FIVE STEPS TO SUCCESSFULLY MIGRATE TO 802.11AC

802.11ac is well on its way to becoming the standard for next-generation Wi-Fi. The gigabit speed, improved capacity and reliability that 802.11ac brings to wireless LANs (WLANs) are amplified as mobile users, devices and application usage continue to grow rapidly.

Whether you are an early adopter who has already started planning, or like several organizations, unsure of your next step, the following guidelines will help you prepare and plan for a successful migration to an 802.11ac WLAN.

Note that migrating to 802.11ac will require hardware replacement. Older 802.11n access points cannot be upgraded to 802.11ac. However, 802.11ac is backwards compatible so you can migrate gradually from 802.11a/b/g/n.

1 Audit current infrastructure.

Since 802.11ac is all about gigabit Wi-Fi, it is important that the supporting infrastructure is optimized to leverage all that 802.11ac access points (APs) have to offer.

- Is the wired network 802.11ac-ready? To avoid traffic congestion at the switch, be sure that your access switches support at least 10-gigabit uplinks. Additionally, to avoid performance degradation, the access switches will need to support PoE+ (802.3at) on every port. Although 802.11ac APs may operate on 802.3af in some cases, several tests have shown a need for more than 20 watts for optimal performance. So, planning for 802.3at is recommended.
- Will the controller need to be upgraded? In a controller-based deployment, upgrading the controllers may be considered to maximize capacity, but at a minimum, ensure they are 802.11ac-aware. For example, the ability to address 256 quadrature amplitude modulation (QAM) and multi-user MIMO.

2 Evaluate capacity requirements.

As traffic demands continue to grow exponentially, take both current and future demands into consideration when planning for capacity.

- How many mobile devices will need to be supported? Plan for at least three devices per user (laptop, tablet, and smartphone), and 20-30 devices per radio or 40-60 per dual-radio AP.
- How many devices will be active simultaneously? Evaluating both how active the devices are and the type of devices will effect capacity, and important for determining AP density.
- What applications will be used? Voice over Wi-Fi? Multicast video over Wi-Fi? Determine coverage versus capacity requirements by planning for roaming and calculating AP signal strength based on bandwidth demands and application prioritization.

3 Evaluate RF requirements.

Virtual planning tools can provide basic foundation in planning for standard deployments, but an additional physical survey is recommended for complex deployments to verify AP locations and signal coverage. Note that in most cases 1-for-1 replacements are not viable for building an optimal 802.11ac network, especially in complex deployments.

- Which RF bands will be used (2.4 GHz, 5 GHz)? Due to increasing client density, always plan to use both bands.
- What channel width (20 MHz vs. 40 MHz vs. 80 MHz) will be used in each band? Typically 20 MHz channels are used in 2.4 GHz, and 40-MHz and 80-MHz channels are used in the 5-GHz band. In dense deployments, speed may be traded off for capacity in the 5-GHz band by reducing to a 20- or 40-MHz channel.
- Will real-time location services (RTLS) be used? Consider deploying air monitors around the building perimeter to help with location accuracy. This deployment ensures that all clients are within the triangulation zone.

ARUBA networks

4 **Choose the right APs.**
Once all the preliminary evaluations are complete, choose APs and antenna types that are best suited for the environment to provide optimal performance and RF coverage.

- What are some unique capabilities to consider? Mobile device clients tend to stick to one AP as they roam instead of associating with one that's closer and has a stronger signal. Access points that can eliminate sticky clients and do not cripple the 802.11ac capabilities are highly recommended.

5 **Determine deployment plan.**
New deployments are fairly easy to plan, but if a phased approach is preferred, it is important to understand that how you rollout could impact performance and user experience.

- Upgrading from 802.11n? It is recommended that one floor or building at a time be upgraded with new 802.11ac APs.
- Upgrading from 802.11a/b/g? Upgrading one building at a time is recommended. This approach gives devices in that area the best chance of remaining connected to the network, providing a better user experience.
- Considering mixed deployments? In the past, deploying then-new 802.11n APs with legacy 802.11 a/b/g APs resulted in client behavior problems related to device roaming. Similarly, roaming from an 802.11ac 40-MHz or 80-MHz channel to an 802.11a/g 20-MHz channel will cause some devices to stick to the higher speed AP. To avoid an unpredictable client experience, mixed deployments are not recommended.

While there might be several items to consider for successfully migrating your current network to 802.11ac, this is possibly the best time to start planning.

ARUBA networks

www.arubanetworks.com

1344 Crossman Avenue. Sunnyvale, CA 94089

1-866-55-ARUBA | Tel. +1 408.227.4500 | Fax. +1 408.227.4550 | info@arubanetworks.com