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Unwire your PCs and Notebooks

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DN-WLAN-001
June 2003

Special points of interest:

- Why setting up a home network?
- The dilemma of a wired or wireless network
- 802.11b gains popularity
- The proliferation of 802.11g standard
- The pitfalls of 802.11a standard

802.11b, 802.11g or 802.11a – which way would you go?

Why bother building a network jungle at home? Here is the situation—Your desktop PC is crawling along with the latest 3D games, but the machine has just celebrated its first anniversary and perhaps it is too early to have its days numbered. It can still run pretty swiftly on word processing, spreadsheet, web surfing and so on. Passing it on to the kids to research homework is a good excuse to get on with something better. You end up with a brand new PC of the latest and greatest. Counting in your spouse's notebook and the notebook that you occasionally bring home from work, you've got enough islands to bridge.

The catch, however, is that you've got only one broadband modem account from your ISP. Adding more accounts is the way to go but it can add up your recurrent cost. Not too long ago the street router has incorporated a function known as IP sharing or Network Address Translation (NAT) to fool your ISP's modem, so that more PC clients can clamp on the Internet at the same time. Not only this, you can use the router to exchange files and share the printer. Your ISP might probably get mad on you, had they known that you've been so smart to get things done with simply one account, and yet what you did is absolutely legitimate.

Running a Router LAN with wire or no-wire? The dilemma shifts as time goes by. Most wireless networks around the world are based on a standard called 802.11b, which has been rebranded as Wi-Fi. Thousands of public "hot spots" around the world are based on 11b, as are millions of Wi-Fi-enabled computers. Although the speed of 802.11b wireless LAN runs at a maximum throughput 11 megabits per second (11Mbps), it is nevertheless a bit slow compared to a speed limit of 100Mbps driven by a 100Base-T wired network.

802.11b

802.11b,.a.k.a. Wi-Fi, the defacto standard for wireless networking
Frequency 2.4GHz
Speed Up to 11 megabits per second (Mbps), but usually 5 Mbps
Theoretical range from hub 150-foot line of sight
Pros Widely used, relatively inexpensive, relatively easy to set up
Cons Other protocols are faster; susceptible to interference with other 2.4GHz devices. Weak security.

The penalty of hovering cable around the house, however, is hazardous to home safety and you may need to drill holes here and there, cut through your carpet and wall paper. Some people can live with the cable mess and they have good reasons to do so, but your spouse would

strangle you if the wires didn't. No wonder more and more home-owners are going wireless. This trend has taken up the momentum as the new 802.11g standard hits the market this summer. Where 11b offers a theoretical top data-transfer speed of 11 megabits per second (Mbps), 11g offers up to 54 Mbps fast enough for sending HDTV over the network.

Since 11b's speed is generally faster than the average 1.5 Mbps of a home DSL or cable modem hookup, it might not matter. But if you're planning to send streaming video from one room to another, or if you and the kids tease one another by sending giant PowerPoint files to each other's computers, you'll covet the higher data rates.

The new 11g devices operate at 2.4 gigahertz (2.4GHz), the same unlicensed spectrum used by 11b as well as by household devices like microwave ovens and some cordless phones.

Another wireless-networking format, called 802.11a, is gaining popularity in businesses and in some homes, despite costing almost twice as much as 11b and 11g products. The 11a standard delivers the same 54Mbps raw speed as 11g - in some cases it is even faster but operates in the uncrowded 5GHz spectrum.

The problem is that 11a, besides being incompatible with 11b, offers high speed only within a radius of 50 feet. Beyond that, it slows down to 11b speeds. And 11a doesn't penetrate walls or floors well. Also, 11a networks are more complicated to set up.

Several companies are offering 11a+b, 11a+g, and even 11a+b+g combination routers. You'll pay more for these hybrids since they incorporate separate radios. But if you use 11a at work and your kids use 11b at school, getting a hybrid for your house might make sense, assuming one of the kids is studying computer science and can set it up. Or it might not make sense. That's because a bunch of IEEE committees are already hard at work on future protocols, like 802.11e (better videostreaming) and 802.11i (improved security features).

Based on my trials with the SparkLAN WX-6615 11g wireless Access Point Router, WL-611 11g PCMCIA card and WL-660 11g PCI card. "b" stands for good but "g" stands for better. Not only do they have good compatibility with 11g gears, they've also got excellent RF (radio) characteristic over their rivals. If you haven't yet chosen a wireless home-networking platform, 11g gets the tentative nod. Upgrade to 11g from 11b? Absolutely. You'd be fascinated by the performance it brings. d

802.11a

802.11a Brawnier than b; becoming popular in some offices
Frequency 5 GHz
Speed 54 Mbps; closer to 20 Mbps
Optimum range 50 feet
Pros Operates in less crowded spectrum, so faces less interference. Speeds at least four times faster than b. Features more channels, allowing more simultaneous users.
Cons More expensive, more complicated, and incompatible with 802.11b. Speeds fall off quickly the away from the hub.

802.11g

802.11g Growing favorite of wireless equipment makers
Frequency 2.4 GHz
Speed Up to 54 megabits per second
Range from hub 150-feet line of signt
Pros Hardware compatible with existing 11b equipment yet offers higher speeds. Comparably inexpensive.
Cons Speed is dependent upon RF (radio) coverage. RF characteristics become key product differentiator.

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Specifications are subject to change without notice.

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