

OPTECH Highlights Technologies, Opportunities, Challenges for MDU Owners and Broadband Providers

The National Multifamily Housing Council’s annual conference, OPTECH, held in Dallas in November 2019, showcased how service providers are extending fiber and other technologies into new and existing MDUs to deliver high-speed broadband. The conference also highlighted how wireless technologies – mmWave wireless, Citizens Broadband Radio Service and Wi-Fi – complement MDU wireline connections.

By Sean Buckley / *Broadband Communities*

Companies Grapple with Soaring Package Deliveries

As more consumers opt to order goods from Amazon Prime and other online retailers, apartment buildings are handling more package transactions. Package Concierge, an automated locker solutions provider, wrote in a new report that, on average, buildings manage nearly 70 package transactions every day, up 17 percent year over year. In summer 2019, Amazon Prime Day deliveries resulted in a 10.6 percent increase since Prime Day 2018, for example.

Package Concierge processed more than 3 million transactions during the 2018 holiday season (half a million in just one week in December) – up more than 18 percent from 2017. The report also found that, on average, residents take more than 22 hours to retrieve packages – down about 9 percent compared to 2018, when they took more than a day to claim their packages.

Cable, Telcos Enhance Urban, Rural MDU Reach

As service providers move ahead with plans to expand their MDU focus, they are considering various technologies to satisfy the diverse needs

of urban and rural areas.

Though cable operators and telcos have been present in MDUs for decades, emerging wireline and wireless technologies have given providers new ways to attack the segment.

During OPTECH’s Telecom Town Hall panel, service providers laid out how to expand MDU footprints in greenfield and brownfield locations.

In 2019, Amazon Prime Day deliveries increased 10.6 percent over 2018.

CABLE LEVERAGES, EXTENDS PLANT, SERVICES

Cable operators, which have abundant reach into MDUs thanks to their sizable HFC networks, continue to look for ways to extend existing cable and fiber plant. Besides expanding these facilities, cable operators have been enhancing their product sets with greater bandwidth speeds to accommodate streaming and managed Wi-Fi services.

Through various acquisitions, including of Time Warner Cable and Bright House Networks, Charter Communications (Spectrum) has enhanced its footprint across various large and small markets.

“We’re looking at how to expand our current assets and extend our plant effectively,” said Alex Heien, vice president of mobile development at Charter Communications. “It begins with bringing our coax and fiber plant to a point, and then it is a question of how far we can reach outside what may be our traditional cable footprint.”

Charter also sees potential uses for emerging wireless technologies such as Citizens Broadband Radio Service (CBRS). The cable MSO told the FCC in a recent filing that it is “currently testing a variety of new technologies for mobile and fixed wireless services using 3.5 GHz spectrum in several urban and rural markets across the country, including Tampa; Charlotte; Denver; Lexington, Kentucky; Los Angeles and New York City – with additional sites in the pipeline.”

Whichever method Charter uses to target rural customers, it wants to ensure consistency by providing similar services and speeds that customers in its larger markets get today.

“We will not compromise on the customer experience depending on how we get there,” Heien said. “Wireless may be an important part of our broadband expansion strategy in the future.”

Fellow cable MSOs Comcast and Cox Communications are considering similar paths.

As a large cable operator that has penetrated MDUs for decades with

In new buildings, CenturyLink is wiring each unit with fiber and installing an internal optical network terminal to deliver services.

coax, Comcast is looking for the best paths to upgrade these locations.

“We’re focusing significantly on our brownfield MDU strategy by using plant we already have in our buildings to provide gigabit-plus speeds,” said Christopher Rothery, vice president of multifamily product solutions for Comcast. “We think that the MDU brownfield strategy is critical for us at Comcast and represents a great opportunity to provide the modern service that older buildings want to provide for their residents.”

Besides extending the life of the MDU plans, Comcast’s Advanced Communities Network, which serves multifamily, student housing and senior living communities, has been enhancing its smart-device support and its Wi-Fi offerings. Comcast offers an app that allows residents to control their units’ smart devices, such as locks, thermostats and lighting.

Following its acquisition of Eproach Communications, Comcast enhanced its managed Wi-Fi offering to provide propertywide coverage. It also offers pre-installed Wi-Fi, allowing properties to pre-install customer premises equipment in multifamily units so new residents can purchase and activate a service package online or over the phone upon move-in for wireless internet access.

Cox won’t provide a specific path, but it will partner with local communities to extend their existing networks.

“We’re working with a lot of rural communities on how to extend our fiber to the smaller cities,” said Guillermo Rivas, national director of new build and major accounts for Cox.

TELCOs’ HYBRID APPROACH

Telcos are just as keen on the MDU broadband opportunity. Already well

established in the rural and urban markets they serve, CenturyLink and Frontier have large copper footprints that they either overlay with fiber or extend inside buildings.

CenturyLink, which has been revamping its MDU residential focus to enhance its broadband subscriber base, leverages emerging technologies that enhance bandwidth inside the building and leading to a building.

At the heart of CenturyLink’s MDU push is fiber to the unit, particularly in greenfield developments. In new buildings, the telco is wiring each unit with fiber and installing an internal optical network terminal to deliver services.

“Fiber is CenturyLink’s MDU strategy,” said Dan O’Connell, vice president of consumer sales at CenturyLink. “By providing consumer GPON with CenturyLink ON, we are winning over property owners.”

CenturyLink is leading with FTTH for new MDU builds, but it has a five-element MDU technology focus: GPON, G.fast, G.hn, Wi-Fi and millimeter wave (mmWave) wireless, which is one of the newest developments inside CenturyLink’s MDU movement. CenturyLink is conducting a field trial of mmWave wireless in a garden-style building.

“GPON-based fiber to the unit is our go-to technology, but we serve 5 million buildings in our footprint, and the overwhelming number of buildings are older and do not have fiber today,”



Dan O’Connell
Vice President,
Consumer Sales,
CenturyLink

O’Connell said. “We’re looking at G.fast, G.hn, mmWave, and advanced Wi-Fi – and any or all of these can fit in different environments.”

Frontier is taking a similar path. Like CenturyLink, Frontier favors fiber, but it also is leveraging hybrid technologies, such as G.fast, to satisfy customers’ desire for fiber-like

broadband speeds in buildings where it has not yet built out fiber.

In 2018, Frontier deployed Nokia’s G.fast to high-speed broadband services in apartment buildings in Connecticut MDUs. Nokia’s G.fast technology incorporates built-in vectoring technology, which reduces crosstalk interference that typically impacts data

speeds over copper networks.

“We have more than 2 million MDU doors passed with copper, so it’s critical we find technology to upgrade those units to higher speeds,” said Raul Huerta, national director of MDU sales and strategy at Frontier Communications. “We’re using G.fast and G.hn to upgrade those properties.”

Carriers Seek Alternatives to Overcome 5G Indoor MDU Limitations

With the hype surrounding 5G wireless, carriers are looking at how their higher-speed signals will penetrate MDUs.

Although mmWave wireless holds promise with higher speeds, it can’t penetrate MDU building walls. This is because mmWave wireless propagates solely by line-of-sight paths. In typical power densities, millimeter waves are blocked by building walls and suffer significant attenuation passing through foliage.

AT&T, which is on track to roll out 5G in several markets in 2020, admits this is a key challenge.



Eric Small
Vice President,
Commercial and
MDU Solutions, AT&T

“When carriers introduce 5G, it uses high band mmWave spectrum,” said Eric Small, vice president of commercial and MDU solutions at AT&T. “MmWave spectrum does not travel far or travel through walls.”

After launching mobile 5G service in 15 markets and in 13 NFL stadiums, Verizon Wireless is being no less aggressive. In addition, Verizon has built out broadband 5G in MDUs across five markets.

“We actually have thousands of MDU customers who already are getting home



Michael Weston
Senior Leader
Verizon Enhanced
Communities

broadband services over 5G, and that’s going to continue to grow,” said Michael Weston, senior leader at Verizon Enhanced Communities.

Large traditional carriers aren’t the only ones pursuing a 5G MDU plan. Take Boingo Wireless, which has been transitioning from being a Wi-Fi provider for airports to a multiservice provider.

Boingo offers internet and TV designed specifically for residents who live in student housing, apartments and condos.

Chris Vargas works in business development for Boingo. He said that the focus is to provide a consistent experience regardless of location and that to achieve this, MDU owners and managers need to equip their properties with a fiber-rich network infrastructure.

“You want to make sure you’re building out your properties with fiber to the unit and installing access points on ceilings,” he said. “You’re talking about meeting the resident experience indoors and outdoors.”

EYEING CBRS

Wireless operators see utility in CBRS and Wi-Fi 6 to complement their mmWave wireless spectrum holdings.

CBRS, which operates in the 3.5 GHz band, is a new method for shared wireless broadband use.



Chris Vargas
Business
Development,
Boingo

The technology has continued to gain interest among wireless and even wireline operators. In January 2019, the Global Mobile Suppliers Association reported that 11 companies are investing in CBRS trials in the United States: AT&T, Boingo, Charter Communications, Comcast, Google, Midcontinent Communications, T-Mobile, U.S. Cellular, Verizon Wireless and Windstream Holdings.

AT&T’s Small said low-band spectrum could help AT&T and other wireless operators more effectively target MDUs.

“The good news is that in early 2020, AT&T will introduce 5G in low-band spectrum, which does go through walls,” he said. “There are still going to be some challenges to indoor applications, but there are some solutions that are half the cost of traditional DAS solutions and will support 5G and CBRS.”

Boingo has been an advocate of using CBRS, particularly in high-traffic areas, such as airports.

In 2018, Boingo deployed a private LTE cellular network on the 3.5 GHz CBRS band at Dallas Love Field Airport (DAL). At that time, the FCC granted Boingo special temporary authority to conduct the CBRS trial at DAL.

“We believe that having LTE quality of service indoors that does not have carrier dependency is really important,” Vargas said. “You’re going to have seamless connectivity with your phone throughout a property, and there will be a property eSIM,” a programmable SIM card that is embedded directly into a device.



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THE WI-FI FACTOR

Wi-Fi 6 is another technology service providers are looking to take advantage of in the near term to enhance MDU wireless coverage. Wi-Fi 6 promises various benefits, including higher data rates, increased capacity and enhanced performance in multiconnected device environments.

A key development in the Wi-Fi 6 camp will be the allocation of 6 GHz spectrum. The Wi-Fi Alliance recently introduced the Wi-Fi 6E term to distinguish Wi-Fi 6 devices that will use the 6 GHz band once it becomes available. Wi-Fi 6E devices are expected to become available quickly following 6 GHz regulatory approvals.

Boingo and Verizon have cited Wi-Fi 6 as a potential complement to 5G wireless networks inside MDUs.

Earlier this year, Boingo deployed Wi-Fi 6 at John Wayne Airport in Orange County, California. The launch is part of a commercial trial to test next-generation Wi-Fi capabilities.

“Wi-Fi 6 gives you the same high-capacity and low-latency type of network to deliver across your entire property,” Vargas said.

Verizon has leveraged Wi-Fi 6 for both its residential Fios FTTH customers and wireless 5G customer base.

The telco recently launched its Tri-band Wi-Fi 6 router and its Fios Home Wi-Fi Extender, enabling greater speeds and coverage. Verizon claims the new Fios Home Router can offer, on average, 60 percent faster speeds and 63 percent more coverage compared with previous Verizon routers.

In addition, Verizon offers a 5G home broadband router that includes integrated Wi-Fi 6 support, Amazon’s Alexa digital assistant and the ability to self-install without waiting for a Verizon appointment.

“Wi-Fi 6 is important to Verizon,” Weston said. “You’ll see innovations as well as the communitywide Wi-Fi services and integration of those services for seamless experiences.”

EXPERT PERSPECTIVES

“Everything is not going wireless. It requires a lot of wires to roll out wireless networks.”

– Steve Sadler, director, resident technology services, RealPage

“Seventy-five percent of people who work in advanced economies say that they don’t feel creatively fulfilled.”

– Beth Comstock, former vice chair, GE

“In five years, multifamily will be all about streamlining the customer experience by making it frictionless through self-install and focusing on the service experience.”

– Michael Weston, senior leader, Verizon Enhanced Communities

“While all of this attention is going to 5G, it’s important to remember that a lot of technology advancements have been made across the spectrum in all sorts of delivery mechanisms, including DOCSIS.”

– Christopher Rothey, vice president, multifamily product solutions, Comcast

“Technology is merely a tool; it has to solve a problem.”

– Nitin Vig, CEO, Mobile Doorman

U.S. Multifamily Market Demand Remains Strong

The U.S. multifamily market continued at a steady pace through the fourth quarter. According to the Yardi Matrix National Multifamily Report, continuing strong demand drove the average U.S. rent to a new high of \$1,476 in October 2019.

Seventeen of the 30 major markets Yardi Matrix tracked saw year-over-year rent growth of at least 3.3 percent in October, and only two trailed the 2.5 percent long-term average. Since January 2012, the average national multifamily rent has grown by 32 percent.

Phoenix; Las Vegas; Raleigh, North Carolina; California’s Inland Empire; and Sacramento, California, led year-over-year rent growth. However, steady housing growth has prompted Oregon, New York and California to enact rent-control measures over the past year, and several other states are considering them. Yardi’s report said “these laws are likely to prove counterproductive over time” by increasing cost burdens on new renters, limiting development of new stock and imposing disincentives for capital improvements.

New Innovations Make Case for Automation, Access in Multifamily

This year’s OPTECH show offered attendees the opportunity to view new software platforms that can help property owners better monitor internal infrastructure, including heating and cooling systems, and schedule property showings. These innovations reflect how broadband is enabling new IoT capabilities within the MDU environment.

MOTILI’S MACI GIVES HVAC, HOT WATER ASSETS INSIGHTS

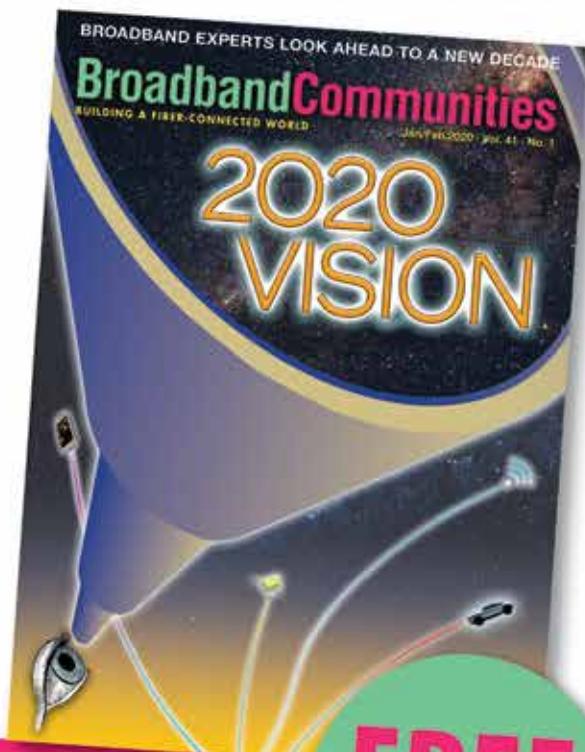
Motili debuted the Motili Asset Condition Index (MACI), a proprietary tool that provides property owners and operators with a 360-degree view of their HVAC and hot water systems. By helping plan for long-term capital replacement, proactive

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Motili's MACI monitors HVAC and hot water systems.

maintenance, and repair, MACI helps building owners lower operational expenses by improving NOI and ROI over time. MACI allows property owners and operators to predict system failures and replace them in off-peak seasons when labor is 25 percent less expensive, leading to resident satisfaction score increases of 20 to 30 percent.

MACI uses data gathered from Motili's asset-tagging projects. When Motili reviews and rates all units at the property or portfolio level, they are catalogued, and the data is pulled into Motili's technology platform and then compiled into a MACI score. Motili has a network of more than 2,000 contractors covering the United States, connecting single-family, multifamily, and commercial property owners and operators to HVAC and hot water/plumbing contractors.

G5 ENHANCES MDU ADVERTISING

G5 launched the Cross-Channel Spend Optimizer, which is claimed to improve digital advertising performance for multifamily properties up to 25 percent and reduce cost per click by as much as 15 percent. The tool, part of G5's Smart Digital Advertising, uses advanced, multitouch attribution to predict best advertising outcomes and automatically allocate daily ad investments across networks (Google, Microsoft and Facebook) and channels (search, display, remarketing and social) that are converting.

By leveraging billions of local data points to continuously evaluate and optimize campaign performance, the tool improves advertising performance. In addition, it orchestrates the most efficient campaign spend at the right

G5 Cross-Channel Spend Optimizer



time in the right network and channel, powered by G5's customer journey models and advanced MTA.

STRATIS IOT BRANCHES OUT

STRATIS IoT's platform has been installed in about 20 percent of all new units completed in 2019 in the United States. The platform creates a connected network for smart devices within multifamily and student housing buildings, which enables energy efficiency, security and remote-control capabilities typically available only in single-family homes. The company's platform was included in a Google Nest pilot to install Nest thermostats in multifamily properties, such as those managed by Greystar, the nation's largest apartment operator. Of the more than 60,000 newly constructed units in which STRATIS was installed in 2019, 1,500 are part of the pilot.

Additionally, STRATIS IoT's platform has been integrated with Inovonics and Sense products. Inovonics provides water-metering data, visualization, alerts and benchmarking to property owners, property managers and residents. This allows for real-time exception detection, resulting in measurable ROI by preventing costs and energy waste from leaks, faulty meters or other abnormal flow patterns. The Sense Home Energy Monitor will

The STRATIS IoT platform creates a connected network for smart devices within multifamily and student housing buildings, which enables energy efficiency, security and remote-control capabilities.

now be integrated into the STRATIS IoT platform. This enables wide adoption into multifamily and student housing buildings and allows property managers, property owners, and residents to see real-time energy data for their units and properties so they can reduce their energy footprints.

VIVINT ENABLES REMOTE GUEST ACCESS

Vivint Smart Home introduced Guest Access, which allows property managers to provide secure, remote access to smart-home-enabled multifamily communities. Part of Vivint’s suite of smart-home products designed for multifamily properties, it eliminates the need for property managers to be physically present when vendors arrive to do work or prospects opt to self-tour.

An interactive dashboard allows property managers to completely



Vivint Smart Home enables remote property showings.

customize the parameters for visitor access, including specific locations, times and frequency of visits (for one time or repeated visits). Guests receive a unique link to access designated units, amenity access points and common

areas around a property during the specified time period. ❖

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