



CSCA0204

Office Automation

Chapter I

Concept of Information and Communication Technology (ICT)

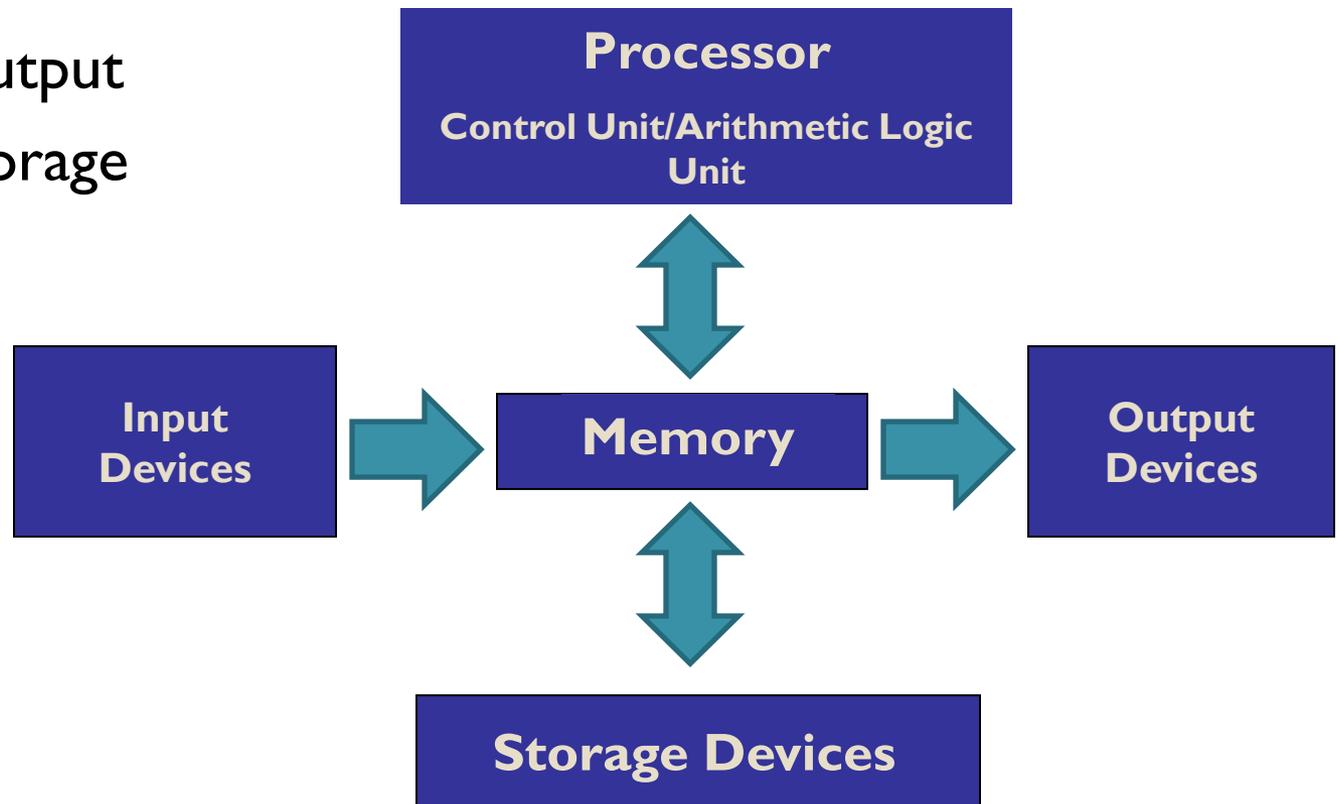
What is a Computer?

- A programmable electronic device
- Operating under the control of instructions stored in its own memory unit, that can accept data (**input**), manipulate the data according to specified rules (**process**), produce information (**output**) from the processing, and store the results for future use.



What does a computer do?

- Input
- Process
- Output
- Storage



What does a computer do?

Input

- It is the process of **capturing** or **acquiring** the data, or it is the process of accepting data or information, by using input the computer can do any process.
- Information or data that is entered into a computer or computer device using **input devices**.

What does a computer do?

Types of Computer Input

- **Data**
 - the raw **facts** given to the computer.
- **Programs**
 - the sets of **instructions** that direct the computer.
- **Commands**
 - special codes or **key words** that the user inputs to perform a task.
- **User response**
 - the user's answer to the computer's question.

What does a computer do?

Processing

- It is the transformation process to convert the input into output.
- A **process** is an instance of running a program.
- It cause the computer to follow instructions from the Memory.
- Perform by **Central Processing Unit (CPU)**.

What does a computer do?

Output

- It is the result, which comes from the transformation process or it is the outcome of the process.
- Anything that comes out of a computer.

What does a computer do?

Types of Computer Output

- **Hard copy**
 - Printed on paper or other permanent media.
- **Soft copy**
 - Unprinted digital document file.
 - Displayed on screen or by other non-permanent means.
 - It can be transported from one computer to another.

What does a computer do?

Types of Computer Output

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- **Soft copy**
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What does a computer do?

Storage

- Computer data storage is referred to as storage or memory, which can save digital data.
- **Temporary or primary storage** is the computer circuitry that temporarily holds data waiting to be processed.
- **Permanent or secondary storage** is the area in the computer where data or information is held permanently.

What does a computer do?

Benefits of Computers

The three main benefits of using computers are :

- Speed
- Accuracy
- Capacity to take large amount of work

What does a computer do?

Limitations of Computers

- Computers have to be expressively told what to do.
- They cannot perform anything that is not defined.



What makes a computer powerful?

- Three of the most important features are the
 - **processor quality**
 - **operating system capability**
 - **reliability**
- These features can be customized to create a powerful computer that meets individual needs and requirements.

Types of Computer

- Microcomputers/Personal Computer
- Mini Computers
- Mainframes
- Supercomputers

Types of Computer

Microcomputers/Personal Computer

- A **microcomputer** is a small, relatively inexpensive computer with a microprocessor as its central processing unit (CPU)
- A small, single-user computer based on one microprocessor
- Microcomputers are designed to be used by individuals

Types of Computer

Microcomputers/Personal Computer



Types of Computer

Mini Computers

- It is a midsize computer.
- Is a multiprocessing system capable of supporting from up to 200 users simultaneously.
- Used for scientific calculations, business transaction processing and data base management.



Types of Computer

Mainframes

- A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- Very large and expensive.
- Can execute many programs concurrently.
- Mainframes are more powerful than supercomputers because they support more simultaneous programs. But supercomputers can execute a single program faster than a mainframe.

Types of Computer

Mainframes

- Perform large-scale transaction processing (thousands of transactions per second)
- Support thousands of users and application programs concurrently accessing numerous resources
- Manage terabytes of information in databases
- Handle large-bandwidth communication



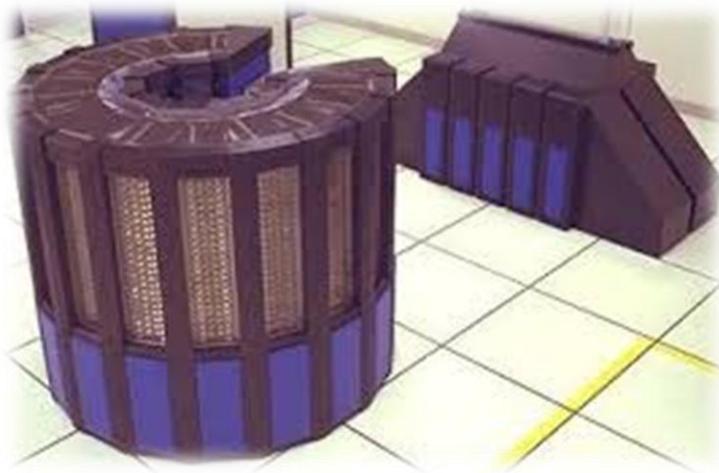
Types of Computer

Supercomputers

- Supercomputers are very expensive and are employed for specialized applications that require immense amounts of mathematical calculations (number crunching).
- Used for weather forecasting, scientific simulations, (animated) graphics, fluid dynamic calculations, nuclear energy research, electronic design, and analysis of geological data.

Types of Computer

Supercomputers

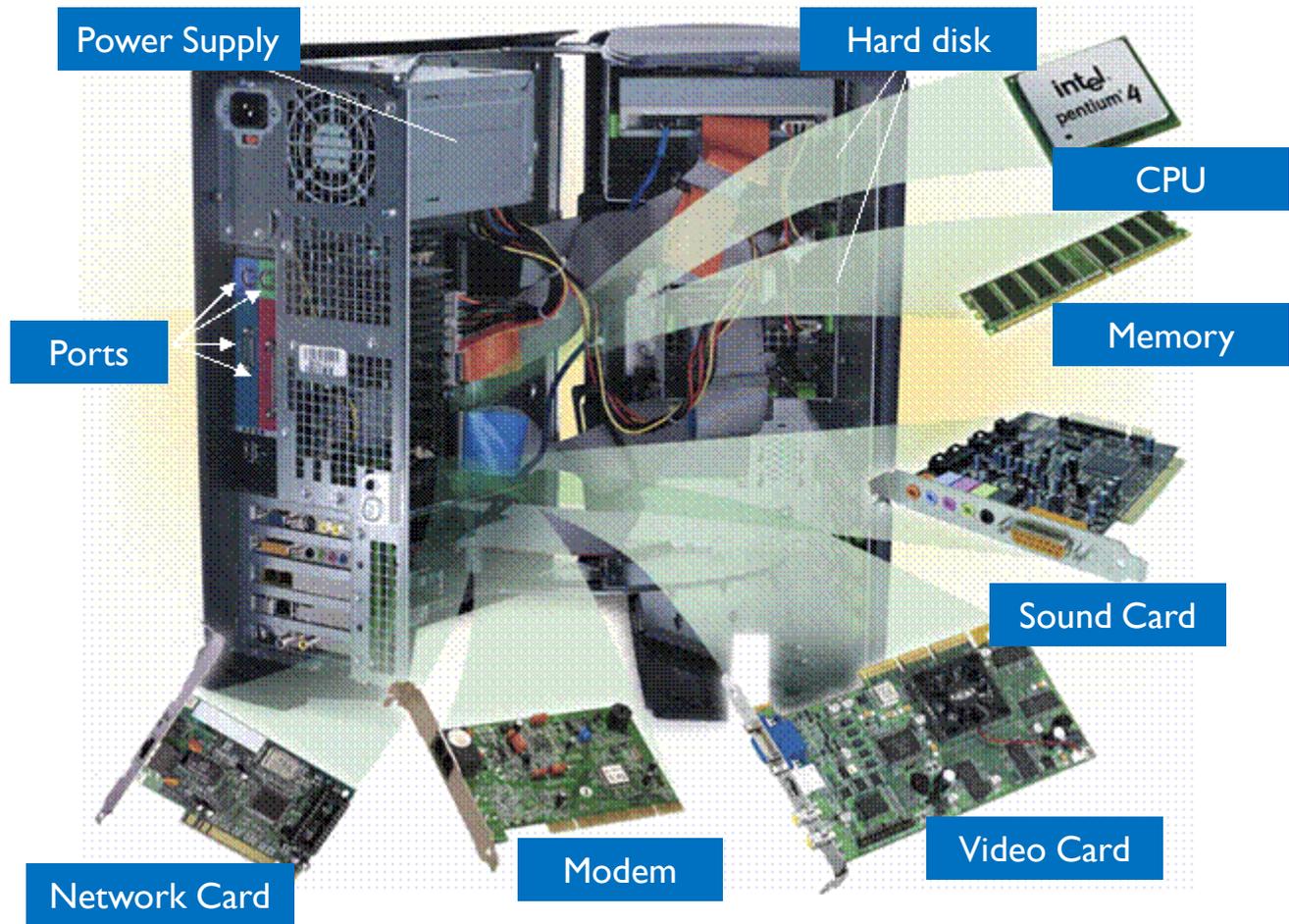


System Unit

- The system unit is the core of a computer system.
- The most important of these components is the **central processing unit (CPU)**, or microprocessor, which acts as the "brain" of your computer.
- Another component is **random access memory (RAM)**, which temporarily stores information that the CPU uses while the computer is on.
- Almost every other part of your computer connects to the system unit using cables.

System Unit

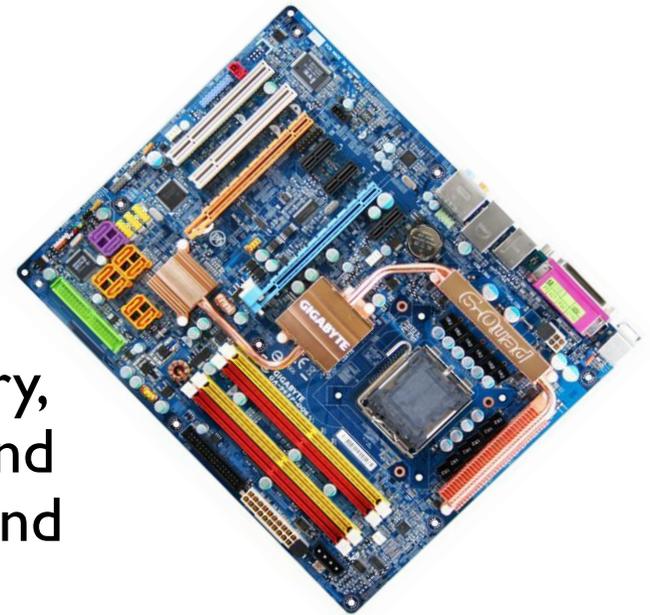
Components of System Unit



System Unit

Motherboard

- The main circuit board of a microcomputer.
- Contains the connectors for attaching additional boards.
- Typically, the motherboard contains the CPU, BIOS, memory, mass storage interfaces, serial and parallel ports, expansion slots, and all the controllers required to control standard peripheral devices.



System Unit

Central Processing Unit (CPU)

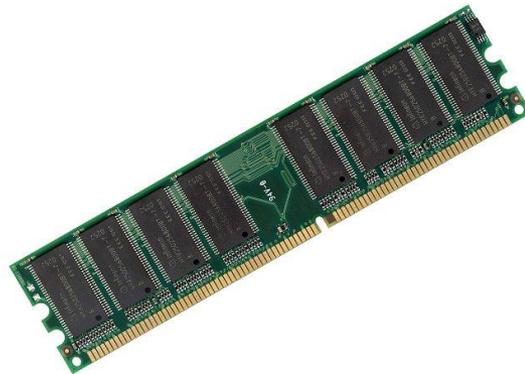
- Also known as microprocessor.
- The CPU contains the control unit, the arithmetic/logic unit and input-output unit.



System Unit

Memory

- **Memory** is a temporary storage place for data, instructions, and information.
- Memory stores the operating system, application programs, and the data processed by application programs.



System Unit

Memory

- **RAM (random access memory)** consists of memory chips that the processor can read from *and* write to.
- Most RAM is **volatile memory**, meaning that its contents are lost when the computer's power is turned off.
- Two basic types of RAM chips are dynamic RAM and static RAM.
- **Dynamic RAM (DRAM)** must be re-energized constantly or it loses its contents. **Static RAM (SRAM)** is faster and more reliable than DRAM and has to be re-energized less often, but it is much more expensive.

System Unit

Power Supply

- Also called a **power supply unit** or PSU, the component that supplies power to a computer.



System Unit

Modem/Network Card

- A device that enables a computer to transmit data over, for example, telephone or cable lines.



System Unit

Sound Card

- An expansion board that enables a computer to manipulate and output sounds.



System Unit

Video Card

- A board that plugs into computer to give it display capabilities.
- The display capabilities of a computer, however, depend on both the logical circuitry (provided in the video adapter) and the display monitor.



System Unit

Hard Disk

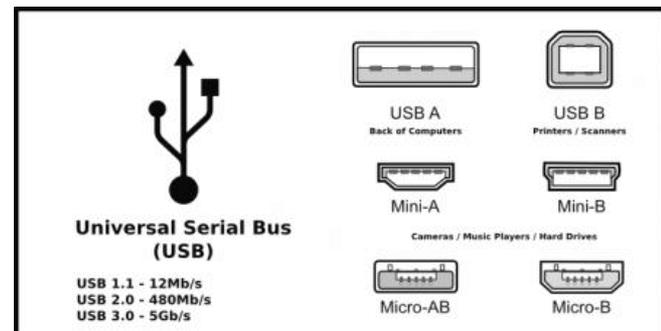
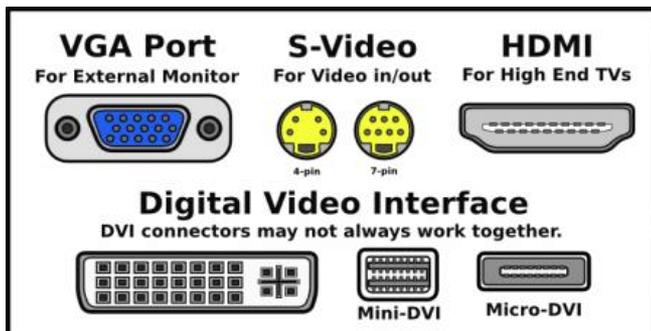
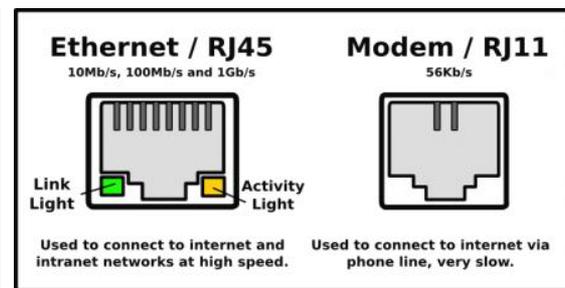
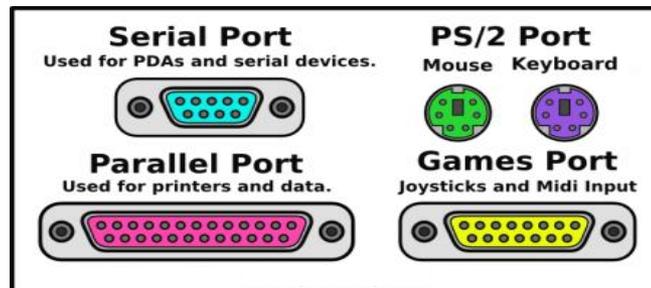
- A magnetic disk on which you can store computer data.
- Hard disks hold more data and are faster than other storage media.



System Unit

Ports

- An interface on a computer to which you can connect a device.



System Unit

Buses

- A collection of wires through which data is transmitted from one part of a computer to another.
- **Internal bus** connects all the internal computer components to the CPU and main memory.
- **Expansion bus** enables expansion boards to access the CPU and memory.

Peripherals

- A computer device that is not part of the essential computer.
- Peripheral devices can be external (mouse, keyboard, printer, monitor) or internal (CD-ROM drive, CD-R drive, internal modem).

Peripherals

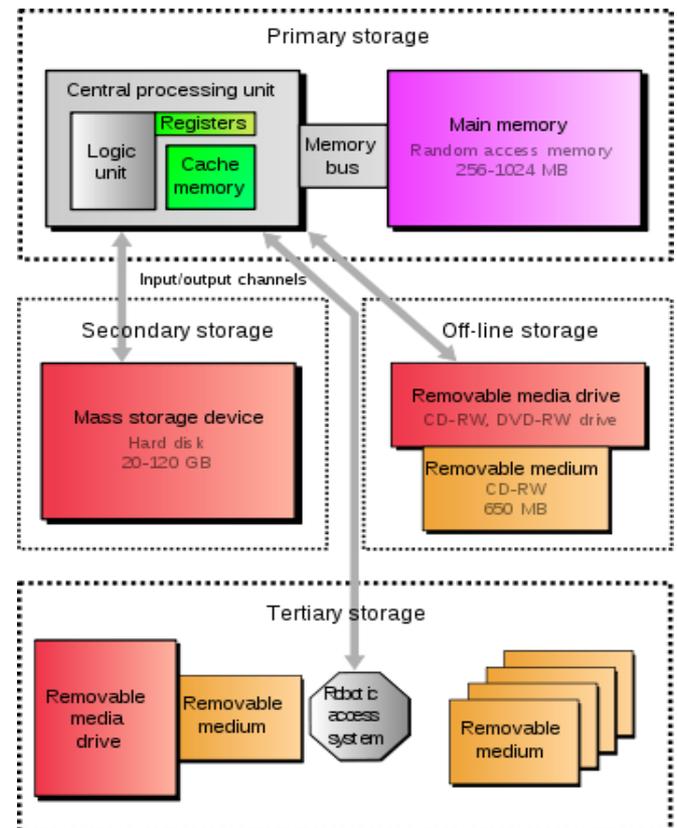
Input Devices

- A device that can be used to insert data into a computer.



Storage

- The capacity of a device to hold and retain data.
- Types of storage:
 - Primary
 - Secondary
 - Tertiary
 - Off-line



Storage

Primary Storage

- A storage location that holds memory for short periods of times while the computer running.
- Example: computer RAM and cache

Storage

Secondary Storage

- A storage medium that holds information until it is deleted or overwritten regardless if the computer has power.
- Example: hard disk

Storage

Off-line Storage

- Term used to describe any storage that is removable and cannot be accessed by the computer once removed.
- Off-line storage allows a user to store information that will not be affected by computer viruses or hardware failure.
- Example: floppy disk

Storage

Tertiary Storage

- Typically it involves a robotic mechanism which will mount (insert) and dismount removable mass storage media into a storage device according to the system's demands.
- Example: tape libraries and optical jukebox

Storage

Storage Technologies

- Semiconductor
- Magnetic
- Optical
- Paper

Storage

Storage Technologies

Semiconductor

- Uses semiconductor-based integrated circuits to store information.
- Example: RAM, Flash memory



Storage

Storage Technologies

Magnetic

- Magnetic storage uses different patterns of magnetization on a magnetically coated surface to store information.
- Example: Hard disk, floppy disk, tape



Storage

Storage Technologies

Optical

- the typical optical disc, stores information in deformities on the surface of a circular disc and reads this information by illuminating the surface with a laser diode and observing the reflection.
- Example: Compact Disc, Digital Versatile Disc, BluRay Disc

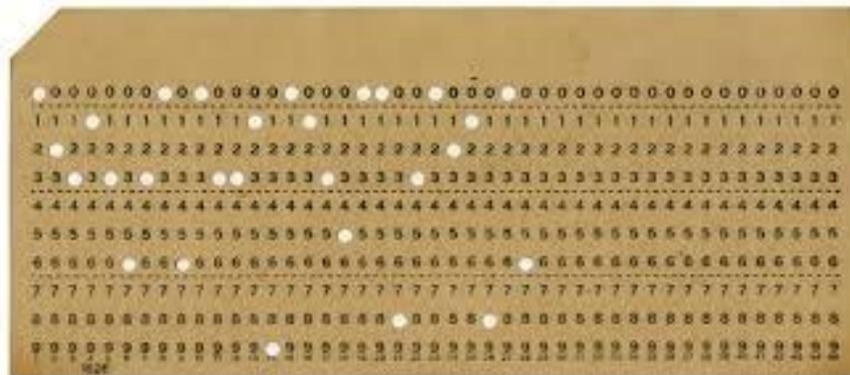


Storage

Storage Technologies

Paper

- Typically in the form of paper tape or punched cards, has long been used to store information for automatic processing, particularly before general-purpose computers existed.
- Example: punch card



Computer Software

System Software

- System software is a type of computer program that is designed to run a computer's hardware and application programs.
- The system software is the interface between the hardware and user applications.

Computer Software

System Software

- The **Operating System (OS)** manages all the other programs in a computer.
- Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.
- Examples: Windows, MacOS, Linux, Android, IOS.

Computer Software

System Software

- **The BIOS** (basic input/output system) gets the computer system started after you turn it on and manages the data flow between the operating system and attached devices such as the hard disk, video adapter, keyboard, mouse, and printer.
- The **boot program** loads the operating system into the computer's main memory or random access memory (RAM).

Computer Software

System Software

- A **device driver** controls a particular type of device that is attached to your computer, such as a keyboard or a mouse. The driver program converts the more general input/output instructions of the operating system to messages that the device type can understand.
- According to some definitions, system software also includes system utilities, such as the **disk defragmenter** and **System Restore**.

Computer Software

Application Software

- Applications software is computer software designed to help the user to perform singular or multiple related specific tasks.
- They act as instructions which direct the hardware to perform specific functions and examples of such include accounting software, office suites, graphics software and media players.

Computer Network

- A network is a group of two or more computer systems linked together.



Computer Network

Types of Network

- Local Area Network (LAN)
 - The computers are geographically close together
- Metropolitan Area Network (MAN)
 - A data network designed for a town or city.
- Home Area Network (HAN)
 - A network contained within a user's home that connects a person's digital devices.
- Wide Area Network (WAN)
 - The computers are farther apart and are connected by telephone lines or radio waves.

Computer Network

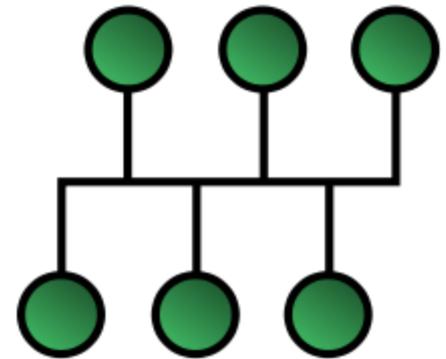
Network Topology for LAN

- The shape of a local-area network (LAN) or other communications system.

Computer Network

Network Topology for LAN

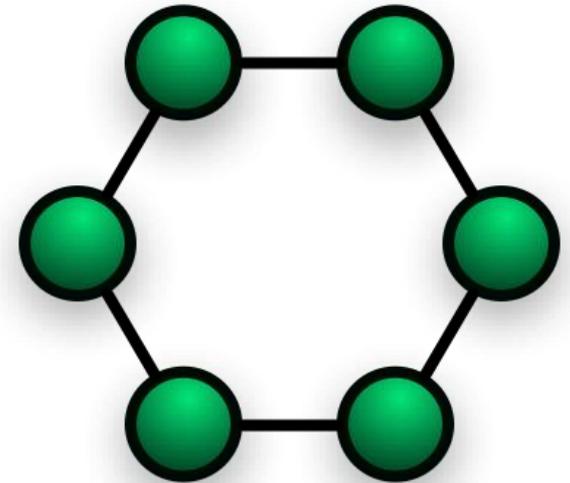
- **Bus topology:** All devices are connected to a central cable, called the bus or backbone. Bus networks are relatively inexpensive and easy to install for small networks.
- BUS works best with a small number of nodes.
- If the single cable fails the entire network is unusable.



Computer Network

Network Topology for LAN

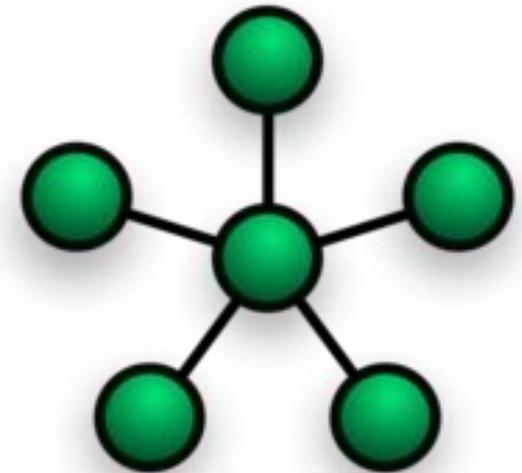
- **Ring topology** : All devices are connected to one another in the shape of a closed loop, so that each device is connected directly to two other devices, one on either side of it.
- A failure in one device or in one part of the cable can cause the entire network to fail.



Computer Network

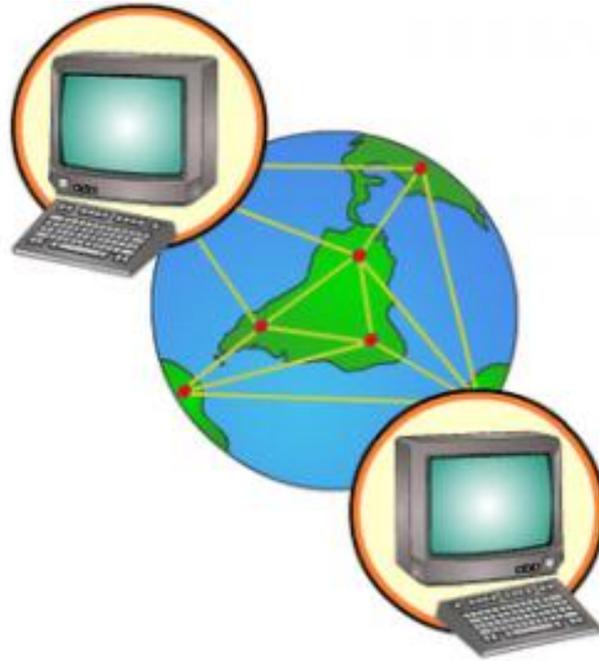
Network Topology for LAN

- **Star topology:** All devices are connected to a central *hub*. Star networks are relatively easy to install and manage, but bottlenecks can occur because all data must pass through the hub.
- If one node fails then the others will continue to function, however, if the central device fails the entire network fails.



The Internet

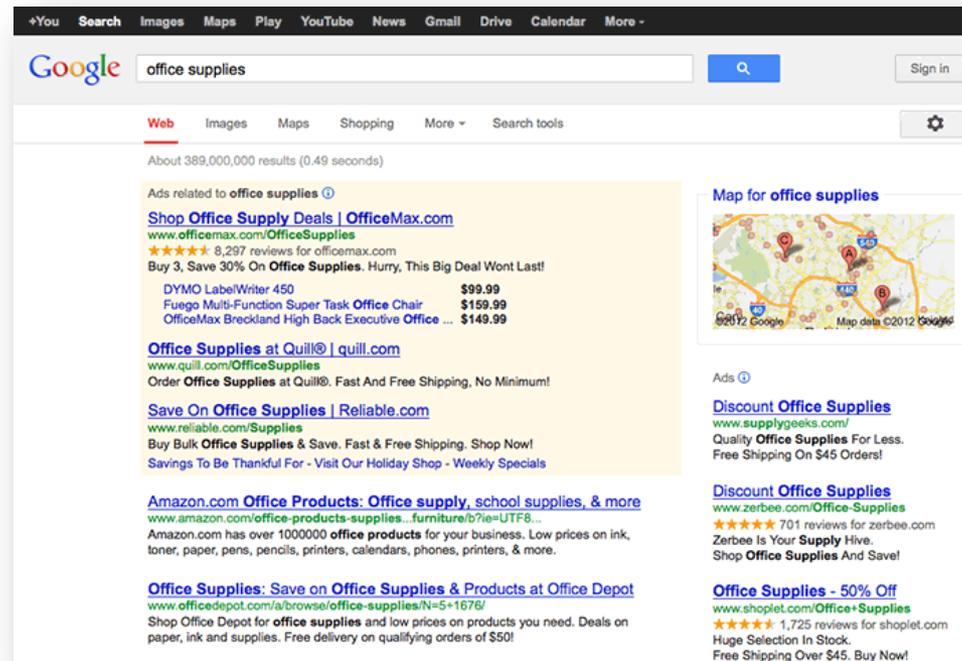
- The Internet is the largest **computer network** in the world, connecting millions of computers.



The Internet

The use of the Internet

- Finding information online



The screenshot shows a Google search interface for the query "office supplies". The search bar at the top contains the text "office supplies" and a search button. Below the search bar, there are navigation tabs for "Web", "Images", "Maps", "Shopping", and "More". The search results are displayed in a list format, including several advertisements and organic search results. A map titled "Map for office supplies" is visible on the right side of the page, showing a geographical area with several red location markers labeled A, B, and C. The map data is attributed to Google, 2012.

Web Images Maps Shopping More Search tools

About 389,000,000 results (0.49 seconds)

Ads related to office supplies

[Shop Office Supply Deals | OfficeMax.com](#)
www.officemax.com/OfficeSupplies
★★★★★ 8,297 reviews for officemax.com
Buy 3, Save 30% On Office Supplies. Hurry, This Big Deal Wont Last!
DYMO LabelWriter 450 \$99.99
Fuego Multi-Function Super Task Office Chair \$159.99
OfficeMax Breckland High Back Executive Office ... \$149.99

[Office Supplies at Quill® | quill.com](#)
www.quill.com/OfficeSupplies
Order Office Supplies at Quill®. Fast And Free Shipping, No Minimum!

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www.reliable.com/Supplies
Buy Bulk Office Supplies & Save. Fast & Free Shipping. Shop Now!
Savings To Be Thankful For - Visit Our Holiday Shop - Weekly Specials

[Amazon.com Office Products: Office supply, school supplies, & more](#)
www.amazon.com/office-products-supplies...furniture/b?ie=UTF8...
Amazon.com has over 1000000 office products for your business. Low prices on ink, toner, paper, pens, pencils, printers, calendars, phones, printers, & more.

[Office Supplies: Save on Office Supplies & Products at Office Depot](#)
www.officedepot.com/a/browse/office-supplies/N=5+1676/
Shop Office Depot for office supplies and low prices on products you need. Deals on paper, ink and supplies. Free delivery on qualifying orders of \$50!

Map for office supplies

Ads

[Discount Office Supplies](#)
www.supplygeeks.com/
Quality Office Supplies For Less.
Free Shipping On \$45 Orders!

[Discount Office Supplies](#)
www.zerbee.com/Office-Supplies
★★★★★ 701 reviews for zerbee.com
Zerbee Is Your Supply Hive.
Shop Office Supplies And Save!

[Office Supplies - 50% Off](#)
www.shoplet.com/Office+Supplies
★★★★★ 1,725 reviews for shoplet.com
Huge Selection In Stock.
Free Shipping Over \$45. Buy Now!

The Internet

The use of the Internet

- Communication

Henri Rousseau
Looking forward to the lake this weekend!
June 9 at 2:04pm · Like · Comment

Desmond Taylor
Selling some stuff
As you might know, I'm moving to a new apartment in a few weeks...
May 16 at 11:25am · Like · Comment · Share

RECENT ACTIVITY
Henri is now friends with Amelia Jones and Verda Jones.

Henri Rousseau
Road trip, anyone?
I've lived in this country for a few years now, and I still haven't seen very much of it. So here's my plan: sometime late this summer, after I wrap up my current project, I'm going to take 3 weeks of my vacation time and drive across the US...
May 16 at 10:54am · Like · Comment · Share
View all 4 comments

Bryan Durand Desmond, Henri's journey across the US won't be complete unless he plays that saxophone at the edge of the Grand Canyon.
May 16 at 11:04am · Like

Desmond Taylor And then throws it over the side?
May 16 at 11:04am · Like



Amelia Jones

me: Hi!

Amelia: hey Henri
what are you up to?

me: Just ate lunch... I'm about to go to the lake

Amelia: lol are you bringing your saxophone again

me: maybe...

Amelia: I have to finish doing some errands, maybe I'll come down to hear some tunes

The Internet

The use of the Internet

- Media on the Internet



The Internet

The use of the Internet

- E-Commerce



The Internet

How to Connect to the Internet?

- Choosing the Internet Services
 - Dial-up
 - Digital Subscriber Line (DSL)
 - Cable
 - Satellite
 - 3G and 4G
- Choosing an Internet Service Provider

The Internet

How to Connect to the Internet?

- Hardware
 - Modem
 - Network Card
 - Router
- Software
 - Web Browser
 - Email client

