

Let's Talk: Computer Networks

Be a Power Reader

Mind Pictures To help you understand vocabulary terms, it can be helpful to sketch images of technical concepts. For example, the drawing of the local area network below helps you remember the definition (a network that connects a group of computers through a server). When you read a bolded term, sketch an image on a separate piece of paper to help you remember what the term means.

Introduction

Imagine that you have written a report for a history class. You want your friend to look it over before you turn it in to your teacher. It's late in the evening and your report is due tomorrow morning. What do you do? You send it to your friend as an attachment to an e-mail message. No muss, no fuss. This is a major advantage of networks—they let us communicate quickly and easily.

Early computers were not networked. If you wanted to use the data on your computer on another machine, you might copy the data onto a disk. You could then take the disk to the other computer and copy the data into that machine. Obviously, this was time-consuming. And if the other computer was across town (or across the world), transferring data caused even more problems.

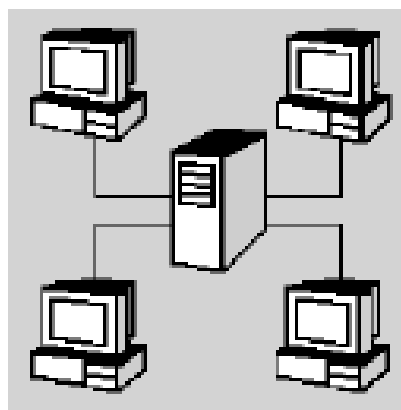
Thankfully, most of today's computers are networked. As you'll learn, different types of networks meet different needs.

Types of Networks

A **network** is a group of computers and related devices (such as printers and hard disks) that are connected. Networks can be divided into two groups: **local area networks (LANs)** and **wide area networks (WANs)**. Let's start by taking a look at LANs.

LANs

LANs were the first type of networks developed. A LAN connects a group of computers that are within a fairly small area. An office with 20 workers might use a LAN. It allows the users to share messages, software, and hardware. For example, if an office has only one color printer, it could be hooked to the network. Then anyone in the office could print a document on this color printer, without ever leaving his or her desk.



LANs connect computers over a fairly small area, such as an office with twenty workers.

Most of today's LANs are **client/server networks**. The computers that use a network are called the network's clients. The server is a special computer that responds to the requests of the clients. That is, it

“serves” the clients. Let’s say your company keeps a list of all its customers on the server’s hard drive. To locate the phone number of one of your customers, you use your computer to ask for this information. The server then finds the information on its hard drive and sends it to you. Many LANs have more than one server, and sometimes they store so much data that many hard drives are needed.

WANs

Business people quickly saw how useful LANs were. Companies that were spread over large areas wanted to use networks to communicate with different locations. So, they developed wide area networks, or WANs. WANs can be used to send data across the city or around the world.

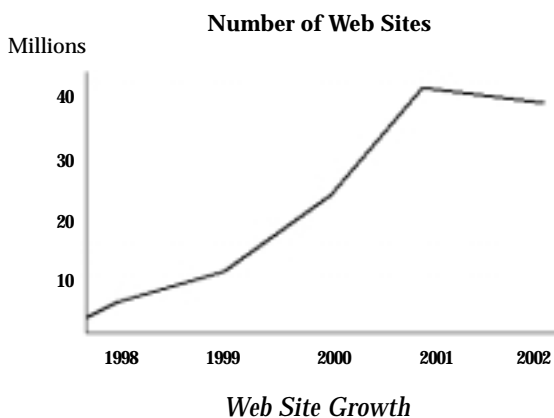


The Internet

The largest WAN of all is the Internet. The **Internet** is a worldwide system of networks that connects millions of computers. It allows

us to share messages, data, news, and other information.

When we talk about the Internet, we usually mean the **World Wide Web**, which is the multimedia portion of the Internet. The Web consists of millions of interconnected Web sites. The growth of the Web has been phenomenal. However, as you can see from the following chart, its growth has recently leveled off.



Intranets

As the Internet became more and more popular, companies liked the way it worked. Business people thought it would be nice to have company networks with the same features as the Internet. However, there was one big problem. The companies did not want outsiders accessing their information. So, they developed **intranets**. Intranets use the same technology as the Internet. They are accessed by using a Web browser. But they have one big advantage—they are not connected directly to the Internet. This makes them relatively secure.

Working Together

Have you ever worked on a complex team project? Being part of a team can be inspiring when everyone is working towards the same goal. Businesses realize that teams encourage people to do their best work.

Networks encourage teamwork. Applications such as **e-mail** and **instant messaging** let workers share information and ideas. For example, one member can send around material she’s written and everybody can add his or her comments.

If team members are not in the same location, they can hold videoconferences. **Videoconferencing** uses the Internet or the company’s network to allow members to hear and see each other during meetings.

In some companies, teams set up Web sites for their projects. A site may contain information such as the following:

- Announcements
- A schedule of meetings
- A directory listing each team member’s e-mail address, duties, and so forth
- A database containing information that all group members must be able to access
- Discussion groups for sharing ideas

An example of this type of application is Microsoft SharePoint Team Services (SPTS). SPTS is used with a regular Web browser. It allows team members to get

all the information they need in a single location. This information is available anywhere they can access the company's network, 24 hours a day.



Microsoft SharePoint Team Services makes information available to all team members.

Hooking Up

In order to use a network such as the Internet, you must be “hooked up” to it in some way. Many people, especially home users, use **dial-up connections**. A dial-up connection uses regular telephone lines. The disadvantage is that it is slow. Using

a **cable modem** is another option. This type of connection can use the same line as cable television. Another alternative is a **digital subscriber line (DSL)**. A DSL connection

can use regular telephone wires, but is much faster than a dial-up connection. In addition, regular phone calls can still be made on the phone line. Both cable and DSL are considerably faster than dial-up connections. However, they are more expensive and are not as widely available as dial-up connections.

In most companies' LANs, the individual computers are connected by cables.

However, more and more companies are using wireless networks. Wireless networks allow users to access the company network without being tied to their desks. When companies must send data over long distances, they use special high-speed communication lines.



Review Questions

1. How is a LAN different from a WAN?
2. What is a major reason that a company might develop an intranet rather than a Web site on the Internet?
3. How does a client/server network work?
4. What is an advantage that cable and DSL connections have over dial-up connections? What is a disadvantage?
5. How can networks help people work as a team?



What Do You Think?

1. Think of a company that you might like to start. What kinds of networks might be useful? Would it need a LAN, an intranet, or a Web site on the Internet? Maybe it would need all three. What do you think?
2. You are in charge of 12 people who are going to work together on a project. You are planning on developing a Web site that will keep all members up-to-date on what's happening with the project. What kinds of information should the Web site contain? What other features should it have?

Glossary

cable modem A device that lets you access a network such as the Internet by using regular cable lines, like those used for cable television.

client/server network A network in which individual computers called clients ask a server for data or application software; the server then responds to the request.

dial-up connection A method of accessing a network by using a standard telephone connection. It is a relatively slow form of communication.

digital subscriber line (DSL) A form of telephone service used to access a network. A DSL line is faster than a dial-up connection.

e-mail A message or document sent over a computer network from one computer user to another. Short for *electronic mail*.

instant messaging Sending messages back and forth in real time over a network. A keyboard is used to enter the messages.

Internet A worldwide system of networks that connects millions of computers for sharing data, news, and opinions.

intranet An internal network that lets users access information and resources. Intranets use the same technology as the Internet, but, because they are not part of the Internet, they are relatively secure.

local area network (LAN) A computer network that is contained within a relatively small area, such as a single building or a floor of a building.

network A group of computers connected to share messages, applications, data, and hardware.

videoconferencing Holding a meeting in two or more locations by using communication lines. Participants can both see and hear one another.

wide area network (WAN) A computer network that allows users to access and share resources over a wide geographical area.

World Wide Web The multimedia part of the Internet that consists of interlinked Web sites. Also called the *Web*.