

# Broadband Forecasts for 2017

What's ahead for the broadband industry in 2017? Growth – and preparation for more growth.

By Masha Zager / *Broadband Communities*

**R**apid growth and change have marked the broadband industry for several years, and 2017 will be no exception. New technology, rising demand and heightened service expectations continue to drive development. Here are the details, according to industry leaders and analysts.

## FTTH DEPLOYMENT: GROWTH WITH OR WITHOUT GOOGLE FIBER

Fiber-to-the-home deployment, which slowed between 2008 and 2011, has risen continually since that year. “We’ll continue to see growth again this year, from all indications,” says Michael Render, president of the market research firm RVA LLC. “And it’s not just from big providers. Obviously, AT&T is doing a lot, but there’s a lot more mass from smaller providers, mostly Tier 2s and Tier 3s.” Even though Google Fiber hit the pause button on fiber deployment and thus discouraged some potential new entrants to the FTTH market, Render says, “I don’t see that slowing the growth rate.”

Not all new entrants have been discouraged, Render adds. Telcos, new competitive providers,

municipalities – a wide range of companies are getting ready to deploy fiber to the home. Like earlier deployers, most of these organizations already have some experience in communications (for example, as wireless providers).

In rural areas, smart electric grids, which require bandwidth and reliability, are being built out with fiber, and this will drive additional fiber-to-the-home deployments by electric co-ops, among others. Despite the fact that low population density in rural areas makes deployment costs high, Render says, “I don’t think everyone has fully figured out that take rates are very high in rural areas.” Increasing awareness of rural demand for bandwidth will illuminate real opportunities for rural FTTH deployers, he says.

Many rural areas are about to lose whatever fixed broadband they have, predicts Doug Dawson, president of CCG Consulting. He believes that, in 2017, “Verizon and AT&T are going to leap on the opportunity of a weakened FCC and will be tearing down rural copper as fast as they can. ... Both companies will offer much more expensive wireless options to replace the copper.” That will only open more opportunities in rural areas for those who can build fiber networks to meet the growing bandwidth demand.

## LIMITS TO GROWTH

Still, not every company that wants to deploy fiber broadband will be able to do so. Render points out that resource constraints may put the brakes on deployment. Fiber optic cable, directional drills, engineering and construction

Michael Render: Opportunities for FTTH in rural areas remain unexploited because “I don’t think everyone has fully figured out that take rates there are very high.”



expertise, and many other resources are limited in the short term, and their supply may not grow quickly enough to meet rising demand. In the long run, however, supply can expand, and new technology can compensate for scarce resources. For example, Render says, engineering is becoming more automated, and the use of drones and LIDAR could reduce the need for construction labor.

Another limiting factor for 2017 is the difficulty of financing fiber builds, especially for deployers that don't have much of a track record. Dawson sees private investment in FTTH already beginning to dry up because of Google's pause, confusion about alternative technologies that may or may not materialize, and general economic uncertainty. "It's going to be hard to borrow money for fiber unless you are a telco or a solvent municipality," he comments.

### **CABLE STILL HAS LEGS**

The resurgence of FTTH five years ago inspired cable companies to get into the "game of gigs" by upgrading their residential network

infrastructures and transitioning to new DOCSIS standards that support more bandwidth. Mark Alrutz, senior director of service provider solutions at CommScope, says, "Hybrid fiber-coax (HFC) still has the capability and legs to provide very competitive services while networks are being infused with fiber, even all the way to FTTH." In addition to boosting wired broadband speeds, he adds, cable companies are trying to improve customer experiences and taking responsibility for making Wi-Fi operate smoothly in homes and public spaces.

In 2017, Alrutz says, cable companies will continue to focus on improving their residential service. In some cases, this will involve building fiber all the way to homes. (Interestingly, FTTH can be less expensive than HFC in rural areas, so we may see more instances of rural cable companies building fiber.) For the most part, however, despite the buzz around FTTH, cable companies will continue to leverage their HFC networks and transition to DOCSIS 3.1.

### **FTTH AND WIRELESS INTEGRATION**

Venturing a long-term prediction in addition to his 2017 forecast, Render says that, short of a physics breakthrough (neutrino power, anyone?), "I don't see anything for the next 50 years to overtake fiber." The ongoing wireless revolution will just make fiber more necessary than ever, he says. In fact, returning to 2017, he expects to see the deployment of FTTH and advanced wireless networks become closely integrated: "To make advanced wireless work, you have to run fiber down every street and put an antenna on every third light pole, so it makes sense to do it in conjunction with FTTH. ... The very best way would be to build them at the same time to make the most efficient use of all resources; second best would be to design as much as possible for both kinds of networks."

Kurt Raaflaub, head of strategic solutions marketing at ADTRAN, elaborates on the technical details behind wired and wireless integration: "NG-PON2 [the most advanced fiber

access standard, which can deliver up to 80 Gbps per fiber] is the first technology that has the robustness, redundancy and scalability to provide backhaul for service level agreement-based services for businesses *and* the cost structure for mass-market residential services. ... Now, if I've got a piece of fiber going to someone's

home, that same fiber can connect to a lamppost small cell site with no other changes required." By deploying NG-PON2, operators can converge as many as 20 different wired and wireless network platforms that provide different services today, Raaflaub says. NG-PON2 is being field-tested now, and Raaflaub expects some providers to

deploy it to customers before the end of 2017.

The transition from GPON to NG-PON2, Raaflaub adds, will be much smoother than the transition from BPON to GPON. New customer-premises equipment can be self-installed, and outside plant doesn't require any changes. All a service

## WATCHWORDS FOR 2017: FLEXIBILITY AND CHOICE

*By Cheri Beranek, Clearfield*

My son, age 18, wears a size 13 wide shoe. He loves shoes. He owns a half dozen pairs of tennis shoes, multiple pairs of boat shoes, a different pair of boots for every job and different color dress shoes. He's willing to pay a little extra for comfort and a premium if they're stylin'.

My daughter, age 22, is a size 7 narrow. I think she has four pair of shoes to her name, including her winter boots. She hates to spend money on shoes.

Despite the fact they have the same genetic background (other than gender, of course), their physical requirements and personal preferences for footwear couldn't be more different.

The same can be said for the deployment of optical fiber. Every provider has unique physical requirements and numerous personal preferences. Though a sandal-like deployment might work for those that aim for a minimalist approach, others may want the protection of a steel-toed boot. Each service provider has its justification.

In fiber rollouts, I see wireline and wireless methodologies, active versus passive, mixed media and complete overhaul. Regardless of need and preference, enclosures and drop cable options must simplify fiber deployment, reduce initial capex and minimize long-term opex.

### MANUFACTURERS DON'T DECIDE

In today's market, we manufacturers no longer have the option of mandating how a service provider is to deploy; rather, we must offer flexibility in our product designs to support all physical requirements and all personal preferences.

The fairy tale of the three bears suggests that, although some like it cold and some like it hot, others think perfection is porridge heated "just right." At Clearfield, we suggest the trend in the marketplace isn't perfection but rather choice.

For instance, some projects require the absolute lowest up-front material cost. The trade-off for such a

design may be a lack of restoration or flexibility and, in most cases, a higher total cost of ownership (TCO) over the lifetime of the network. This doesn't mean it is the wrong choice – it simply is an option. As a supplier, we support options for designs driven by lowest first-cost installations.

Because of prevailing wage requirements or a lack of skilled labor, other projects seek to optimize total construction cost – establishing a combined cost for labor and material. In this situation, the network build will be optimized, but there may be compromises in TCO due to a less flexible restoration environment.

A third, holistic approach seeks to minimize long-term TCO. However, this solution may present a slightly higher up-front equipment cost, which can generate cash-flow challenges during the initial build. These up-front challenges can be minimized by deploying first in neighborhoods, subdivisions or communities likely to have high subscription rates. In addition, some modular architectures provide a method to scale capital equipment expenditures as subscriber take rates grow.

In all these scenarios, the common thread is the competitive advantage afforded by deploying optical fiber, whether the network design calls for taking fiber to the curb or cabinet, deeper into a hybrid environment, to cell sites for wireless backhaul, or all the way to homes or businesses. Consumers demand networks that are gigabit capable, and consumers will reward those service providers and communities that provide it.

The next time you go shopping for shoes, remember that your buying criteria will be based upon physical requirements as well as personal preferences. But going barefoot, or sustaining a competitive broadband network environment and community without fiber, is not an option.

*Cheri Beranek is the CEO of Clearfield.*

provider needs to do is switch out the aggregation units in the central office.

### THE MDU BULL MARKET

“There’s kind of a fervor to go after the multiple-dwelling-unit (MDU) market,” Rader says. “Some see it as low-hanging fruit because of its high density.” Incumbents, integrators, private cable operators and other types of deployers will all deploy fiber in MDUs this year, according to Rader.

Bryan Rader, president of Access Media 3, a multifamily broadband provider, expects the “MDU bull market” to continue in 2017. Millennials are graduating from college and moving into rental apartments, and market research indicates that members of this generation may live in apartments for years until the suburban dream takes hold. The increasing supply of MDU housing may depress rent levels, but opportunities for service providers are

The increasing supply of MDU housing may eventually depress rent levels, but it offers plenty of opportunities for multifamily broadband providers.

still good, Rader says.

Rader anticipates increased use of millimeter-wave wireless technology to serve MDUs, including those in Tier-2 and Tier-3 markets. With this architecture, a provider typically runs fiber to a hub – potentially one building in an apartment community – and transmits signals wirelessly to each of the other buildings. Inside a building, signals travel over existing wiring.

Rader forecasts that stand-alone bulk internet service will become more common in MDUs. “Owners have been

pushing for it, and providers wouldn’t agree for a long time,” he explains. “But then independents started offering it” – because many new independent providers offer only internet service – “and now incumbents are forced to offer it as well. We’re going to see that trend continue more aggressively in 2017.”

Alrutz sees MDU buildings as prime candidates for cable companies to build fiber to the building or fiber to the floor – or even fiber to the unit in greenfield buildings. “The density is

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Software-defined access will make adding new broadband services – both customer-facing and back-office applications – almost as easy as adding an app to a mobile phone.

very attractive,” he says. Providers can even hedge their bets; CommScope offers an indoor cable that has both fiber and coaxial elements, allowing deployers a great deal of flexibility.

Addressing the nagging problem of in-building cellular service, Ian Langley, vice president and general manager of Cobham Wireless, predicts that the neutral hosting model will become key for in-building coverage. He explains, “Operators no longer have the revenue to invest heavily in in-building coverage solutions. This is in part due to their resources being drained on other ventures such as the advancement of 5G and the development of their public LTE networks. They cannot provision wireless communications into all the buildings that demand mobile connectivity. Subsequently, in 2017, venues have to install mobile coverage themselves ... to provide the connectivity that is demanded of them.”

“Operators will turn to a ‘neutral hosted model’ [in which] they can design and deploy a network for their needs and charge operators for delivering connectivity, generating new revenue. The model suits the operators too, as they do not need to shoulder the responsibility of funding and maintaining a network. The neutral host model has already proven popular in the U.S., and the trend is likely to take off in other parts of the world.”

## OVER-THE-TOP VIDEO – AND MORE

According to Rader, service providers will increasingly market over-the-top (OTT) products, as AT&T is doing with DIRECTV NOW, to apartment residents. “These products are geared

toward high-churn, mobile customers, typically 20-somethings who live in apartments,” he says. “They’re great deals for customers who are not attracted to two-year terms. They go with you where you go.” However, OTT subscriptions depress traditional pay-TV penetration rates, and this in turn affects property owners’ ancillary revenues. Eventually – probably not in 2017, Rader says – property owners may try to restructure their deals with service providers and seek a share of OTT revenues.

Raaflaub agrees that multiple carriers will join AT&T in the OTT video space during the coming year. He points out that service providers see broadband revenues plateauing, voice revenues plummeting and video revenues eroded by OTT providers such as Hulu. “They recognize that the OTT guys are eating their lunch,” he says. “Everyone’s trying to be a content vendor.” He speculates that earlier (largely unsuccessful) service provider forays into OTT video were trial runs and that their new efforts will be stronger and more successful.

However, Dawson, noting the many new OTT services offered or planned by service providers, broadcasters and independents, sounds a cautionary note: “This is going to turn into a crazy year for online programming, and it’s impossible to believe this many entrants can succeed.”

OTT video won’t be the only new service that carriers introduce this year, Raaflaub says, adding, “They’ll look to monetize the connected-home opportunity with gaming, virtual reality and entertainment.” This proliferation of new services, he explains, will be

enabled by agile, next-generation networks whose central offices are built on data-center principles and whose customer-premises equipment is controlled by cloud-based software.

This new type of architecture – known as software-defined access network – is beginning to be deployed now and will make adding new broadband services almost as easy as adding apps to a mobile phone. “It needs to take two weeks, not two years, to put up a new service,” Raaflaub says. He expects these open, programmable, scalable access networks to enable easy addition of back-office applications (network analytics, performance management and so forth) in addition to consumer applications.

## FIBER TO THE BUSINESS

Competition is heating up in the provision of business services, says Alrutz. He explains that historically, telephone carriers have somewhat underserved business markets, in part because cable hybrid fiber-coax networks, which do not easily support service-level agreements, never appealed to most business customers and thus did not offer strong competition.

Fiber serves business needs better than either copper or coax does, so for the last few years, as cable companies pushed fiber deeper into their networks, they led the way in delivering fiber to businesses.

Because these fiber-based business services are tremendously profitable, Alrutz expects to see cable companies forge ahead with them in 2017, bolstering their business networks and expanding their business services. With the cable companies posing more of a competitive threat, Alrutz says, “the telephone companies will certainly answer” by increasing their fiber buildouts to businesses. “Whoever gets the fiber connectivity in there will offer the best and most robust speeds,” he says. “We see that on both sides.” ❖

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