Quick Start – Sharing on a Network

Where are you in planning and installing your network? Do you already have computers that you want to connect? Do you have one printer that everyone in the house would like to share? Is having only one Internet connection a problem? You can share computers, printers, Internet connections, and more by installing a network in your home.

Do you need help choosing and buying the necessary networking equipment? Perhaps the equipment is already installed, but you're unfamiliar with networking with Windows 98 or Windows XP. You might have your network up and running but want to add an intranet and e-mail technologies. You find instructions for each of these tasks, in addition to hundreds more, in *Home Networking Bible*.

Home Networking Bible, 2nd Edition, covers new information on some of the technologies introduced in the first edition, such as wireless networking breakthroughs, Wireless-g protocol, power line networking enhancements, universal serial bus (USB) hubs and adapters, and the future of networking. In this second edition, you'll also find greater detail on how to lay cabling, place wireless access points, configure computers (include Linux and Macs), share Internet connections, and more.

Chapter 1 presents an overview of the steps you need to plan your network. This chapter gives you an idea of the decisions and assessments ahead of you. You'll need to consider what you already have, what equipment and hardware you want to share among your family or your small-business network, and what type of network benefits your situation. This chapter also presents a roadmap that helps you target the area in the book that will help you the most.

Overview of the Process

When you decide to connect your home computers to form a network, you have to ask yourself many questions.

- ◆ What type of network will you use?
- ♦ What operating systems do you have?



In This Chapter

Overview of the process

Finding the help you need

4 Part I ★ Making Basic Network Choices

- ♦ Which operating systems do you want to add?
- ♦ How much money do you want to spend?
- ♦ What type of hardware and software is best for what you want to do?

The list goes on and on. Home Networking Bible can help you make these decisions and more.

Home Networking Bible presents information, definitions, possibilities, and advice about setting up and running your home network. You may want to set up a quick and inexpensive network to enable file sharing between your desktop and laptop computers. You may want to build a more complex network that includes a server, six workstations, multiple printers, and other shared resources. In either case, you'll find the information you need in this book.

As you read *Home Networking Bible*, you'll run across topics such as cabling, installing networking hardware and software, and adding applications to your system. You'll learn about choosing cabling, network cards, and other equipment. You'll even find out how to share your Internet account with everyone else on the network.

You probably have the beginnings of a network already: computers, a printer or two, and perhaps other resources. In addition, one of the most important reasons to have a network is to share resources, such as hard drive space, a printer, a CD-RW, and so on. Taking an inventory of your current equipment can help you make wise choices about what to purchase and what to share on your new network.

An important decision you must make before you begin putting together your network is whether to build a network using a server. There are advantages and disadvantages of both types of networking. Just so you'll understand what you're getting yourself into, the following sections present abbreviated steps for setting up a network. The order of these steps generally reflects the order of the material as organized by chapters in this book. You can, of course, approach the text in a different order to better suit your network needs.

Taking inventory

Your first step to planning a network is to take inventory of the equipment and software already in your home. You want to make use of all available resources. Computers, printers, a scanner or camera—any and all of these may be put to use in your network.

Perhaps, for example, you use your computer to keep your checkbook and to surf the Internet. Your son also has a computer he uses for homework and games. Your spouse uses a notebook computer primarily for work and must often bring it home to complete daily work. Any of these computers, with minor alterations, can probably work on a network. After networking the computers, everyone can print to one printer, check on the homework, surf the Internet, and more.

Note

You also want to be reasonable in your expectations of these resources. If one of your computers is old and operates slowly, placing it on a network isn't going to make the computer better. It might even slow the network down. You can always check to see if you can upgrade a computer's memory, processor speed, or operating system; but compare the cost of an upgrade against the cost of a new computer before making any decisions.

Begin your inventory with a list of your computers. For each computer, write down the following. You can always check your original invoice for the computer to find out the information for each item.

- ◆ Processor and memory
- ♦ Hard drive space
- ◆ Operating system (Windows 98, Windows XP, Mac OS 9, Linux, and so on)
- ◆ Attached hardware (CD-ROM, CD-RW, DVD, Zip drive, network card, modem, and such)
- ◆ External hardware and peripherals (camera, printer, scanner, and so on)

After your inventory, consider whether you need to replace or upgrade any of your hardware. If, for example, a computer has an operating system below Windows 95, such as DOS or Windows 3.11, consider purchasing a new computer. If the computer uses Windows 95, find out what it takes to upgrade the computer or replace it. Once you have your computers and other hardware in order, you're ready to consider the network.

Looking at resources to share

You can share printers, CD and DVD drives, flash cards, modems, some applications, and more on a network. You can also add resources as you build your network. Using a network to share resources offers many advantages and a few disadvantages that you'll want to consider before you build your network together.

Sharing a printer, for example, means you need only one printer for three or four computers. However, if everyone prints often, they may have to stand around waiting for their print jobs. Sharing a hard drive with other family members means all of those free gigabytes of space may fill more quickly than originally planned, but everyone has backups of their data.

With your inventory in hand, discuss with your family the pros and cons of sharing one printer, one large hard drive, one modem, or any of the other available resources. Then, consider which resources you want to share and which resources may need to be purchased. As previously mentioned, you can add resources as you build your network and as you see a need for them.

Listing steps for a workgroup network

A *workgroup* or *peer-to-peer network* is one in which all computers on the network can pool their resources together. Each individual computer usually retains its control over files, folders, and applications; however, every computer on the network can use another's printer, scanner, CD drive, and so on. Workgroup networks contain a small number of computers. Workgroups can be made up of 2, 5, or even 10 computers. It is important to note that the more computers in the workgroup, the slower the network may run.

Note

Peer-to-peer is the actual name for a network in which all users share all resources, as previously described. Microsoft Windows calls peer-to-peer workgroup, so if you're used to Windows, you'll recognize that term. Peer-to-peer and workgroup mean the same thing. In this book, I mostly use the term workgroup, however.

6 Part I ◆ Making Basic Network Choices

If you choose to use a workgroup network, you should perform the following steps. Many steps are optional, depending on your networking choices, whether or not you want Internet access, and so on.



For more information about workgroup networks, see Chapter 3. For definitions of terms, see the Glossary toward the end of this book.

- 1. Learn the advantages and disadvantages of networking and decide exactly what it is that you want from your network.
- 2. Consider some guidelines about the network that you will present to your family.
- Define your networking goals: budget, computer placement, computer contents, applications issues, and so on.
- Decide what speed the network will be, considering your family needs and equipment limitations.
- **5.** Choose the network topology and technology.
- **6.** Choose cabling: traditional, wireless, power, or phone lines.
- 7. Buy the networking hardware. Depending on the choices you make, you could purchase a kit containing everything you need, or you may purchase individual pieces of hardware and cabling.
- 8. Install network cards.
- 9. Install networking hardware: cabling, hubs, or other hardware as needed.
- 10. Configure the networking software protocol, clients, services, and adapters on each computer.
- 11. Attach any non-Windows computer or portables to the network.
- 12. Set shares in each computer. Test the shares.
- 13. Access the network, test IDs, passwords, and so on.
- 14. Learn to find other computers on the network.
- 15. Set up printers and test connections.
- 16. Set up Internet access, if you want.
- 17. Set up e-mail, if you want.
- 18. Create an intranet, if you want.
- 19. Install and configure applications.
- 20. Work with files and folders.
- 21. Understand how to manage the network.
- 22. Add other elements to the network, such as multimedia equipment or chat applications.

Listing steps to add a server

Client/server networking is a setup in which files, applications, and resources are centralized on one high-speed, powerful computer called a *server*. Other computers, called *clients*, then attach to the server and use the resources as they need them. Client/server networks are faster than workgroup networks, and a server supports more clients, or *users*, than a workgroup network. For example, a client/server network may have from 10 to 2,000 users attached to a server.

If you choose to add a server to your network, you need to perform some additional steps. For more information about adding a server to your network, see Chapter 4. In brief, you'll need to do the following, in addition to the preceding set of steps:

- 1. Determine the type of network operating system you want to use.
- 2. Purchase a server and configure the server's operating system by setting up user accounts and permissions, setting up rights on files and folders, setting up a print server, installing and configuring applications, setting up permissions, and so on. See Chapter 12 for information about securing your computer and files.
- Configure the clients to see and use the server, and perhaps create login scripts and other security measures.
- Check all client/server connections.



If you're creating your network for a small business, either in your home or in an office, you may want to use client/server networking instead of workgroup. There are certain advantages to the client/server configuration in a business network. In a client/server environment, the network is easy to expand to include more client computers, network operations in a larger group are faster, you can provide more services to everyone on the network, and security is tighter.

Finding the Help You Need

You may already be familiar with networking types. You may already have a network set up in your home. Perhaps you purchased *Home Networking Bible* to learn more about sharing Internet access or setting up printer sharing. You may want more information on managing your network or want to learn about Transmission Control Protocol/Internet Protocol (TCP/IP).

If you're in one of the stages of building your network and just want some assistance getting through that stage, this section can help. Following are some common networking scenarios and suggestions as to which chapter to read to help you solve your networking problems.

Planning your network

As you might know, you go through several stages to plan a network. You must decide what type of network you want, which speed to use, what kind of cabling and hardware is best for your situation, and so on. You'll find all of the information you need to plan your network in *Home Networking Bible*. Consider the following scenarios.

Budget considerations

You want a home network, but your budget is limited. You have only about \$150 to spend on all of the equipment you need to connect two computers. You want to know if you really have to spend more money than this for such a simple task.

Now, you can connect two computers for as little as \$20. Additionally, you can use any number of kits to connect two computers now, and add computers later when you're ready. For information about various kits and networking solutions, see Chapter 8.

In contrast, say you're building a home and you have no limit to the amount of money you spend on your network. In fact, you want to cable the home to perform more than just computer networking: You want to include climate and environment controls, security lights and cameras, and video and stereo equipment on your network.

Chapter 26 explains the possibilities of wiring a "smart" home, or SmartHome, and also suggests manufacturers of systems and estimated costs.

Server issues

You've heard that the kid next door has a server in his basement, so you want a server too. However, you don't want to use a server like the one at work or in larger offices, which uses the NetWare or NT Server operating system. You want something that's simple to operate and maintain and easy for everyone to access for storing their files, printing, and so on. What do you do? Consider using a powerful computer with Windows XP as the operating system. For information about setting up a Windows server like this, see Chapter 4.

You want to back up all of your data to another computer, but you wonder if it has to be a server computer. Must a tape drive or Zip drive be connected to a server? Do you have to use a server's software to back up files? You can back up files to any other computer on the network. You can also attach a tape, CD drive, or Zip drive to any computer on the network and save to those drives. For more information, see Chapter 21.

Network cabling

You have no idea what networking cabling is available or what it means. Network speed depends on the type of cabling and hardware you use, but you're not sure what network speed is or how much you'll need. Chapter 6 explains the various cabling schemes and how each cable type affects speed. It also explains why you might need faster speeds and when you can get by on slower cabling and networking hardware.

In addition, Chapter 7 explains the various wireless technologies and standards, wireless performance, and wireless configuration. Make your choice about networking cabling after checking both of these chapters.

You have Ethernet 10/100 network cards already installed in your computers. You need to know what type of cable you can use with these cards, what the difference between 10 and 100 is, and if there's any other hardware you need to set up your computers. Chapter 6 explains network cabling for the Ethernet 10/100 network card. Additionally, Chapter 9 defines types of network interface cards.

Networking software

You want to connect to the Internet, so you want to know if you have to use the TCP/IP protocol on your network. This is a common misunderstanding. TCP/IP is the protocol of the Internet, but you can use a separate protocol for your network, even if you're attaching to the Internet. Chapter 10 explains.

In planning your network, you realize that everyone in the house uses a PC except for your youngest son. He uses an iMac. Is there any way you can attach his computer to the network, or will you have to purchase him a printer of his own? You can attach Macintoshes to a PC network and enable them to share printers and files by using special networking software. For more information about this software, see Chapter 11.

You've always wanted to know about TCP/IP and how it works. See Appendix B for more information.

Using the network

If you have already set up your network—installed cabling and hardware—but you're having trouble getting computers to see each other or locate resources on the network, you can quickly find the help you need in this section. Consider these scenarios.

Connecting computers

Ever since you set up your network, you have one computer that just won't see the other computers in the Network Neighborhood. You've tried everything you can think of, but you're ready to throw the computer out the window. What do you do? Appendix A defines various procedures to check connections and to solve network access problems. For more information about the Network Neighborhood, see Chapter 14.

You recently changed the network card on your computer and now you can't get that computer to attach to the network. Is there anything you can try that you haven't already? You should take a look at Chapter 10. You might need to update or reinstall your adapter driver or reconfigure your protocol configuration.

Your husband uses a Linux computer, and he doesn't want to change the operating system. Is there any way you can attach his computer to the network? Yes. Chapter 11 explains how.

Your daughter can't remember her network password. Is there any way you can help her get onto the network again? Yes, there is. See Chapter 13, which discusses network IDs and passwords.

Your office has a computer network, and you would like to connect your home computer to your work computer. If you could make a connection, you could work on multiple files from home, print to the printer at work while at home, and so on. For information, see Appendix C.

Using network printers and other resources

Your printer is set up and ready to go; however, no one on the network can see the printer in his or her computer. You know there's something else you must do, but you're not sure what it is. You'll want to make sure that you've installed the appropriate network printer driver to each computer. See Chapter 15 for more information.

Only one computer on the network contains a Zip drive, but you want everyone on the system to have access to it. How do you set up access? See Chapter 12 for information about sharing drives.

Finding computers, files, printers, and such on the network

Now that you're connected to the network, how do you find another computer's resources? Windows includes many tools for viewing computers and resources; you can use the Network Neighborhood, the My Computer window, or the Windows Explorer. Chapter 14 explains how to accomplish this task. In addition, Chapter 14 includes information for finding computers on Macs and Linux machines.

10 Part I ◆ Making Basic Network Choices

Your hard disk is nearly full, and you really don't want to delete any of your files. Short of saving to a floppy disk, where can you store your files? The handy thing about using a network is that you can store files on the hard drives of other computers. Chapter 21 covers this topic.

Using the Internet, e-mail, and intranets

One of the most popular reasons for people to have computers in their homes is for Internet access. If you have an Internet account, *Home Networking Bible* can make your life easier in many ways. Additionally, home-based e-mail accounts and intranets make your network fun and educational. An *intranet* is a private network that works similarly to the Internet; you use a Web browser to view documents that you and your family create in a special format.



A business, in particular, can use an intranet to publish business and financial reports, sales figures, employee handbooks, specials, calendars, and much more. See Chapter 19 for more information.

Internet

Everyone loves the Internet — using it for Web browsing, sending e-mail, joining newsgroups, and so on — but multiple Internet accounts are expensive. You have one Internet account in your home, but there are three people who want to use the Net, usually at the same time. Is there any way you can share the one Internet account and modem over the network? Yes, there are several software programs and hardware that enable you to share an Internet account. See Chapter 16 for more information.

You would like to use some sort of chat program to have a conversation over the Internet with your cousin in Florida. You've heard about programs that let you talk to others who are connected, but you would like to know more. Chapter 18 explains how Internet chats work and tells you about the most popular chat applications. Chapter 18 also discusses instant messaging programs.

E-mail

Some say you're silly to want e-mail for your home network, but you know that your kids would love sending messages to each other and that it's safer than allowing them to use Internet e-mail at this point in their experience. If you want to set up e-mail for your network, see Chapter 17.



E-mail within your business network is extremely important in a small business, to keep communications open, for transferring files quickly, for sharing schedules and ideas, and more.

Intranet

You have an intranet at work, and you enjoy the way you can share documents, pass around files, and so on. You also want to give the kids experience at designing Web pages, and it seems like a good idea to start them out on a private intranet instead of on the Internet. You can find out more by looking at Chapter 19.



An intranet is the perfect forum for a small business. You can share forms, an employee handbook, customer information, ordering and invoicing data, and so on so that every member of the network has quick and easy access to the documents they need to do their work.

Managing the network

If your network contains only two computers, you might not need to manage the resources. However, anytime you have multiple users on a network, problems can occur. The network can slow down so much that you think you'd be better off without it. Anyone can accidentally delete information from the Registry. You'll want to know more about managing a network so you can prevent, or at least assist, when something does go wrong.

Management tools

Now that your network is up and running, you want to be able to see which files are being shared, to see which users are online, and sometimes even to disconnect a user. The network seems unbearably slow, and you want to figure out why. Windows's System Monitor enables you to look at how things are being used. Chapter 22 offers help for the System Monitor, PGP for the Mac, and other suggestions for optimizing your system.

Every time your daughter turns on the computer, she complains that her brother has changed her desktop colors, screen savers, and game settings. You wish you could find a way to keep him from toying with her computer's settings. You can. See Chapter 23.

Registry

Your spouse decided to try to edit the Registry but made a mess of the computer's settings. Was there anything you could have done to protect the computer from these changes? Yes, you could have made backups of all Registry files on all computers, just in case the original file becomes corrupted. See Chapter 24 for more information.

Summary

In this chapter, you've learned about what it takes to build a network and about how this book can help you with many different networking problems. Specifically, you learned about the following:

- Building a workgroup network
- ◆ Building a client/server network
- ◆ Finding specific help in this book

In the next chapter, you learn the fundamentals of networking, such as the advantages and disadvantages of networking, the definition of a network, and how to get your family ready for a network.

