

Managed Wi-Fi Shows New Utility for Providers, Vendors

Service providers find new opportunities to build managed Wi-Fi networks that support voice, data and building-management applications.

By Sean Buckley / *Broadband Communities*

Managed Wi-Fi is making headway with service providers to provide broader connectivity options and a foundation for the internet of things (IoT) in single-family and multiple-dwelling-unit (MDU) homes.

Definitions of managed Wi-Fi vary, but in general, it is a remote maintenance and support model for home Wi-Fi networks. It allows customers to gain visibility into their home Wi-Fi networks and control device usage.

Managed Wi-Fi in MDUs offers a couple of benefits for users and property owners: It minimizes interference and it provides propertywide consistency. By limiting interference between neighboring units, residents get a dedicated connection that won't be compromised by an issue in another unit. Residents also can stay logged into their private, secure networks anywhere on a property. For instance, users could get a consistent connection when in their living units, the gym or the dog park.

One challenge for consumers is a lack of cohesiveness among the apps that run over a managed Wi-Fi connection. A large portion of Wi-Fi management services address specific use cases such as parental controls, mesh device control and network security. Nevertheless, the opportunity continues to expand.

Wireless infrastructure analyst firm Maravedis revealed in its *Managed Home Wi-Fi Networks for the Smart Home 2020–2025*

report that the number of homes with managed Wi-Fi will reach 294 million in 2025. Service providers participating in the study revealed that managing the quality of broadband experience in homes is a priority for most service providers, and Wi-Fi is central to that strategy.

“Most operators are motivated by the reduction in operational costs and improvements of their [net promoter] score, while a minority few attempt to monetize managed Wi-Fi,” says Adlane Fellah, founder of Maravedis. “As a result, managed Wi-Fi is a fast-growing market and will reach a 29 percent penetration of the total broadband lines in service in 2025.”

Steve Sadler, director of resident technology services for RealPage, says pricing and technology dynamics have adapted to make offering managed Wi-Fi easier. “The same thing we have been doing in the student housing space for 14 years is finally making its way into the luxury space,” he says. “The technology allows us to do things we could not do a few years ago as bandwidth prices have declined.”

DIFFERENT MANAGED WI-FI APPROACHES

There are several motivating factors for a service provider to move forward with managed Wi-Fi. Wi-Fi allows broadband providers to offset video service and even voice revenue losses. Cable operators and telcos continue to see video revenues shrink while broadband rises.

For example, in the second quarter, AT&T lost 40,000 U-verse TV and 846,000 DIRECTV subscribers, and Comcast lost 478,000 video subscribers.

AT&T provides managed Wi-Fi for MDUs as an offering from AT&T Entertainment Services, which bundles Wi-Fi, internet and TV. CenturyLink and Verizon have strong fiber-to-the-home (FTTH) plays in MDUs, but they have not revealed a specific managed Wi-Fi platform yet.

Comcast, Charter and Cox have been aggressively approaching the managed Wi-Fi market. Comcast, through its XFINITY Communities segment, offers managed Wi-Fi services to single-family homes and MDUs.

Likewise, Cox offers managed Wi-Fi for MDU owners. Cox provides indoor and outdoor private wireless network services for employees and a public wireless network for guests. It also offers custom installation and LAN integration services.

“When we look at managed Wi-Fi for consumers and facility owners, we can control the experience, the devices and the policies for those devices,” said Lewis Roberts, executive director of product strategy and architecture for Cox Communications, during the **BROADBAND COMMUNITIES** Virtual Summit 2020.

For many competitive providers, the motivation for offering managed Wi-Fi is to be a solutions provider. Boingo Wireless, which has 2,200 communities and 300,000 residents connected to its Wi-Fi network, sees itself as what it calls an end-to-end provider.

Boingo installs Wi-Fi units inside an MDU and provides coverage for adjacent parks and property management. “We allow the managers and owners at the properties we serve to focus on their residents while we focus on keeping the residents connected,” says Melissa Morales, vice president of multifamily operations for Boingo.

Spot On Networks sells high-speed internet service to residents, and 75 percent of the revenues it gets will go to the building owner to help pay for the network.

But Spot On doesn't focus just on providing internet access. Instead of

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installing a DAS system, Spot On's system supports consistent Wi-Fi calling. In addition, the service provider strikes deals to give residents free Wi-Fi calling.

Spot On's Tessellated Grid design ensures connectivity for voice traffic throughout an entire building. Users receive an uninterrupted signal and maximum connectivity wherever they roam in a building.

Richard Sherwin, CEO of Spot On Networks, contends this is different from what an incumbent telco or cable company offers with Wi-Fi service. “We look at managed Wi-Fi as having communitywide Wi-Fi service,

which has coordinated access point locations, channels, signal strength and frequency,” Sherwin says. “If you look at a building as a three-dimensional checkerboard, we ensure we have coverage throughout the building by putting access points in any location, regardless of whether the resident subscribes or doesn't.”

WhiteSky Communications, an emerging provider, agrees that it can help property owners make their facilities more attractive. “You can get connectivity from the local cable operator or telco, but to get an all-in-one managed solution, there are extra things you need to look at upfront,”

CYBERSECURITY THREATS, INTERRUPTIONS LOOM LARGE FOR IOT DEVICES

Interest in managed Wi-Fi may be growing among service providers, but few have a clear strategy for providing security for the growing number of connected internet of things (IoT) devices inside single-family homes and MDU homes.

Wireless infrastructure analyst firm Maravedis reports that a large majority of connected and IoT devices, such as smart thermostats, either lack proper security or have no security at all, leaving consumers vulnerable to attacks.

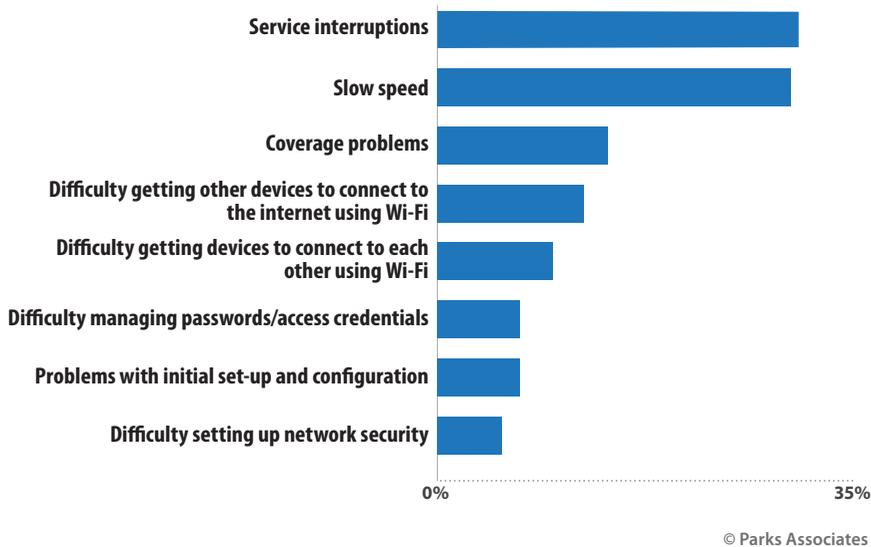
Maravedis revealed in a recent study that 51 percent of service providers it polled had two priorities when it came to IoT security: protecting their networks from new threats and protecting their networks from abuse and unnecessary traffic (D/DoS, serving malvertising, serving spam). It said these issues rank “ahead of protecting their customers from new threats and breaches of privacy.”

Service providers have just begun to craft real cybersecurity offerings, and 75 percent of them have not selected their home security platform providers yet.

“Service providers need to educate their subscribers about the benefits of protecting their connected home if they hope to monetize new services beyond parental control,” says Adlane Fella, founder of Maravedis.

Technical Issues Experienced with Wi-Fi

US Broadband Households Using Wi-Fi at Home



IoT interoperability issues remain a challenge in implementing connected home services.

said Allen Cory White, CTO of WhiteSky, during the **BROADBAND COMMUNITIES** Virtual Summit 2020.

WI-FI-READY MDUS

Service providers help provide a seamless experience that allows users

to get immediate access to Wi-Fi when they move into an MDU.

A provider pre-installs wireless modems in MDU units. Upon move-in, new residents then purchase and activate internet service via a portal for immediate Wi-Fi access.

Jeremy Harris, director of portfolio management for ADTRAN, says he is seeing more customers taking this approach. “What’s challenging for service providers to get a ROI on MDUs is the transient nature of residents,” he says. “Service providers are allowing customers to sign up for service and start using it immediately.”

Comcast’s XFINITY Communities offers a mix of traditional internet via Wi-Fi Select and Wi-Fi Ready. It pre-installs wireless modems in MDU units. New residents can purchase and activate internet service upon move-in for immediate Wi-Fi access without a service appointment. When a resident moves out, the unit is ready for the next resident to begin the process.

Comcast entered the managed Wi-Fi business through its acquisition of Approach Communications in 2018.

Adrian Adriano, vice president of XFINITY Communities, says Wi-Fi Select has resonated with campus housing developments. “One segment that benefits from Select Wi-Fi is off-campus student housing,” he says. “Property owners and managers are looking at internet without having to send a truck to the location, and they want less equipment to manage.”

Residents with a video package may be able to immediately access live and on-demand content via the XFINITY Stream app, depending on the package they purchase. “A property owner and manager can extend our streaming TV product without a box, so students can enjoy live TV without needing boxes in their rooms,” Adriano says.

Similarly, Charter Communications offers managed Wi-Fi services to MDUs via its Spectrum Fiber Wi-Fi product. Like Comcast, Charter offers service active on a resident’s move-in date.

To further personalize the Wi-Fi experience, Charter partnered with the service provider Plume to deliver app-driven, personalized, whole-home Wi-Fi experiences; AI cybersecurity protection and parental controls – including content filtering – to subscribers of Spectrum-branded broadband services.

Competitive providers such as Boingo and Spot On also are hot on

THE WI-FI-6 EVOLUTION

Wi-Fi 6 will become an increasing factor in new managed Wi-Fi deployments. The new standard is designed to operate in license-exempt bands between 1 and 6 GHz when they become available for 802.11 use. All Wi-Fi 6 devices work over the previously allocated 2.4 and 5 GHz bands. The Wi-Fi 6E extended designation is for products that also support the higher than 6 GHz standard.

The new standard uses 8x8 uplink/downlink, MU-MIMO, OFDMA, and BSS Color to provide up to four times greater capacity and to handle more devices. A Wireless Broadband Alliance survey revealed that 90 percent of respondents already plan to deploy Wi-Fi 6.

ABI and Cisco forecast strong growth in Wi-Fi 6 devices and chipsets. ABI reports that 1 billion Wi-Fi 6 (aka 802.11ax) chipsets will be shipped annually by 2022. Cisco suggests new Wi-Fi 6-enabled devices will reach 56 percent of the CPE market in 2022.

Charles Cheevers, CTO of CommScope, says Wi-Fi 6 will have various benefits for managed Wi-Fi. “One of the reasons why Wi-Fi 6 is four times more efficient is that it enables more deterministic Wi-Fi services by being able to schedule devices,” Cheevers says. “We can control the Wi-Fi environment much better.”

the instant-access trail. Boingo offers communitywide Wi-Fi, including in adjacent areas such as gyms and parks. It also provides services for property managers and guests.

“We do communitywide Wi-Fi, so there’s no waiting,” says Boingo’s Morales. “Residents have connectivity in their units, the common area and dog parks and allow property management to operate their networks.”

Spot On doesn’t debate the value of Wi-Fi-ready buildings, but asserts that the more important issue is how managed Wi-Fi network architecture is used. The provider now sees greater demand for its Wi-Fi services from affordable housing communities where students try to get online to conduct online learning and from residents of luxury apartment buildings who now work from home.

“The cities are concerned about opening up schools and know they need to make high-speed access available,” Sherwin says. “Wi-Fi is the least expensive form that can be implemented.”

He adds that senior housing also is seeing an uptick because “the pandemic has created a situation in which seniors can’t see their kids in person because of

The number of homes with managed Wi-Fi will reach 294 million in 2025. Managing quality of service is a priority for most service providers.

the fear of infection, so there’s a large number of applications such as Zoom and FaceTime now being used.”

WI-FI, CELLULAR COEXISTENCE

There is another question with managed Wi-Fi: How will it work in tandem with 4G long-term evolution (LTE) and emerging 5G services? Coexistence of 5G and Wi-Fi is evident on a couple of levels: the physical network layer and getting the best connection.

Coexistence of Wi-Fi and 5G on the physical level happens when the two technologies use the same bands. The Wireless Broadband Alliance (WBA) is developing automated frequency systems and threshold levels for Wi-Fi and 5G.

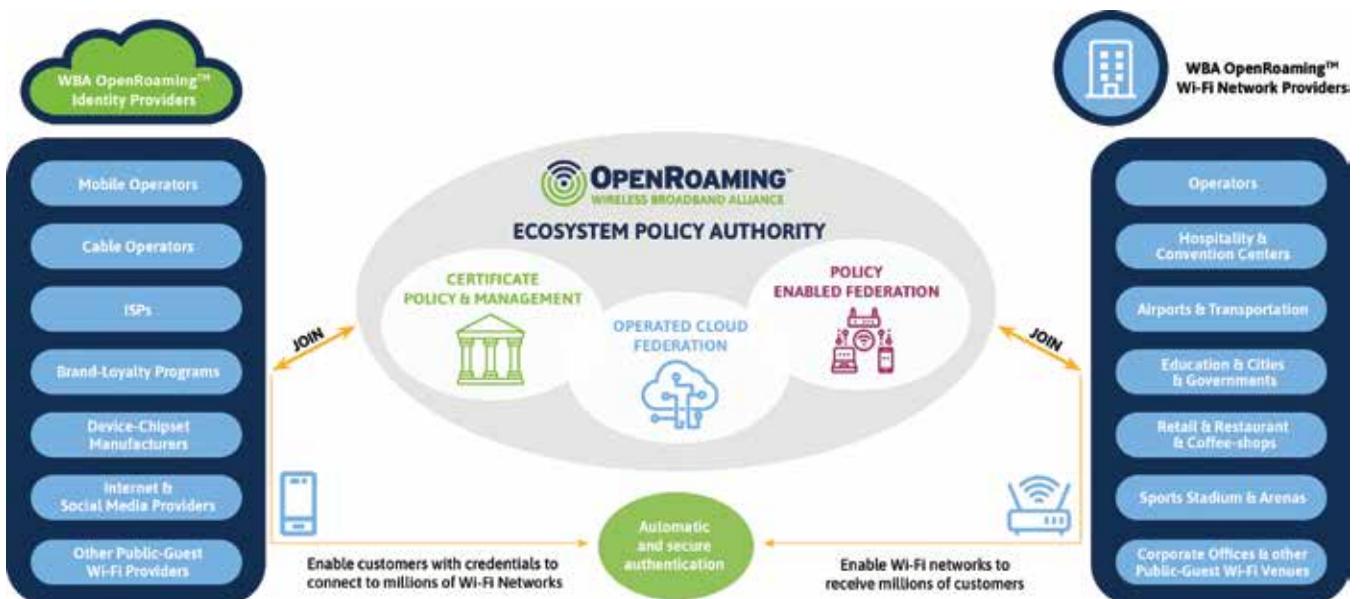
WBA also is looking at ways to help consumers get the best connection experience when Wi-Fi and traditional cellular are present. WBA created the OpenRoaming service, a Wi-Fi service

that automates which network a user’s device connects to to achieve the best coverage in an area such as a café or an apartment.

Spot On Networks sees the opportunity to provide a complementary experience for users when they go off a 5G or 4G cellular network inside a building.

“The Wireless Broadband Alliance has banded together with the Next Generation Mobile Networks Alliance to cause a convergence in which Wi-Fi 6 is going to be the indoor wireless capability, and 5G is an outdoor wireless service,” Sherwin said during the **BROADBAND COMMUNITIES** Virtual Summit 2020.

But Sherwin says the FCC’s allocation of 1 GHz of spectrum for Wi-Fi 6E means “we’ll have 1.6 GHz available in every building to achieve average data speeds that are significantly faster than 5G.”



Wireless Broadband Alliance’s OpenRoaming architecture

Within an MDU or a single-family home, managed Wi-Fi can serve as the backbone for IoT. This will be driven by consumer-connected devices.

Boingo, which has platforms to support 5G and Citizens Broadband Radio Service (CBRS), is working with carriers to achieve synergy. Though Boingo provides 5G and CBRS services in other building types, the focus today in multifamily is on Wi-Fi and Wi-Fi 6.

“In large public venues such as airports and stadiums, we work with carriers to deploy 5G and CBRS,” says Melody Walker, senior director of marketing communications for Boingo. “When you look at multifamily, we know how Wi-Fi, cellular and shared spectrum needs to work together, but Wi-Fi and Wi-Fi 6 are doing a good job of delivering the high-speed experience for residents.”

Spectrum, which has been looking at other technologies, such as CBRS, contends that 5G will have its place, but it has various challenges in an MDU environment.

“To deploy 5G and realize the millimeter wave wireless benefits will require a lot of antennas, so it will require infrastructure for backhaul,” said Chris Pitts, director of MDU sales operations for Spectrum Community Solutions during the **BROADBAND COMMUNITIES** Virtual Summit 2020. “I don’t think 5G will replace in MDUs the need for infrastructure to support the delivery of network services for residents.”

FRAMING IOT

Within an MDU or a single-family home, managed Wi-Fi can serve as the backbone for IoT. This will be driven by consumer-connected devices in single-family homes and MDU buildings.

U.S. broadband households have an average of 12 connected devices, which will increase to 20 by 2025, according to Parks Associates. This enables service providers and manufacturers to deploy

new services to support home networks and devices.

“The number of connected devices in homes is increasing just as people are adding strain to home networks with more work-at-home and video streaming activities,” says Brad Russell, research director of connected home for Parks Associates.

Parks points out that 52 percent of service providers polled cited IoT interoperability issues as the biggest challenge to implement connected home service.

Boingo and Spot On see these trends shaping up. Morales says residents in the residences it serves want to connect to more devices.

“Residents want the connectivity, but they also want to connect devices that they bring,” she says. “You’re talking about your standard Alexa, pet cameras, and a lot of residents have more than the standard laptops and smartphones.”

She adds that renters want to manage appliances such as air conditioners. If residents forget to turn off their AC units, they can turn them off remotely.

“Residents are willing to pay an additional price each month to have smart devices as an amenity,” she says. “The only way to have a smart environment is to have that managed Wi-Fi network.”

MDU OWNER BENEFITS

A managed Wi-Fi network also helps MDU property owners manage tenants’ transient nature. A property owner can use a platform to give a contractor access to a property or shut off an HVAC system after a resident moves out.

Vendors such as Motili and STRATIS IoT are developing such solutions.

Motili offers its 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.

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.

“By enabling property owners to deploy IoT on a managed Wi-Fi network, they can turn units off, connect someone who has a smart lock, and adjust thermostats in vacant units,” Morales says.

Spot On’s Sherwin agrees that there’s a lot of opportunity for building management applications. “When you have thermostats in apartments, the building owner can raise or lower the air conditioning or let cleaning contractors in without having to use personnel when the apartment turns over, so there are a lot of operational efficiencies,” he says. “The problem is when residents leave, they cancel their contracts, so there’s no longer any wireless capability to handle those devices.”

XFINITY Communities found in The State of Smart Technology in the Multifamily Housing Industry study (2019) that about half (51 percent) of MDU owners who participated in its study already have begun to implement smart technology.

Despite the benefits of smart technology, MDUs still face implementation challenges. XFINITY found that MDU owners cited initial costs and maintenance costs as key barriers to adopting new technologies at MDUs. But the report also found that as the industry matures, these barriers and others will subside.

“Multifamily owners are not immune to cost-related obstacles of adopting smart technology, including upgrading the internet network infrastructure as needed, physically installing devices, and maintaining the smart-tech ecosystem,” Adriano said in the report. ❖

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