



# Six MUST DOs for a successful Wi-Fi 6 migration

eBook  
Six MUST DOs-Wi-fi 6 migration

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Enterprise



## Abstract

It was only a few short years ago that Wi-Fi 5 was at the top of network administrators minds. Consumers, businesses, government centers, educational institutions, hospitals, the hospitality industry and mass transit systems such as airports and train stations, all welcomed higher speeds and the benefits of 802.11ac. While some were early adopters and chose to deploy Wave 1 access points (APs), others were a little more pragmatic and waited until 802.11ac Wave 2 was introduced.

The same will occur with the latest Wi-Fi standard, 802.11ax, known as Wi-Fi 6. There will be early adopters from the manufacturing sector and from consumers and businesses that want to capture the benefits of Wi-Fi 6 and get a jump on the market. Some manufacturers will go to market with pre-standard Wi-Fi 6 products while others will go the route of getting their products Wi-Fi Alliance certified. The role of the Wi-Fi Alliance is to ensure interoperability as well as to ensure products meet the stringent Wi-Fi 6 access point certification requirements.

It is anticipated that Wi-Fi 6 will be adopted more quickly than Wi-Fi 5 was because of the tangible features that it offers, such as the ability to:

- Differentiate between signals from one network to another through basic service set (BSS) coloring—increasing network efficiency and capacity
- Use spatial streams more efficiently with spatial re-use
- Benefit from Orthogonal Frequency-Division Multiple Access (OFDMA) and Multiple-User, Multiple Input, Multiple Output (MU-MIMO) both downstream and upstream
- Enjoy longer device battery life with Target Wake Time (TWT)

This combination of features provides all the essential elements to support bandwidth hungry applications, and clients in dense environments such as stadiums, college campuses, lecture halls, hotel lobbies, hospital waiting rooms, airports, train stations, conference centers, and K-12 schools, as well as address enterprise business demands.

However, Wi-Fi 6 environments require more than just high-performance APs. All that wireless traffic has to get dropped on a wire somewhere. So the question is—how will you prepare your network to deliver exceptional Wi-Fi 6 performance?

Following are the six MUST Dos that we believe can help you navigate deployment and ready your network for Wi-Fi 6.

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# Six Must Dos

## **1** Conduct an edge switch inventory to ensure your switches support PoE+ and Multi-Gig

Wi-Fi 6 APs require more power to unleash their full potential. The 802.11ax APs have added more capabilities and are more feature rich. Make sure your switches support 802.3at, PoE+ to deliver 30W per port. Also check your PoE+ budget to ensure the 802.11ax APs are fully operational. Don't worry if you have to install an access point on an 802.3af port, the AP will still work (in most cases), but at a reduced capacity. To fully benefit from supporting more spatial streams, it is recommended that PoE+ be available for the new APs. If you find your edge switching doesn't support PoE+, it's a good time to replace your switches.

Because of the additional bandwidth capacity supported by Wi-Fi 6 APs, you need to make sure your network is free of any bottlenecks, especially the edge switches that connect to the APs. Many Wi-Fi 6 APs support 802.3bz. 802.3bz makes it possible to support 2.5Gbps on Cat6 and Cat5e cables. Check your cable infrastructure to ensure your APs and switches support N-Base-T. The additional dense client support and additional bandwidth is best utilized when operating at full capability, per the PoE+ recommendation.

When checking the edge switches to ensure they support both PoE+ and 802.3bz, it is also necessary to identify any bottlenecks from the edge to the distribution switches, and all the way to the core. It is recommended that edge switches have at least 10Gbps uplinks to the distribution switches, however, if you need to purchase new switches 25Gbps or 40Gbps uplinks to the distribution layer are recommended.



## 2 Ensure your network is loop-free and ready for fast service deployment

We have seen the worst of what spanning tree can do to a network. It can bring an enterprise to its knees and in complex networks it can take hours or days to find the issue. This can potentially cost a company thousands, if not hundreds of thousands of dollars, in lost productivity and revenue. It also makes for some very long days for the network team. Installing [Shortest Path Bridging](#) (SPB) capable switches will ensure your network performs without loops and has the efficiency and capacity to use all connected links. Unlike spanning tree, with SPB all links are capable of forwarding traffic at the same time. It's like doubling your capacity without having to replace your cable infrastructure. Your network team will benefit as well, because when you make a change to the network you only need to make it at the edge. This removes complexity, saves time, and frees your staff to focus on business-critical projects. If you haven't heard of SPB, it's a standard protocol, IEEE 802.1aq, and has a number of benefits including a distributed link-state protocol. The distributed architecture is an advantage on the LAN as well as on the WLAN.





## 3 Deploy a distributed wireless architecture

With a distributed wireless architecture you save money because a controller is not required, as well, the associated maintenance is not required. Migrating your network to a standards-based architecture with SPB and Wi-Fi 6 distributed architecture access points can save time and money and improve efficiency.

However, the value of a distributed architecture is not only cost-savings, but also knowing your APs are robust enough to make decisions about air-time fairness, band-steering, auto-channel selection, and auto-power selection. A distributed wireless architecture also eliminates a single point of failure, improves scalability, as well as data latency. There are no additional packets flowing through your network causing congestion or having to rely on a central controller to make all the wireless decisions. Wi-Fi 6 APs are powerful enough to make adjustments as required and they offer rogue detection. And, with security at the forefront of our networks it is important to make sure your Wi-Fi 6 APs have a dedicated radio for scanning the network.



## 4 Employ a unified network management system

Ensure you have a network management system that can manage your wired and wireless infrastructure through a single screen. A unified management is essential for operational efficiency and to reduce IT workload. It allows you to have a common interface to:

- Configure and push policies to wired and wireless devices
- Avoid duplication of work
- Minimize inconsistencies
- Have a centrally located device inventory
- Receive network performance alerts, analytics and heat maps, and real-time network status







## 5 Choose the right access points

In terms of AP selection, you need to figure out the best device for the job. Some things to consider include:

- Number of clients the AP will support
- What will the clients access over the WLAN, for example: Specific applications, HTTP, HTTPS, Video, Voice
- Do you need outdoor access points or only indoor

In addition, following are some AP features you should consider:

- Support for the full range of Wi-Fi 6 capabilities, including OFDMA, UL-DL-MU-MIMO, TWT, up to 37 Rus, and BSS Coloring
- A dedicated scanning radio for always-on threat monitoring and advanced analytics
- An AP model that you can standardize on that has both an internal antenna and external antenna for flexible deployment options
- Support for secure and simple IoT deployment
- Wi-Fi Alliance certification

The right APs should provide you with the flexibility to meet your WLAN objectives, whether you're a K-12 school district, college campus, hospital, government, transportation or a business.



## 6 Conduct a wireless site survey

After you have identified the access points you require, it is highly recommended that you conduct a physical wireless survey, especially in challenging environments such as older buildings, school campuses, and critical environments like hospitals. The best way to ensure your wireless environment will meet your needs is to conduct a wireless site survey where you measure the actual RSSI and SNR of an AP, so you know the exact location of where you should mount the APs as well as the performance and coverage of the AP. This accomplishes a couple of things; roaming will be seamless, and your wireless network design will be based on actual data from your environment not predictions.

### Summary

The key to success with most new technologies, including this latest generation Wi-Fi 6 is implementing it in the timeframe that makes sense for your organization. We hope this step-by-step guide provides you with the information you need to install a robust, secure, adaptive, high-performing Wi-Fi 6 enabled network.

ALE offers both indoor and outdoor [Alcatel-Lucent OmniAccess® Stellar](#) Wi-Fi 6 Access Points based on a distributed intelligence architecture and can be managed on premises with [Alcatel-Lucent OmniVista®2500](#) Network Management System or in the cloud with [Alcatel-Lucent OmniVista Cirrus Network Management as a Service](#).





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