

Choosing The Right Wi-Fi

Making Sense of the Wi-Fi Numbers and Letters

With three types of Wi-Fi "802.11" technology to choose from for wireless Internet access, and more on the way, which one is best for a new laptop? First there was 802.11b, the geeky name for the wireless technology which quickly made Wi-Fi a must-have for laptops. Next came versions 802.11g and 802.11a. And now, just when you've got Wi-Fi letters up to your eyeballs, yet another one is on its way. And another one, and some other ones. 802.11n is the newest generation of Wi-Fi technology, and although a unified 802.11n standard has yet to be finalized, some manufacturers are already selling equipment based on their own versions of "n" technology, which is more than twice as fast as 802.11g and 802.11a. But these "pre-N" products. But they're often twice as expensive as other Wi-Fi devices, so it might not be a wise investment since they may not be compatible with the eventual official standard. Meanwhile, back in the lab, engineers are working on another series of letters -- "e," "r," "s" and "t." And so it goes...

How to Choose Among the Wi-Fi Configurations

Actually, the decision isn't as tough as it seems, because no matter which Wi-Fi generation you choose, you'll be able to catch current wireless signals. That's because nearly all current Wi-Fi products are interoperable, and provide far more speed than most users need. So, even if your new laptop boards the slowest Wi-Fi incarnation, you won't really notice the difference. And slow, of course, is a relative term. It so happens that interoperability has been a major thrust of the industry group that coined the name Wi-Fi to describe the 802.11 family of wireless technologies. Nearly every Wi-Fi modem in a computer will talk to just about any Wi-Fi transmitter, at home or on the road, regardless of manufacturer. Furthermore, the next generations of the Wi-Fi standard, starting with 802.11n, may not hit the market until after 2006, so there's no reason to fret right away.

The Differences Among the Wi-Fi

The original "b" flavor of Wi-Fi can provide data speeds of up to 11 megabits per second (mbps). Actual data transmission is probably closer to half the maximum speed, but that's still several times faster than the broadband connections used by most homes and small businesses. The next version, 802.11g, allows speeds of up to 54 mbps, but is fully compatible with equipment based on 802.11b because they both use the same radio frequency, or wavelength, to transmit data over the airwaves. Once again, actual speeds are usually about half the maximum rate. While the third standard, 802.11a, is also billed at up to 54 mbps, it isn't compatible with either of the first two because its signal travels over a different wavelength. However, nearly all 802.11a products available to the general public are also equipped with 802.11g capability, so some level of connectivity is likely between devices with the latest Wi-Fi standard and those without it.

Nevertheless, it makes sense for most users to pay a little extra for 802.11g, but not necessarily 802.11a. In fact, most DSL and cable broadband connections aren't as fast as the slowest version of 802.11. As a result, few users can take full advantage of Wi-Fi's speed. But DSL and cable broadband providers are starting to boost the bandwidth they offer with little or no price increase, and some local phone companies are installing fiber-optic cables that will deliver lightning-fast connections. While 802.11a offers the same increase in speed as 802.11g, the advantage of 802.11a is that it operates at a wavelength that's less clogged by competing signals from other Wi-Fi users, microwave ovens and cordless phones. While most people don't encounter such interference, 802.11a could prove useful in densely populated environments such as an apartment building.