Cabling Installation & Maintenance

EXECUTIVE SUMMARY

Enterprise Wi-Fi 6 Goes Mainstream

Dennis Huang, Director, Product Management, CommScope

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KEY TAKEAWAYS

- Performance remains a top concern as more employees use Wi-Fi.
- Enterprises are adopting Wi-Fi 6 to improve business productivity.
- Business cases and environments need to drive Wi-Fi 6 access point selection.

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OVERVIEW

Businesses all over the world have adopted Wi-Fi. They have done so to support not just employees in their day-to-day work, but network devices, like Internet of Things (IoT) devices, which are needed to efficiently drive the business in today's fast-paced, high tech environment.

Performance remains a top concern for Wi-Fi users. This is driving enterprises to adopt the latest version: Wi-Fi 6. As this technology hits the mainstream, organizations need to understand not just what the basic technology can do, but how access points (APs) like the CommScope RUCKUS portfolio can help them address their business needs and operate as efficiently as possible.

CONTEXT

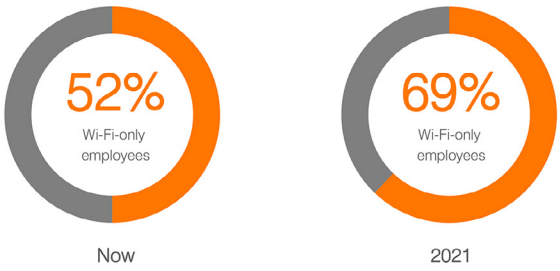
Dennis Huang discussed challenges with Wi-Fi, benefits of Wi-Fi 6, and how CommScope can help enterprises address their business needs.

KEY TAKEAWAYS

Performance remains a top concern as more employees use Wi-Fi.

Employees are increasingly adopting Wi-Fi, both in the confines of the office and outside of it. While cutting the cord has allowed workers to remain productive regardless of where they work, the key challenges of network performance, security, and coverage area, all of which have been issues throughout the nearly two-decade history of the technology, remain top concerns for businesses.

Workers are increasingly using only Wi-Fi



Source: IHS Markit WLAN strategies North American enterprise survey, August 2019

> Wi-Fi has grown from an imperfect technology with plenty of security holes and barely acceptable performance to a world-class medium leveraged by the largest operators in the world.
>
> *Dennis Huang*

Performance was a big issue in the early days of W-Fi, when capacity and data rates were a mere 11 megabits per second (Mbps). Even at nearly 10 gigabits per second (Gbps) on modern Wi-Fi 6, performance for multiple users doing many different things remains a top concern for businesses.

Security continues to be another top concern, especially as businesses recognize that breaches are costly in lost revenues and fines, as well as in customer confidence. Coverage also remains a key concern, although the need for Wi-Fi coverage has moved beyond just a specific office space or conference room for guests to covering the entire building and grounds, where employees and guests may choose to work.

Enterprises are adopting Wi-Fi 6 to improve business productivity.

Wi-Fi use has expanded beyond just workers on laptops accessing internal productivity applications like email or the Internet. As businesses adopt newer technology, like IoT devices, collaboration tools, and applications in the cloud, they are also moving quickly to take advantage of the Wi-Fi 6 features that can help improve business productivity.

Wi-Fi 6 offers new functionality that can improve network capacity and throughput, coverage, and even battery life of connected devices. Together, these features improve network capacity by as much as four times the speed of previous standards.

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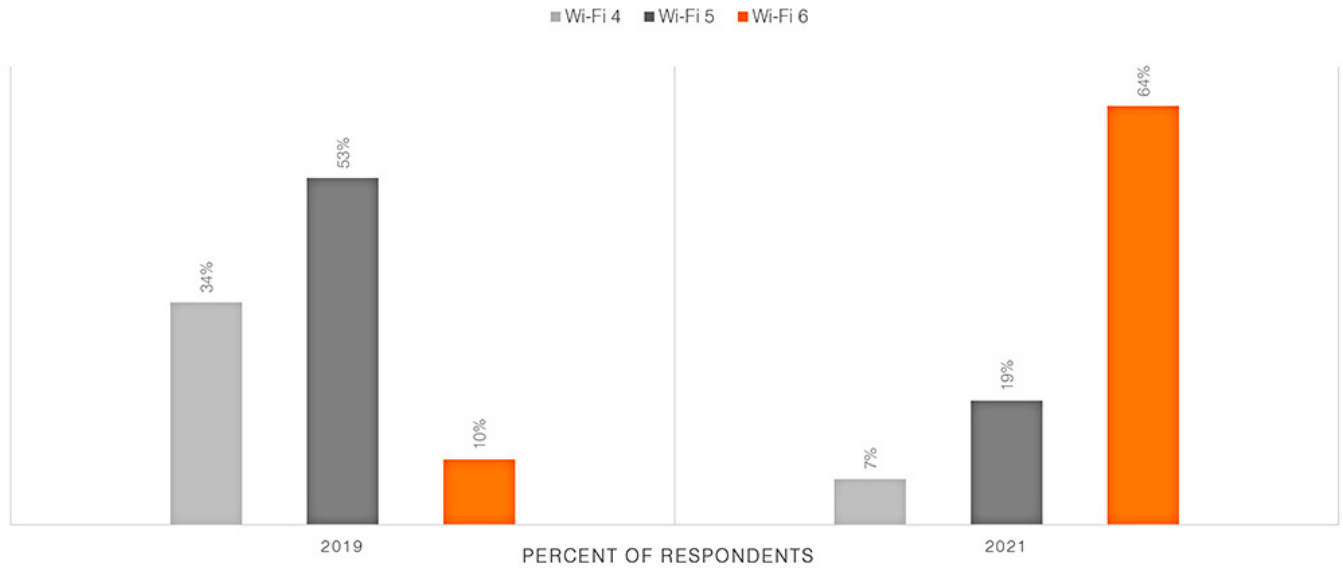
Enterprises are quickly migrating to Wi-Fi 6



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Benefits of Wi-Fi 6

Feature	Performance benefit
Orthogonal frequency-division multiple access (OFDMA)	Improves network capacity by optimizing traffic flow: OFDMA acts like a stoplight, optimizing the flow of traffic and preventing back-ups and slowdowns for high-traffic clients.
Multi-user, multiple input, multiple output (MU-MIMO)	Improves network performance by governing both downlink and uplink capacity.
Power efficiencies	Dramatically improves the battery life of connected devices by defining when the device will wake up and check the network, which consumes more battery, and when it will be in a deep sleep mode. This feature also improves network performance.
1024-quadrature amplitude modulation (1024-QAM)	Increases peak throughput.
Long orthogonal frequency-division multiplexing (OFDM) symbols	Increases peak throughput. This feature also improves reliability in outdoor environments.
Basic service set (BSS) coloring	Improves network capacity. This feature also offers an enhanced network coexistence.

Business cases and environments need to drive Wi-Fi 6 access point selection.

Especially as IoT begins to permeate organizations, businesses need to focus on use cases and environments when selecting Wi-Fi 6 APs. In addition to Wi-Fi, devices—and especially IoT devices—can be using other methods of connecting to the network, including Long-Term Evolution (LTE) mobile communications, Bluetooth, and Zigbee.

Supporting these different technologies typically requires additional components at the network layer, which, depending on what is needed, can drive up both complexity and costs.

> Every new device specific to IoT could force the enterprise to adopt an additional overlay network, which drives up cost, complexity, and management challenges.
>
> *Dennis Huang*

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Some APs, like CommScope's RUCKUS portfolio of APs, have support for these additional layers built in, driving down the complexity and cost. For example, all of the RUCKUS Wi-Fi 6 certified APs offer onboard IoT that supports not just Wi-Fi connections, but LTE, Bluetooth, and Zigbee.

The environment plays another factor in AP selection. An AP that works well in a college residence hall will not work as well in a lecture hall; an AP that works for hotel guestrooms on a hall does not meet the needs of an outdoor resort area. CommScope provides guidance on which APs in the portfolio are the best match for different business needs and environments.

When selecting APs, it is important to look at what enhancements the vendor offers beyond the standard Wi-Fi 6 support that can better support current and future business needs. For example, the RUCKUS portfolio offers BeamFlex, which delivers a stronger signal a longer distance, and transient client management to ensure clients coming in and out of range do not disrupt the network.

RUCKUS Wi-Fi 6 certified access point portfolio supports different business needs

	R750	R650	T750	R850	R550
WFA Certification	✓	✓	✓	✓	✓
Radio Chains & Streams	4x4:4 (2.4GHz and 5GHz)	4x4:4 (5GHz) + 2x2:2 (2.4GHz)	4x4:4 (2.4GHz and 5GHz)	8x8:8 (5GHz) 4x4:4(2.4GHz)	2x2:2 (2.4GHz and 5GHz)
Max Clients	1,024	512	1,024	1,024	512
Physical Interfaces	1 x 2.5Gbps port 1 x 1Gbps port	1 x 2.5Gbps port 1 x 1Gbps port	1 x 2.5Gbps port 1 x 1Gbps port	1 x 5Gbps port 1 x 1Gbps port	2 x 1Gbps port
Onboard IoT	✓	✓	✓	✓	✓

Example of how RUCKUS APs work for education and hospitality environments

		R850	R750	R650	R550	T750
EDUCATION	Cafeteria /Multipurpose room		✓			
	Classroom			✓	✓	
	Lecture Hall	✓				
	Library		✓			
	Residence hall				✓	
HOSPITALITY	Convention floor	✓				
	Hallways				✓	
	Lobby/Common spaces		✓			
	Outdoor resort area					✓

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BIOGRAPHY

Dennis Huang
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Dennis Huang has more than 15 years of experience in product development, product marketing, and business development, and specializes in creating enterprise and consumer wireless networking equipment, IoT offerings, and online services. As the enterprise product and marketing lead at Ruckus, he is responsible for the development of product/solution marketing, business planning, go-to-market planning, channel, and field marketing. Products that Dennis covers span access points, IoT, and controllers, which include SmartZone, Zone Director, and Unleashed.