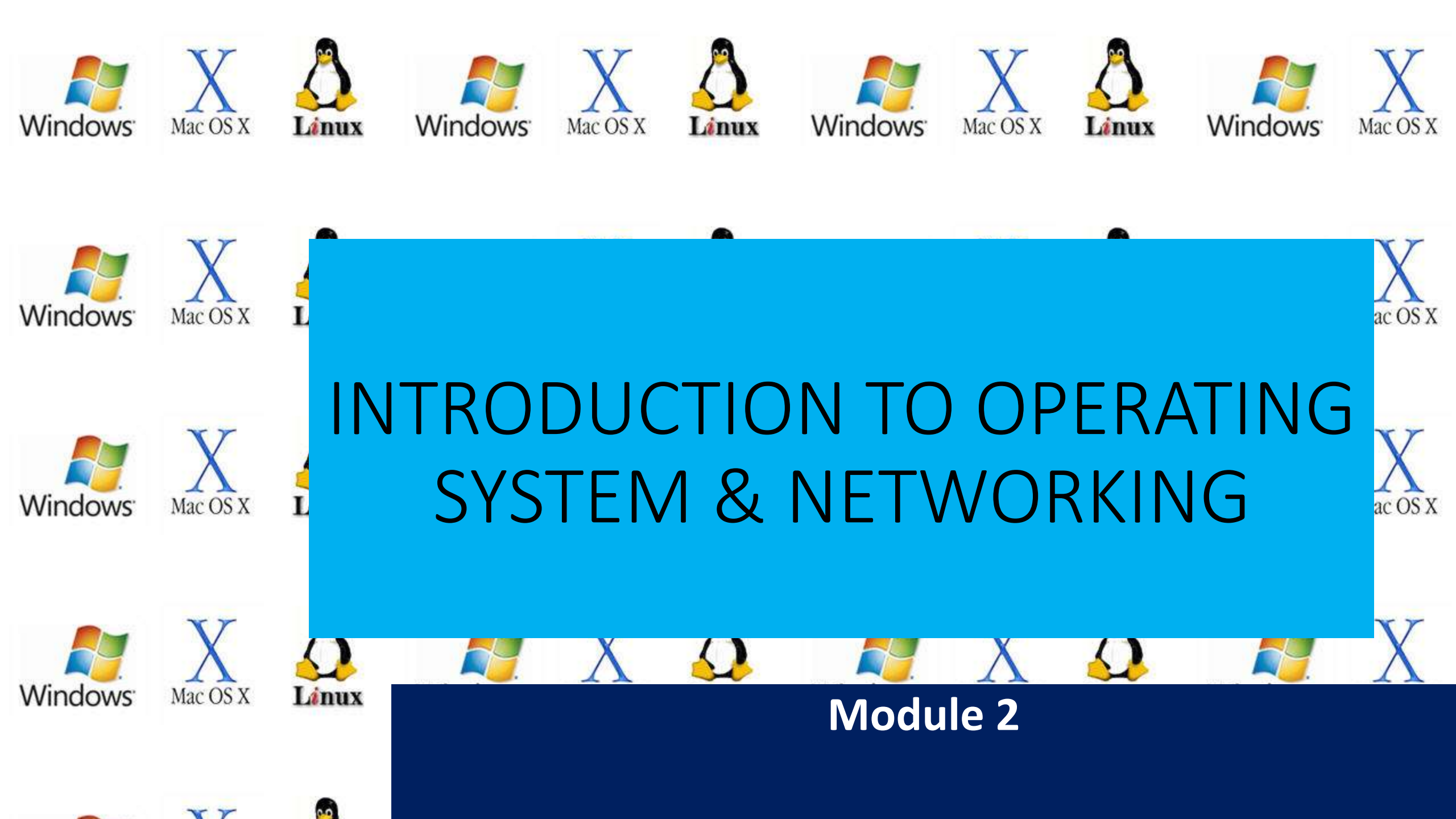


INTRODUCTION TO OPERATING SYSTEM & NETWORKING

Module 2

Module 2

- **Reference:**

Peter Norton (Introduction to Computers 6th Ed.) – Chapter 6, 7 & 8

Overview

Introduction to Operating Systems and Networking:

- Definition of an Operating System
  - Different types of PC Operating Systems.
- Computer Networks
  - categories of networks - LAN, WAN,MAN.
  - The Internet
    - Working of Internet
    - Major Features of Internet.

What is an Operating System?

- Operating system is an example for system s/w, that controls the system's h/w and interact with the user and application software .
- OS is the computer's master control program.
- OS provide the user with the tools (commands) that enable you to interact with PC.
- Ensures that result is displayed on the screen, printed , & so on
- Functions:
  - display the onscreen elements with which you interact the user interface.
  - Load program into the computer's memory so that you can use them .
  - Coordinate how program work with computer h/w and other s/w
  - Manage the way information is stored on and retrieved from disks.

Types of Operating System

1. Real time OS
2. Single user /single tasking OS
3. Single user / multitasking OS
4. Multiuser / multitasking OS

Real-time OS

- A **real-time** operating system is an operating system (**OS**) that responds to inputs immediately (Real-Time)
- It serves **real-time applications**
- Very fast , relatively small OS.
- Real Time OS are also embedded OS, when they are built into the circuitry of a device and are not loaded from a disk drive.
- RTOS supports simultaneous task or support single task.
- Processing time requirements (including any OS delay) are measured in thousands or millionth of a second .
- real-time applications - Air Traffic Control Systems

Eg. VxWorks, RTLinux

Single user /single tasking OS

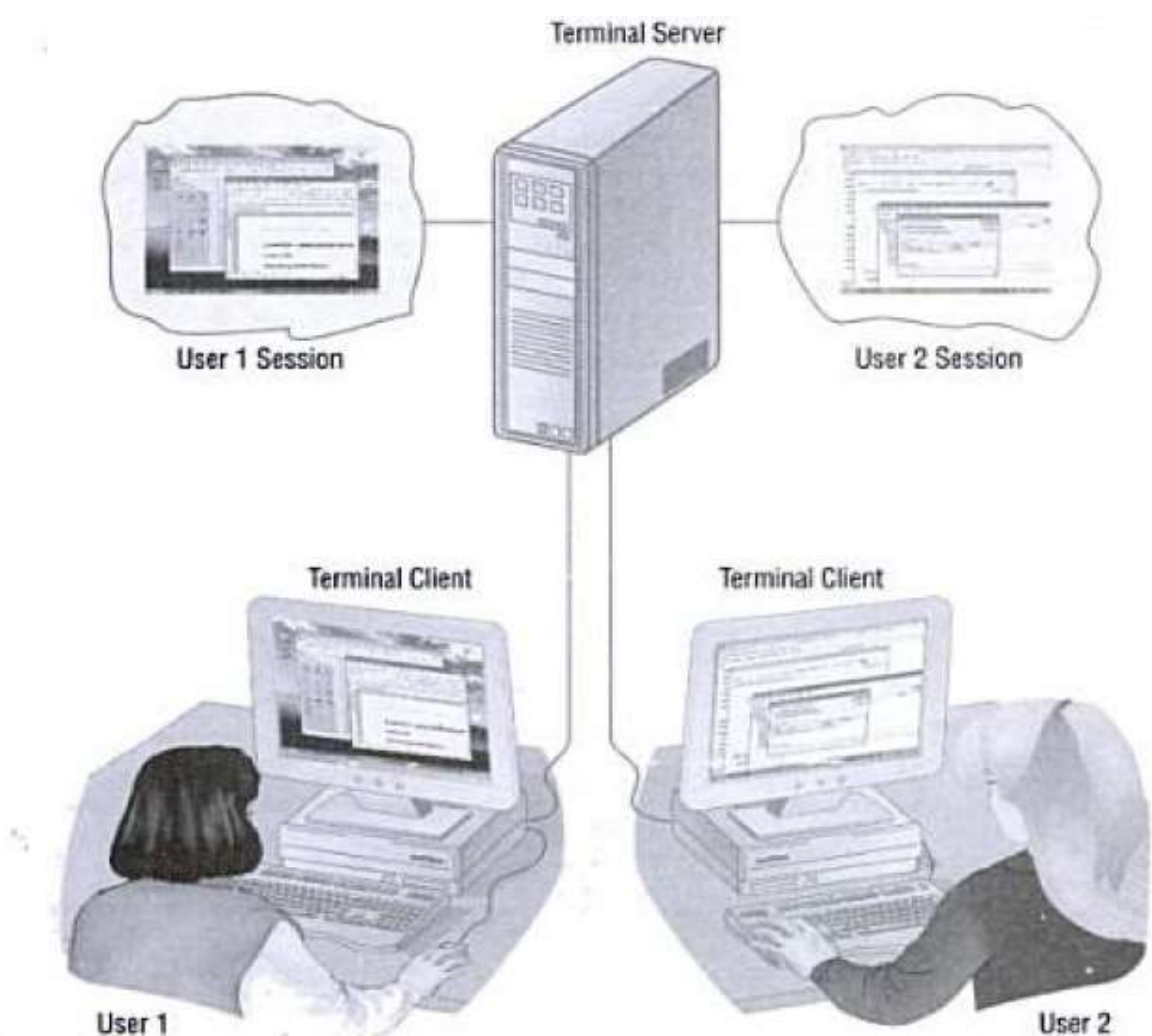
- An OS that allow a single user to perform just one task at a time is a Single user /single tasking OS
- To a operating system a task is a process , a small and simple OS can manage only a single task at a time
- MS DOS (ex for Single user /single tasking OS)

Single user / multitasking OS

- A single user / multitasking OS is one that allows a single user to perform multiple task.
- Most commonly used PC usually run such OS such as windows and Macinthosh
- For Ex. Send large document to the printer and able to do other work on his system while it is being printed.

Multiuser / multitasking OS

- It is an OS that allows a large number of people to use the same computer at once, as long as each user has his or her own network server called terminal(multiuser).
- It allows many programs and applications to run simultaneously (multitasking).
- The multiuser OS gives each user a complete environment called a user session on the terminal server .
- Each user's applications run within their user session on the server separate from all other user sessions. The software that make this possible is known as terminal client.
- Ex: UNIX, VMS , MVS (os for main frame)

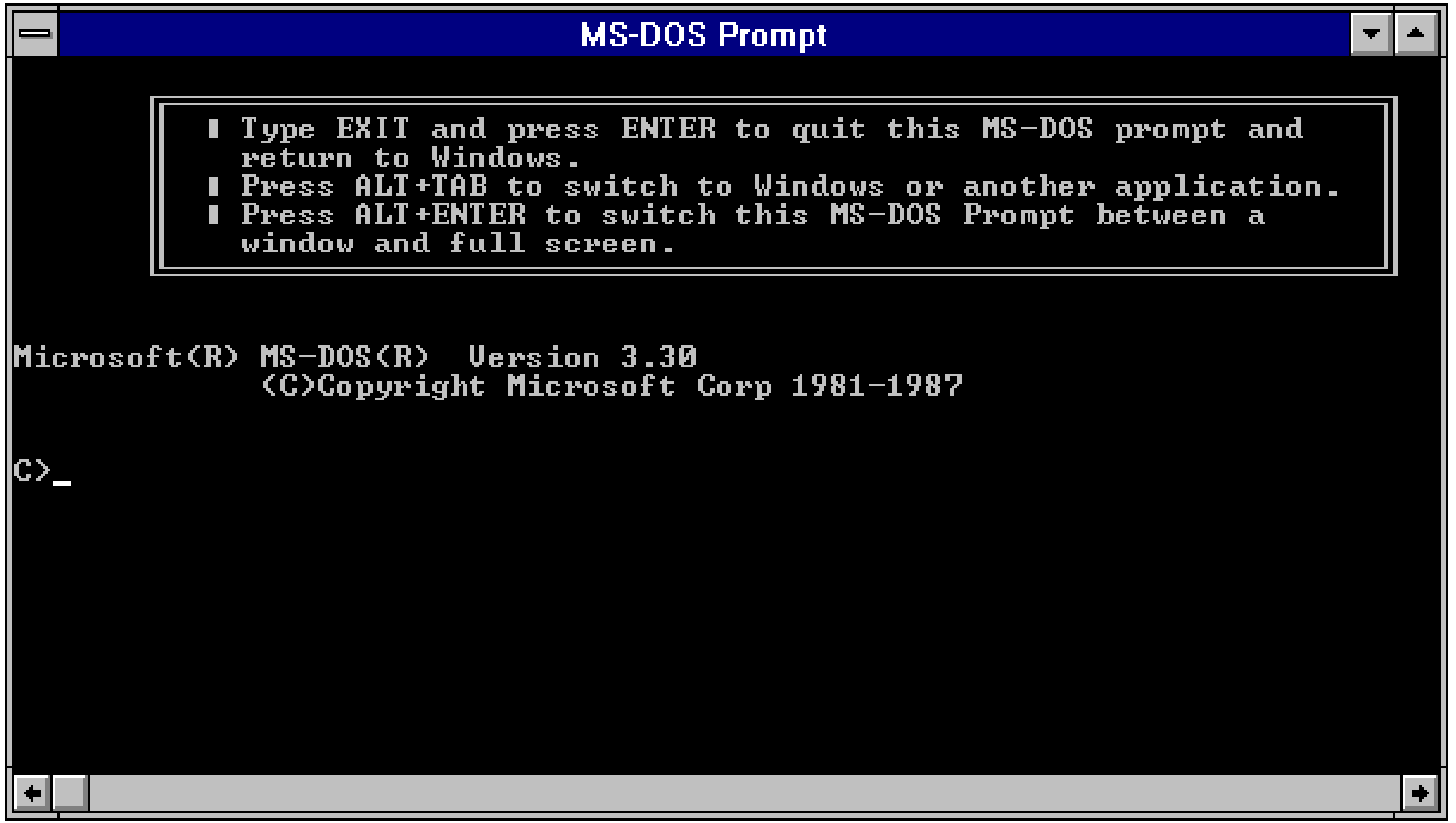

Terminal Server
User 1 Session
User 2 Session
Terminal Client
Terminal Client
User 1
User 2

Providing a User Interface

What is GUI and CLI?

Graphical User Interfaces are so called because you use a mouse (or other pointing devices) to work with graphical objects such as windows, menus, icons, buttons, & other tools. These graphical tools all represent different types of commands.
Most OSs, including all versions of Windows, the Macintosh OS, & some versions of UNIX & Linux provide GUI.

A Command-Line Interface displays in character mode – using only equal-sized alphanumeric & other simple symbols. User interact with a CLI by typing strings of characters at a prompt on the screen.
In DOS, the prompt is usully as in C:\>


MS-DOS Prompt
Type EXIT and press ENTER to quit this MS-DOS prompt and return to Windows.
Press ALT+TAB to switch to Windows or another application.
Press ALT+ENTER to switch this MS-DOS Prompt between a window and full screen.
Microsoft(R) MS-DOS(R) Version 3.30
(C)Copyright Microsoft Corp 1981-1987
C>_

PC operating systems

- DOS
- Windows NT workstation
- Windows 9X
- Windows 2000 professional
- Windows XP
- Windows Vista
- Macintosh operating system
- Unix for desktop
- Linux for Desktops

DOS - Disk operating system

- DOS is an operating system that runs from a hard disk drive.
- Two versions of DOS
  - PC- DOS (IBM released with its computers.)
  - MS DOS (Microsoft DOS)
- DOS support only one user at a time and could run only one program at a time.
- It had no built in support for networking, user had to manually install drivers anytime when they add new h/w component to the pc.
- Limited storage

DOS

- DOS supports only 16-bit programs.
- DOS used a command-line interface.
- Still in use because of two reasons - Size and simplicity
- It does not require much memory space for the system, & it does not require powerful computer.
- So it is used as embedded OS for devices that run very simple, single tasking applications.

Few commands - DOS

Start button->all programs->accessories->command prompt : then DOS window will open.

- Cd-> change directory
- Md ->make directory
- Cls->clear screen
- Dir/p -> listing all directories and files in the current directory. Pause the display
- Dir/h -> display all hidden files.
- Type display.text-> to view the content of files.
- Copy c:\bca18\os.dat c:\bca -> copy the file
- Move c:\bca18\os.dat c:\bca => for moving the file.
- Del fds.dat-> to delete the file fds.dat
- Del *.* -> remove all files present in the current directory.

Windows NT

- Microsoft released windows NT, a 32 bit operating system for PC's in 1993.
- NT" formerly expanded to "New Technology"
- It is a processor-independent, multiprocessing, multi-user operating system.'
- Originally meant as a replacement for DOS.
- Microsoft issued two versions of the operating system
  - **Windows NT Workstation & Windows NT servers.**
- A main design goal of NT was hardware and software portability.

Windows NT

- Windows NT Workstation 4.0 looks almost identical to Windows 95, its underlying OS is different. – but is devoid of MS-DOS code.
- Windows NT Workstation is typically used on stand-alone PC
- It supports networking & can be used as server in peer-to-peer networks – but not used on network servers.

Windows 9x

- Windows 9x are a series of Microsoft Windows products including Windows 95, Windows 98 and Windows Me.
- These versions of windows are considered obsolete by many experts but still widely used by consumers with old PC.
- Windows 95:
  - Released in 1995 as a complete OS.
  - Microsoft's 1st true GUI-based, 32 bit operating system.
  - It supported multitasking & could run older programs that were written for DOS & Windows 3.x.

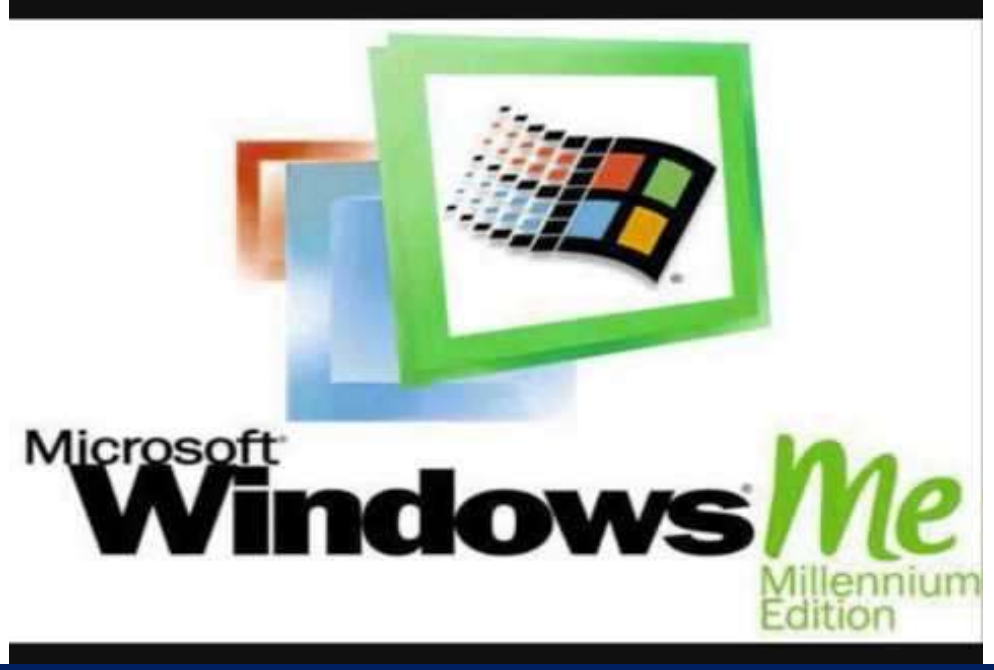
Windows 95

- Windows 95 contain 16 bit code and enable it to run program originally designed for windows 3.x.
- With Windows 95 programs designed with 32 bit processing, it can exchange info. with printers, network, and files in 32 bit pieces instead of 16 bit.
- Windows 95 improve multitasking compared to its previous versions.
- It was the first version to support plug and play standard for connecting new h/w.
- With integrated networking support and improvement to GUI such as TASKBAR and START, windows 95 become popular.

Windows 98

- It was introduced as an update to windows 95 rather than a major windows OS upgrades.
- Change in windows 98 is the inclusion of internet Explorer web browser with a new feature, the Active desktop.
- Active desktop lets users browse the Internet and local computer in a similar manner.

Windows Me : (Millennium Edition)



- Released in 2000 as last member of windows 9x family.
- It offer notable enhancement over its predecessor such as improved multimedia capabilities, built in support for digital video editing, and enhanced internet features.
- But Like Windows 95 and 98, it support old DOS and Windows 3.x applications.
- Not much stable or robust than Windows 95 or 98 – was subject to frequent crashes.

Windows 2000 professional

- Released in 2000 .
- It combines the user friendly interface and features of Windows 98 with the file system, networking, power and stability of Windows NT.
- Microsoft developed four versions of windows 2000.
- Windows 2000 professional for the desktop and 3 versions for network servers.
- Has support for symmetric multiprocessing(SMP) with up to 2 processors.
- SMP (symmetric multiprocessing) is the processing of programs by multiple processors that share a common operating system and memory.

Windows XP

- Released in October 2001.
- Its desktop has a more 3 dimensional look with rounded corners and more shading . Also offer more brighter colour choice.
- It marked the end of Microsoft's consumer-grade operating systems.
- This means that all users, including casual & home users, can have an OS with enhanced security, networking support & stability.
- Windows XP available in several different products :
  - windows XP professional, windows XP Home, Windows XP Media center Edition and Windows XP Embedded .

Windows XP

- Upgraded features in windows XP:
- Digital media support
  - through the use of windows media player 9, users can take advantage of digital broadcast support,
- Advanced networking and communication
  - Enable PC to find and use h/w connected via network , without installing drives.
- Advance mobile computing
  - though the use of automatic configuration, connect an XP based laptop to a desktop PC without needing to know different type of network settings.

Windows Vista

- Windows vista is an OS from Microsoft and is part of the windows series of OS.
- It was released in 2006, offer enhancement in reliability, security, easy deployment and performance over previous version windows XP.
- Main features of windows Vista include
  - Simplified and centralized desktop configuration management.
  - Detection of h/w problems before they occur
  - Enhanced security feature over worms, viruses and spyware.
  - New sleep state consuming less power and having a faster start up time.

The Macintosh OS

- The Macintosh Operating System (Mac OS) is an operating system (OS) designed by Apple Inc. to be installed and operated on the Apple Macintosh series of computers.
- Introduced in 1984, it is a graphical user interface (GUI) based OS that has since been released as multiple different versions.
- Mac OS is considered the pioneer of GUI based operating systems, as it was launched when MS-DOS was the industry standard.
- Mac OS remains the 1st choice of many publishers, multimedia developers, graphic artists, & schools.

Unix for the Desktop

- UNIX runs on a wide range of computers, including supercomputers, notebook PC's & everything in between.
- Unix popular for high powered workstations.
- UNIX has a command-line interface.
- UNIX does not have an important place in the market for desktop operating systems.

Linux for the Desktop

- Linux is considered as a “freeware” OS impressed by its power, capabilities, and rich feature set.
- Linux is a full 32 bit multitasking OS that support multiple users and multiple processors.
- Linux can run on any computers and can support almost any type of applications
- Linux uses a command line interface, but windows-based GUI environments, called *shells,* are available.
-

Linux

- Linux shows the UNIX influence & characteristics.
- Linux OS code is free, but is also available through companies – Novell & RedHat (bundle OS code with utilities & documentation, charging for everything but the OS itself).

Network Operating system

- The network OS is designed to run on a network server dedicated to providing various services to other client computers on the network.
- Windows NT server
- Windows 2000 server
- Windows server 2003
- Windows 2008 server
- Unix for servers
- Linux for servers

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Network

- Network comes in many varieties.
- It may be Several computers in a single location sharing documents & devices (ex: printers) or All computers & devices in a dpmt, a building, or multiple building.
- By interconnecting many individual networks into a massive single network, people around the world can share info.
- Many networks carry voice, audio, & video traffic.
- The Internet is an example of such network & is possible the single largest network in existence today.

Computer Network

- Network is a set of technology –including hardware , software and media(such as wires) that can be used to connect computer together , enabling them to communicate , exchange information and share resources in real time.
- Network allow users to access and share data and programs instantly.
- Open up a way to communicate by using e-mail and instant messaging
- Also allow users to share expensive resources.

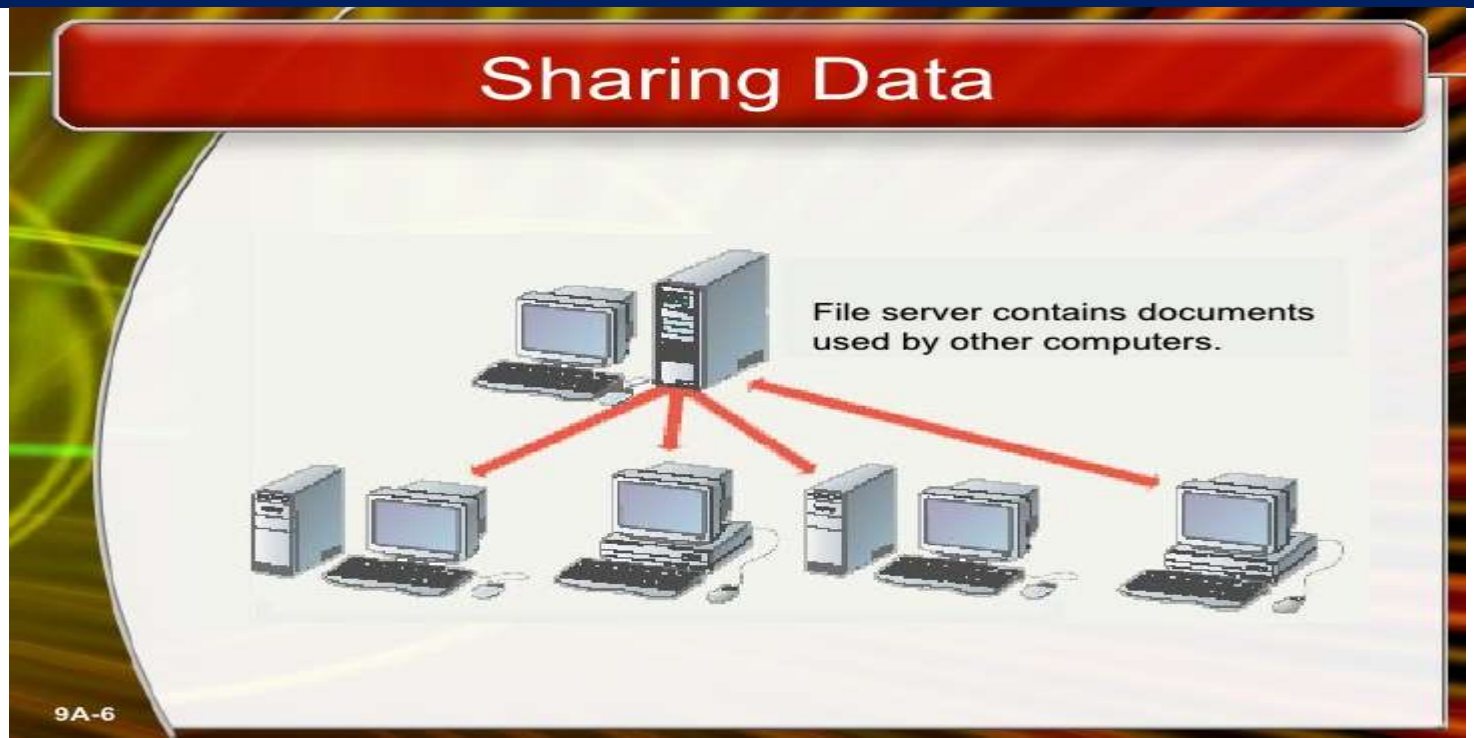
The Uses of a network

1. Simultaneous access
2. Shared peripheral devices
3. Personal communication
4. Easier data backup

1)Simultaneous access to data

- In any business, several workers may need to use the same data at the same time.
- The solution to this problem is by storing commonly used data at a central location, a network server (or a server).
- A network server is a central computer with a large storage device & other resources that all users can share.

- If the server stores data files for users to access, it is commonly called a file sever.
- Ex: The business can store a single copy on the server, that employee can access whenever they want. If one user makes a change to a file, others will see the change when they use the file.
- Advanced software is needed to allow simultaneous access to the same file.
-



- Software can be shared
  - Site license : under a site license , a business buy a single copy (or a few copies) of an application and then pays the developer for a license to copy the application .
  - Network version : connect user's computer to a central network server and enable users to share a network version of a program.
  - In network server only one copy of the application is stored on the server , with minimum number of supporting files copied to each user's pc. When the workers use a program , they load it from the server into the RAM of their own desktop computer.

2) Shared peripheral devices

- The ability to share peripheral devices .
- Printers and Faxes are common shares
- Reduces the cost per user
- Two options for connection (ex: printer):
  - Printers can be connected to the network
  - Print servers control network printing
- Print server is a computer that manage one or more printers.

3) Personal communication

- Data communication through e-mail, voice message, teleconferencing etc.
- Email
  - Electronic mail
  - Instantaneous communication
  - Different steps in email sending
    1. the sender composes an email message and send is.
    2. The message is stored on the server.
    3. The server alert the recipient that there is a message.
    4. When the recipient is ready to read the message the recipients computer retrieve it from the server.

- The sub categories of teleconferencing (multiway communication in real time)

1. video conferencing :
   - ❖video conferencing enable real time communication over a distance by allowing people at two or more sites to communicate with each other by seeing a video picture of the people at other sites.
   - ❖Needs one or more cameras, microphone, loudspeaker, monitor, CODEC(compressor/decompressor)

2. Audio conferencing :-
   - ❖ Audio conferencing provide audio link to more than two sites linked together with higher quality audio than telephone
   - ❖use hands free audio unit with sensitive microphone and echo cancellation s/w.

3. Data conferencing:-
   - ❖enable participants at two or more sites to have a shared workspace on their computer desktop. There one can draw, write, or import and manipulate image collaboratively in real time.

VoIP

- Voice over Internet Protocol (also voice over IP, VoIP or IP telephony) is a methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet.

4) Easier data backup

- In business data is extremely valuable, so it important to take the back up of their data.
- One way to keep it on a shared storage device that can access through network. Network manager take regular backup of data on shared storage device.

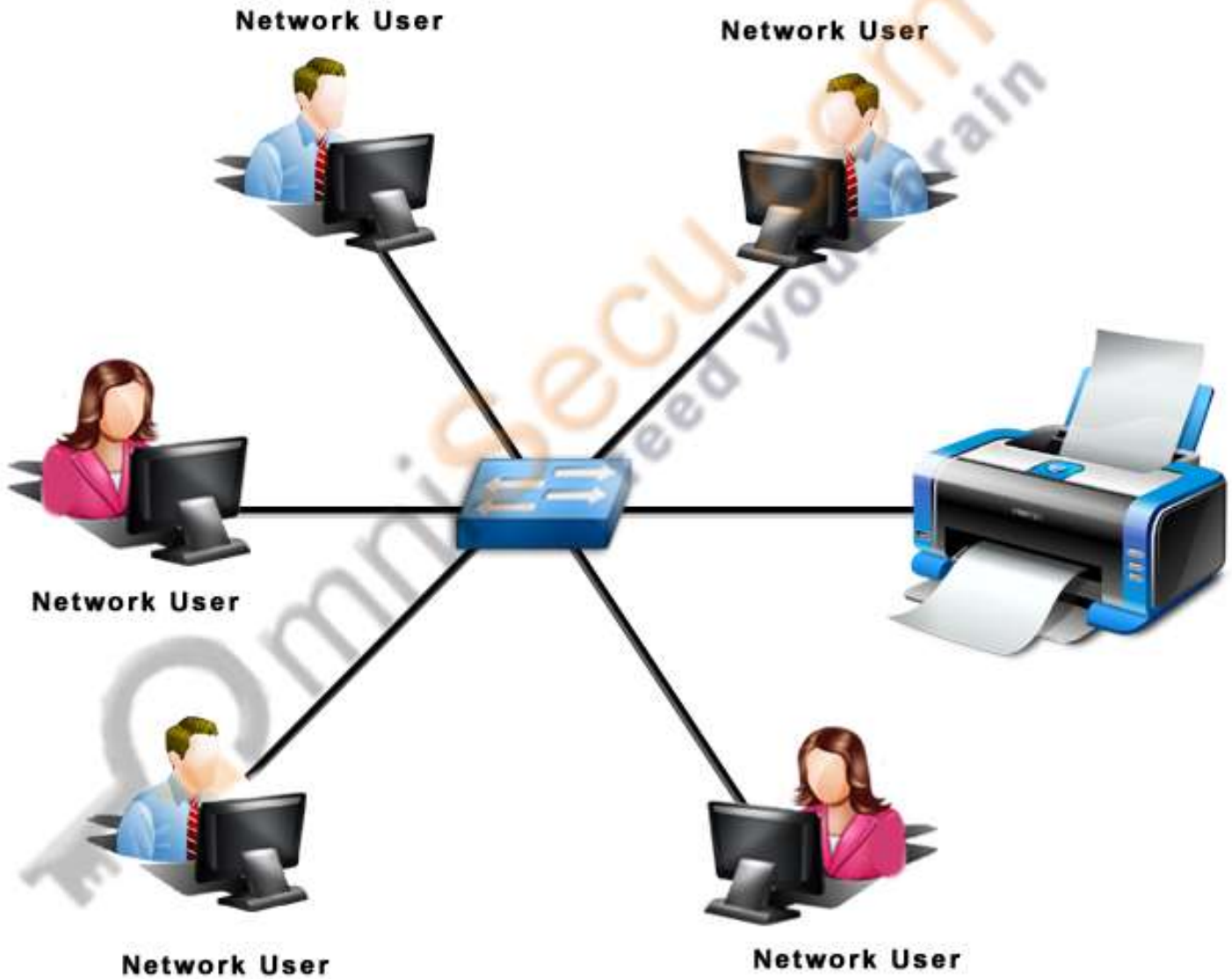
Common type of network

- There are two main types of network

1. local area network (LAN)
2. wide area network (WAN)

Local area Network (LAN)

- A LAN is a data communication system consisting of several devices such as computers & printers.
- Computers are relatively near each other & are physically connected using cables, infrared links, or wireless media.
- Consist of just two or three PCS or it can include 100s of computers of different kinds.
- LAN exists within a single building, or even a group of adjacent buildings.
- Possible to connect separate LANs together so that can communicate & exchange data.



LOCAL AREA NETWORK (LAN)

Wide Area Network (WAN)

- Typically, a WAN is two or more LANs connected together, generally across a wide geographical .
- WAN network is used to connect sites that are in diverse locations. WAN has no geographical limits.
- It is nearly impossible for a small to medium organization (except Network Service Providers) to pull network cables between their two offices in two different countries located 1000s of kilometers away.
- Network Service Providers (also called as ISPs) provide the connectivity solutions for Wide Area Networks (WAN).

Below image shows two Local Area Networks (LANs), located at two different geographical locatior onnected via Internet to create a Wide Area Network (WAN). LAN 1 is located in Chennai, India an AN 2 is located in Manila, Philippines. The aerial distance between Chennai and Manila is abou ,400 Kilometres. It is almost impossible for a small to medium business to draw cables betwee Chennai and Manila. We normally avail the services of an Internet Service Provider for connectivit between these two offices.

LAN versus WAN comparison chart		
	LAN	WAN
Stands For	Local Area Network	Wide Area Network
Covers	Local areas only (e.g., homes, offices, schools)	Large geographic areas (e.g., cities, states, nations)
Definition	LAN (Local Area Network) is a computer network covering a small geographic area, like a home, office, school, or group of buildings.	WAN (Wide Area Network) is a computer network that covers a broad area (e.g., any network whose communications links cross metropolitan, regional, or national boundaries over a long distance).
Speed	High speed (1000 mbps)	Less speed (150 mbps)
Data transfer rates	LANs have a high data transfer rate.	WANs have a lower data transfer rate compared to LANs.
Example	The network in an office building can be a LAN	The Internet

http://www.omnisecu.com/basic-networking/lan-and-wan-local-area-network-and-wide-area-network.php

Hybrid Networks

1. Campus Area Networks (CANs)
2. Metropolitan Area Networks (MANs)
3. Home Area Networks (HANs)

- The need to access corporate Web sites has created two classifications

1. intranet and
2. extranet

Campus Area Network (CAN)

- ✓A Campus area network, corporate area network or CAN is a computer network made up of an interconnection of local area networks (LANs) within a limited geographical area.
- ✓With CAN, different campus offices and organizations can be linked together .
- ✓CANs often interconnect a variety of buildings, including administrative buildings, academic buildings, university libraries, and other outlying structures, like conference centers ,technology centers, and training institutes.

Metropolitan Area Networks (MANs)

- ✓The MAN is a large scale n/w that connect multiple corporate LAN's together.
- ✓MANs usually are not ownned by a single organization, their communication devices and equipment are usually maintained by a group or a single network service provider.
- ✓MAN take the role of high speed network that allow for sharing of regional resources.
- ✓Also provide shared connection to other networks using a WAN link.

Home Area Network(HANs)

- ✓Is a network contained within a user's home that connect a person's digital devices , from multiple computers and their peripheral devices such as printer , telephone, VCR, DVDs , televisions, video game…etc. & other

Intranet and extranet

- ✓The term intranet is derived from two word, intra which means within and ‘net’ means group of interconnected computers.
- ✓The company’s internal version of internet is called intranet.
- ✓This is a network that is not available to the world outside of the Intranet.
- ✓if intranet allows access from the Internet, will be an Extranet.
- ✓

Intranet and extranet

- ✓An Extranet is actually an Intranet that is partially accessible to authorized users physically located outside the organization.
- ✓Whereas an intranet resides completely within the company's internal network.
- ✓An extranet provides various levels of accessibility to outsiders (your identity determines which parts of the extranet you can view.)

How networks are structured?

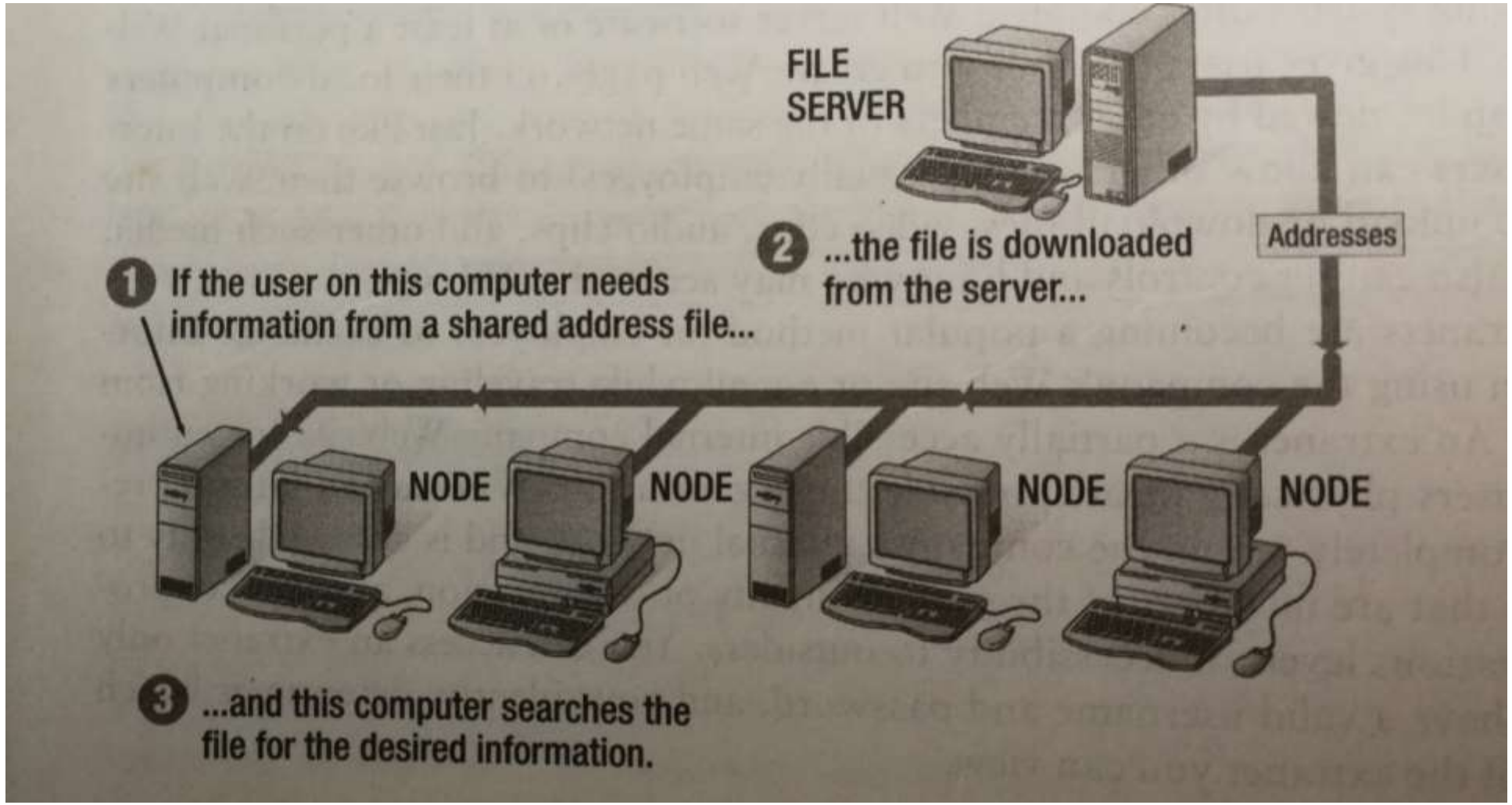
Networks can be categorized by the roles the servers & PCs play.

Some networks use servers (server-based n/w) & some do not (peer-to-peer n/ws)

- ✓Server based n/w
- ✓Client /server n/w
- ✓Peer to peer n/w

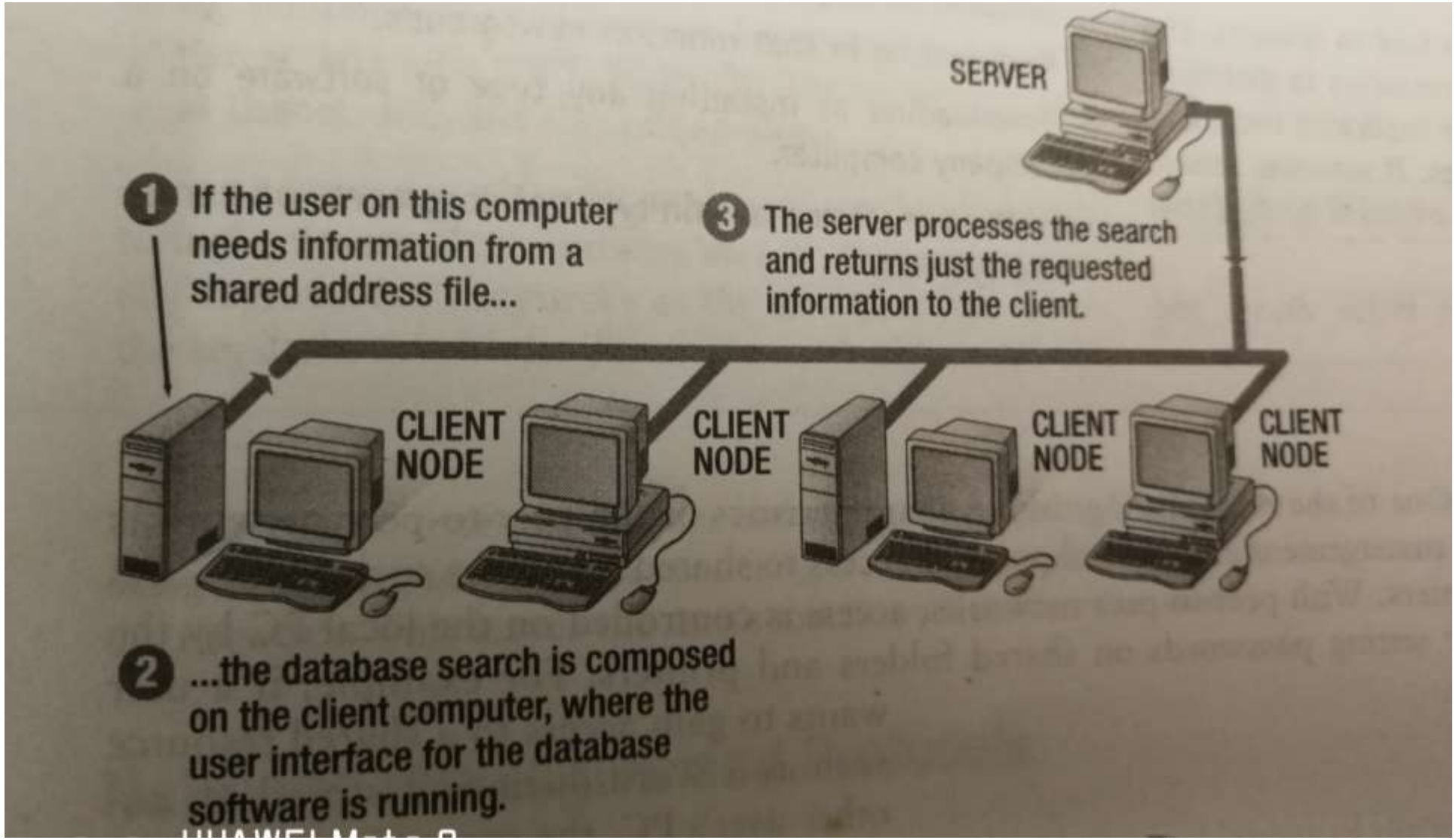
1) Server based network

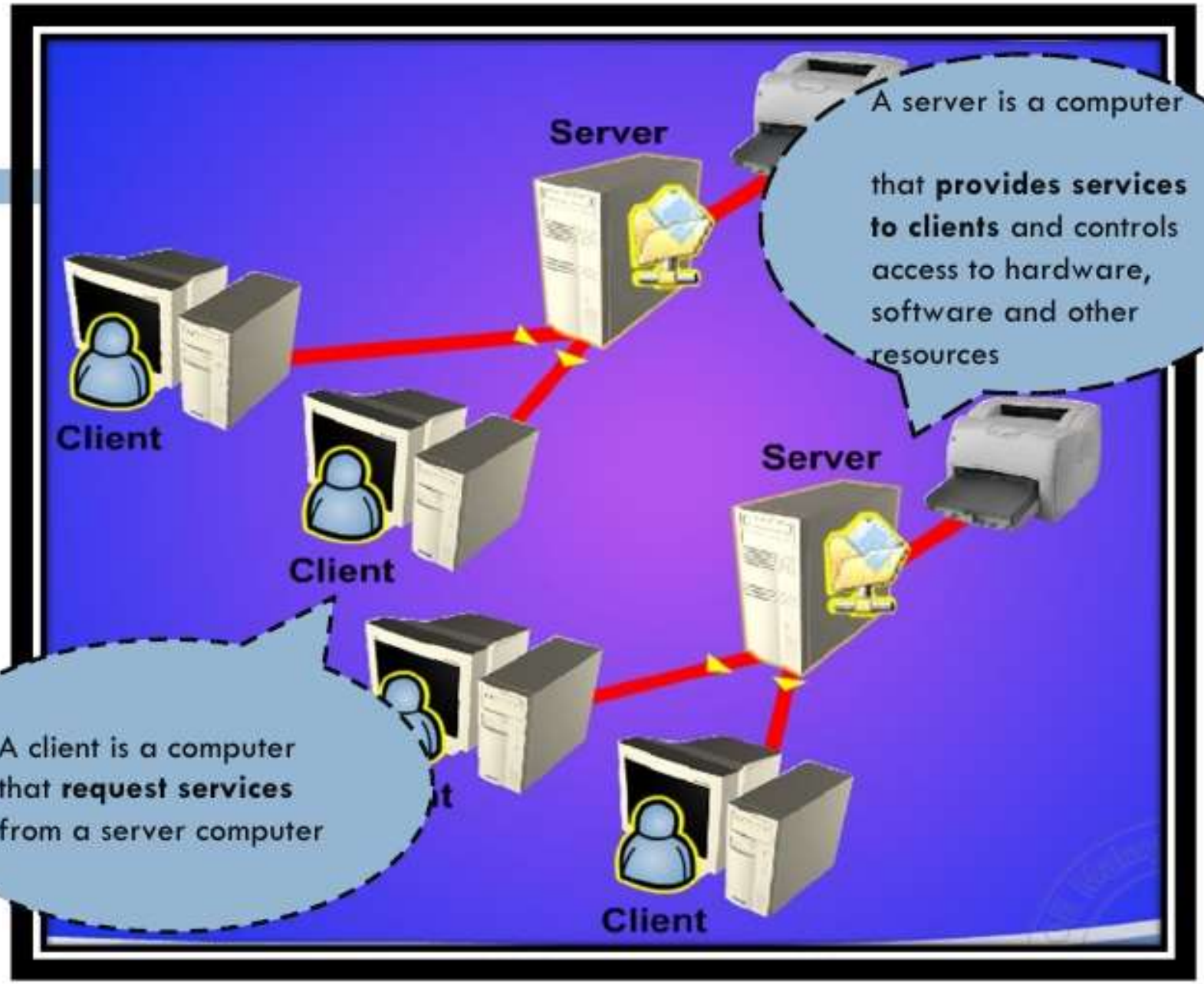
- ✓To understand a server based n/w it is important to know the meaning of the term **node** in n/w.
- ✓A node is a processing location, can be a PC, printer and any other devices.
- ✓A server based n/w include many nodes and one or more servers, which control user access to the network resources.
- ✓The central computer is known as file server , n/w server, application server, or just the server.
- ✓User get access to files, printers, and other network based object by getting permission from the server by login process.


FILE
SERVER
2 ...the file is downloaded from the server...
Addresses
1 If the user on this computer needs information from a shared address file...
NODE
NODE
NODE
NODE
3 ...and this computer searches the file for the desired information.

2) Client server network

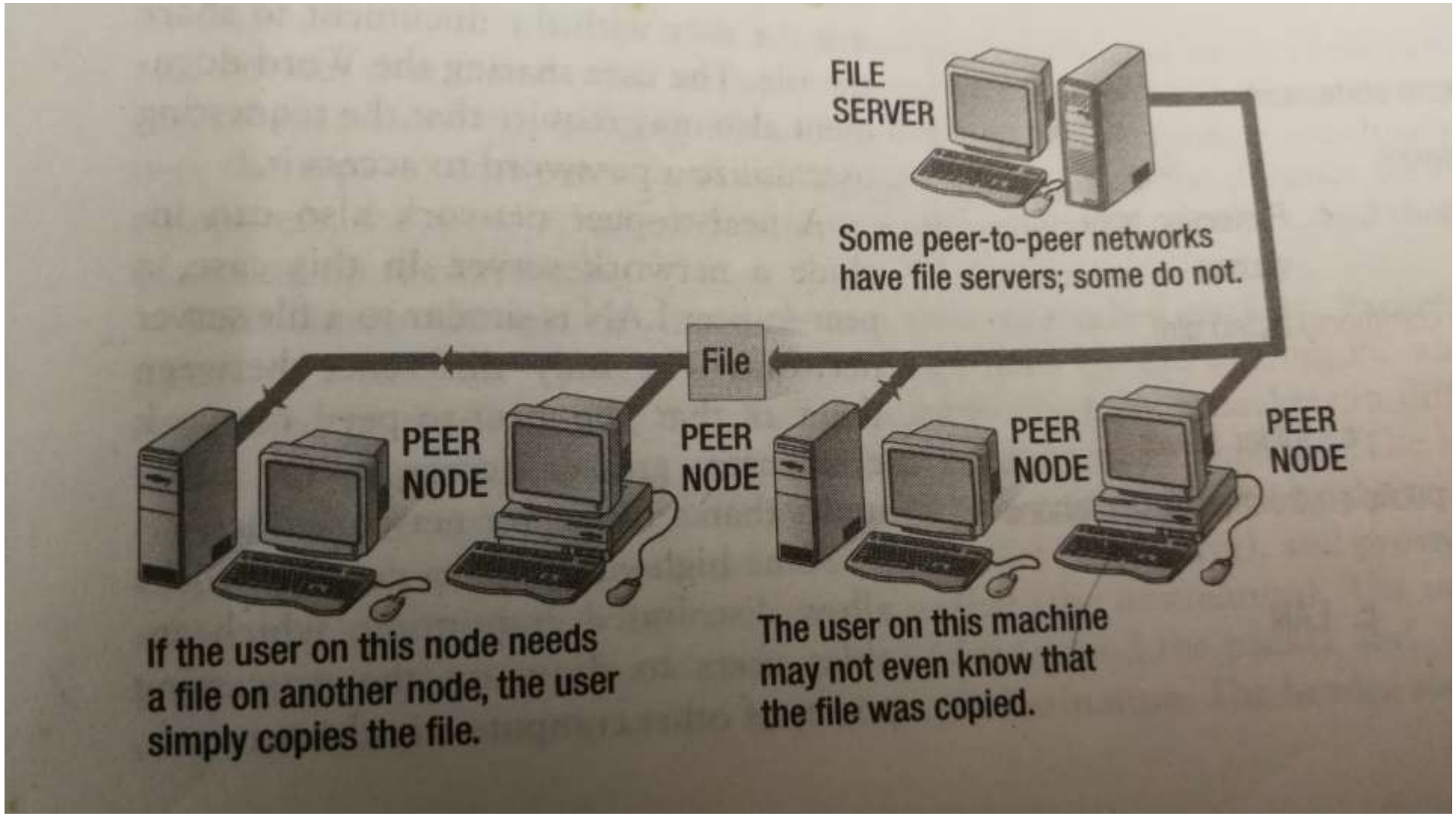
- ✓**One popular type of server based n/w is the** client server n/w, where individual computers share processing and storage workload with central server. Requires special s/w for the nodes & server.
- ✓This is a network model that offers centralized access to services and devices.
- ✓ One computer plays the role of a server.
- ✓It is the most common type of network architecture today that provides centralized data storage, security, manning of applications and network administration.
- ✓Disadvantages
- ✓ Cost: – More expensive in terms of hardware and network operating system.
- ✓ Complexity: – Experienced system administrators are required to manage the systems.
- ✓ Dependence: – When server goes down, operations will cease across the network.


SERVER
1 If the user on this computer needs information from a shared address file...
3 The server processes the search and returns just the requested information to the client.
CLIENT NODE
CLIENT NODE
CLIENT NODE
CLIENT NODE
2 ...the database search is composed on the client computer, where the user interface for the database software is running.


Server
A server is a computer
that **provides services to clients** and controls access to hardware, software and other resources
Client
Client
Server
A client is a computer
that **request services**
from a server computer
Client

3) Peer to peer network (P2PN)

- ✓In a Peer-to-peer network sometimes called a workgroup, all nodes on the network have equal relationships to all others, & all have similar types of software that support the sharing of resources.
- ✓Each node has access to at least some of the resources on all other nodes.
- ✓In P2PN, users are given access to files on hard disks & to printers attached to computers in the network.
- ✓Many client OSs such as Windows 9x, Windows 2000 Professional, Windows Me, & the Macintosh OS, feature a built-in support for P2PN.
- ✓This enables users to set up a simple P2PN using no other software than their PC's own OS.


FILE
SERVER
Some peer-to-peer networks
have file servers; some do not.
File
PEER
NODE
PEER
NODE
PEER
NODE
PEER
NODE
If the user on this node needs
a file on another node, the user
simply copies the file.
The user on this machine
may not even know that
the file was copied.

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What is the Internet?

- ✓Internet is a network of networks- a global communications system that links together thousands of individual network.
- ✓So any computer on any network can communicate with any other computer on any network.
- ✓This allow users to exchange messages, to communicate in real time to share data and programs , access limitless stores of information.

The internet's history

- ✓The seeds of Internet were planted in 1969, when the Advance Research Project Agency(ARPA) of U.S . Department of Defense began connecting computers at different universities and defense contractors. The resulting network was called ARPANET.
- ✓The goal of this project was to create a large computer network with multiple paths – in the form of telephone lines – that could survive a nuclear attack or a natural disaster.
- ✓Also it allows people in remote location to share scarce computer resources, which is a part of network.
- ✓At first ARPANET was basically a large n/w serving only a handful of users, but expanded rapidly.

The internet's history

- ✓Initially the n/w included 4 primary host that connect to it.
- ✓A host is like a network server, providing services to other computers that connect to it.
- ✓ ARPANET's host computer provide file transfer and communications servers and gave connected system access to the n/w high speed data lines.
- ✓In the mid-1980s another federal agency, the National Science Foundation (NSF) joined the project after the Defense dept stopped the funding of n/w.
- ✓The link between ARPANET, NSF net and other network was called Internet . The process of connecting separate n/w is called internetworking .

The internet's history

- ✓Today internet connects a thousands of networks and hundreds of millions of users around the world.
- ✓It is a huge, cooperative community with no central ownership. This means that no single person or group controls the network.
- ✓There are several organizations (such as Internet Society & the World Wide Web Consortium) that propose standards & guidelines for its appropriate use.
- ✓As a result, the Internet is open to anyone who can access it.

The Internet's major services

- ✓The internet acts as carrier for several different services, each with its own distinct features and purposes.
  - ✓The World Wide Web (WWW)
  - ✓Electronic mail (e-mail)
  - ✓News
  - ✓File Transfer Protocol (FTP
  - ✓Chat
  - ✓Instant messaging
  - ✓Online Services
  - ✓Peer to peer services.

To use any of these services (requirements)

- A computer connected to Internet
  - Connect computer's modem to a telephone line (or use Digital subscriber line or a cable modem) & set up an Account with an Internet Sevice Provider (ISP)
    ISP is a company that provides local or regional access to the Internet.

The World Wide Web (WWW)

- ✓World Wide Web (Web or WWW) – created in 1989 (Switzerland, European Particle Physics Laboratory).
- ✓It was created as a method for incorporating footnotes, figures, & cross-references into online docs.
- ✓The creator wants to create a simple way to access any documents that was stored on a network, without having to search through indexes or directories of files and without having to manually copy document from one computer to another before viewing them.

- Internet is the world wide network of computers linked by telephone lines.
- The world wide web (Web) is just one of many things (called applications) that can run on the Internet.
- The Web is the worldwide collection of text pages, digital photographs, music files, videos, and animations you can access over the Internet.
- What makes the Web so special (and, indeed, gives it its name) is the way all this information is connected together.

How the web works?

- The basic building blocks of the Web are Web pages.
- A web page is a document suitable for the world wide web. Web browsers help to display webpages.
- A collection of related Web pages are called a website.
- Every web page has highlighted phrases called links (or hypertext links or hypelinks) all over it. Clicking one of these takes you to another page on this website or another website entirely.

- HTTP (HyperText Transfer Protocol).
  - It is essentially a way for two computers to exchange information through a simple "conversation," whether they're sitting next to one another in the same room or on opposite sides of the world.
  - One computer (which is called a client and runs a program called a web browser) asks the other computer (which is called a server or web server) for the information it needs with a series of simple messages.
- HTML (HyperText Markup Language).
  - computers exchange files written in a common language called HTML.
  - Webpage is written in the HTML language.
  - HTML has special codes called tags to structure the text. A Web browser can read these tags and use them to display things like bold font, italics, headings, tables, or images.
  - HTML allows to embed hyperlinks in a web document (i.e., webpage)

- HTTP is the simple way in which one computer asks another one for Web pages;
- HTML is the way those pages are written so any computer can understand them and display them correctly.

- Website (simply a “site”)
  - It is a collection of web pages which are grouped together and usually connected together in various ways.
  - A website is a collection of linked web pages
- web server
  - A computer that hosts a website on the Internet.
  - "Hosting" means that all the web pages and their supporting files are available on that computer.

Web Browsers

- A web browser is a software application that retrieves and displays web pages on the Web;

Search engine

- A search engine is a website that helps people find web pages from other websites.
- Several types:
  - Web search engines (ex: Google, Yahoo)
  - Metasearch engines (ex: Dogpile, HotBot)

URL

- ✓Webaddress
  The HTTP protocol uses Internet address in a special format, called a uniform resource locator (URL).
- ✓URL is the address of a resource on the Internet. A URL indicates the location of a resource as well as the protocol used to access it.

- A URL has two main components:
  - Protocol identifier:
    - For the URL http://example.com , the protocol identifier is http
  - Resource name:
    - For the URL http://example.com , the resource name is example.com

URL

✓URLs look like this:

type ://address/path

type specifies the type of protocol.

Address, the address of server.

Path , the location within the file structure of the server. Includes the list of folders where the desired file is located.

- http://www.loc.gov/exhibits/treasures/t.html

- Web Browsers cannot display every type of content (ex: multimedia content)
- Helper applications or plug-in applications help the browser to play audio & video content in real time

- Using your Browser and the World Wide Web
- Launching your Browser
- Navigating the Web
- Using URLs
- Using Hyperlinks
- Using the Browser’s Navigation Tools
- Closing Your Browser

Searching the Web.

- The two most basic and commonly used Web-based search tools are:
  - Directories
    - Enables you to search for information by selecting categories of subject matter.
  - Search Engines
    - Search engine lets you search for information by typing one or more words. The engine then displays a list of Web Pages that contain information related to your words.
    - Search can be done on a single word or multiple words.
- Both type of search tools are commonly called search engines.

Metasearch engine

- Metasearch engines use multiple search engines simultaneously to look up sites that match your keywords, phrase or question.

News

- ✓Internet supports a form of public bulletin board called news.
- ✓Newsgroup is a place on a computer network that maintains an online discussion group on a specific topic
- ✓Widely distributed newsgroups are part of a system called Usenet
- ✓Newsgroup domain – comp (computer-related topics)
- ✓Ex: alt.food, alt.food.chocolate
- ✓Newsgroups are fast way to distribute info. to potentially interested readers & allow people to discuss topics of common interest.

FTP

- ✓File Transfer protocol
- ✓File Transfer protocol service enable an internet user to copy files one computer to another on the internet.
- ✓A file may contain any type of digital information – text document, image, artwork movie, sound , software, etc.
- ✓Moving a file from a remote computer to one's own computer is known as downloading of file, and moving a file from one's own computer to a remote computer is known as uploading

FTP - Steps

- ✓A user execute the FTP command on local computer, specifying address of the remote computer as a parameter.
- ✓An FTP running on the client establish a connection with an FTP on the remote computer.
- ✓The system asks the user to enter login name and password to ensure the user is authorized person.
- ✓After successful login the desired files are downloaded or uploaded by using get(download) and put(for uploading) command.

telnet

- ✓telnet service enables an internet user to login to another computer from his/her local computer.
- ✓This action is called remote login . To start login session , a user types the command telnet and address of remote computer on local computer terminal.
- ✓The system then asks the user to enter the user id and password to ensure authorized user.
- ✓Once the login process is successfully completed , user can access the computer in remote location by sending telnet commands.

Internet relay chat(IRC) and web based chat

- ✓Chat is a popular way for internet users to communicate in real time with other users.
- ✓Unlike email , chat does not require a waiting period between the time you send a message and the time the other person or group receive it.
- ✓IRC is a multi user system where people join channels(chat groups) to exchange these real time message.
- ✓Chat message are typed on a user's computer sent to the IRC channel, where all users have joined that channel receive the message.
- ✓Users can read, reply to or ignore that message or create their own message.

E-mail

- ✓Electronic mail is a system for exchanging message through a computer network.
- ✓Depending on the s/w it is able to exchange, audio and video messages with someone else.
- ✓Email was one of the first uses of internet and quickly become popular.
- ✓It lets users exchange msgs from anywhere in the world & It is very easy to access.
- ✓It is less expensive than using the telephone

E-mail

- ✓Faster way to communicate than postal mail
- ✓Ability to attach data files and programs files to message.
- ✓It is not a real time communication system. Once you send a message to someone , you must wait until he/she read it and send reply.
- ✓Understanding E-mail
  - ✓Common way to create, send, & receive email – using an e-mail-program (called e-mail client) and an Internet connection (via an ISP or LAN).
  - ✓Popular Internet e-mail programs :
    - ✓Eudora, Microsoft Outlook, Microsoft Outlook Express and others
    - ✓Gmail is a free, advertising-supported email service developed by Google.

E-mail - Email address

- ✓An email address identifies an email box to which email messages are delivered.
- ✓This unique address enables other user to send message to you and enables message to other.
- ✓After reading the message, the receiver can save it, delete it, pass it to some else or respond by sending another message back.

The general format of an email address is

local-part@domain

and a specific example is

jsmith@example.com

An address consists of two parts.

The part before the @ symbol (local-part) identifies the name of a mailbox. This is often the username of the recipient, e.g., jsmith.

The part after the @ symbol (domain) is a domain name that represents the administrative realm for the mail box, e.g., a company's domain name, example.com.

Follow these step-by-step instructions to send an email (ex: using Gmail)

- ✓ Step 1: Log in to your Gmail account so that you are on the main page of your mail account.
- ✓Step 2: Click Compose.
- ✓Step 3: A new blank email window will open up. In the ‘To’ box, type in the email address of the recipient.
- ✓Step 4: You might want to include someone else in your email to ‘keep them in the loop’. You can do this by clicking Cc or Bcc, which will open another field. ‘Cc’
- ✓Step 5: The subject field allows you to give the recipient an idea of the topic of your email, like a heading.

Follow these step-by-step instructions to send an email

✓Step 6: Email text can be formatted in a similar way to text in a word document.

You can change the font style, colour and size using the formatting icons

You can also create bullet points and check the spelling of your email. Choose your formatting from the menu shown.

✓Step 7: Type your message in the main body field of your email.

✓Step 8: When you're happy with your email, click the blue Send button at the bottom of the compose window.

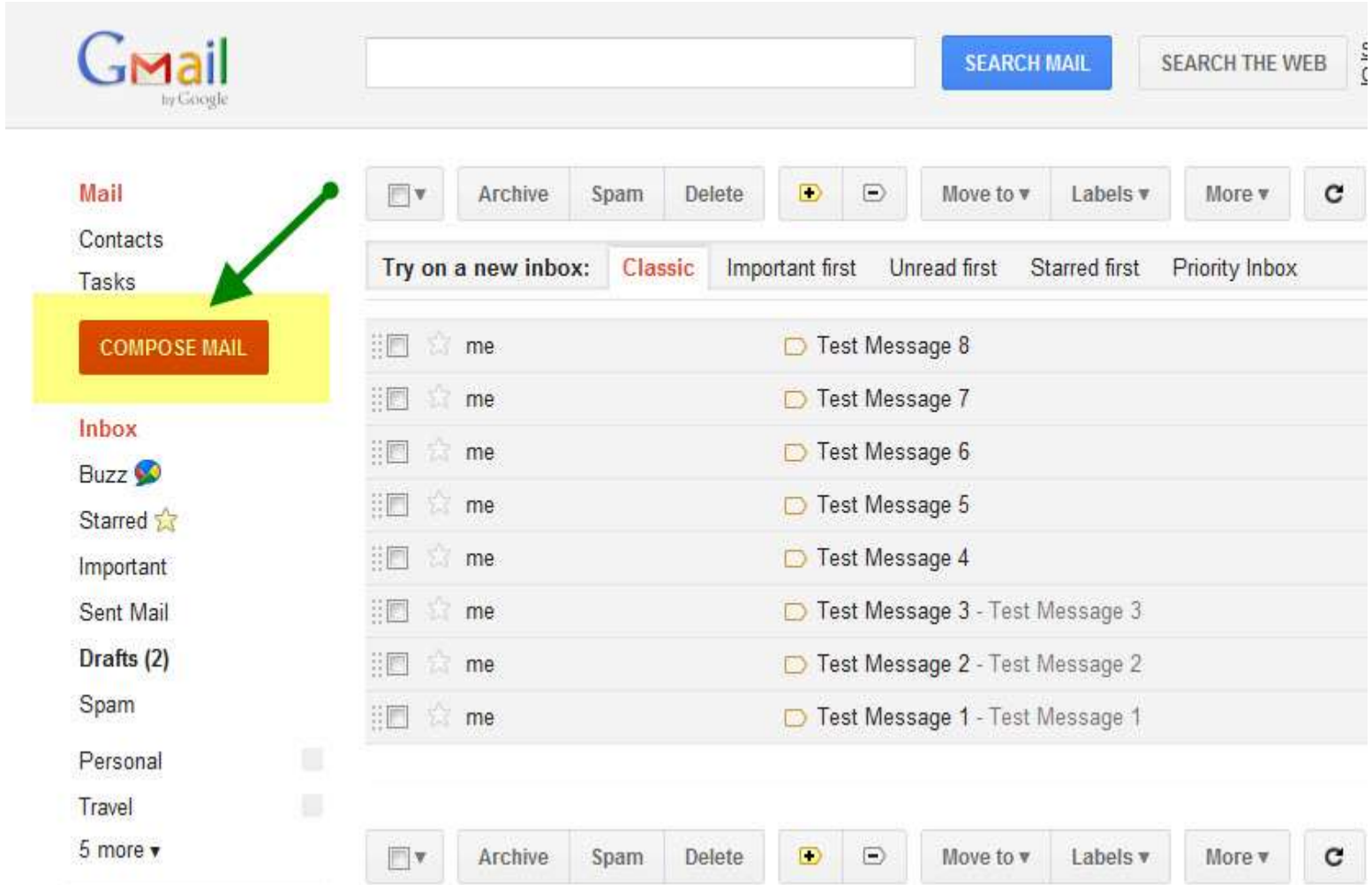
✓Step 9: The email you've sent will now be stored in the 'Sent Mail' folder on your Gmail dashboard. You may have to run your mouse pointer over the Inbox folder link to see the other folders.

When you put email addresses on the **CC list** of an email:

1. All the addresses are **visible to all recipients**
2. If someone hits "Reply All" to the email, **everyone** will receive the reply.

When you put email addresses on the **BCC list** of an email:

1. All the addresses are **INvisible** to all recipients
2. If someone hits "Reply All" to the email, **Only You** will receive the reply.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Classic
Important first
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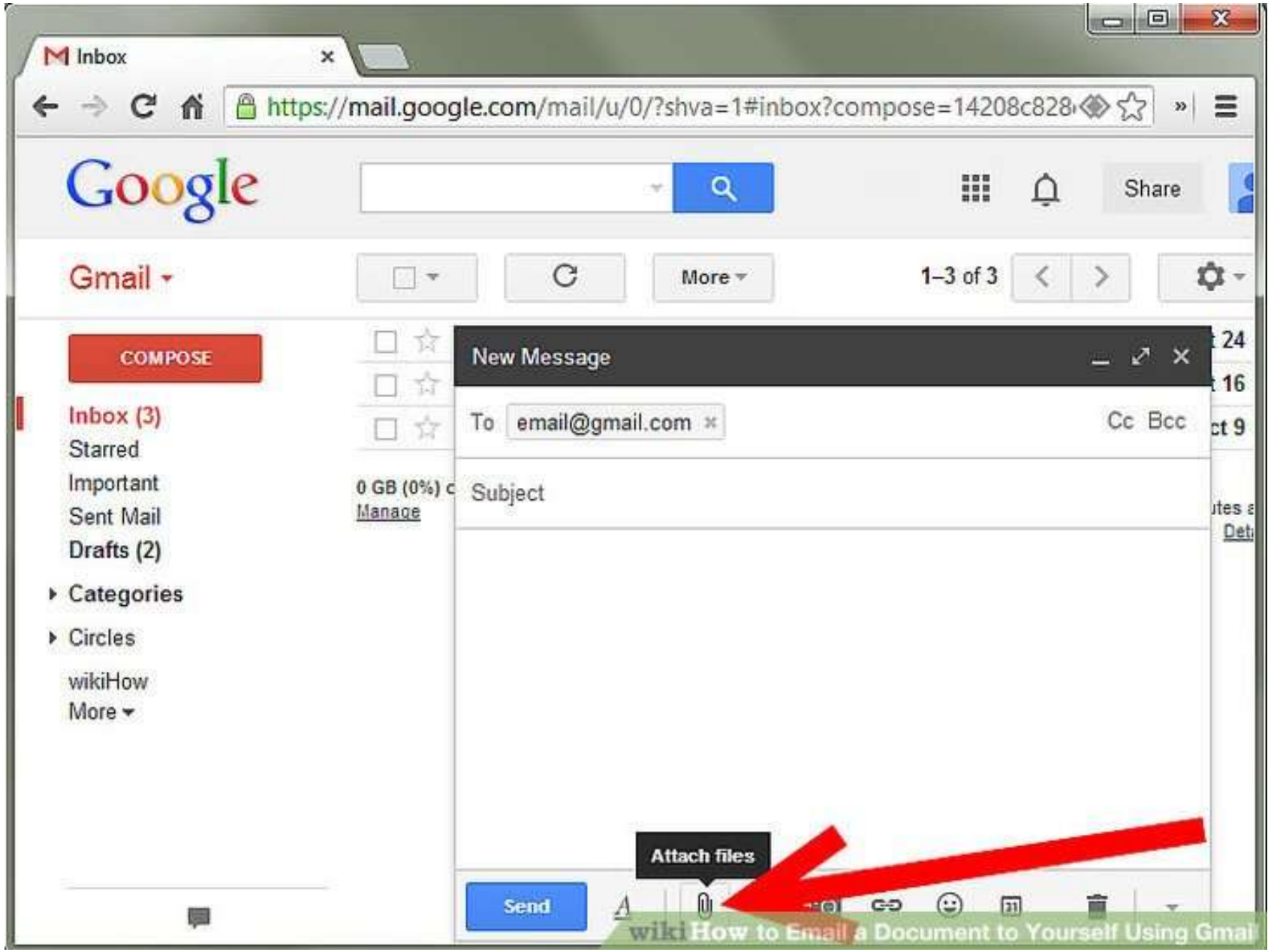
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Inbox (3)
Starred
Important
Sent Mail
Drafts (2)
Categories
Circles
wikiHow
More
0 GB (0%)
Manage
New Message
To email@gmail.com
Cc Bcc
Subject
Attach files
Send
wikiHow to Email a Document to Yourself Using Gmai

Instant messaging (IM)

- ✓Instant message is type of chat s/w that restricts participation to specific users , and they can exchange real time message on their screens , without being seen or interrupted by any one else.
- ✓ Using any one of the instant message s/w , you can create a buddy list, a list of other users with whom you would like to chat.
- ✓Whenever the IM program is running and you are online, then you can chat with your buddies who are in online connection.
- ✓EX: Windows Messenger, AOL messenger … etc
- ✓WhatsApp is an instant messaging application.

Online services

- ✓Online service is a company that offered a broad range of networked services, including
  - ✓news, weather, shopping, bulletin boards, games, polls, expert columns, banking, stocks, travel, and a variety of other features.
- ✓Most popular online service are
  - ✓America Online, CompuServe, Prodigy.

Peer to peer services

- ✓Peer to peer services are distributed network that do not require a central server as web server to manage files.
- ✓Instead a special s/w is created, it allow an individual computer to communicate directly with another computer and access to files or information on that computer
- ✓Instant messaging is an example for Peer to Peer service.
- ✓Peer to peer service popular because they allow people to share files of all types.

- syllabus


Thank
you!!