Fiber Presents Opportunities, Challenges for Providers

The 2019 edition of the Fiber Broadband Association's annual conference, Fiber Connect, held in Orlando, Florida, in June, showcased many fiber community success stories and a variety of innovations that promise to expand fiber deployment. It highlighted how fiber can increase home values, why video is a competitive advantage for providers and new products and technologies that could transform the industry. It also brought to light the need to increase bandwidth and provide flexible service, permitting obstacles, and other challenges.

By Sean Buckley / *Broadband Communities*

FTTH Drives Up Home Values

Fiber-based internet service is fast becoming a new amenity when considering a new home purchase. But how can home buyers and sellers and real estate agents translate a home's access to fiber-based internet into greater monetary value?

The Fiber Broadband Association revealed that the presence of fiber increases a home's value by up to 3.1 percent.

Internet provider Ting has been educating local real estate agents on how to position homes with FTTH services. It developed a program to work with local realtors in the towns they currently serve and plan to serve on the value of fiber-based internet.

Kara Chandeysson, city manager for Ting in Charlottesville, Virginia, said during a panel at the conference that realtors can get higher prices for homes that have FTTH connections.

"An opportunity we need to present to realtors is they can get a 7 percent higher selling price for homes that have a fiber gigabit connection," she said. "As we developed our program, we needed to relay this metric to realtors."

During a local event in Charlottesville, Ting found realtors needed to be educated about Ting's FTTH products.

"Realtors had a lot of questions about Ting, but were more comfortable talking about CenturyLink and Comcast," Chandeysson said. "They did not understand how to position Ting's gigabit symmetrical services."

Chandeysson added, "When they talked about broadband, they were comfortable talking about speeds but not what those numbers provide in terms of value to a household."

EQUIPPING, EDUCATING REALTORS

To help realtors address the value of fiber, Ting developed a toolkit that assists realtors in assessing home buyers' internet needs and educates realtors about speeds and why they're important to homeowners. It also reviews the tools and tactics in the toolkit with realtors.

Ting found that a large percentage of realtors in Charlottesville use applications

such as Alexa to download music for open houses and upload streaming videos. In addition, realtors have replaced lock boxes with mobile apps to access properties.

"Given that we have a transient community, real estate agents were working with people across the country looking to buy a home in Charlottesville," Chandeysson said. "They were uploading and downloading a lot of videos, so we wanted to help them understand upload and download speeds."

It also helped local realtors update mycaar.com, Charlottesville's local real estate website. The company added a field where people can search for gigabit fiber internet.

"Getting gigabit fiber internet on that site was another differentiator," Chandeysson said. "When you go to that site, you can search for homes that have gigabit internet service."

Besides establishing a greater local online presence, Ting has been conducting lunch-and-learn events with realtors at which it talks about the value of 1 Gbps symmetrical service for potential homebuyers.

Ting also works with small businesses and parent-teacher organizations at schools. For instance, a small, local cookie business enhanced its profile when Ting bagged the cookies with a Ting sticker and distributed them to agents at local events.

"Some of the agents have called this business to make cookies for their open houses," Chandeysson said. "Bridging the community together has been a great learning experience."

TARGETING DEMOGRAPHICS

Another element to consider is demographics. In the areas Ting serves, demographics are seen in three forms: Generation Y, families and seniors.

As the home of the University of Virginia, Charlottesville has a high percentage of college-age renters. Having grown up with the internet, Gen Y-ers want homes or rental units to be broadband capable.

To appeal to this young demographic, realtors must ask questions such as whether potential homeowners or renters work from home and how much speed they need.

"Gen Y-ers know what fiber is and expect it in their home," Chandeysson said. "They are not interested in hearing from their providers but want the fastest speed available."

The family segment has diverse situations. One parent or partner could work from home when kids get home from school at different times.

A common issue for homeowners who have slow connections is service lags.

"Toward the end of the day is when we hear about the broadband bottleneck and the speeds slowing down," Chandeysson said. "When children come home from school nowadays, a lot of their homework is online and they are using Google Classroom, so they need broadband speeds that allows these apps to work together."

Interestingly, the senior segment also sees the value in fiber-based broadband to communicate with doctors via telehealth sessions and other lifesaving applications.

Seniors also see the value of symmetrical service to engage with other family members. A grandfather said he wanted faster speeds so he could play Fortnite with his grandson. Chandeysson said it "really struck me that that generation is just as tech savvy as I am."

Video Remains Relevant

Video services have been a double-edged sword for nontraditional providers: They provide a new revenue stream but come with high video-content costs. Unlike cable operators, which have enjoyed a near monopoly, emerging providers have struggled to build a profitable business.

At Fiber Connect, service providers said that despite those challenges, video is a sticky service element.

Ron Frye, communications field operations supervisor for LUS Fiber, said he had reservations but that video operation enabled his company to surpass a competitor.

"In 2016, I was proven wrong because a competitor decided not to have video," Frye said. "That was our biggest year of increase, so it was a telltale sign that video was necessary."

EPB, an early advocate of 1 and 10 Gbps FTTH services, sees video as necessary to stay on par with Comcast.

"We would have launched with video again," said Katie Espeseth, vice president of new products for EPB. "Some of that has to deal with whom we compete against, which is Comcast and its triple-play product in our footprint."

LUS Fiber and EPB's video success comes at a time when the traditional pay-TV video subscribers continue to migrate to less expensive online options.

Leichtman Research Group (LRG) found in its latest report that the largest pay-TV providers in the United States – representing about 95 percent of the market – lost about 1.3 million net video subscribers in the first quarter of 2019, compared with a net loss of about 305,000 subscribers in the first quarter of 2018.

COMPETING WITH TRIPLE PLAY

Because large cable operators and telcos use their deep marketing budgets to lure new customers or win back others, emerging broadband providers need every angle they can find to differentiate themselves.

EPB, which has about 62,000 video customers, did not want to lose ground to Comcast. Comcast had previously responded to EPB's 1 Gbps move with a 2 Gbps service.

"If we did not have a video product, we were concerned we would invite our customers to shop offers on our

competitors' websites," Espeseth said. "They would find those companies are going to make it very attractive to move not only their video but also their internet and possibly their phone."

Espeseth added, "For those reasons, we think video is a critical part of our product set."

LUS Fiber's Frye agreed: "If you don't have the video and the triple-play package, you're not going to get the type of penetration you would expect."

TDS is seeing similar results in its ILEC territory where it offers IPTV.

The telco reported in its first-quarter earnings call that wireline residential video connections grew 8 percent. Nearly 80 percent of TDS Telecom's IPTV customers are on triple-play bundles as customers find value in taking all three services given its rural footprint and bundle pricing.

Mark Barber, senior vice president of network operations at TDS Telecom, said during the Fiber Newsmakers panel at the FBA conference that bundles are paying off.

"We all know it's a difficult business, but we do find it does improve customer lifetime value," he said. "We do have good penetration for triple and double play."

UNTETHERING USERS

In addition to enabling over-the-top content and time-shifted TV, the video evolution allows users to access content from any location.

A key part of this trend will be using connected devices to get access to video.

LRG found that 74 percent of U.S. TV households have at least one internet-connected TV device, including connected smart TVs; stand-alone streaming devices (such as Roku, Amazon Fire TV stick or set-top box, and Chromecast or Apple TV); and connected video game systems and/or connected Blu-ray players. LRG noted that this is a similar percentage to last year's, and an increase from 69 percent in 2017, 50 percent in 2014 and 24 percent in 2010.

EPB uses a Mediaroom platform for video but plans to release a service

based on the MOBITV platform. Because the platform is a cloud-based headend, it eliminates the need for a set-top box to deliver IPTV. EPB has more than 400 customers testing the MOBITV platform.

Espeseth noted the MOBITV device not only frees up capital but also gives users several network DVR functions to watch recordings inside and outside the house.

"It freed us from the set-top world," she said. "We're no longer managing or spending capital on maintaining a set-top box inventory, and our customers are not tethered to that set-top box."

TDS plans to release a new cloud TV platform called TDS TV+ in its Bend, Oregon, cable market during the second quarter. It will take a phased approach for the remaining wireline and cable markets it serves.

"It varies by product," Barber said. "We're working with TiVo with plans to launch service on our wireline copper, fiber and cable systems."

Permitting Fraught With Challenges, Opportunities

Deploying new FTTH networks is fraught with complex local, state and federal permitting processes to get access to public and private rights-of-way (ROW).

Permitting approval delays, which often are due to unclear rules and timelines, drive up costs. A group of service providers cited concerns about inconsistent sets of rules during a panel on regulations at the Fiber Broadband Association conference.

C Spire has seen how permitting issues can delay a small portion of a middle-mile network deployment in Mississippi.

When it was building 200 miles of fiber in the public ROW between Jackson and Gulfport on Interstate Highway 49, it found 8 miles of the highway runs through a national forest. After installing the other 192 miles of fiber underground, it took 18 months before its application was

considered and a total of 26 months to be approved.

"Whether you're running into a national forest or you have a lot of wildlife and fisheries, those kinds of delays add to the soft costs," said Ben Moncrief, vice president of government relations for C Spire.

Though not a last-mile access provider, Facebook says permitting is a key consideration in how it connects data centers.

Monica Desai, director for Facebook, said low-cost ROW access, regulatory certainty and a national or local broadband plan all impact how the company builds infrastructure.

"The surrounding regulatory framework is critical for us in terms of how we make decisions on where to deploy, if we can deploy and where we need to partner with other companies," Desai said.

OTMR'S JURY STILL OUT

A big issue that vexes service providers is the pole attachment process. Competitive providers' battles with incumbent telcos and electric utilities are commonplace.

Emerging regulations such as one touch make ready (OTMR) require that a single crew perform necessary make-ready work. Proponents argue this lessens the impact of make-ready work timelines on public ROW.

According to some estimates, OTMR alone could result in approximately 8.3 million incremental premises passed with fiber and about $12.6 billion in incremental fiber capital expenditures.

After FCC passage last November, the new OTMR rules went into effect on May 20. OTMR will not apply to more complicated attachments or above the "communications space" of a pole, where safety and reliability risks

are greater, but the order does improve current processes for attachments in these spaces.

Today, the new OTMR rules apply only in the 30 states that follow FCC pole attachment rules. Though the FCC has encouraged other states to implement similar rules, those rules are not mandated. In addition, the new rules don't apply to poles owned by electric cooperatives and municipalities.

Another complication surrounding OTMR is dealing with complex poles. A complex pole is one in which the make-ready process could damage existing wires or a situation in which a pole needs to be created because of damage. Though the FCC's OTMR could shorten the timelines, complex make-ready still can be a lengthy process.

The telecom industry remains divided on OTMR. Competitive carriers such as Google Fiber say OTMR will help streamline deployments; AT&T contends that it could cause safety issues and compromise union contracts.

Only three cities in the United States have OTMR ordinances in place: Louisville, Kentucky; Nashville, Tennessee; and San Antonio, Texas. Several other cities are in various stages of implementing OTMR.

Google Fiber said the pole attachment process is not perfect, and there's work to do. The aspiring FTTH provider faced strong opposition from incumbent telco AT&T, Charter and Comcast in Louisville, Kentucky, and Nashville, Tennessee – two cities where it helped drive OTMR.

"OTMR has been a very important movement, but we should not tell ourselves that this will be the be all and end all," said John Burchett, head of policy for Google Fiber. "It's going to take a while for it to play out."

Hotwire, an emerging FTTH competitor focused on states in the North and Southeast, has opted to go around the pole attachment issue by conducting underground fiber builds.

By focusing on underground fiber builds, Hotwire contends the costs are lower and the reliability greater. After

not going down when Hurricane Irma struck the Southeast in 2017, Hotwire raised its market share from 15 to about 35 percent, for example.

"We do almost all our building underground," said Jonathan Bullock, vice president of corporate development for Hotwire Communications. "I think the costs equal out when you take into consideration the make-ready costs and proper permitting."

Bullock added that the pole attachment process, even with the advent of OTMR, is still daunting.

"The pole attachment process is a hot mess," he said. "The one-touch-make-ready ordinance has not improved the process."

CALL FOR CONSISTENT FRANCHISING

One way to overcome permitting issues is to implement consistent franchising policies at the state and local government levels.

Google Fiber said the unclear laws make creating a new fiber build business case challenging.

"When you add in the time it takes to secure local permitting and conduct make-ready work, it creates a level of uncertainty," Burchett said. "It's not just a federal thing. It's a state and local thing that takes a lot of time and money."

For instance, Google Fiber encountered a big problem in Louisville, Kentucky. The Louisville–Jefferson County Metro Government area includes 83 municipalities that have local governments in addition to the metro government.

Google Fiber is sensitive to local government needs, but Burchett said there needs to be a way to accelerate access to public infrastructure.

"States would do well to respect local governments' autonomy on some things but streamline as much as they can so we can speed up the deployment process," he said.

One way to potentially overcome the permitting issue is to have statewide franchising. Hotwire, for example, targets its growth in states that have such laws in place.

"Going to every municipality and negotiating rights-of-ways is not something we would do," Bullock said. "We have a policy to not go outside of states that don't have a statewide franchise."

But not all providers agree with statewide franchising. C Spire said the lack of a statewide franchise means it can work with the local communities to negotiate terms to build out FTTH service.

"We have demonstrated there's a community that's stalling or pursuing other negotiation tactics where another has seen the value using the statistics from the Fiber Broadband Association on property values and economic growth potential by enabling the fiber infrastructure," Moncrief said. "We use that competition amongst the municipalities as leverage to get into those communities."

The FCC has offered its Broadband Deployment Advisory Committee (BDAC), a group that provides advice and recommendations on how to accelerate the deployment of high-speed internet access.

However, critics of the FCC's BDAC say a lack of local representation and a large presence of incumbent telcos on the BDAC indicates the FCC has little interest in hearing from cities, towns and other local government agencies.

Randy Clarke, acting legal adviser for wireline and public safety at the Office of FCC Commissioner Geoffrey Starks, said that the communities and the FCC should find a common ground.

"I think that the FCC and localities work best when they work cooperatively," Clarke said. "I understand the need for streamlining and where there are ways to shorten processes, but there are consequences."
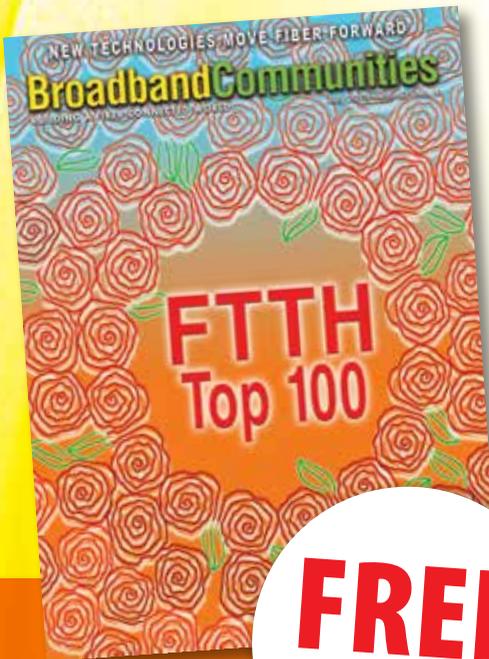
Though creating a shot clock to get permits approved is helpful, there are local issues such as weather and environment issues.

"It's a local condition and something where the locality knows best," Clarke said. "The FCC works best when it leaves room for local considerations."

New Innovations Make the Case for More Fiber

Outside of the glitzy, headline-grabbing technology innovations of speeds and feeds, the expo floor at this year's Fiber Connect offered attendees the opportunity to see the blocking and tackling elements that power the FTTH industry. There was a strong mix of cabling solutions and testing and installation tools designed to make the life of an FTTH provider's installation crew easier.

CABLING SOLUTIONS TAKE SHAPE

Cabling products were aplenty during the FBA conference. New innovations from AFL and OFS promised greater density and cost savings for outside-plant and MDU cabling environments.

AFL expanded its single jacket ADSS (All-Dielectric Self-Supporting Cable) portfolio with the introduction of a new
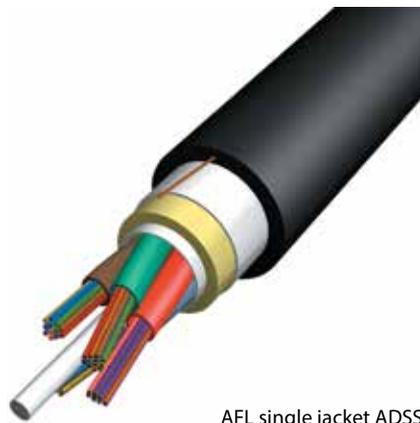
AFL single jacket ADSS

configuration for the Flex-Span ADSS family of fiber cable. ADSS cables can be installed in live line environments, causing minimal or no disruption to power infrastructures. AFL offers high fiber counts in a small diameter (less

than 0.475 inches) while maintaining the span length capability. A smaller diameter can lead to less loading on the poles while providing the same hardware size. Flex-Span ADSS does not require support or messenger wire, so installation is achieved in a single pass. The cable is suitable for use on distribution lines and necessitates using formed wire dead ends.

With its FieldShield D-ROP, an enhanced cable-in-conduit (CIC) offering, Clearfield hopes to help carriers complete replacement and repairs with a single truck roll, reducing the OPEX impact for damaged fiber drops by up to 75 percent. FieldShield D-ROP is a one-pass solution that provides a method to deliver and protect drop fiber for both in-building and outside-plant environments. FieldShield D-ROP comes in three

EXPERT PERSPECTIVES

"Fiber has cachet to it. Fiber is the door opener that gives you the entree to put forward new products and services."

– Mark Barber, Senior Vice President of Network Operations, TDS Telecom

"The biggest impact of fiber in our communities has been quality of life. Fiber is an enabler. To be able to bring the services that people once could only get in a metro area: It's a life changer."

– Rob Cale, Senior Director of Product and Marketing, Lumos Networks

"5G will not replace fiber to the home/fiber to the premises."

– Kevin Morgan, Chairman, Fiber Broadband Association

"One of the things we recognized for all our smart-city initiatives is that a fiber backbone is critical to us."

– Michael Hess, Smart-City Project Director, City of Orlando

"We have impact on our community whether residents have our fiber service or not."

– Ron Frye, Communications Field Operations Supervisor, LUS Fiber

"It is well understood that broadband is the driving force of revenues for an FTTH network."

– Will Aycock, Greenlight Operations Manager, City of Wilson, North Carolina

"Contrary to some media speculation, we're still here and still growing."

– John Burchett, Head of Policy, Google Fiber

"Fiber-fed communities have an additional $1.4 billion in GDP over other similarly situated communities."

– Kevin Morgan, Chairman, Fiber Broadband Association

main flavors: Direct Bury or Aerial 7/3.7 mm, Direct Bury 10/6 mm and Riser Rated 8.5/6 mm.

OFS expanded its Rollable Ribbon Cable solutions with connectorized assemblies for outside-plant cabling environments. By using mass fusion splicing, OFS states it can help users save time and money. It also can double fiber density in a given duct size compared with flat ribbon cable designs. Each OFS rollable ribbon within a cable features 12 individual optical fibers that are partly bonded to each other at predetermined points. These ribbons can be "rolled" into a flexible and compact bundle that offers the added benefit of improved fiber routing and handling in closure preparation.

EASING MDU INSTALLATION

Although landlords embrace fiber-based broadband, they don't want residents to be disturbed. Corning and OFS introduced MDU-focused installation tools that will ease installation pain for both providers and MDU owners.

Hot off its acquisition of 3M's Communication Markets Division, Corning held demonstrations of its Clear Track Hallway Fiber Pathway product. The Hallway Fiber Pathway is a surface-mounted, clear adhesive-backed solution that enables fiber installation with minimal disruption for MDU tenants.

OFS expanded its InvisiLight Façade Solution for outdoor MDU applications. The solution supports installations in buildings with external breezeways. It uses the InvisiLight Façade cord available with up to 24 fibers and a gray indoor/outdoor rated variant of the compact Point of Entry (POE) module for indoor InvisiLight Solutions. The InvisiLight ILU Solution includes single and two-fiber versions for the residential unit. A InvisiLight MDU Solution

OFS InvisiLight ILU Solution

comprises 4-, 8-, 12- and 16-fiber count cords along with POE modules installed in building hallways and/or risers passing each residence.

New cabling solutions and tools are designed to make installation easier.

INNO View 8+ fusion splicer

SIMPLIFYING SPLICING

Simplifying fiber splicing was another trend, and new innovations from INNO and OFS did not disappoint.

INNO unveiled its View 8+ fusion splicer, a core-alignment splicer. In tandem with its new INNO mobile application, operators can manage splicer and splice data. This is combined with a 5-inch HD LCD monitor and a mobile application accessible over Wi-Fi networks.

OFS EZ-Terminator

INNO's mobile application is available on iOS and Android and includes various functions such as training videos, splicer management, data management and report generating.

OFS served up the EZ-Terminator, an addition to its FITEL Connectivity Solutions portfolio. Using a one-step operation to deliver terminations, EZ-Terminator offers several key features. It includes a wide operation chamber for easy fiber loading and connector assembly, and one-touch operation and preinstalled programs for error-free fiber connector termination. EZ-Terminator also features three LED lights to illuminate the entire operation chamber in low light conditions often encountered during MDU/SFU installations and a detachable V-groove that aids in field cleaning.

NEW TESTING INNOVATIONS

When it comes to bringing up a FTTH network, the notion of trust but verify is the norm. EXFO and INNO took center stage with some new fiber testing solutions focused on network installation and network qualification.

Focusing on making fiber testing simple for frontline technicians, beginner or expert, EXFO introduced its Optical Xplorer, an optical fiber multimeter (OFM). The device verifies optical links in seconds, and if faults are suspected, it finds and identifies them automatically. This OFM can help providers achieve three goals: boost frontline technician efficiency, ensure better network quality, and minimize delays and costs associated

EXFO Optical Xplorer

with escalating problems. Featuring self-launches during the optical link verification process, the Fault Xplorer automatically explores only those links suspected of being faulty, eliminating doubts while saving testing time.

INNO launched its View 950ME, which allows operators to expand the measurement capability, enabling eight ports to be scanned simultaneously without additional switching delay. It was designed for passive device test applications where low cost, performance and small form factor are essential. ❖

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> The new testing innovations aim to improve technician efficiency, ensure better network quality, and minimize delays and costs.