

Wireless Networking

Wireless LAN, or as it is more commonly known WiFi, is certainly one of the hottest technologies around town these days. What is a Hot Spot? Guest Access? IEEE 802.11a? b or g? Can it replace copper? Is it secure?.....these are some of the common questions being asked about a technology that has been proven to greatly improve an organization's productivity.

As more and more devices become wireless enabled the value of wireless networks is continually increasing. Intel's incorporation of WiFi technology in their Lap Top chip sets means that almost all new professional Lap Tops are equipped with integrated wireless. Personal Digital Assistants (PDAs), stock scanning devices, credit card terminals and TOTE betting terminals have recently joined the long list of devices using WiFi to improve productivity. WiFi has arrived and all organizations need to consider its use as part of their IT strategy going forward.

We in **Kedington** have been providing wireless solutions since 1999 and we have seen the technology evolve and improve in the interim. Speeds have gone from the original 11 M Bit 802.11b standard to the 54 M Bit 802.11g/a. The first wireless base stations, normally referred to as Access Points (AP), had one radio and required a local mains power supply. Today APs are one fifth the size and weight of the original units, support two radios and are powered from the LAN switch in the Comms room. In addition, stealth antenna design has resulted in antennas that look like smoke detectors or ceiling tiles ensuring that wireless systems do not negatively impact the aesthetics of the building.

The most common enterprise application of WiFi technology has been to provide flexibility for staff, allowing them to take their Lap Top or data device and move to a meeting room or colleague's office while remaining connected to the network. Increasingly, enterprises are now using their WiFi networks to provide "Guest Access" for visiting clients, allowing them to access the Internet and their corporate mail and file systems,

without compromising data integrity on the host network.

The arrival of public WiFi access services, commonly referred to as 'Hot Spots', in hotels, bars, airports etc., provides a valuable service for traveling executives using WiFi devices to connect at broadband speeds to the Internet and their office networks. Hot Spots also provide a valued marketing tool for the Hospitality Sector helping to attract high value customers to their particular venue. Most hotels now recognize that the provision of WiFi service in public areas is as important as television in the bars.

Security is another common concern regarding WiFi networks. The industry suffered greatly from poor engineering and installation of the early systems. Security encryption systems were simply not turned on or were incorrectly configured. The industry reaction was two fold - improve the technology and establish certification programs for premium integrators. The net result of this is that today a system that is professionally surveyed, engineered and installed will prove security levels in excess of wired networks. **Kedington** is currently Ireland's leading installer of wireless networks with a team of qualified engineers ensuring the performance and security of each system.

Key to the successful implementation of a WiFi network is good surveying and engineering services. The coverage provided by a single AP will be dependant on numerous factors including, number of radios, location of the AP, position and composition of walls and partitions and the number of expected users within the coverage area. All of these factors will dictate the type, number and location of APs within a network

A common question is whether wireless can replace copper and the answer is **NO**. We in **Kedington** currently recommend Access Points equipped with two 54 M Bit radios giving a total capacity of 108 M Bit to be shared among the devices connected to that Access Point. The precise bandwidth available to each device will be dependant on the number of user connected to an Access Point at any time, but cannot exceed 54

M Bit per user. On the other hand Cat 6 copper networks will support up to 1,000 M Bit per user. The copper industry is currently developing the next generation solution, which is expected to be widely available towards the end of this year (and already available today from one manufacturer we support) and this system will support 10,000 M Bits to each user. Granted the wireless developers are also working on improving their systems, but the limited RF spectrum available will never allow them to match the performance of cabled systems.

In summary wireless does not and will not match the performance of wired networks. Wireless does however provide mobility, flexibility and the ability to access Hot Spot and Guest networks. We in **Kedington** see wireless as an adjunct to a wired solution, providing users with flexibility and mobility at relatively high bandwidth but allowing them to connect to the wired network for the high bandwidth applications.

Some Commonly Used WiFi Specifications & Abbreviations:

802.11 b	The original radio specification, operating at 11 M Bit @ 2.4 GHz.
802.11g	Radio operating at 54 M Bit @ 2.4 GHz (backward compatible with 802.11b).
802.11a	Radio operating at 54 M Bit @ 5 GHz.
AP	Access Point, the radio base station providing coverage for client devices within range.
NIC Card	Wireless card installed in the Client devices (PC etc.).
802.3af	IEE standard for Power over Ethernet

For further information please contact Willie O' Connell at Kedington **Ph:** 01-8325665 or **E-Mail** willie.oconnell@kedington.ie

