construction costs continue to rise. By working with friendly communities, Fatbeam can extend lower costs to customers.

"If we can get access to rights of way, conduits and other resources, we can lower our costs, and the customer benefits," Green added. "If we have to dig a trench and the next competitor has to dig a trench, it's costly, and customers pay for it."

C Spire, which has built out fiber throughout rural areas as a backbone for its wireless network, also works with communities on how to best serve them. Today, the provider has 10,000 miles of fiber for its wireless networks.

"In rural America, people don't live miles and miles apart," Moncrief said. "The vast majority of rural Americans live in small communities that include 50 or 70 homes, so we're looking at how to harvest the fiber that's there and hand it off to a local WISP or a wireless installer."

C Spire's Ben Moncrief said the company's partnership with Alabama Power is important to expanding broadband in rural areas.

C Spire established a rural broadband consortium with Microsoft, Siklu, Nokia and Airspan. The consortium is looking to publish a white paper about its findings later this year, which will "reveal what we found about the challenges and suggestions about how to solve the rural broadband problem," Moncrief said. "We think it's a very important piece of the puzzle in terms of reaching the vast majority of rural Americans who don't have high-capacity broadband."

Lack of Affordable Broadband Widens Homework Gap

The coronavirus moved U.S. students to a distance-learning model overnight, but some students may not be able to participate because they lack broadband at home. This may be particularly true for students in low-income or rural areas, where affordable broadband is not available.

A lack of broadband is having an impact on academic achievement in rural areas of Michigan, for example. Research from the Quello Center at Michigan State University finds that in that state, students who do not have home internet access perform more poorly in a range of metrics (see "Closing the Broadband Student Performance Gap," page 84).

National statistics are even more telling. According to the Senate Joint Economic Committee, 12 million students do not have a home broadband connection. Data also suggests that 70 percent of teachers assign homework that requires internet access, but almost 20 percent of students don't have home internet access to complete it. FCC Commissioner Jessica Rosenworcel said where these numbers overlap represents the homework gap.

"These are the students hanging out at libraries after they close just to get a free Wi-Fi signal or the ones nursing some soda and fries just to type out their papers," she said, adding that "we can decide in blue-state America, red-state America and purple America to make sure every single child has the internet access [needed for] homework."

ENHANCING E-RATE, HOME CONNECTIVITY

One tool that improved broadband access for students and schools is the E-Rate program. Born out of the 1996 Telecom Act, E-Rate has focused mainly on providing connectivity to schools, including through a mix of lit and increasingly dark fiber solutions.

Some providers are stepping up to help schools. Fatbeam has set a strategy to leverage E-Rate to provide competitively priced fiber services to local schools. From there, it will fan out its service to other parts of the community.

One way to narrow the homework gap is to use funds the FCC gets from a spectrum auction to equip schools with portable hot spots.

"We have leveraged E-Rate to go to a market and then add additional fibers at our expense after building a school network out," said CEO Green. "We'll then go in and extend services to hospitals and the business community to provide wide area networks via lit and dark fiber."

The remaining challenge is getting a home broadband connection for students. "We have E-Rate to help wire our schools, but how do we get those kids wired at home?" Rosenworcel asked. She recounted how some rural communities in California and New Mexico have put Wi-Fi routers on buses to enable students to complete homework during long bus rides. "What's neat is these kids are on the bus for an hour and are turning ride time into connected time," Rosenworcel said. "There's a bipartisan piece of legislation in the Senate that would let the E-Rate program fund that."

CREATING A DIGITAL TRUST FUND

Another way to narrow the homework gap is to use funds the FCC gets from a spectrum auction to equip schools with portable hot spots.

In February, U.S. Senator Chris Van Hollen (D-Md.) introduced the Homework Gap Trust Fund Act to eliminate the homework gap and ensure children have access to the internet at home. The legislation would direct revenue from the upcoming FCC C-band spectrum auction to create a Homework Gap Trust Fund to help bridge the digital divide.

"What if the next time we have a big auction of our public airwaves, we take some of the revenue to seed this public trust fund for the homework gap so every school in the country would have Wi-Fi hot spots, " Rosenworcel said. "If we did that, we could eliminate the homework gap virtually overnight."

FCC Commissioner Jessica Rosenworcel sees creative ways to narrow the homework gap.

Rosenworcel added that eliminating the homework gap also has a rippling effect in giving the next-generation workforce necessary digital skills. "Solving the homework gap helps close the digital divide, and it does it for the next generation that's going to enter a job market that's all digital," she said. ❖

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EXPERT PERSPECTIVES

"In markets that are not competitive, consumers have no power or leverage."

–Rep. Mike Doyle (D-Pa.)

"Our mobile phones are not a full substitute for wireline broadband connections yet."

–Jessica Rosenworcel, FCC Commissioner

"The affordability or the abundance of bandwidth should not constrain economic growth or social progress."

–Blair Levin, policy analyst, New Street Research

"A lot of the CAF funding – which should have gone to broadband, fiber and wireless – went to upgrade DSL."

–Greg Green, CEO, Fatbeam

"Broadband funding to the press release is not what we're after. We're after broadband funding that solves the rural problem."

–Ben Moncrief, SVP strategic relations, C Spire

"A competitive 5G wireless marketplace will require a competitive fiber marketplace."

–Dane Jasper, CEO, Sonic