

Network

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Networking Overview

In the old days of computing, each monitor used its own modem line, its own printer and its own disk drive. The recent proliferation of networking systems in homes has completely erased the lines of demarcation. By installing a system of high-speed cabling into a home, you can share files and peripherals. With a high-speed Internet connection, Web pages whiz into the PC at rates 10 times faster than a normal telephone wire can handle. Much like the networking systems used in commercial settings, these residential structured-wiring systems are one of the hottest commodities in new-home features. Nearly 40 percent of homebuilders now offer high-speed networking systems to homeowners, says research firm Parks Associates.

But networking impacts more than PC workstations. Over this bundle of cabling (typically consists of two runs of RG-6 coaxial cabling and two runs of Category 5e communications/ Ethernet wiring), music from a single entertainment system can be distributed to speakers throughout the house, video from one DVD player and one cable box can be accessed from every TV, and multiple incoming telephone lines can be shared among all telephones.

Planning Issues

What You Need to Consider

Outlet Locations PCs, stereo gear, telephones and other equipment join a wiring network by plugging into special (multimedia) outlets that consolidate telephone jacks, data jacks and cable connectors into a single housing. Naturally, you'll need to decide in which rooms your wiring installer should install these outlets. Our recommendation: Install a multimedia outlet anywhere you would an electrical outlet. Because each multimedia outlet can be configured to house a combination of different connectors, you'll need to determine what kinds of equipment will likely be used at each outlet location.

- **Broadband Subscription:** A home installed with high-speed wiring can leverage the speed of a broadband Internet connection. Every PC in the house-not just one-can enjoy faster download speeds than a typical dial-up connection offers. A monthly subscription to a broadband service costs anywhere from \$29 to \$60, depending on the location and level of service.

- **Hub Size:** To keep the flow of data, voice and video signals organized, your wiring installer/low-voltage contractor will mount a metal box somewhere inside your house. All cabling will terminate at this one "hub." Inside this hub your installer will mount performance "modules." Each module handles a certain task, such as PC networking, video distribution or audio distribution. Request a hub that's large enough to house a variety of modules-even those you may not want today.

- **Wireless Networking:** Low-voltage wiring is only one type of highway over which information can pass throughout a home. Some networking systems (also called structured-wiring systems) also include wireless networking capabilities. This means that a laptop computer, Web-enabled cellphone or other type of wireless Internet-enabled device can join the network without having to be plugged into a phone jack or data jack.

Add-Ons

- **Performance Modules:** The beauty of a networking system is that it is modular. This means that you can buy only the wiring now, then add functions (PC networking, sharing telephone lines between all telephones, etc.) to the system by purchasing separate modules (\$100 to \$300 each). Each module is installed inside the hub.

- DSL or Cable Modem: Many manufacturers of networking systems (also called structured-wiring systems) incorporate cable or DSL modems into their hubs (usually as an optional upgrade). The inclusion of a high-speed "broadband" modem into a networking system not only grants multiple PCs access to broadband services, but enables non-PC devices such as Webpads, stereo systems and home control systems to also receive broadband content.

- A Gateway: About the size of a shoebox, a gateway can significantly enhance the functionality of a networking system. Without a gateway, your home needs a host of boxes to filter video, telephone and Internet services into the home. A gateway is one box that can receive and disseminate all types of information.

Later, software can be downloaded into a gateway by electrical utilities, broadband providers, and telephone companies to prepare the home for new features. A utility that offers security services, for example, might mail its customers a basic security camera to install on a home's front porch. At the same time, the utility remotely configures the gateway so that you can dial in from any modem to view scenes captured by the camera.

What's more, many gateways incorporate wireless networking technologies to enable wireless devices in your home, such as laptop computers and Web-enabled cellphones to join a home network.

Installation Issues

Most homebuilders understand the importance of high-speed wiring to a modern home, and therefore offer it as either a standard or an optional amenity. In this case, your builder will subcontract with a low-voltage installer for you. If not, request that he find you one immediately.

Your builder should provide enough space on the wall for the hub of a networking system-ideally a couple of stud bays away from the electrical breaker box. Electrical wiring and low-voltage wiring are a volatile combination. When electrical wiring is placed too close to low-voltage wiring, it can cause interference, which can result in glitches in PC communications and fuzz on the TV screen. Conversely, electrical receptacles and low-voltage jacks are ideally located near each other on the wall. After all, most electronic devices (PCs, stereos, TVs, DVD players) require electrical power. Therefore, the low-voltage contractor and your electrician should coordinate their plans. Often, a low-voltage contractor will wait until all the electrical work is finished before installing the low-voltage wiring.

Finally, because other systems, including security systems, home control systems and music distribution systems, can utilize the cabling of a networking system, the low-voltage contractor will often work closely with (and pull the wire for) the security installer, audio/video specialist and other subcontractors.

Wireless Networking

Whenever possible (like when you're building a new house), it's best to install a system on which PCs and other devices can speak to each other over a dedicated highway of cabling. It's the fastest, most reliable networking option around. Other times, you're simply looking for a quick fix. In this case, consider networking the PCs of your home through a wireless networking system. Wireless networking also affords a simple way to add wireless devices (like laptop computers, cell- phones and PDAs) to the networking system.

Thanks to the development of several new communications languages, wireless networking systems are widely available at home improvement stores and computer stores. Or, if you're leery of fiddling with a PC, you can always hire a computer specialist or home systems installer for the job.

One of the most popular wireless networking protocols is HomePNA. Computer adapters and other products that adhere to the HomePNA protocol let you create a network by simply plugging each device into an unused phone jack. A phoneline network does not interfere with phone, fax or Internet use.

Another option is a network that communicates over radio-frequency airwaves (HomeRF or WiFi [802.11b]). RF networking devices connect to computers like any other networking product; however, they can operate without having to plug into a phone jack or an electrical outlet (see discussion of powerline networking below). You can establish a connection from anywhere in the house-even areas that don't have a phone jack or electrical outlet.

A third, and most recent, networking option utilizes the standard electrical wiring in your home (HomePlug). Here, each computer adapter plugs into a standard electrical outlet.

Every type of wireless networking system works fine; just be sure that the networking components you buy all speak the same language. EH 5 Things to Consider-Networking Here are 5 things to think about if you want to get connected!

- Install a hub
- Add multiple multimedia outlets to each room
- Add audio and video to the network

- Network the kitchen!
- Setup security cameras for network viewing

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- What is Cat 5?

Category 5 is a type of communications cabling. This cable can move data throughout your home up to 10 times faster than conventional copper telephone cable. More recent versions of this cable include Cat 5e (enhanced) and Cat 6.

- What's in a structured wiring package?

Check with your installer to see what packages they offer, as well as which one is right for you. However, you can purchase bundled cable that includes two video cables, a phoneline and a data cable all in one. Many installers also consider a hub to be standard. You'll need one of these-it's the main point where all of the data comes into and then it routes it to the right spots in your home.

- What's better-wired or wireless?

This is one for the ages. Some people swear by wireless technologies, but when it comes down to it, nothing beats a hardwired system-they're more reliable. But both system types certainly have their advantages and disadvantages; it really depends on what you are working with and how much you have to spend. Hardwired is definitely preferred if you're in a new construction phase. Many hardwired installations plan for future enhancements, but you can always add on with wireless components-that's what's so great about them!