

Wireless Networks Explained

An article by

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August 2010

First of all we must clarify the definition of wireless for some people as there are two distinct categories, *Local Wireless Networks* and *Roaming or 3g wireless networks*.

Local Wireless Network or WLAN

First of all you have an internet connection into you premises, with a modem and plugs in the wall that join it all together for connecting to the World Wide Web. You then have your IT guy install a *wireless access point* as a part of your network. This is a small unit roughly the size of your modem router with antennae's as depicted. What this does is allow you to extend your Internet connection over the airwaves, negating the need for cables hence, *wireless*. You can then connect using your laptops built in wireless adapter, or purchase USB Wireless adapters for your desktops. The range for this is limited to around 30 meters or so depending on your topography. Because they are so popular and cost effective, most modem-routers also come with a wireless access point built into them, saving on space and power.

To stop other people next door to outside your office logging into your wireless network, the ability to add a security access key, normally a combination of numbers and letters is provided on the Unit. This is always implemented for obvious reasons. This is the most common form of wireless network connectivity found in many businesses and homes today..



Wireless Access Point

When wireless networks technology was first introduced, like most technologies it had various levels of releases marking advancements in the technology. In the beginning it was standard A followed quickly by B, then rapidly to G. The advancements were mainly due to speed and encryption (security). The latest current release is wireless N. (note there was a big gap in lettering – there is no wireless F to M) N standards are actually still under debate, but many companies have now released the technology. To access your wireless network, your laptop has a built in wireless receiving adapter. This card must be compatible with the relative standard to take advantage of its features. Most modern laptops come with adapters (permitting G and N) built in to them.

Wireless Hotspots

Many commercial establishments such as cafes and airports have public wireless networks that allow their guest to connect and use the internet whilst they are on the premises. Hot spots employ the same technology as your home /office wireless networks, but are generally more powerful and offer advanced functionality for controlling and selling internet time to customers.

Roaming Wireless Network or 3G

Roaming or 3G wireless networks are a different technology. Here Internet service providers such as Telstra and Optus construct receiving stations around the city and country. In fact they often use the same towers that occupy receivers for your mobile phones. These towers are spread out geographically into grids or cells. Hence the term *Cell Phone* as used by Americans. Like Mobile phones, your laptop communicates with the nearest tower used by your ISP which delivers internet access to your computer. The signal is actually passed from the tower into the ground where it is transferred to cabled connections that run across the country and internationally. Sometime the signal is routed to a Satellite dish that transmits the signal via satellite to its destination elsewhere on earth. Many people refer to this as 3g technology. But 3G technology is actually only one form of roaming wireless technology that utilises these mediums.



To use this service you must purchase an additional wireless network adapter for your laptop. These adapters are almost all of USB configuration. Older models used the deprecated PCMCIA slot. 3G adapters use a SIM card arrangement like your mobile phone. For this reason new laptops are now coming out with a built in compartment to match SIMS.

Limitations of Wireless Networks

Wireless Networking is all about convenience, not performance. There is nothing on the wireless horizon that will equal or exceed the speed or reliability of an Ethernet cable connection on your network, especially if it is the latest gigabit standard. But if cabling is an expensive or impractical option for you, then wireless is the go. The main rule of thumb is not to expect lightning performance, because you will never get it, especially if you are one for multi-tasking with programs. Also note that wireless networks are not great for connecting to data bases such as company files in MYOB and QuickBooks and should be avoided, especially if the connection is weak or unstable. Having said that, speeds are increasing all the time, But if simple Web surfing, folder management and email is all that required, then a Wireless solution will do the trick nicely. They are also great if you need to move around the office or making that presentation onsite with a client.

As for roaming wireless networks, those who use them know they are limited by location and proximity to the nearest signal tower. But again, they are getting more powerful each day. And for checking your email whilst laying on a beach in the Whitsundays, they are priceless!
