welcome

Previous Page Next Lesson

As a growing business, you want to understand how network solutions can make a difference. You don't want to master the "techie" details or the behind-the-scenes bits and bytes, but you do want to make informed, strategic decisions. This course is just for you: it is an introductory guide to networking from a business perspective. You will learn:

- How a network works
- What type of network may be right for you
- How a network can improve business operations
- How a network can connect you with clients and the Internet
- Basic network technology terms that you will want to know before buying equipment or working with a supplier.

The Modern Office

Previous Page Next Page

In the beginning...
... your business started with a single computer. After that computer you added a printer, and a modem. Before you knew it you needed a CD-ROM drive, a scanner and a color printer.

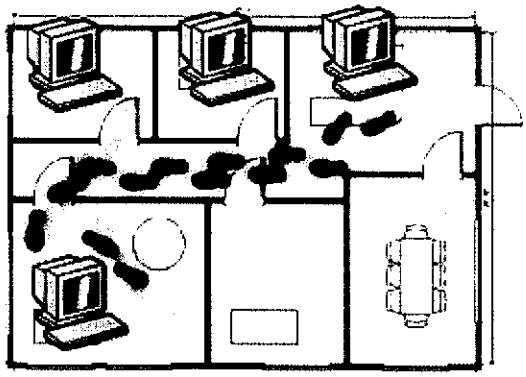
Business was good, so you added more people, which meant more PCs. Now, with more computers, the demand on your printer has increased tenfold. Today, your office needs the ability to exchange computer files.

The more computer equipment you add, the more you realize how dependent you are on these tools to run your business and stay competitive. You wonder ...

"How can our managers share spreadsheets 'just-in-time?'"

"Why do I have to keep buying more printers... can't we share one?"

"Why can't Mabel and Joe get on the Internet at the same time?"



Which pretty much explains why you are here. You are fairly certain that a computer network will help your company grow. But you are not sure how to go about constructing a network or even where to begin. Rest assured, you've come to the right place.

A Brave New World

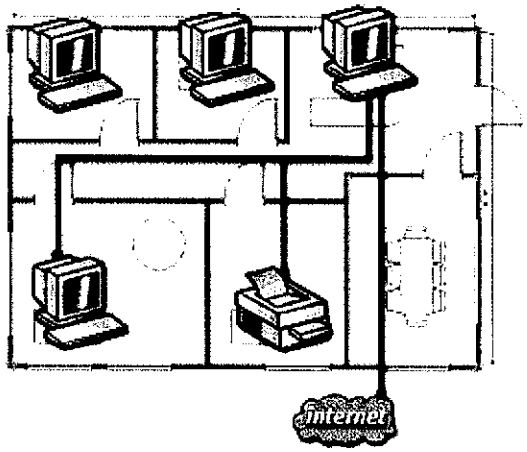
Previous Page Next Page

In this first lesson, we'll demystify computer networks.

Building a computer network means opening a world of new opportunities for your business. It means flexibility, efficiency, and immediate access to information that will change the way you work, communicate and serve your customers.

Today, with information technology evolving at a mind boggling pace, a little networking savvy will help you get the highest return on your investment.

And armed with a little knowledge on what networks can do, you'll be primed to seize new business opportunities that come your way. So let's get started with the basics...



What Computer Networks Do

Previous Page Next Page

Share Knowledge
Simply stated, a network connects all of your computer equipment together so that they all can talk to each other. Sharing resources means, for example, that you eliminate sneakernet.*

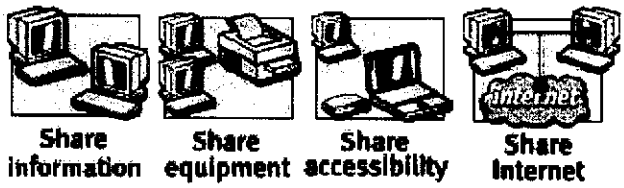
*Sneakernet \sne-ker -net\ n: a human communications network that forces people to repeatedly get up from their chairs and hand floppy disks (loaded with information and easily misplaced) to waiting co-workers (who are, no doubt, passing the time shooting rubber bands at the water cooler). Sneakernet consumes valuable time and money (not to mention wear and tear on the office carpet).

In all seriousness, sharing resources means increased productivity for your staff and means leveraging the investment in equipment you already have.

Explore some benefits by clicking on each picture at right.

click to... get installation fast facts

click to... get investment fast facts



What Computer Networks Do

Previous Page Next Page

Take a look at how one small business is benefiting from a networked office.

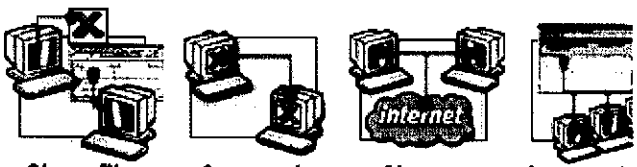
A year ago, Beatrice Bloomquist built a computer network for her company, Bloomquist Bee Keeping and Honey, Inc.

Click "**view details**" to explore what networking is doing for Beatrice and her employees.

click to..
get installation fast facts

click to..
get investment fast facts

click to..
view details



Share files and applications | Copy and send files | Share an Internet connection | Communic with co-worke

Types of Networks

Previous Page Next Page

Now let's take a look at the different types of networks.

Networks can be designed to suit organizations of all sizes, from a single location with as few as two PCs, to the largest international corporation linking thousands of workstations.

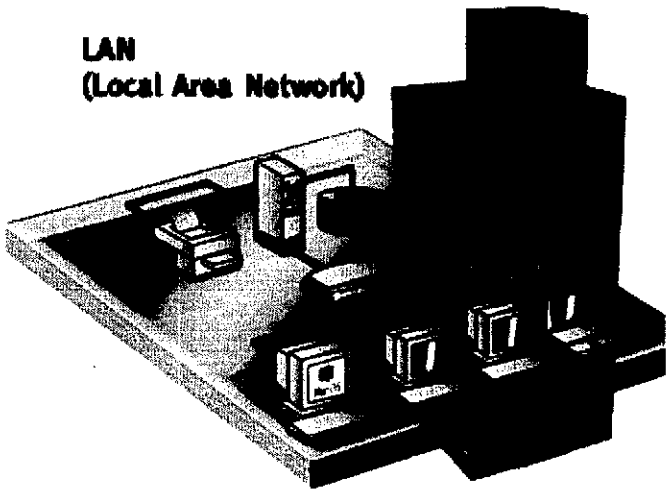
The LAN
Over short distances, for instance, within a small geographic area such as a building, you can create a Local Area Network, which is called a LAN. It's called a local area network because we're connecting PCs in just one local location, an office building for example.

Every computer connected to the LAN is said to be "on" the network. A LAN is made up of "nodes" (admittedly a rather odd term for an electronic device) on the network such as a computer, printer or a fax machine. (A node is any PC or peripheral that connects to the network.)

When you connect these nodes together you have a network. For small businesses a LAN is what you need to connect your PCs.

click to..
get installation fast facts

click to..
get investment fast facts



Types of Networks (continued)

Previous Page Next Page

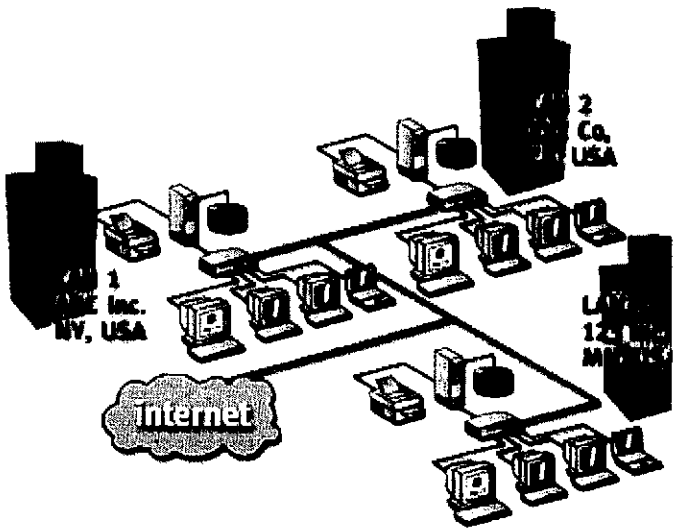
WANs and the World Wide Web

A network that connects a LAN to a LAN across a large geographic area such as city or country is called a Wide Area Network or WAN. A WAN can transmit information by telephone line, microwave, or satellite.

LANs and WANs are private networks. They interconnect people inside your organization.

Outside the realm of these private networks is the Internet - an enormous, public WAN. The Internet links PCs at universities, research centers, and companies across the globe.

As networks become more powerful and more businesses and homes become connected, the Internet will serve as a contact point between your company, your suppliers, prospects, and customers.



Wrap-up

Previous Page Next Lesson

The Learning Center

In this first lesson we explored:

- The needs of the modern office
- What computer networks do:
  - Share information, equipment, and accessibility
- Types of networks
  - LANs, WANs and the Internet

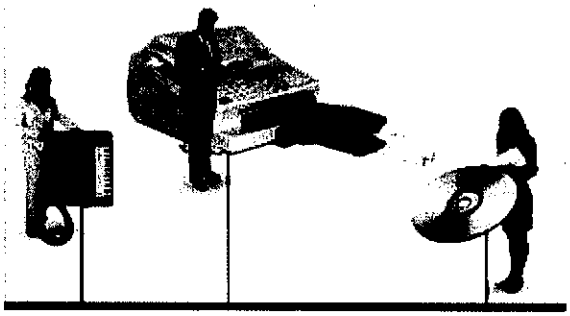
In the next lesson, we'll examine some of the business drivers for installing a small office networking solution.

A Look at the Business Value

Previous Lesson Next Page

Now that you have a basic understanding of what a network is, let's take a look at what a network can do for your business operation.

Once upon a time...
...the telephone revolutionized the world. And it wasn't all that long ago that the fax machine made its debut. Can you imagine conducting business today without either of these marvels of modern technology?



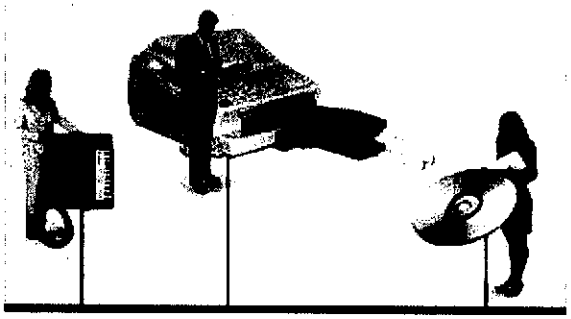
Technology Timeline

A Look at the Business Value (continued)

Previous Page Next Page

Today....
Computer networks are rapidly becoming as common as the telephone and fax. Your customers are networked. Your suppliers are networked. They of course want their questions answered, their orders filled, and their needs met with a minimum of inconvenience.

They expect to communicate with you and conduct business using today's productivity tools, like e-mail and the Internet. Business owners need to work smarter and stay competitive; networking the office is an ingredient for success.



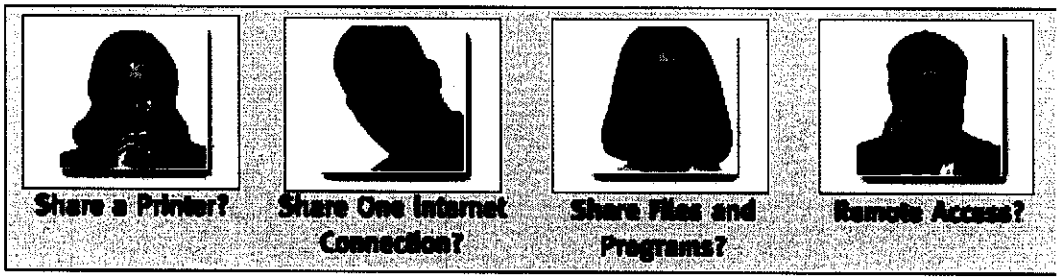
Technology Timeline

A Look at the Business Value (continued)

Previous Page Next Page

Increased Productivity
By building a computer network, you can facilitate higher productivity. In fact, over 80% of business owners state productivity gains as a key benefit of implementing a LAN. Click on a business owner to hear commonly cited reasons for needing a network.

click to..
get investment fast facts



A Look at the Business Value (continued)

Previous Page Next Page

Chances are those scenarios are familiar to you. How do you know if you are ready for a network? Here are the key questions to ask:

- Do you have two or more computers?
- Do more than three of your computers share one printer or fax machine?
- Does your company have, or are you planning to have, e-mail or Internet access?
- Do your employees frequently need access to customer records, inventory, or financial information?
- Does your company work regularly with large or graphic-intensive files?

If you answered "yes" to even one of these questions, your business can gain productivity advantages by setting up a network.

dkk to...
get investment fast facts

A Look at the Business Value (continued)

Previous Page Next Page

Lastly, there are a few pointers for considering whether or not your business needs a network today or in the future. Keep in mind that the first principle of good network design is to plan ahead.

Your network will need to grow right along with your business. Why? Because of:

- The ever-increasing sophistication of software applications
- The increasing dependence on the network by everyone in your organization

Your network must meet present needs and accommodate full growth: from the number of users it accommodates, to the types of equipment it interconnects, to the amount of data it can handle, to the speed of the data transmissions.

So here are some of the Golden Rules for building a successful network:

click to..
get investment fast facts

Rule #1
Identify the future needs of your network such as evolving work practices, adding remote offices and mobile staff, and increasing your use of multimedia applications.

Rule #2
Plan for Change - choose products that are flexible and scalable (industry lingo for devices that can be built upon, or added to).

Rule #3
Look for a supplier who can offer reliable products based on open industry standards and backed by strong warranties. And look for a supplier who can work with you as your company grows.

Rule #4
Create a comprehensive security plan and choose products that provide multiple layers of protection for sensitive network information.

Wrap-up

Previous Page Next Lesson

In this lesson we explored:

- How a network can improve business productivity and help businesses stay competitive
- Business requirements that a network can fulfill, such as sharing equipment and improving communication
- The need to plan ahead when determining network needs

In the next lesson, we'll take a closer look at an entry level networking solution.

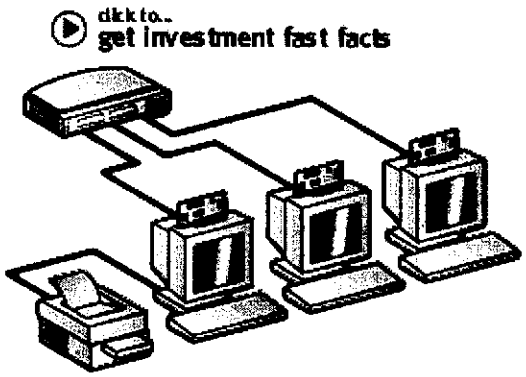
"Peer-to-Peer" Networks

Previous Lesson Next Page

Building a Basic Network
There are two basic types of LANs: Peer-to-peer and client/server. This lesson introduces you to peer-to-peer networks.

Peer-to-Peer
Suspend reality for a moment and pretend that all of your peers are equals - you collectively share the same talents, beauty, brains, and charm.

This is sort of how the term "peer-to-peer" applies to this type of network. Each computer is equal (is a peer) on the network. They can all share the same devices (printers, disk drives and the like), as well as files and software applications, with any other computer on the network. The computers do this without relying on a centralized computer or "server." Each computer is equally "weighted" in terms of their role and responsibility on the network.



A peer-to-peer network is generally the easiest to install. As a rule of thumb, it is the type of network businesses use when they have about five PCs on the network.

"Peer-to-Peer" Networks (continued)

Previous Page Next Page

But let's take a closer look at what makes a peer-to-peer network work.

A Network Interface Card, or more commonly referred to as a NIC (as in "nick"), is a circuit board that goes inside of each PC on the network. (The NIC board slides into a slot inside your computer.)

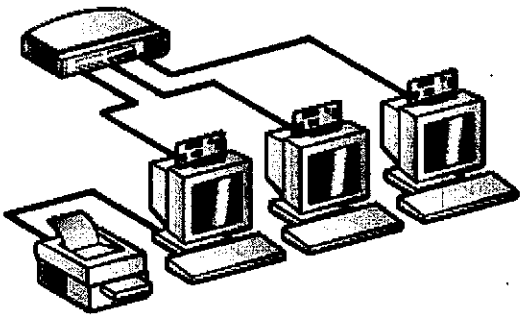
NICs are the "smart" part of the LAN. They control the flow of information (traffic): they send out messages, know when messages are meant for them, and answer their messages. NICs also play an active role in enhancing performance and setting traffic priorities.

Through a NIC, each PC connects to a central point, usually a device called a hub. A hub is a device that provides a central location--essentially a junction box--where all the PC cables come together. The hub enables all PCs on the network to communicate with each other. Hubs come in a variety of shapes and sizes, connecting a few users or hundreds of users.

click to... get installation fast facts

click to... get investment fast facts

click to... view details



resources

Hub Product Snapshot

"Peer-to-Peer" Networks (continued)

Previous Page Next Page

Why Is The Hub Important?
It is possible, but not advisable, to build a peer-to-peer network without a hub. PCs and other equipment can be cabled together to form a simple peer-to-peer network. The PCs are chained together and send data "through" each other to reach other PCs on the network.

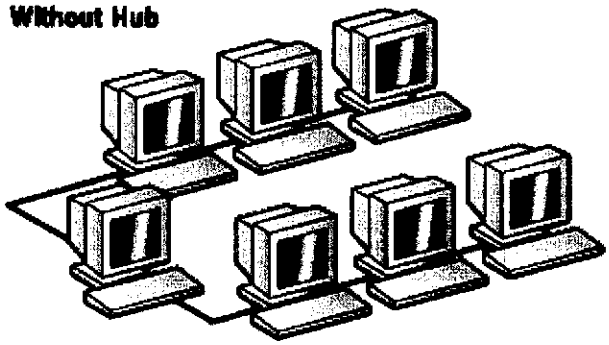
A "hubless" network is difficult to maintain and troubleshoot. Most importantly, if one point on the network fails or is shut down, the entire network goes down. In addition, this type of set up does not easily allow for future growth in terms of speed and performance.

So with the cost of a basic hub around $80, using a hub on the network is good sense.

click to.. get installation fast facts

click to.. view details

Without Hub



resources

Explore Connection Types

Hub Product Snapshot

"Peer-to-Peer" Networks (continued)

Previous Page Next Page

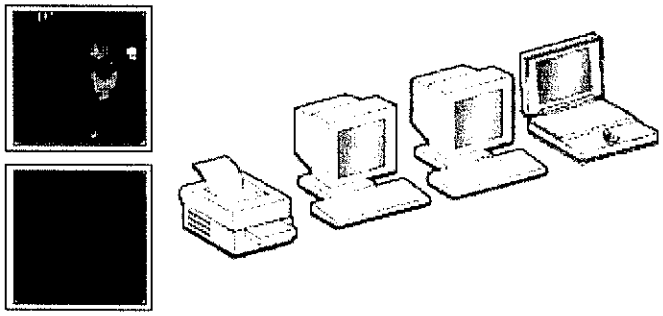
Small Network
So, if you have fewer than 5 nodes and do not use large database or graphic files, a peer-to-peer network is the perfect solution.

Plus, if your computers run Windows, you don't have to buy any additional software because peer-to-peer networking features are built into Microsoft Windows 95 and 98.

Peer-to-peer networking is cost effective, easy to set up and can be upgraded should your needs change.

Click "**view details**" to see how one small business solved their connectivity problems.

click to...
view details



resources

Connecting Peripherals

Considerations (continued)

Previous Page Next Lesson

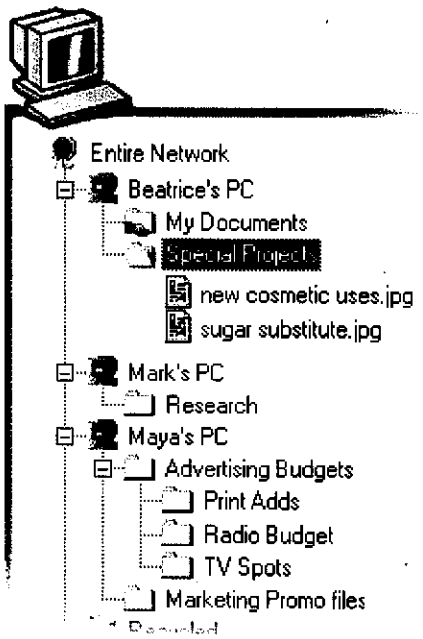
Peer-to-Peer things to consider:

- Because files are stored in many different locations, it can be difficult to manage, back up and protect.
- However, in a peer-to-peer network, if one computer malfunctions, the rest of the network will not be affected.
- All the people on a peer-to-peer network store their files on their own computers. Anyone on the network can access files stored on any other computer.
- Who can access what is controlled by established non-shared folders. Folder sharing (or not sharing) is a simple Windows function that is easy to use.
- Windows also lets you password-protect folders so that some, but not all, network users can access your confidential files. Of course, you can also password-protect individual files (such as an Excel spreadsheet).
- If a computer is turned off or temporarily disconnected from the network (a laptop for example), other people cannot access the files on that computer until it is reconnected (plugged into) the network.

click to.. get installation fast facts

click to.. get investment fast facts

click to.. get upgrade fast facts



Bottom line:
A peer-to-peer network provides an easy, cost efficient way to connect a small office with about 5 PCs. Much of the investment you make in a peer-to-peer network can still be used should you need to upgrade to a client/server network.

The Learning Center

Client/Server Networks

Previous Lesson Next Page

click to... get installation fast facts

click to... get investment fast facts

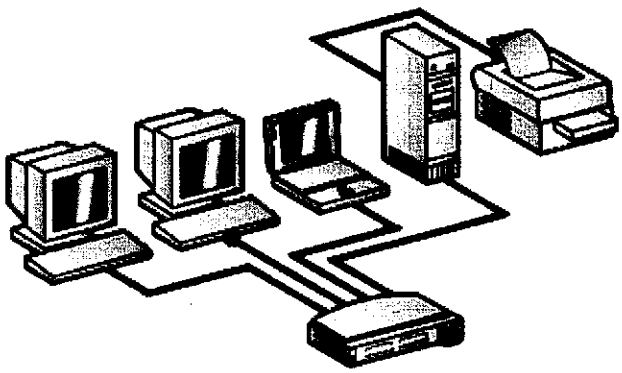
Building a Basic Network
If you have 5 or more PCs to connect and a lot of network traffic you've come to the right place. This lesson introduces you to Client/Server networks.

Client/Server Network
Suspend reality again, and pretend that you are ruler of the universe - you are all knowing and all seeing. Not only do you (and you alone) possess all the beauty, brains and charm in your mythical kingdom, the masses gleefully flock to you for their every need.

This is the role of a server computer. The server acts as the central computer and stores the files that need to be shared on the network.

A client is any computer on the network that requests information stored on the server.

The server does just what it sounds like it does: it "serves" files and data to the "customers" (the client PCs) on the network.



Client/Server Networks (continued)

Previous Page Next Page

Like a peer-to-peer network, client/server networks utilize NICs, hubs, and cables to create a network. A client/server network also requires its own operating system. But client/server networks have several advantages over peer-to-peer:

- Many files, like large databases, can be stored in a single location, * they are easier to update, backup, and archive with dependable results.
- The server is usually a high performance computer that ensures speedy data access and delivery, and provides the foundation to add capabilities such as centralized accounting. The client/server software that operates the network resides on the server and provides the "intelligence" for managing files on the network.
- A client/server network allows centralization of software. Software the entire office uses can be stored on the server and accessed by everyone. Installation and updates need to be done only on the server, not the individual PCs. For example, an office can purchase a network version of a spreadsheet software application instead of buying inidividual licenses and installing a copy on each PC.

click to..
get installation fast facts

click to..
get investment fast facts

I own a legal transcription business. We have three PCs, a laptop and a decent laser printer, bu the business is growing and so is network demar We have printer "congestion" problems right no plus I just ordered another PC and a laptop. I wa to connect all the PCs, the laptops, speed up the network improve my printer's performance. Is all this possible?

*Network users can still store their own files on th own PCs, then use the server to access shared fil databases, software, and peripherals.

Client/Server Networks (continued)

Previous Page Next Page

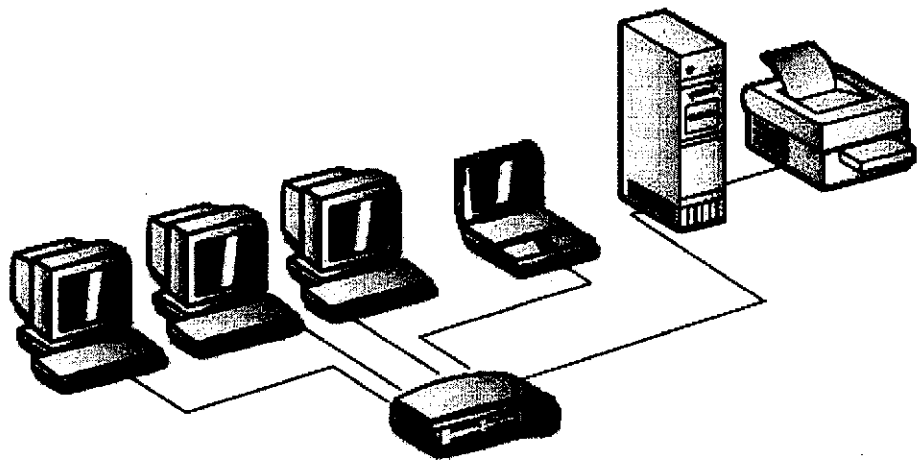
Here's a sample of a simple client/server network.

Each PC workstation is equipped with 10/100 Mbps NICs. The laptop has a 10/100 LAN and Modem PC Card (for remote access capabilities). All the nodes, including the application server, connect to a dual speed hub, which makes the network run at 100 Mbps.

click to... **get installation fast facts**

This network provides a foundation for add-on applications, such as Internet access, remote access, fax sharing and automated file backup. The dual speed 10/100 capabilities work well for offices where faster access is needed by some users but not by others (if some users have older 10 Mbps NICs, for example).

Explore the network by rolling your cursor over components.



resources

- Connecting Peripherals
- 10/100 NIC for PCs--Product Snapshot
- 10/100 NIC for Laptops--Product Snapshot
- Hub Product Snapshot

Client/Server Networks

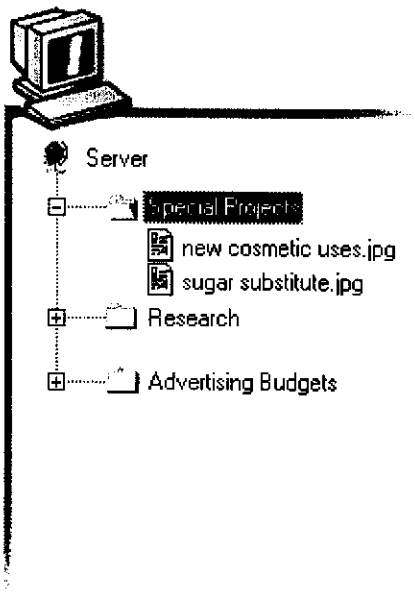
Previous Page Next Page

Client/Server Things to Consider

- A client/server network requires a server and a network operating system like Novell NetWare or Windows NT.
- All files can be stored on the server. This makes the files easy to manage, back up and protect.
- Individuals will likely still keep files that only they use on their own PC (memos, spreadsheets, and similar).
- Software applications and databases (such as for accounting) can be easily added and centrally stored and accessed from the server.
- If the server malfunctions, the entire network will be affected.
- Everyone connected to the network can access the shared files stored on the central computer. File sharing and other security measures are built-in to the operating system on the server, so you can limit access to certain files.

click to... get installation fast facts

click to... get investment fast facts

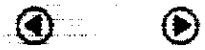


A client/server network is more powerful and offers even more methods for improving productivity and economies of scale than a peer-to-peer network.

Bottom Line

If you have 5 or more nodes to connect and work w large files like databases or graphics; or you have information that is updated frequently on the networ (which means lots of network traffic) your best choic is a client/server network. On the other hand, client/server networks are harder to install and require some technical expertise.

Wrap-Up



Previous Page Next Lesson

The Learning Center

In this lesson we explored:

- What a client/server network is
- What the criteria is for having a client/server network
- Advantages and disadvantages of a client/server network

In the next lesson, we'll explore how quickly networks move information.

About Speed

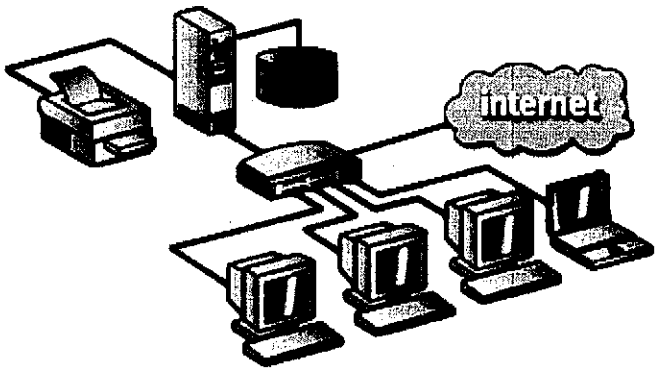
Previous Lesson Next Page

In this lesson you will learn how information is exchanged within a network and you will be introduced to Internet link speeds.

The ability to deliver products or services responsively and on-time is a key requirement for every business.

The speed of the network and the Internet link can make a difference in the speed of routine business activities in your office.

click to... view details



What is Ethernet?

Previous Page Next Page

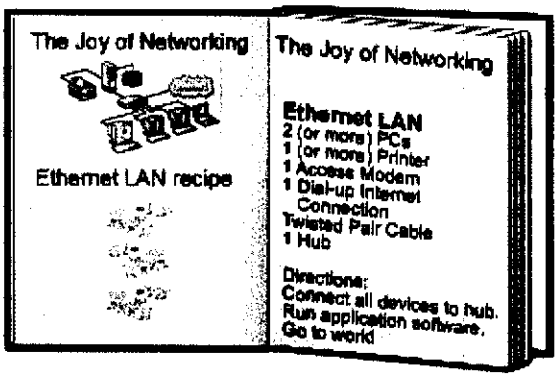
First, let's take a look at the speed options for the Local Area Network in your office.

You may have heard the term "Ethernet" bandied about by computer types. Ethernet is not an alternative Internet for space travelers, but rather a standardized method of connecting computer workstations in a network.

Think of Ethernet as a recipe for building a network. It specifies what kinds of cables to use, how the cables should connect, how the data will move through those cables from computer to computer.

click to..
get installation fast facts

click to..
get investment fast facts

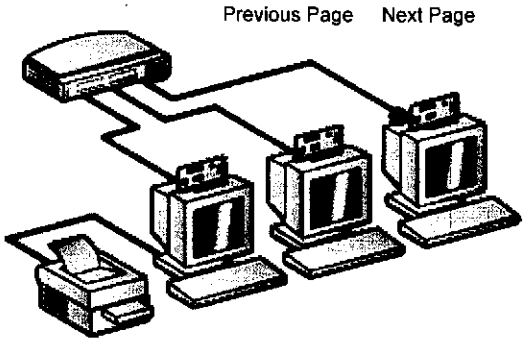


What is Ethernet? (continued)

Previous Page Next Page

Ethernet is the most popular and least expensive way information can travel through a network. Ethernet is one of several topologies* for LANs. Some other topologies you may hear about (but we won't go into here), include Token Ring, FDDI, Appletalk, Fast Ethernet, Gigabit Ethernet, and ATM.

*Tech-speak for the shape of a network; that is, how computers and cable are arranged on a network.

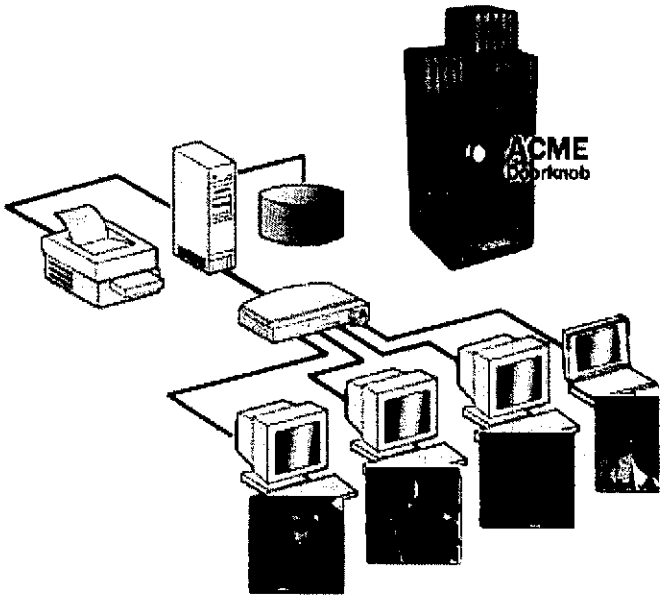


How Ethernet Works

Previous Page Next Page

To understand how Ethernet works, think of several people engaged in a civilized, yet lively, debate. Each participant listens intently and waits for his or her turn before making a statement. If two people begin speaking at the same time, both will pause until one speaker yields the floor to the other.

The debate? Roll your cursor over each person to find out.



How Ethernet Works (continued)

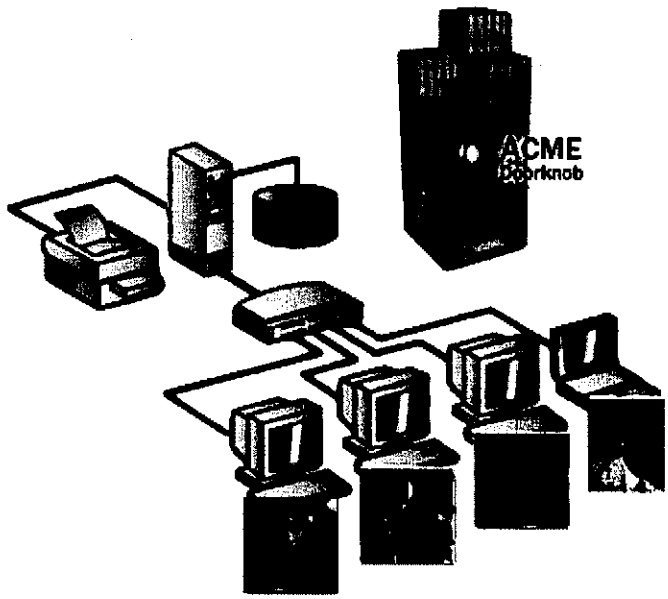
Previous Page Next Page

In an Ethernet network, devices (computers, printers and so on) listen to the network channel. If no other device is using the channel, an Ethernet device sends its data.

When the device sends its data, it "broadcasts" to all the nodes on the network, but only the intended destination responds.

All of this talking and listening happens lightning-fast. However, if too many are talking at the same time, the network may slow down.

See how it works: roll your cursor over the people in the illustration to see what their computers are doing.

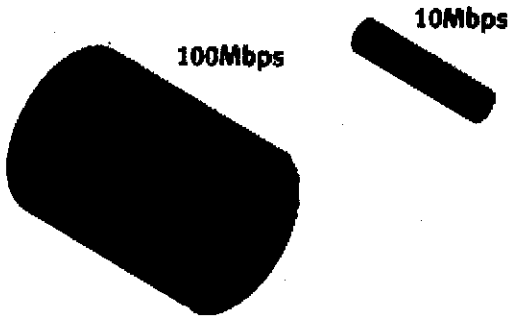


How Fast can Ethernet Go?

Previous Page Next Page

How fast information travels from PC to PC around the network depends on the network's bandwidth. Bandwidth is the networking term for how much information can simultaneously flow through a network and how fast it travels.

Think of it like a pipe. The width of the pipe (band) determines the amount and speed of the information passing through it.



Bandwidth

Click on a pipe to learn how bandwidth affects the speed of data transfer.

Combining Ethernet Speeds

Previous Page Next Page

For businesses with combined needs, dual-speed devices are available.

By installing 10/100 NICs where necessary plus a dual speed hub (a hub that can accommodate both Ethernet and Fast Ethernet users), an office can enjoy the best of both worlds. Here's how it works:

The hub determines the speed *available* to nodes on the network. At each node, the NIC determines how fast that given node can communicate with a hub. When the hub is a single speed 10 Mbps hub, 10 Mbps is the maximum speed available (even if users have dual speed 10/100 NICs).

When the hub is dual speed:

- Users who have 10/100 NICs can take advantage of Fast Ethernet (100 Mbps)
- Users who have 10 Mbps NICs transfer data at the 10Mbps

So even though computers on the network send and receive data at different speeds, they can still have that civilized "talk."

click to..
get investment fast facts

click to..
view details

I run a small multimedia company. I already have a network with 10-megabit Ethernet but my designers say that large file transfers are excruciatingly slow. We're doing more video production than ever before so copying 100 megabytes to the server and back takes forever. No one in sales or accounting has a problem with our network's speed, just the design group. Can I get faster speed just for them?

Bottom Line

The cost difference between a 10 Mbps Ethernet NIC and a dual 10/100 Mbps Ethernet NIC is typically les than $20. A dual 10/100 Mbps Ethernet NIC is the best choice for flexibility and future network expansion.

Click "**view details**" to see how one small business solved its network traffic problem.

resources

10/100 NIC for PCs--Product Snapshot

10/100 NIC for Laptops--Product Snapshot

Hub Product Snapshot

Basics of Internet Speeds

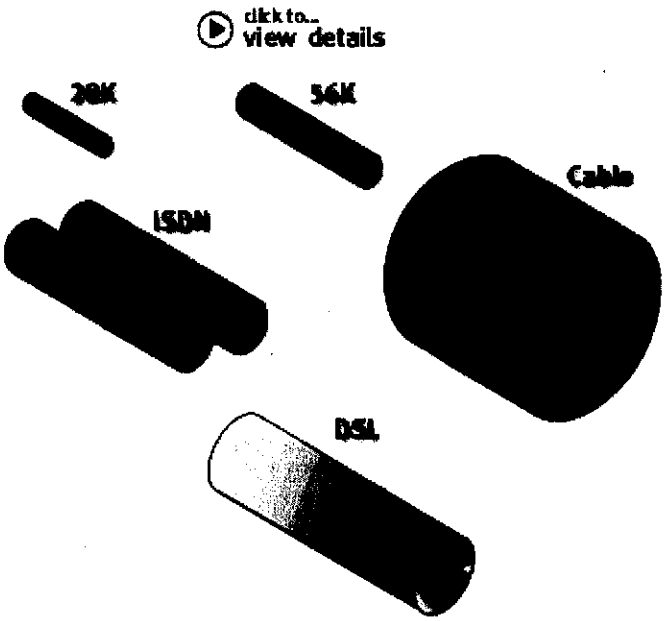
Previous Page Next Page

While Ethernet determines the speed of work within your organization, your Internet link determines the speed of work outside of it.

You can learn all about Internet link choices by visiting other courses on The Learning Center site. Here is a quick look at some basics.

Traditional modem and Internet connections are rated at the amount of data they can transmit each second. For example:

- 28K means passing 28,800 bits (28K) of information per second
- 56K means passing 56,000 bits (56K) of information per second (twice as fast)



resources

Modem Basics

Wrap-up

Previous Page Next Lesson

The Learning Center

Ethernet and Internet link speeds can make a difference in how fast your organization gets the job done and how responsive you are to customers. In this lesson, you learned that:

- Ethernet is the most common network technology
- There are two types of Ethernet speeds: 10 Megabits per second and 100 Megabits per second
- Network Interface Cards and network hubs are available that can handle one or both Ethernet speeds
- There are several options for the speed of an Internet link; today 56K and ISDN are the most common for small businesses

In the next lesson, you will learn the basics of remote access -- connecting people to your office network from any location in the world.

resources

10/100 NIC for PCs--Product Snapshot

10/100 NIC for Laptops--Product Snapshot

Hub Product Snapshot

Modem Basics

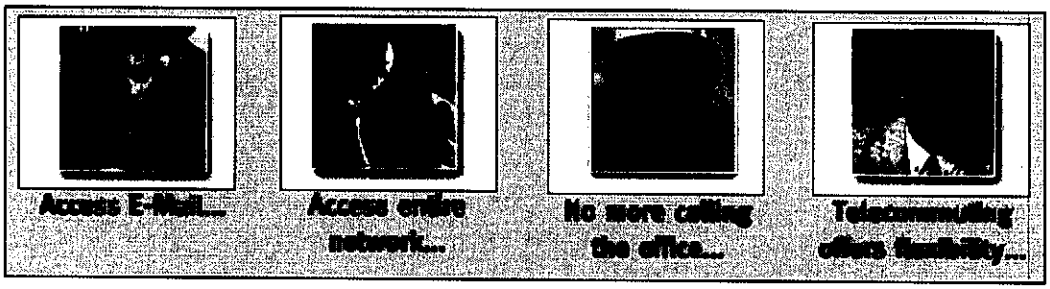
Why Remote Access?

Previous Lesson Next Page

Connecting to your office network from home or "on the road" is called remote access. This lesson introduces you to remote access for growing businesses.

Is Anybody There?
The true versatility of a networked office is never more evident than when remote access capabilities are implemented.

From any telephone line anywhere in the world, you can have access to your company's network, e-mail, and software applications, even your Internet connection. When remote access capabilities are available, organizations can expand their business so that business activities can occur anywhere, anytime. Who benefits from remote access? **Explore** commonly cited reasons for needing remote access by clicking on the business owners below.



Explore commonly cited reasons for needing remote access by clicking on the business owners.

resources

Modem Basics

Remote Access Basics

Who Gets What?

Previous Page Next Page

There are several "levels" of remote access available to businesses.

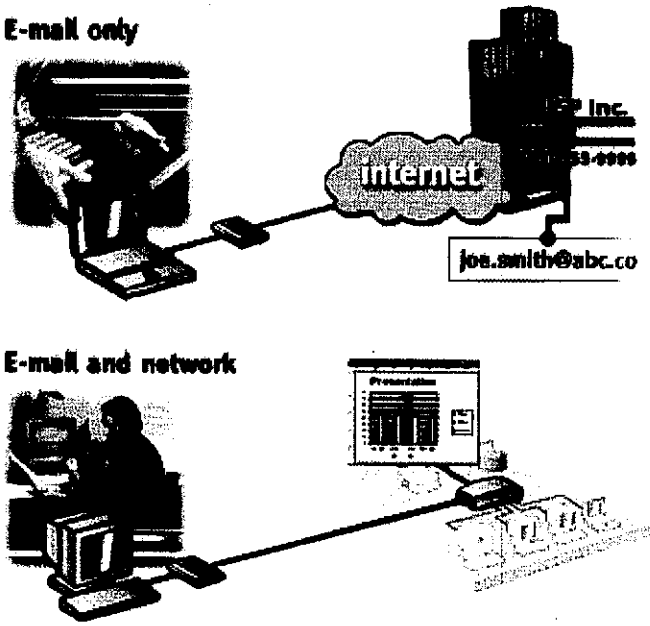
One level, the most simple to set up, allows the remote user to access e-mail through a company's Internet e-mail account. This is very common in small businesses today.

Internet e-mail requires only a modem in the remote PC and a dial-up connection. When your Internet Service Provider hosts your e-mail, you can check e-mail when "on the road," but this solution does not give dial-in access to the company network.

To give remote users access to the company network (and the information that resides there), a business must add a remote access solution to their network. Keep in mind that some companies allow their employees free reign to open any file or application on the network, while others deny access to certain data.

Essentially, it is up to you to determine how much access or how little access you wish to grant people who use your network.

click to..
get installation fast facts



How Does it Work?

Previous Page Next Page

So how does it all work? Remote access to a network involves two kinds of communications services, one on each end of the connection.

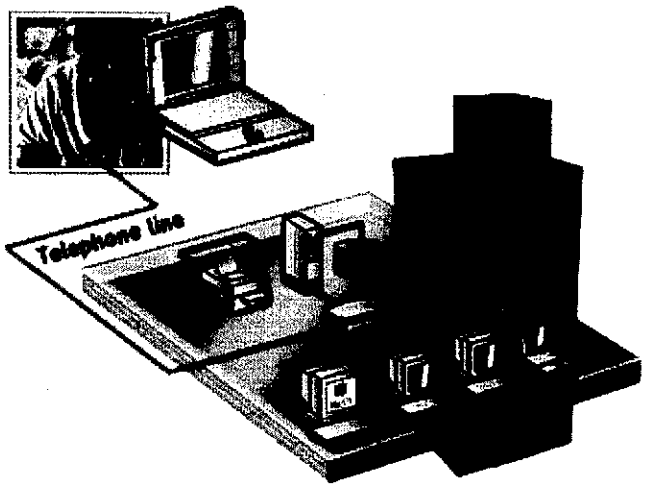
Client Side

- "Client-side" services reside on the computer of the mobile user or telecommuter. The software needed for initiating a dial-in connection is already on Mac OS 8.x and Windows 95/98 operating systems. In Windows, it is called dial-up networking.

Server Side

- "Server-side" services reside at the office location. Server side remote connections can vary in capacity and complexity.

click to...
get installation fast facts



resources

Glossary

How Does it Work? (continued)

Previous Page Next Page

Using the PC's built-in dialing software and modem, the mobile user makes a telephone call to the office. A remote access server answers the call and verifies that the remote user is entitled to enter the network.

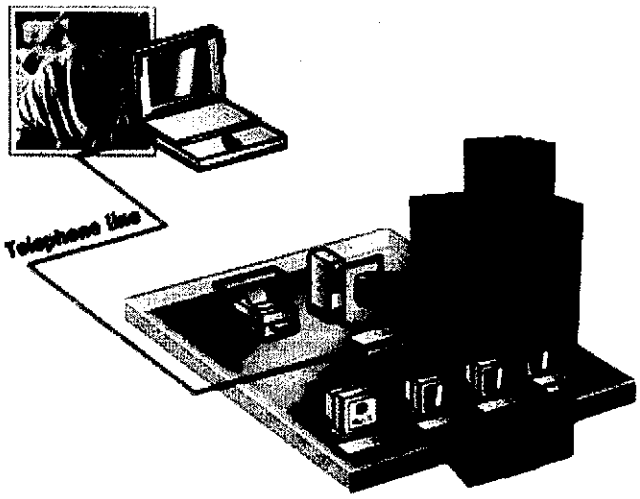
Once the remote user gets the electronic "okay," the server establishes the connection so the computers can talk to one another.

For mobile users who need access to the office network; for telecommuters who want to work from home; remote access makes small business more powerful by "expanding" company borders to any location where work needs to be done.

resources

Modem Basics

What's the Password?
One of the most important aspects of network security is the use of a password. When a mobile user dials into the network, the remote access server answers the call and examines a password submitted by the user. The computer verifies that the remote user is entitled to enter the network, what that user can and cannot do on the network, and what drives or folders and files the user can open.



How Many People?

Previous Page Next Page

If you are considering remote access options, you will need to anticipate how many people dial-in, how often, and for how long.

If a handful of people work remotely (up to about 15 or so), you many only need one dial-up connection to the network from the outside. True, only one remote person can be connected to your network at a time, but chances are multiple people will not be trying to connect all at once.

When you need just one dial-in connection to your network, you can take advantage of the remote access capabilities already built-in to Windows NT. With a 56K access router, a Windows NT server, and a 56K Internet link, you've got a remote access solution.

When you have higher volumes of remote workers or people will connect to the network for extended periods, you can get devices called remote access servers. A remote access server device is both a modem and system for managing access. It can provide access to several remote users simultaneously.

resources

Explore Connection Types

Modem Basics

Wrap-up

Previous Page Next Lesson

The Learning Center

In this lesson we explored:

- How remote access extends your business so that communication can occur everywhere, anytime
- The basic set up for remote access: remote access through Windows NT or a remote access server and modems for people at home or travelling
- How a remote connection is established

In the next lesson, we'll take a brief look at how your existing equipment can be leveraged as your business expands.

When Do I Upgrade?

Previous Lesson Next Page

In this lesson you'll learn what factors indicate you should expand your network and equipment types to consider.

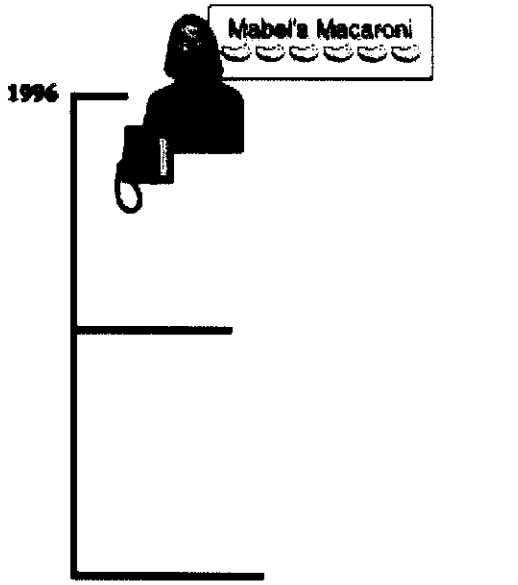
Bigger and better

If you're good at what you do, it's bound to happen.

Before long you'll be looking for larger office space and hiring more staff. The network you built just a few years ago operates at a snail's pace.

Just as your business grows, your network needs to grow along with it. You'll need to connect additional users and transmit larger volumes of information to more locations.

The Internet may become a key focus of your overall business strategy as you use it to market and sell your services; to communicate in real-time with your suppliers, partners and (most importantly) your customers.



When Do I Upgrade? (continued)

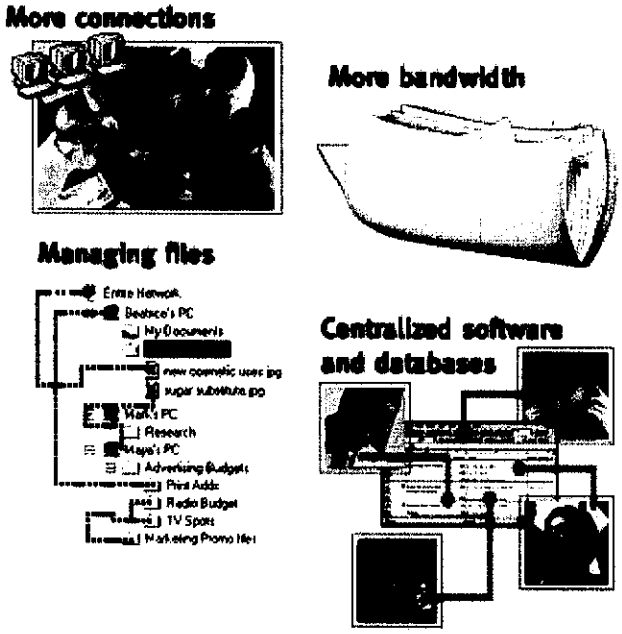
Previous Page Next Page

From a practical standpoint, consider these common reasons for expanding and upgrading:

- More connections are required to accommodate more users on the network
- More bandwidth is required to move larger files on the network
- Managing and backing up files on a peer-to-peer network has become complicated
- Use centralized software and databases for managing accounts and contacts

As the network grows, it can be harder to maintain peer-to-peer networking. It may become difficult to keep track of the location of folders and who is accessing them. Also, if shared folders and local printers are accessed heavily, it can make PCs that contain them run slower.

Take a look at a tale about a network....

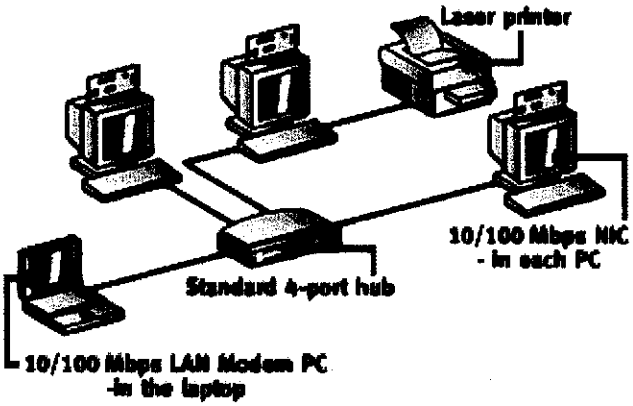


A Network Tale

Previous Page Next Page

Ned's Knickers and Hat Shop started small. Ned and the gang were happy serving the knickers and hat needs of all the people in the village of Kent. Ned was thrilled with his peer-to-peer network that had three PCs, a laptop, a printer and a hub.

And life was good until....



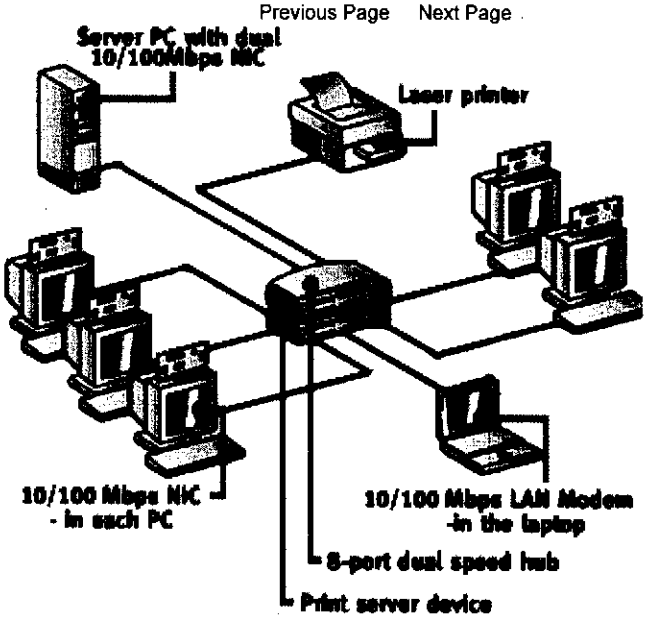
A Network Tale (continued)

Previous Page Next Page

.... Ned got the knickers contract for the Australian Bugle Corps. This unexpected order and accompanying publicity meant Ned had to expand quickly. The computers and network in his company needed to handle the increased workload, right along with his knickers manufacturing output.

Fortunately, Ned had already installed dual 10/100 Mbps NICs in his PCs. He added two more PCs (with 10/100 Mbps NICs, of course), a server PC with a 10/100 Mbps NIC, a print server and an 8-port dual speed hub. So he took advantage of equipment he already had.

And life was once again good until....



resources

- 10/100 NIC for PCs--Product Snapshot
- 10/100 NIC for Laptops--Product Snapshot
- Print Server Product Snapshot
- Hub Product Snapshot

A Network Tale (continued)

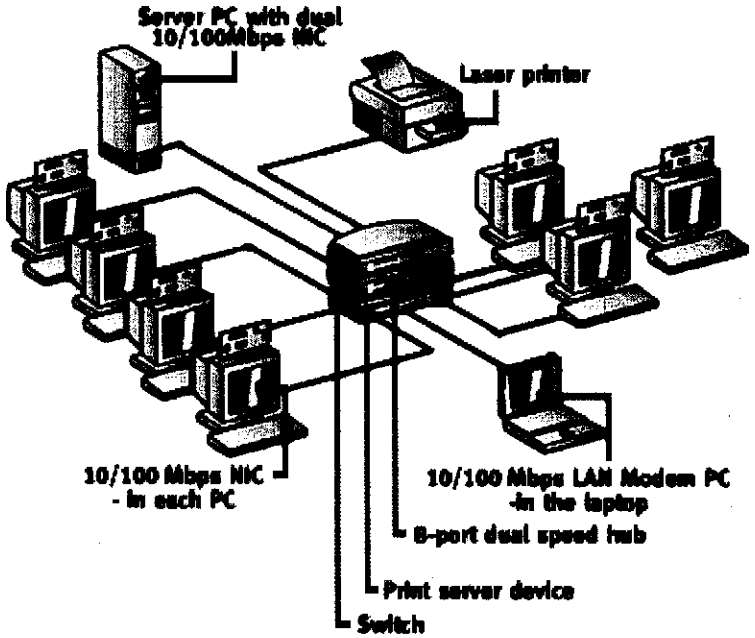
Previous Page Next Page

The hat side of the business took off. Selected as the official hat maker for the country of Belize, Ned felt squeezed by time, manpower, suppliers and a clogged computer network.

To speed things along, Ned installed a switch to divide users on the network into smaller groups.

Now the knickers designers share the knickers information amongst themselves, and the hat people share the hat patterns with each other, and accounting, and sales, and marketing are none the wiser. The bulk of Ned's network traffic stays in the department where it belongs, reducing congestion on the entire network.

And life is good once again in the village of Kent.



resources

- 10/100 NIC for PCs--Product Snapshot
- 10/100 NIC for Laptops--Product Snapshot
- Print Server Product Snapshot
- Hub Product Snapshot
- Switches Product Snapshot

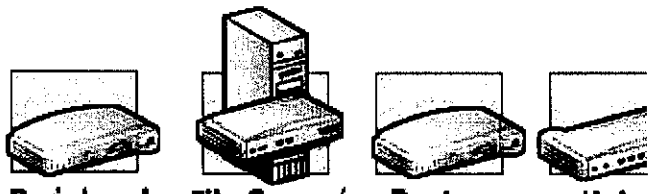
A Network Device Snapshot

Previous Page Next Page

Fortunately for Ned, and small business owners everywhere, multiple system peripherals exist today that are designed to improve your network and enhance the way you do business.

Of course, Ned knows that NICs provide the intelligence for controlling communication from one PC to another. But what types of devices are there for connecting his network?

Explore these descriptions of the devices for a quick overview.



Peripheral Servers | File Server/ Remote Access Server | Routers | Hubs

System Peripherals:

Here are some quick overviews of the devices. Click on each one to learn more about it.

Wrap-up

Previous Page Next Lesson

The Learning Center

As your company grows, you can take advantage of equipment you already have and add more equipment to improve productivity and communication. In this lesson, you learned:

- Factors that indicate when to expand your network
- How a network can grow
- Types of equipment available today that extend a network's power

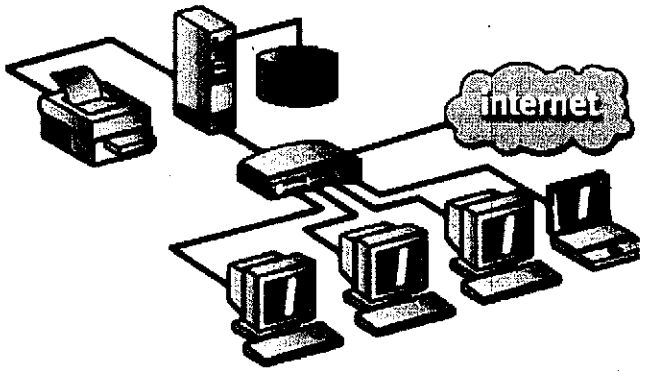
In the next lesson, we will tie everything together for this course.

Pulling it Together

Previous Lesson Next Page

Simply put, a network is a collection of computers, printers and other electronic devices, all linked by special cables so that the pieces can "talk" to one another and work together.

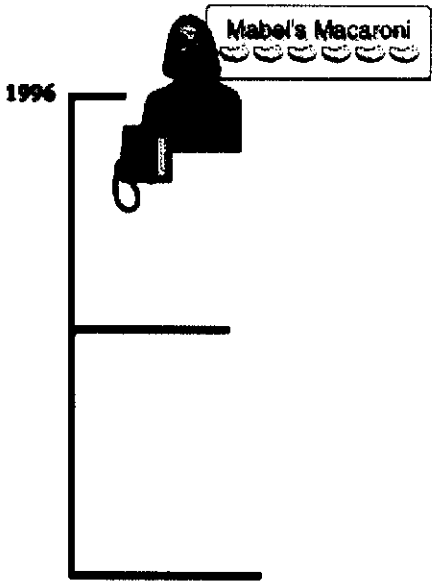
Ethernet LAN refers to the particular LAN technology that enables computer devices to work together. It is the most widely-used choice for networking, representing over 85% of the networks today.



Pulling it Together (continued)

Previous Page Next Page

Small business networks have exploded in the last few years. Even companies with just a handful of employees find that implementing a basic LAN is the single most cost-effective way to increase competitiveness and efficiency.



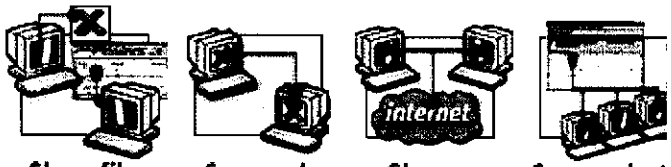
Pulling it Together (continued)

Previous Page Next Page

Connecting your small office PCs using a LAN is the first step toward capitalizing on the multiple benefits a small business network can provide.

Share Information
Networks allow everyone in your office to send e-mail, share data and programs and exchange documents without leaving their PC. This eliminates transferring files on floppies and reduces costs of postage and overnight delivery fees.

Share Equipment
Peripherals such as printers, modems and backup storage devices can be connected and utilized by everyone in the office. Instead of buying a new printer, everyone can share the current printer.



Share files and applications | Copy and send files | Share an Internet connection | Communicat with co-workers

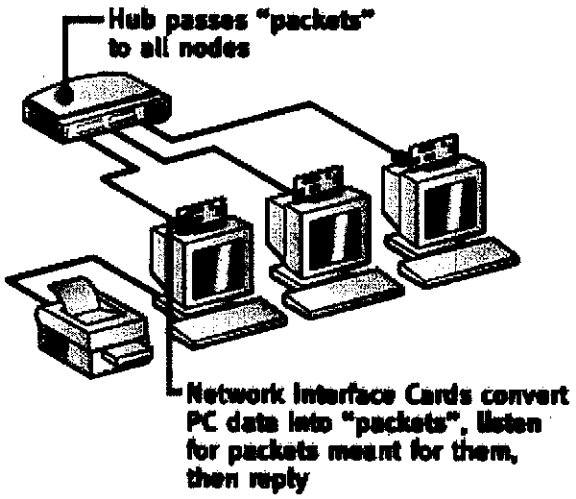
Share Accessibility
When traveling or working at home, you and your colleagues can connect to the office network to exchange messages and files. The wealth of your company's information is available to you wherever you are.

Share Internet Access
Your network can share a single Internet connection, meaning every person in your office can simultaneously: send and receive e-mail, browse the web, and download files. With a shared Internet connection you eliminate the cost of individual dial-up accounts.

Pulling it Together (continued)

Previous Page Next Page

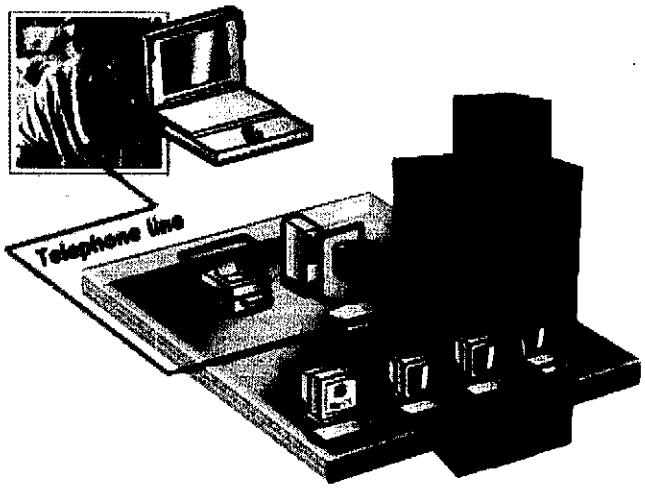
Network hardware--NICs, a hub or switch, and cables--provide the physical connection between PCs. The network software provides the "intelligence" that lets your applications "see" other users on the network.



Pulling it Together (continued)

Previous Page Next Page

With remote networking, you can extend your office to travelers and telecommuters everywhere. Remote access can empower all your users by giving them the advantages of e-mail, file transfer... even Internet connections from any location with a telephone line.



Pulling it Together (continued)

Previous Page Next Lesson

Because demands on the network are sure to rise, the network must meet present needs and accommodate future growth, both in the number of users and devices it interconnects and the amount of data it can handle.

With the rapid pace of evolution in network technology, it's important to choose equipment that will meet your future needs.

You've reached the final lesson in this course. Click next lesson to take a short quiz and find out how much you've learned about networking your business.

The Learning Center