

AT A GLANCE

KEY WI-FI 6 USE CASES

For Mobile Users, IoT, and Latency-Sensitive Apps

Wi-Fi connects well over 50,000 different types of devices¹ – from today's smart phones and laptops to emerging entryway locks, office desks and even trash cans. According to a [recent analyst report](#)², demand for connected devices is expected to unleash over 40 billion IoT devices generating over 79 zettabytes (ZB) of data at the edge (or 79 trillion gigabytes).

As we enter into a new wireless era where any “thing” can connect, Wi-Fi 6 becomes a critical foundation for digital transformation and handling this density of devices.

WHAT IS WI-FI 6?

The Wi-Fi Alliance announce a new standard for wireless connectivity based on the 802.11ax protocol in 2019, called Wi-Fi 6. It is designed to futureproof environments for the growing number of devices and the demands of mobile users, IoT, and latency-sensitive applications – especially in crowded areas. In fact, Wi-Fi 6 has quickly entered the marketplace and is 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.

To understand how an Aruba Wi-Fi 6 network can benefit your organization, the following five key use cases provide a practical view into day-to-day problems and solutions using QoS, coverage, and other features.

USE CASE #1: ENSURING APPLICATION ASSURANCE

As video and voice continue to consume greater amounts of bandwidth, ensure a quality of service that does not impact users or the business.

Problem: A poor connection and experience

Locations with a growing density of bandwidth-intensive applications include shopping malls, convention centers, transportation centers and other public venues. While each access point can connect hundreds or even thousands of



client devices, a heavy amount of traffic generated by just a fraction of devices (e.g. AR/VR headsets) can lead to wide-ranging performance and latency issues.

Solution: Wi-Fi 6 optimization of radio resources

With OFDMA, MU-MIMO for Wi-Fi 6 and Aruba Air Slice, device density can now support thousands of devices simultaneously, while dramatically reducing network congestion. This helps ensure that users in crowded areas, or where AR/VR, and 4K video and voice are used, receive an optimal experience. These capabilities can also be tied to Aruba's SD-WAN solution to provide end-to-end SLA-grade application assurance for traffic that also extends to the WAN.



¹ Wi-Fi Alliance Press Release, "Wi-Fi Alliance® surpasses 50,000 Wi-Fi CERTIFIED™ products"

² The Growth in Connected IoT Devices Is Expected to Generate 79.4ZB of Data in 2025, According to a New IDC Forecast

USE CASE #2: 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 mmWave 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) organizations 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.

USE CASE #3: ENABLING THE INTELLIGENT EDGE

As the business becomes hyper-connected and demands real-time insights, IT needs to deliver digital transformation without interrupting the business.



Problem: More data is being generated at the edge

The shift to cloud-based services – including video, voice, and especially IoT – is causing applications to generate a larger amount of data using scarce network resources. This leads to suboptimal performance, higher latency, and growing costs that current infrastructure cannot accommodate.

Solution: Combine Wi-Fi 6 with Edgeline to bridge connectivity and compute

Enterprises can deploy an Aruba Wi-Fi 6 network with HPE Edgeline servers at each business location to optimize performance, QoS and data analytics. Aruba Wi-Fi 6 connects people and things to the cloud with ultra-low latency and SLA-grade application assurance, while Edgeline ensure that IoT workloads that demand real-time insights are delivered on-premises for faster results and minimal impact to experience. Refer to [HPE.com](#) for more on the Intelligent Edge.

USE CASE #4: IOT CONVERGENCE

Make it easy for IT and users to leverage IoT technologies easily as use the enterprise networks as the critical underlying infrastructure.



Problem: Silos of technology to support IoT

The need to stand up independent IoT overlays has become a nuisance to accommodate device connectivity (e.g. surveillance cameras and sensors), making management cumbersome and inefficient.

Solution: Utilize Wi-Fi 6 as the center of convergence

As the primary connectivity method for mobile users and an emerging set of client devices, WLANs can be used to connect hundreds or even thousands of Wi-Fi 6 devices to a single AP – and even support wireless mediums such as Bluetooth, Zigbee, and third-party radios through USB. This allows enterprises to consolidate infrastructure, visibility, and control to reduce costs and optimize resources. See how Aruba leads the pack in the [Forrester New Wave™: Wireless Solutions, Q3 2019](#) report.

USE CASE #5: 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.

KEY TAKEAWAYS

Prior to Wi-Fi 6, organizations deployed multiple, overlapping technologies to manage various use cases and solutions needs to reach their goals. These technologies would often operate outside of the Internet Protocol (IP) network and relied on complex proprietary technologies that added considerable ownership costs. With the advancements delivered by Wi-Fi 6, these organizations now have the opportunity to accelerate digital transformation by using SLA-grade application assurance, seamless in-building cellular coverage, combining connectivity with edge compute, converging IoT services, and improving security. For more information on Aruba Wi-Fi 6, refer to the following resources:

- [Aruba is a Leader in Three Leading Industry Reports](#)
- [Aruba Wi-Fi 6 Technology Overview](#)
- [Aruba Wi-Fi That Works Blog Series](#)
- [Aruba Wi-Fi 6 and 5G Technology Overview](#)
- [Aruba Wi-Fi 6 Access Points](#)
- [HPE Edgeline Overview](#)