

Enterprise Wireless

White Paper

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Today's technology buzz words are Mobility and Cloud, and that can work only with wireless networks.

Increasing mobility, video over wireless, requirement of connecting devices (Smartphone, laptops, tablets) to Cloud, need of anywhere – anytime information access regardless of the location of the user or information are increasing the requirement of wireless technology, which became very important for any enterprise.

To fulfil the increasing demand, over the past decade, wireless technology has made huge strides in security, reliability and throughput. The wireless networks of today are almost as fast and reliable as wired networks and provide much more convenience and flexibility. As a result, there has been explosive growth in wireless networks of all types, from Wireless LAN (WLAN) to Wide Area Networks (WANs).

Benefits Of enterprise wireless

Enterprise Wireless network has changed the dynamics of the working environment and workforce mobility. Without being tethered to a fixed location or formal work-based environment, users can work anywhere. Employees use Laptops, Tablets, Smartphones, handheld computers, etc. to connect wirelessly to the Internet through the network coverage area of telecommunication service providers or enterprise wireless network.

Enterprise wireless network have following benefits

- Anytime, anywhere work
- Improvement in employee productivity
- Connectivity from remote area.
- Easy to implement

Limitation of Enterprise Wireless network

- Speed
- Security
- Dependability

Below is the comparison of enterprise wireless standards

Standard	Bandwidth	Advantages	Disadvantages	Comments
IEEE 802.11	1 Mb/s to 2 Mb/s	This standard is effectively obsolete, but it paved the way for the standards that followed.	Bandwidth limitations did not allow widespread use in the enterprise	Early wireless adapters for computers were expensive; security was a problem
802.11b	5 Mb/s to 11 Mb	<ul style="list-style-type: none"> • Provides sufficient bandwidth to satisfy a some of the wireless ready applications Including ERP • Improved security. • Products available from multiple Vendors. Interoperability assurance between products offered by Wireless Ethernet Compatibility Alliance. • Can be less expensive than wired systems. • Good outside range (about 800 feet); permits campus-wide installations. • Transmissions automatically switch among one of three channels. 	<ul style="list-style-type: none"> • Potential interference from other products such as microwaves, cordless phones, and Bluetooth devices that operate on the unlicensed 2.4 GHz frequency band. • Effective bandwidth is usually only 7 Mb/s, Not sufficient for bandwidth-hungry applications such as video conferencing. • Effectiveness is reduced in densely populated areas that have many users. 	802.11b is a widely accepted standard for most of the applications.
IEEE 802.11a	54 Mb/s	<ul style="list-style-type: none"> • Supports the transmission of video, voice, and other large files. • Transmissions in the 5 GHz band ensure lack of interference from a host of devices such as cordless phones that share the 2.4 GHz frequency. • Works well in densely populated areas because eight-channel operability means more access points can be deployed within the same space than with an 802.11b system. • In some configurations, bandwidth of up to 108 Mb/s may be achievable • Speed decreases with increased distance at a lesser rate than with 802.11b systems. This means, as a user gets farther from an access point, an 802.11a access point will still deliver up to 12 Mb/s, whereas the 802.11b system delivers just 2 Mb/s. 	<ul style="list-style-type: none"> • Not backward - compatible with existing 802.11b systems. This means that Organisations significantly invested in 802.11b technology should think carefully before migrating to the 802.11a standard. However, there are indications that dual compatibility access points may soon be offered, effectively eliminating this disadvantage. • Prices for 802.11a access points and peripherals will be higher in the short run. • Effective range of 5GHz systems is less than 2.4 	In the long run, there seems little question that the newer, higher bandwidth 802.11a and 802.11g standards (see below) have many advantages over the older 802.11b standard. Dual-compatibility systems will also probably hasten the demise of 802.11b

Looking at the analysis, and increasing demand from users on information accessibility on various mobile devices it became mandatory for CIO/CTOs to adopt the enterprise wireless technology for the organization.

But before CIO/CTO takes a decision on adopting enterprise wireless they should make sure the followings.

- Managing a wireless network is more difficult than managing its wired; there are worries about performance, security, and pesky wireless-specific issues such as radio-signal and traffic management. Before deploying wireless LANs widely, CIOs must ensure they put in place the right management systems.
- Managing a wireless network is more difficult than managing its wired; there are worries about performance, security, and pesky wireless-specific issues such as radio-signal and traffic management. Before deploying wireless LANs widely, CIOs must ensure they put in place the right management systems.
- There is little wonder why wireless networks have become so ubiquitous the last few years. Wireless access points are inexpensive, easy to install, and most of all, handy. Although wireless networking can make life a lot easier for your users though, they can also become a security nightmare. As such, it is important to have an effective wireless networking policy in place on your network Security is possibly the trickiest factor to finesse; make sure you observe best practices carefully.
- CIO should have a clear Strategy for Enterprise wireless.
- Avoid dropped connections by choosing (or at least favoring) whichever vendor offers the best coverage – i.e., the most towers—in the regions that are most important to the best wireless candidates in your company.

			GHz systems. This means more 802.11a access points will be needed to cover the same area than 802.11b access points. This is an issue that is more relevant to large campus settings. Lower range means that 802.11a systems will be more costly to install, though users will benefit from the higher bandwidth these systems offer. Most 802.11a access points do not permit the use of replacement antennas. Some of the frequencies used by 802.11a devices are not licensed for
IEEE 802.11g	54 Mb/s	<ul style="list-style-type: none"> • Essentially, this is similar to the 802.11b standard because it operates on the 2.4 GHz frequency band. • All the advantages noted previously for the 802.11b standard apply. • The 802.11g standard is backward compatible with the older 802.11b standard that many organisations are heavily invested in. • This standard canor compete more effectively with the 802.11a standard because it offers the same higher 54 Mb/s bandwidth. Offers greater range than the 802.11a standard, which means larger installations is less expensive than for the 802.11a standard. 	<ul style="list-style-type: none"> • Potential interference from other products such as microwaves, cordless phones, and Bluetooth devices that operate in the unlicensed 2.4 GHz band

Conclusion

As you can see, that the world is changing and information availability anywhere anytime became very much important for any organisation to grow in this competitive world, so having a enterprise network in the organisation is equally important for CIO/CTOs. Having an effective wireless access policy is critical to the security of any organization that operates a wireless network. Without such a policy, you are basically at the mercy of your IT staff to deploy wireless hardware in a secure manner.