

Wired versus Wireless: Conflict, Congruence, or Compatibility?

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Deciding which network architecture to use in your next LAN deployment can be tough. Should you go wired or wireless? Until recently, it was a far easier question: a wired network was the obvious choice. The dilemma is now dreadfully complicated because wireless local area network (WLAN) technology is exponentially advancing passed wired LANs.

Bandwidth was a key performance indicator (KPI) used to evaluate LAN technology. Now, WLANs can match or exceed wired LANs data throughput.

Another KPI was security. WLANs were reputed to be the scourge of the IT industry and could bring the most locked-down network to its knees. The classic WEP encryption was supposedly easily hacked and war-driving stories were fast becoming legendary. Today, security is less an issue as we have government-grade WPA2 (802.11i) encryption, which at least equals wired LAN security levels.

Performance has plagued WLANs too. Yet those concerns are virtually resolved with several emerging technologies, like MIMO, mesh networking, dynamic modulation / FEC and smart antenna arrays. The emerging 802.11n specification promises wireless throughputs that can be up to 6-10 times greater than 802.11a/g and 30-50 times improved over 802.11b. Range is also improved and the expectation is a fourfold increase in coverage area.

When the question of interference comes up, WLANs are still facing some challenges at specific frequencies. IT experts still question reliability, and trust of the technology must still be earned. Risk appraisals and site surveys are required to judge and measure interference concerns. WLAN education is essential as few IT professionals have a suitable and comprehensive understanding of WLAN technology.

Capital expenditure is a major motivator favouring WLAN implementations. Today, it is more economical and much simpler to install a WLAN than a wired LAN. The installation savings and the reduction of workplace disruption alone dictate a WLAN consideration.

Today's workers demand mobility. They can no longer be tethered to a desk. They want and need location flexibility. With a WLAN, mobility can be achieved without the nonsense of wires to trip over. Office layouts and ergonomics can be optimized without cabling limitations.

When we discuss user applications, either media can deliver bandwidth-demanding rich media content. The emergence of QoS, VPN, VLAN and other proven and critical wired standards are now making headway in the wireless world too. So, the ability to use just one network management solution can simplify the complexity of operating both architectures. We are now seeing unified network management systems installed.

Of course, there are still issues that need to be considered when deploying a WLAN

Life expectancy of wireless technology is unknown. It is still evolving rapidly much like wired LAN technology developed in the past. IT professionals should expect to adopt several variations as wireless equipment advances. These advances can impact the anticipated cost savings. So, selecting the correct hardware upfront is critical.

The latest operating systems ease the log-in, access, and driver issues that had previously slowed WLAN adoption. Wireless can now offer transparent and simple connectivity that users welcome.

As with any LAN, scalability is always a concern. User growth can hamper whatever deployed technology you operate. So, the solution is the pursuit of solid upfront planning to address the scaling challenges. WLANs can be expanded much faster and easier with no delays resulting from pulling cables. But, the background infrastructure must also be capable of supporting these added wireless users.

The conclusion is WLAN technology has earned the right to stand beside the proven wired LAN solutions. Sure, it can be a stand-alone solution. But, it can also work as an equal with your wired systems. A hybrid network using both wired and WLANs may be the best approach. Whichever LAN solution you choose, the architecture must respect the industry's best practices, apply common sense policies and procedures, and adhere to governance that permits safe and responsible use of the media and protects your business assets.

About the Author

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