



Routers: Defenders of the Internet

Routers today are amazing all-in-one devices. They can be hubs, switches, USB print servers – not to mention your first defense against intruders.

It sounds complicated, but routers are worth the time to set up and learn about.

The first thing you need to know is what the box is that sits by your Internet connection. It could be an ethernet hub, an ethernet switch or a real router. Each one of these items has a different level of defense to help your network.

A router is often configured with a firewall, which is filtering software to prevent certain types of information from getting through it and into your network computers. A router and a firewall are not the same thing.

You can buy software and put it on all of your computers for a firewall. They even make firewall boxes you can buy separately to plug between the outside world and your machine. But the firewall in the router is your computer's first line of defense.

To set up a router's firewall all you need is an Internet browser. Log on to the Web address of the router, which is really just a little computer with its own identity.

Most routers come with a simple introduction manual for what to do next. Locate the place to put in your router's identity and a password so its password is protected. This is very important if you have a wireless router.

It helps to have some knowledge of what those boxes that hook everything together under your desk really are. That tangled mass of cords mostly comes out of three things: hubs, switches and routers.

Hubs are simple. They connect everything together so machines can print and talk to each other but are incapable of making decisions.



by WILMA MELOT

computer notes
from the road

Hubs only let one person at a time on the Internet. They require no configuration. All ports receive the same information, which can really slow everyone down when large files are sent. For example when someone prints a full page, you're going to experience a slowdown.

Switches are smarter and capable of selectively connecting any of their ports to each other. When you use a switch, it makes the decision to send a packet to only one port. Since everyone isn't receiving the same information, the switch may let more than one person online at a time. This means that full page you're printing doesn't slow down the rest of the network. While the switch is better than the hub, it's still not as good as the router.

A router is actually a little computer. It runs software that makes decisions about where to send data. Routers talk in Network Address Translation (NAT), which looks up addresses for computers and routes the correct data to them. Basically, the router is the entrance point to your network. Everything that comes in from the outside world goes through it. It can

make decisions about what traffic to accept and who to send it to. If you want several people checking e-mail and browsing the Internet at the same time, you need a router.

Every piece of equipment that connects to a network, whether an office network or the Internet, has a physical address. This is an address unique to the piece of equipment that's actually attached to the network cable. The router is the only device that sees every message sent by any computer on the company's network.

One of the tools a router uses to decide where a packet should go is a configuration table. A configuration table is a collection of information, including:

Information on which connections lead to particular groups of addresses, priorities for connections to be used and rules for handling both routine and special cases of traffic.

A configuration table can be as simple as a half-dozen lines in small routers.

A router has two separate but related jobs:

1. The router ensures that information doesn't go where it's not needed. This is crucial for keeping large volumes of data from clogging the connections of "innocent bystanders."

2. The router makes sure that information makes it to the intended destination.

In performing these two jobs, a router is extremely useful in dealing with two separate computer networks. It joins the two networks, passing information from one to the other and, in some cases, performing translations of various protocols between the two networks.

It also protects the networks from one another, preventing the traffic on one from unnecessarily spilling over to the other.



Ready to buy a router?

If you're ready to start looking at routers, here's a list of reliable companies that have been around for years. Their support will likely be around for awhile.

Linksys

D-Link Systems, Inc.

Cisco (a little more protection but harder to set up)

Netgear, Inc.

Look for a built-in firewall, which will give you more options for a better defense system.

If you need a USB print server, look for routers with a USB port for your printer. This will allow all computers to print without using one as a server.

Don't pay for extra WAN ports unless you actually have two Internet lines in your office.

Read the router's box carefully for features. You need 10 /100 RJ-45 ports to plug all your extra hubs and switches into. If your operation is small, just buy a router with enough ports to plug everyone in at once. Don't forget to include printers and Internet connections in your count.

My favorite shortcut

While working with Nancy Miller at the Henryetta Free-Lance, I rediscovered a good shortcut.

Nancy was cleaning her desktop and performed a simple command that deletes things from your desktop or any finder window.

To perform the keyboard command on a Mac, click one time on the file with the mouse and then press "Command, Delete" to send it to the trash. You can perform this with more than one file by holding down the shift key.

It's been hard for me to hit the trash with my dock wiggling around in OSX but this command allows me to do it every single time.

For me, with my dock wiggling around in OSX it has been hard to hit the trash easily and this command lets me do it every time. It is a simple thing but has made me happy. Thanks for the reminder, Nancy.

On Windows machines, select the file by clicking it and then press the delete key. In the window that appears, click "yes" and your file will move to the recycle bin.

To bypass the recycle bin when deleting a file, hold down the "shift" key while pressing "delete". When prompted, click "yes" to immediately remove the file from your computer.

Don't forget that when the trash is emptied, your file is gone forever – unless you have a backup.

Flat panel monitors provide more desktop real estate



Has your old monitor seen better days? Are you thinking of buying a new one, or perhaps a larger one?

Maybe it's time for you to start thinking about a flat panel.

CRT monitors, our old, reliable friends, are going by the wayside. They still have the clearest image for the type of work we do, and they're definitely the least expensive way to go but there's something to be said for flat panel monitors. The ones built in the last couple of years give any CRT a run for their money. And did I mention the desktop real estate you gain with flat panels? More space for clutter!

If you haven't looked at the flat panels, you owe it to yourself to see them in person. If it meets the listed specs, it would make a great Christmas gift for someone.

Aspect ratio, contrast ratio, brightness and viewing range are important to review before

buying a flat panel. Also look for the ability to adjust it to the right angle and height for your personal comfort level. It doesn't hurt for the monitor to have a couple of USB ports built-in so you can put your CPU under the desk and plug-in your card reader.

If you're going for a wide-screen monitor it's important to look for an aspect ratio of HDTV's 16:9. However, these are expensive. Sometimes you can buy two CRT monitors for the price of one of these.

Look for a contrast ratio of 400:1 or better. With anything lower, colors may wash out when you turn up the brightness and may disappear when you turn it down. 600:1 is about the top end of this spectrum; any more is overkill.

Your new monitor will most likely be set to the highest brightness level. High brightness is great for video and graphics, but it can be uncomfortable over time, particularly for text viewing. After using the monitor for awhile, you may want to turn down the brightness to spare your eyes.

Since vendor reported viewing angles aren't always what they're reported to be, the best way to judge the angle is to sit in front of the monitor. The larger the monitor, the more important a wide viewing angle is. On monitors measuring 17 inches or more, the edge of the screen is at a greater angle to someone sitting directly in front of its center, and people are more likely to be able to share the monitor when working or giving a group presentation. Look for at least 150 degrees on these monitors.

Just as you would with a television, you want to sit at a distance of about two times the diagonal measurement from the screen. For example, my desk is 30 inches deep so a 15-inch monitor would work well. Since you don't sit right at the edge of your desk, add a few more inches. That means maybe I should get that 17-inch after all.

Monitor brands that have repeatedly received good ratings include ViewSonic, NEC, Dell, Apple, Samsung SyncMaster, HP and Philips.

