

Chapter 1

Why Do You Need A Home Network?

In This Chapter

- ▶ Learning about LANs and WANs
 - ▶ Recognizing the benefits of home networks
 - ▶ Deciding whether to build a wired or wireless network
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Computer networks allow you to easily share resources with others. These resources may include Internet access, shared files and folders, printers, and much more. In this chapter, you explore the benefits of creating your own home network.

A Network by Any Other Name

A *network* is a group of computers that communicate with each other in order to share resources, such as Internet access, computing power, files and folders, printers, and even the computers themselves.

If you've worked on a corporate or office network, you may have heard the network referred to as the *LAN*, which is simply a *local area network*. Your home network can also be correctly described as a LAN. There is no hard and fast rule for how small or large a network must be in order to be considered a LAN. It may consist of as few as two computers or as many as several hundred computers.

Another acronym you may hear when referring to a network is *WAN*, or *wide area network*, which connects multiple networks together. For example, a corporation may connect several of its locations together on a private WAN. The biggest example of a WAN is the Internet, which connects networks as small as one computer to as large as thousands of computers together over the Internet.

Fill-in-the-blank area networks (_AN)

Although networks are most commonly referred to as LANs or WANs, you may occasionally hear other variations and acronyms thrown around, such as:

- ✔ **Personal area network (PAN):** Connects your personal electronic devices together, or to a larger network such as the Internet. Examples of devices that might be connected via a PAN include laptop computers, cellular phones, PDAs (personal digital assistants), and other mobile devices (such as Blackberry smartphones and iPods). These devices can be connected via wired technologies such as USB and FireWire, or wireless technologies such as Wi-Fi, Bluetooth, and infrared (IR or IrDA). A wireless PAN is also sometimes referred to as a WPAN.
- ✔ **Storage area network (SAN):** Connects servers to a separate physical storage device (an array of disks). SANs usually comprise several terabytes or more of disk storage and are typically found in larger corporate networks.
- ✔ **Virtual local area network (VLAN):** VLANs are created on network switches as a way of logically grouping users and resources together (such as different departments), providing more efficient use of network bandwidth and additional security. Although it is possible to create VLANs on your home network, it adds much complexity and is rarely necessary.
- ✔ **Wireless local area network (WLAN):** Also known as a Wi-Fi network. A wireless network uses access points and wireless adapters to connect devices together. You find out about wireless networks in Chapter 4.
- ✔ **Campus area network (CAN):** Connects your bathroom to the rest of your network. Just kidding! A CAN connects multiple buildings across a high-speed network backbone.
- ✔ **Metropolitan area network (MAN):** I'll steer clear of any jokes here! A MAN extends across a large area, such as a town or city.

A Home Network for Everyone

Fifty years ago, most homes had only one television and one telephone at best. Just 20 years ago, most homes had only one computer, if any at all. Now, as computer prices have plummeted, homes commonly have a computer for practically every member of the family. The benefits of a home network include the following:

- ✔ **Sharing high-speed Internet:** In the not-too-distant past, sharing an Internet connection across multiple computers would have been laughable. Dialup modems, accompanied by their trademark symphony of screeches, beeps, and other harmonious sounds, are as aggravating as they are slow. With a top speed of about 56 Kbps over a traditional home telephone line, surfing the Internet is an exercise in patience. But as high-speed Internet with cable and DSL routers and modems has become more accessible (and affordable), sharing an Internet connection has become commonplace. (See Chapter 8 for more on connecting your home network to the Internet.)

- ✓ **Sharing files and printers:** Moving files over a home network is as easy as cutting and pasting, dragging and dropping, or pointing and clicking. A home network also makes it possible for you to share printers. No more tying up the “printer computer” to print a massive homework assignment or work project. (In Chapter 7, I tell you how to set up printer sharing.)
- ✓ **Playing games, videos, and more:** A home network allows multiplayer games, so you can enhance your game-playing experience well beyond Solitaire! You can also connect your digital video recorders (DVRs) and game consoles to your network to entertain the entire family (see Chapter 10).

A Home Network for One

A *network* is traditionally defined as two or more computers connected together. But even if you have only one computer, or you live alone, you may still find a home network beneficial. Wireless networks are ideal in both of these situations, particularly if you have a laptop computer. A wireless network with a laptop computer gives you the freedom to work from your desk, your bedroom, your kitchen, your backyard — just about anywhere in and around your home! And don’t forget about the other wireless devices you may have, such as a game console and your mobile phone.

Building a SOHO: When Home and Office Become One

As home businesses and *telecommuting*, or working from home, have become more commonplace in today’s business world, a small office or home office (SOHO) network is now a necessity for much of today’s workforce. Much of the equipment for a SOHO network is the same as for a home network, but there are a few differences. For example, you may also need to connect a Voice-over-IP (VoIP) phone to your home network or set up a virtual private network (VPN), which I cover in Chapter 9. Depending on what type of work you’re doing in your home office, you may also have regulatory compliance requirements (which I discuss in Chapter 15).

To Wire or Not To Wire

Your two choices for connecting computers in a network are wired and wireless. Wired networks are generally faster and more secure than wireless networks, but wireless networks provide mobility and convenience if you have laptop computers and mobile devices. If your home isn’t prewired with Ethernet network cables (see Chapter 3), running network cables throughout your home can be a time-consuming chore and unsightly (imagine blue cables running along the walls and under rugs), unless you actually go through the trouble of running your cables behind walls and furniture.



Although a wired network generally provides faster network speeds than a wireless connection, that doesn't mean you'll get faster Internet speeds with a wired network. Wired networks typically operate at speeds of 100 or 1000 Mbps (megabits per second) and wireless networks operate in the 54 Mbps range. But a residential high-speed Internet connection typically provides only 5 Mbps of Internet bandwidth. So your bottleneck will almost always be your Internet connection, whether you have a wired or wireless network.

Of course, you don't have to be a purist when it comes to home networking. It's entirely possible to have a little bit of both, and this approach may be advantageous. For example, depending on the construction materials used in your home, you may find certain areas, such as your basement, difficult to cover with a wireless network. Running a network cable from your wireless router down to your basement, and connecting it to a hub or switch in the basement is one way to address spotty wireless coverage.

Both wired and wireless networks are fairly inexpensive to set up and require just a few basic pieces of networking equipment, which I explain in Chapters 3 (wired) and 4 (wireless).