

THE COMPUTER CORNER

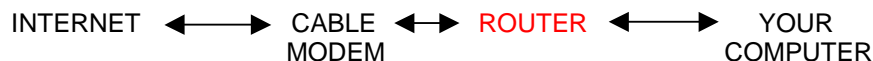
No. 159. Why You Absolutely Need a Router

Stan Kaplan, WB9RQR, 715 N. Dries Street, Saukville, WI 53080-1664
(262) 268-1949, skaplan@mcw.edu

Lets assume you have one computer, and that it is attached to the Internet directly through a cable modem supplied by your Internet Service provider (ISP). No router is involved in this scenario. Simply put, your machine is exposed to anything coming into the cable modem. Good stuff and bad, it all gets through to your computer. If you have a good firewall running, the bad stuff is stopped. If your firewall is not so good, or it didn't start properly when you last booted up, you are exposed. Hacking attacks, viruses, Trojan horses, or whatever. Of course, you can send stuff out, too. The double arrows in the following diagram indicate two-way traffic.

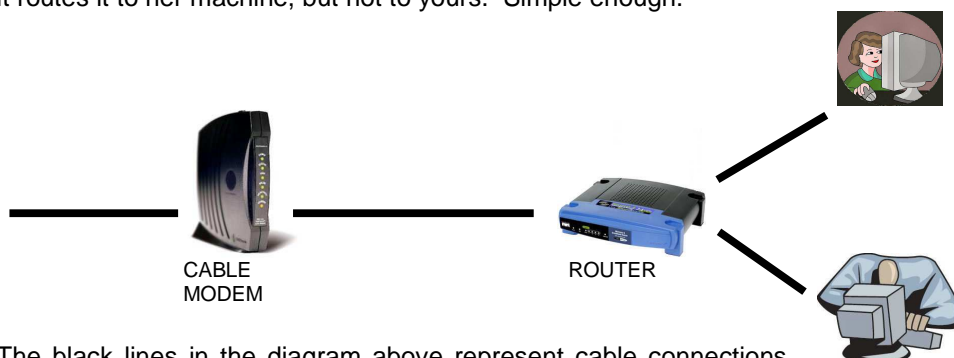


Now, let us suppose you bought a router and inserted it in the traffic pattern.



On the Internet, or for that matter, in any computer network, information is sent in packets. Similar to a short CW message, each packet has a source address, which indicates where the packet apparently originated, and a destination address that the packet is trying to reach. Clearly, the router sees anything (any packets) you send out to the Internet. It records each outgoing packet's destination address in a table in its own memory, and adds to the packet its own address for return traffic. Now, when a packet comes in from the Internet, the router looks in the table it created to see if the packet is expected. A packet is expected **ONLY** if its source address exists as an entry in that table the router previously created. What is the significance? If an arriving packet is not expected, it is discarded (ignored). It never passes through the router and it never gets to your computer. None of the hacker-sent worms or scanning bots or viruses or other malicious Internet junk can get into your computer. Far out!

Of course, that is not the only thing a router can do. It also does what its name implies. It can route packets when you have more than one computer on your network. For example, if an email message comes in for you, it routes it exclusively to your machine. If one comes in for your wife, it routes it to her machine, but not to yours. Simple enough.



The black lines in the diagram above represent cable connections, with cable coming into the cable modem from your Internet Service Provider, then going to the router, then to your wife's computer and to yours. The cables are connected to both computers. On the other hand, your computer never sees a packet of information addressed to your wife's computer. The router routes it to hers, but not to yours.

In summary, besides routing packets of information within your network, a router will BLOCK all unsolicited packets of information that come in from the Internet, unless they are expected. On the other hand, routers do not impede outbound packets coming from your computer or any other computer on your network.

A router is considered to be a *hardware* firewall between you and the Internet, a step beyond and better than just a software firewall. Putting it in the circuit as shown above adds a layer of good protection to your system, and that is why you absolutely need one, even if you have only one computer on your network. Get one at a swapfest, or purchase one new for around \$40. Happy computing!