



# TOP 10 MISTAKES

**EVEN EXPERIENCED  
NETWORK  
ENGINEERS MAKE  
WHEN DEPLOYING  
WIRELESS**

**Wireless access to business-critical services and applications is vital in the modern office, production facility or warehouse environment. In many cases, hundreds to thousands of devices may rely on wireless connectivity at a given facility. One simple overlooked variable within a wireless deployment can mean the difference between seamless connectivity and poor communication.**

We've compiled a list of the *Top 10 Mistakes Even Experienced Network Engineers Make When Deploying Wireless* to help you differentiate between common misconceptions and hard reality.

**01****MISCONCEPTION: MORE IS BETTER**

With more devices than ever requiring wireless connectivity, many businesses assume they need wall-to-wall coverage from the get-go. And when a wireless connection isn't performing as expected within a specific area, the inclination is often to simply install yet another access point to fix any connectivity issues are challenged with ensuring that all performance expectations are met.

**REALITY:** There are many factors that can cause WiFi to perform poorly. Throwing more access points at a problem is often ineffective and may end up costing money with no benefit whatsoever. Instead, perform a comprehensive wireless site survey before implementing a new WLAN or supplementing an existing deployment. The survey will provide insight into how the existing RF environment may affect your deployment and highlight any potential sources of interference. Understanding the effects of neighboring WiFi networks as well as non-WiFi sources of RF interference (radar, heavy machinery, cordless devices, etc...) will enable you to accurately assess and remediate any wireless issues.

**02****MISCONCEPTION: THE HYPE MUST BE TRUE**

When exploring your options for new wireless access points, keep in mind that marketing materials can sometimes be misleading. Not always are the specs advertised actually achievable.

**REALITY:** WiFi transmissions are half-duplex, meaning that data cannot be sent or received simultaneously. That means any maximum speed advertised for an access point must be halved due to the fact that airtime utilization must be split between sending and receiving. In addition, advertised maximum speeds factor in the use of multiple spatial streams and channel bonding, features that most client device radios are unable to support. Instead, clarify which services and applications will be utilized over the WLAN – as well as the specific bandwidth requirements for those applications – to help guide you in determining which client device and access point hardware best suit your needs.

**03****MISCONCEPTION: DEFAULT SETTINGS ARE ALWAYS BEST**

New out-of-the-box wireless devices often come with features enabled that may prove to be problematic for your wireless deployment. These devices are often configured, by default, to broadcast their signals using 80MHz wide channels in order to achieve their maximum data rates. However, this utilizes a large wireless bandwidth footprint and cannibalizes corporate WLAN channels. For example, printers, smart TVs, hotspots and SOHO (small office, home office) routers are often deployed in and around corporate WLANs and can have adverse effects on business critical WiFi.

**REALITY:** For the vast majority of devices, these maximum data rates are not required for operation and should be disabled when possible. Identifying and disabling these features – especially when the devices don't even operate on the corporate WLAN – can help improve performance of devices that ARE critical to your network.

**04****MISCONCEPTION: RRM IS INFALLIBLE**

All the major wireless vendors allow for the auto-configuration of access point parameters, such as channel allocation and radio transmit power. These auto-configurations are useful as their algorithms attempt to calculate the optimal settings for the access points. However, inefficiencies are often identified when surveying and analyzing these completely autoconfigured networks.

**REALITY:** Wireless networks operate best when configured for specific use cases. Wireless networks deployed in a warehouse will have very different requirements than wireless networks deployed in a crowded office space. Unfortunately, auto-configuration features on WLAN controllers often miss the mark. Performing a wireless survey will identify any auto-configuration inefficiencies and recommend tailored changes to achieve the performance needed to support your site-specific requirements.

**05****MISCONCEPTION: FEATURES ON APS ARE SUPPORTED ON CLIENTS**

As new wireless standards have been rolled out over the years (802.11ac waves 1 & 2 and now 802.11ax), new features and protocols are continuously introduced. Many of these new features such as MU-MIMO, beamforming, etc. represent true innovation in the way WiFi scales to meet increasingly demanding use requirements. However, client devices don't always keep up and adopt these same features. Without support for many of these protocols on both ends of the connection (client and access point), the benefits of these advancements are lost.

**REALITY:** When planning or upgrading a WLAN, it is important to analyze your needs and determine which advanced WiFi features may help you achieve your goals. Additionally, understanding the limitations of any deployed client devices is just as important to this equation.

**06****MISCONCEPTION: FULL BARS EQUAL FULL CONNECTIVITY**

WiFi connections are 2-way communications, one transmission originating from the access point to a client device and a return transmission originating from the client device back to the access point. When you see a strong signal indicated on your cellphone or laptop, this only represents one half of the 2-way communication.

**REALITY:** Access point hardware generally has far more powerful antennas installed than a typical client device. This can create a scenario where a client device shows a strong signal from an access point but the client device itself does not have a powerful enough radio to reliably transmit back to the access point. Again, understanding the capabilities of client devices within an environment – along with proper planning and configuration – can help avoid these transmit power asymmetries.

**07****MISCONCEPTION: MOUNTING AND ANTENNA CONSIDERATIONS ARE OBVIOUS**

Mounting an access point seems like a relatively straight-forward process but access points and antennas can be designed for very specific deployment methods. Corporate office space, manufacturing plants and warehouse storage facilities each have their own unique challenges to consider when choosing and installing access point hardware. There is no one-size-fits-all solution and often mistakes are made when choosing the correct hardware.

**REALITY:** Even when the correct hardware is chosen it is critical to understand the performance specifications of the antennas so that they are mounted and oriented correctly. Various specifications such as radiation pattern, beamwidth, polarity and antenna gain will all dictate how the mounting and orientation of a device should be handled for optimal performance.

**08****MISCONCEPTION: HIGHER TRANSMIT POWER IS BETTER**

One might initially think that having more powerful antennas and the ability to transmit at higher levels on your access points would be a good thing. Unfortunately, this is not necessarily the case.

**REALITY:** One of the goals of a well-planned WLAN implementation is to have defined coverage cells for access points where clients in specific areas must be serviced by specific access points. Keeping transmit powers low on access points will help to create these defined coverage areas, thus decreasing co-channel interference between access points as well as helping to facilitate clients roaming between access point connections where desirable.

09

**MISCONCEPTION: THE MORE SSIDS, THE MERRIER**

Advertising multiple logical networks from a single access point is crucial for many enterprise WLAN deployments. But how many SSIDs are too many? The answer to this may not be apparent until you understand how the airwaves are used to broadcast these multiple SSID networks.

**REALITY:** SSIDs are advertised over the airwaves from every access point configured to support these SSIDs. Each configured SSID is treated as a completely different network from the point of view of the access point and the client device. This means that every SSID that is configured must be advertised separately, each one taking up small amounts of time and airspace – a big deal when you consider that the management overhead in WiFi data packets are more substantial than in wired Ethernet. This issue is further compounded when you have multiple access points in an area, resulting in management traffic chewing up large amounts of valuable airtime that could otherwise be used for data transmission, ultimately slowing down your network.

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**MISCONCEPTION: HIDING SSIDS IS A SECURITY FEATURE**

When setting up and configuring SSIDs on your WLAN, the network can be publicly broadcast or hidden so that it does not appear when a client device searches for available networks. Hiding specific networks is often thought to be a best practice security measure when in reality, hiding these networks has little to no added security benefit.

**REALITY:** While these hidden networks will not show up when a client device scans for available networks, beacons for these hidden networks are still sent over the airwaves from an access point and any packet capture software can easily identify these hidden networks within seconds. It is important to understand that proper authentication and encryption protocols should be implemented for any enterprise WLAN deployment.

**LOOKING FOR HANDS-ON HELP WITH YOUR WIRELESS DEPLOYMENT?**

CTRL+V has the proven expertise to deliver the full lifecycle of wireless services – from simple office deployments to challenging production and healthcare facilities. Whether it is designing a wireless solution from the ground up, installing new wireless hardware and infrastructure, or troubleshooting an existing deployment, our experienced project management staff and trained engineers will ensure your business benefits from full wireless versatility and mobility.

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