

Family Broadband

Ways to share your high-speed Internet connection.

The best solution for networking an existing home is a combination of wired and wireless technologies.



It's the day you've been waiting for. You finally have a high-speed, broadband Internet connection to your home. The only problem is, everyone wants to use it at the same time. The two kids want to download music and research homework assignments, so they need broadband access to the computers in their bedrooms. Your spouse wants fast Internet access at the kitchen laptop for online recipes and to stay in touch with family and friends. And you need it at the two computers in the home office for telecommuting. How are you going to share one high-speed Internet connection at five different locations, possibly more?

Fortunately, several different technologies are available to solve this problem. They generally fall into two categories, those that involve running new wires to each of your computer locations and those that don't require new wiring. The "no new wiring" solutions include wireless technology and the use of existing telephone or electrical wiring in your home. And as you may suspect, you should consider the benefits and limitations of each.

The New-Wire Route

The most reliable and robust solution to sharing broadband access is to run Category 5e (Cat 5e) communications cable from the location of your broadband modem to each of your computing loca-

tions, including those you may add in the future. Each location will have an RJ-45 jack that looks like a wide phone jack, and behind it a dedicated Cat 5e cable that runs back to the broadband modem or a gateway/router. You simply plug an RJ-45 connector into the jack and into the Ethernet port on your computer. Most new desktops and laptops on the market today include a wired Ethernet port, but if you have an older computer you may need to purchase an Ethernet card and install it in an available card slot.

The gateway/router on the other end of the cable is the computing device that allows you to connect all of your home's computers to the broadband modem simultaneously. (In next month's column we'll closely examine the features of the various residential gateway/routers available today.) The benefit of this solution is that it gives you the highest data speed and most reliable connection (see last month's Networking Insider on choosing wire vs. wireless, pg 30). The drawback is that it may be difficult or impossible to run this cable through an existing home. However, for those who are building a new home or extensively remodeling, running Category 5 or 5e cable to all current and anticipated computing locations is an excellent idea. All you need at each computer is a wired Ethernet adapter, and almost all new desktops and laptops ship with this.

No New Wires

Fortunately, technology has now progressed to the point where you don't need new wires to transmit data. Instead, you can use the wires that already exist in your walls. You can transmit data over the existing telephone lines and even the electrical power lines in your home, so any outlet that you use for your computer can also serve as a data outlet. Your computer just needs a data interface that allows it to be plugged into an electrical or phone outlet and used this way. These interfaces are usually not included in new computers but can easily be added into an available slot in the computer or via an open USB (Universal Serial Bus) port on the computer. At the other end of the line, a gateway/router that supports powerline and/or phone connections will connect these lines to the broadband modem.

The other non-wire alternative is to go wireless. This requires that a wireless interface be included in the computer, and this

communicates with a wireless access point. Many of today's laptops ship with a wireless access interface, and wireless access points are often included in residential gateway/routers. Desktops that need to be on a wireless network need to have a wireless interface card installed either in the computer or connected to an available USB interface on the outside of the computer.

The clear benefit of each of these non-wired alternatives is the ease of implementation. The disadvantages are the reduced transmission speeds when compared to Cat 5e cabling, and their susceptibility to interference, which can further erode transmission speeds or drop the data signal entirely for a period of time.

The Ideal Solution

The best solution in an existing home is often a combination of these alternatives. In the office we may want to run wire between the two computers because they

are in one room, and the wire can easily be run along the baseboard. In the children's room we may choose to transmit over the powerline for connectivity, and for the kitchen laptop the ideal solution would be a wireless connection. The elegance of today's home networking technology is that these various computer locations can be connected back to the broadband modem via the residential gateway/router.

When judging the value of high-speed Internet access for \$50/month, take into consideration that the monthly cost should be amortized across all the computers in your home. That's when broadband Internet access really makes cents! [EH](#)

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