



# Wi-Fi 6: The new standard for wireless connectivity

These days, there's no question that to attract and retain customers and employees, companies need to offer reliable Wi-Fi. After all, a reliable Wi-Fi connection is now pivotal to a consumer's experience. But the growing number of device types and applications all congesting a network has resulted in a demand that many wireless networks cannot keep up with. As a result, network performance is now a business-critical requirement.

Designed to help accommodate this hike in demand by increasing network efficiency and speed to better meet IT and business requirements, this is where Wi-Fi 6 comes in.

## What is Wi-Fi 6

Wi-Fi 6, also known as 802.11ax, is the new standard for wireless connectivity. Increasing network capacity by up to four times compared to the 802.11ac, Wi-Fi 6 is designed to future-proof environments for the growing number of devices and the demands of mobile users, IoT, and latency-sensitive applications. As such, it provides increased speed, flexibility, and scalability, especially in high density areas.

Now available in phones and laptops such as the iPhone 11, Galaxy Note 10 and the Surface Laptop 3, as well as in the Aruba 500, 510, 530, and 550 Series access points, Wi-Fi 6 has entered the marketplace at speed and is here to stay.

## What are the benefits of upgrading?

- Higher data rates
- Increased capacity
- Improved performance in environments with many connected devices

- Improved power efficiency

## Wi-Fi 6 features

- Orthogonal frequency division multiple access (OFDMA) effectively shares channels to increase network efficiency.
- Multi-user multiple input, multiple output (multi-user MIMO) allows more downlink data to be transferred at one time, enabling access points (APs) to concurrently handle more devices.
- Target Wake Time (TWT) significantly improves network efficiency and device battery life, including IoT devices.
- IoT handling operating mode for low-power, low-bandwidth devices like sensors, automation, and medical devices.
- WPA3 and Enhance Open strengthen user privacy in open networks, simplify configuring security for headless IoT devices, and add higher levels of security to meet government, defence and industrial requirements.

## Where does Wi-Fi 6 provide an advantage?

High density can often be mistaken to refer solely to large auditoriums or retail environments filled with hundreds or thousands of devices. But depending on the devices and applications being used, high density could actually refer to more like twenty devices. For example, in an office in which mobile, high-performance laptops, and all sorts of IoT devices are all competing for connectivity.

### **So, what environments would gain an advantage with Wi-Fi 6?**

- Smart office spaces and manufacturing where 2.4GHz IoT devices will exist and authentication security is a concern.
- Environments like schools and technology organisations where mobility, voice, and video traffic is more prevalent.
- Healthcare environments where existing medical devices will remain 2.4GHz capable for the unforeseeable future.

## Wi-Fi 6 use cases

Want to know how a Wi-Fi 6 network can benefit your organisation? Here are a couple of use cases that provide a birds-eye-view into what it might look like for you.

### **Indoor wireless coverage**

Ensure that users on cellular can easily transition to Wi-Fi, as they enter indoor environments. And provide the same or greater performance using standards-based Wi-Fi technology and communication service provider (CSP) technology.

**Problem: Inconsistent indoor cellular coverage**

Buildings and structures are notorious for dampening cellular signals, especially when end-users roam between floors, or from near a window to a hallway. 5G mm Wave technology – which promises gigabit speeds for the downloading of massive video files – is no different. In fact, it is even more prone to signal attenuation.

**Solution: Wi-Fi 6 as a 5G onramp**

By using Wi-Fi 6 certified access points and Passpoint (an industry-wide solution to streamline network access in Wi-Fi hotspots) organisations can easily transition a building into a radio access network (RAN) to provide 5G like performance using their Wi-Fi network. An employee or guest can seamlessly maintain an active phone call or finish watching a video without an interruption. This helps eliminate the cost of deploying small cell, DAS, or CBRS equipment, while also providing access to specific network resources.

**Safer Wi-Fi access**

Unsurprisingly, physical and virtual security remain high on enterprise to-do lists. The goal is to automate security as devices connect to ensure that traffic remains segmented and secure.

**Problem: Guest traffic is passed in the clear**

More often than not, end-users who connect to public Wi-Fi in coffee shops, libraries, and airports are connected to an open WLAN. This means that any malicious user can potentially conduct a packet capture on personal information and gain access to financial data or other sensitive information. Until now, recommendations for combatting this situation have included using VPNs or to not connect at all.

**Solution: Leverage built-in Wi-Fi 6 encryption such as**

Enhanced Open After nearly two decades since the introduction of open networks, Wi-Fi 6 now includes Enhanced Open to help keep guest traffic encrypted per user session and device. Guests can continue to connect to an “open” network but now enjoy a safer Wi-Fi experience without the added burden of doing anything extra. What’s more, WPA3 was introduced to replace WPA2 and enhance security for employee connections using more advanced algorithms and simpler configuration. Both solutions are easy for IT and users, while enhancing the posture of your networks. Refer to the WPA3 and Enhanced Open white paper for more information.

## The difference between Wi-Fi 6 and Wi-Fi 6E

Without sufficient capacity, businesses that operate in particularly crowded areas are unable to make use of wider channels to support their low-latency, high-bandwidth applications. Wi-Fi 6E, an extension of the current Wi-Fi 6 standard, more than doubles Wi-Fi capacity with wider channels for lower latency to meet today's needs and future proof your investment.

**Benefits of Wi-Fi 6E**

- Includes all features in Wi-Fi 6 plus
- More capacity in the 6 GHz band
- Wider channels, up to 160 MHz, which are ideal for high-def video and virtual reality
- No interference from microwaves, etc. because only 6E-capable devices can use the band

## Ready for the sixth-generation Wi-Fi experience?

Enhance your customers' experience with increased speed, flexibility, and scalability with Wi-Fi 6. Find out more about how Wi-Fi 6 can power your business by getting in touch with us [here](#).

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