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TECHNOLOGY

Adding Wireless Is Easier Than You Think

Column: Tricks & Tips

Nov. 01, 2008

From the Nov. 2008 Issue

Perhaps you've managed to go this long without setting up a wireless network in your office or home. And while you may not know what it is you're missing, the truth is that you probably don't really need a wireless network. However, there are many reasons why you might want to be wireless. I'll tell you how easy it is to set up a small and secure wireless network, right after I briefly recap some of the benefits.

Mobility – With the continued prevalence of laptops, having a wireless network in your office or at home allows you to work from anywhere within the signal range (usually at around 75 to 100 feet in an office setting). If you already have a laptop, there's little reason for me to expound on the virtues of this mobility. If part of a larger network, you and staff/family can also access and share files and devices like printers.

Convenience & Scalability – While this also stems from mobility, the convenience of a wireless network extends to desktop computers in an office or even home setting because it allows you to move a workstation whenever you need or want to without being limited to areas near an Ethernet outlet. It also lets you quickly add workstations for seasonal staff during tax season wherever you have the space for them, while everyone in the office

has access to programs on the server and various shared devices. And if you move office locations, there's no need to rewire the entire new building to meet your needs.

Clients – The same convenience noted above can be extended to clients and other office visitors, if you wish, by setting up limited access guest log-in capabilities. For your always-connected clients, this will be a welcome feature while they're sitting in your waiting area.

You've probably heard about all of these advantages before, whether in the pages of this magazine or from clients, staff your brother-in-law or a combination. And you may have even thought about actually getting around to setting up a wireless network, but perhaps you were worried about security, cost or the work involved. Well, those aren't excuses anymore.

For small offices (fewer than five workstations), a total novice can do it in half a day (perhaps even just an hour or two), for around \$300 total cost, and the network can be made essentially as secure as your traditional wired network. How does a simple three-step process sound? It's important to note that, while you're setting up the network, the Internet and access to shared programs will be down, so don't attempt this during normal work hours.

THREE STEPS TO A SMALL WIRELESS NETWORK

Step A: Equipment – Wireless Router (\$100 to \$175+).

If you already have a network in place, then there's a closet or "server room" somewhere in your office where the incoming Internet data line goes into a router that allows many different computers to have Internet access.

As an example, if you have five computers, a file server and one network printer in the office, then there will be one line coming from your cable or DSL modem that goes into this box and seven coming out of it that probably head back into the wall or ceiling. In most cases, it is best to simply add wireless capabilities to your existing wired network. As such, your new wireless router will also have ports for plugging in those existing computers or you may add the wireless router in addition to the wired one you already have. You could choose to go completely wireless, but since the wires are already in the walls, you might as well use them for some of your computers and devices.

1. Follow the instructions that come with the router, which will likely guide you through software installation on the file server or the “main computer” before you do anything else. After the software is installed, the instructions will likely guide you through these additional processes.
2. Turn off all computers, the file server and any devices connected to the network. Unplug the router from its power source.
3. Remove all of the wires coming out of the router and tag them if you can so that you know which wire went to which numbered port on the router. Bundle the wires and stow them out of the way.
4. Connect the incoming Internet source to the new wireless router.

Step B: More Equipment – Wireless Adapters for Computers (\$35 to \$50 each)

Almost all laptops that are less than two or three years old have a wireless card built in. For those laptops that don't, and for most desktop workstations, it will be necessary to purchase a wireless card for each of these computers. They're inexpensive and, better yet, some don't even require you to open up the computer. There are essentially two major types — internal and external.

Internal Wireless Cards

Wireless cards offer the fastest speed and will take about five minutes each to install. You'll need to unplug and disconnect all wires and open each computer (it's not really that scary). It will “plug in” to a slot on the computer's main board in a way that it sticks out the back (where your mouse and other wires plug in).

External USB Wireless Adapters

For those who may be skittish about opening a PC, don't worry. Several USB adapters are available that simply plug into any of the computer's USB ports (preferably one in back of the PC). These don't have the speed of the internal ones, but they take about 30 seconds to install (including taking it out of the package).

1. Plug in the computers.
2. Once the cards are installed (or plugged in) each computer should now have wireless access. You're not done yet, though. Security is essential.

Step C: Security

The new wireless router will provide instructions for setting security options

like network keys or MAC address verification (which allows only specific machines to access the network). For most practices, a good randomly generated key, essentially a password, is sufficient. Read this section carefully, since you will need to set up encryption, firewall settings, address filtering and passwords. Check out Dave Cieslak's article on [Wireless Security Essentials](http://www.CPATechAdvisor.com/go/1134) (www.CPATechAdvisor.com/go/1134) for more advanced advice on the subject.

DIFFERENCE BETWEEN WIRELESS PROTOCOLS (802.11B, 802.11G, 802.11N)

When you look at both routers and wireless cards/adapters, you'll be faced with an alphabet soup. Don't let this worry you too much, the difference is mostly speed. The (b) version has been gone from shelves for a few years. The most common type (g), quadrupled speed compared to (b). The latest version is (n), which once again nearly quadruples the speed of (g). Since the (g) version is fading, there are some great deals on them now, and all three versions are reverse and forward compatible with each other (but at the speed of whichever device is the slowest).

ASK FOR HELP

Don't be afraid or embarrassed to ask for help or advice when you're in the store. Tell the salesperson what you're trying to do and what your goals for your wireless network are. They'll usually help you find what you need. If you're shopping online, take the time to use the How-To resources that most of these e-stores offer.

Setting up a wireless network doesn't have to be hard or expensive, but it is understandable for people to be apprehensive when tinkering around with their networks for the first time. Of course, if you feel you're still not up to the task, many service providers (including tech service options from the big electronics stores) can set up your network for you.

ROAMING LAPTOP WIRELESS

On an aside to this article, many options are also available for nearly universal mobile broadband access. Most of the major mobile wireless (a.k.a. cellular) providers in the country (AT&T, Sprint, Verizon) offer wireless mobile broadband cards that give mobile laptop users the ability to tap into wireless networks just like smartphones do. The difference is in the technology used to transmit data.

Traditional computer wireless networks use Wi-Fi (the 802.11x protocols mentioned earlier). Early smartphones (late 1990s) tried to use cellular transmission for Internet and e-mail, but it was far too slow. The past eight or so years have seen the continued evolution of 3G technologies like EVDO and EDGE that use a different protocol (802.16). Without getting into overly technical jargon, these methods allow immensely faster speeds for data (Internet-based stuff), enabling users to synch their Outlook e-mail, work on Windows documents and perform other tasks without needing to find a “hot spot” or an Internet connection.

Well, it was only a matter of time before users of these smartphones thought, “Why can’t I do the same thing with my laptop?” So mobile broadband cards offer this capability: Internet connectivity, virtually anywhere in the United States (anywhere with cellular broadband access). While not as fast as in-office wireless or wired connections, 3G technologies give respectably fast connectivity and near-universal mobility. Mobile broadband cards are currently geared toward real road warriors, like our Executive Editor, Gregory L. LaFollette, CPA.CITP. They cost \$200 to \$300 for the card, plus \$60 or more per month for service through a mobile service provider.

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