Lecture 2
Computer Technology

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LECTURE TWO
TYPES OF COMPUTERS

We are going to learn about the following types of computers.

Supercomputers

Minicomputers

Microcomputers

Laptops/notebooks

Mainframe computer

Embedded computers

Terminals

Cloud computing.

This is how some of the computers look like

2.1 Minicomputers

Introduced in the early 1960s and announced a new era in computing. They are relatively low cost and small. Historically, a mini is associated with de-centralized computing. Meaning most computing takes (physically) place on the mini itself

2.2 Microcomputers

A *microcomputer* is a computer with a microprocessor as its central processing unit. Another general characteristic of these computers is that they occupy physically small amounts of space when compared to mainframe and minicomputers.

Many microcomputers (when equipped with a keyboard and screen for input and output) are also personal computers Monitors, keyboards and other devices for input and output may be integrated or separate.

Computer memory in the form of RAM, and at least one other less volatile, memory storage device are usually combined with the CPU on a system bus in a single unit.

Other devices that make up a complete microcomputer system include, batteries, a power supply unit, a keyboard and various input/output devices used to

convey information to and from a human operator (printers, monitors, human interface devices)

Microcomputers are designed to serve only a single user at a time, although they can often be modified with software or hardware to concurrently serve more than one user. Microcomputers fit well on or under desks or tables, so that they are within easy access of the user.

Bigger computers like minicomputers, mainframes, and supercomputers take up large cabinets or even a dedicated room. A microcomputer comes equipped with at least one type of data storage, usually RAM. Although some microcomputers (particularly early 8-bit home micros) perform tasks using RAM alone, some form of secondary storage is normally desirable. In the early days of home micros, this was often a data cassette deck (in many cases as an external unit). Later, secondary storage (particularly in the form of floppy disk and hard disk drives) were built in to the microcomputer case itself.

Microcomputers, or PC's as they are often called, are abundant on our desks, tables, offices, suitcases, everywhere. This is the most visible form of computers in the present world and comes in all forms and breeds. There are many generations of particular design and technical specifications from the start of this particular design. Historically, a micro is associated with stand-alone computing. Meaning most computing takes (physically) place on the micro itself.

In the 1980's when networking started to integrate into the offices PC'S became connected with network servers, and also mainframes and supers.

2.3   Laptops/notebooks

A laptop computer or simply laptop (also notebook computer, notebook and notepad) is a small mobile computer, typically weighing 1.4 to 5.4 kg, although older laptops may weigh more.

Laptops usually run on a single main battery or from an external AC/DC adapter that charges the battery while also supplying power to the computer itself even in the event of a power failure.

Laptops contain components that are similar to their desktop counterparts and perform the same functions, but are miniaturized and optimized for mobile use and efficient power consumption, although typically less powerful for the same price.

Laptops usually have liquid crystal displays (flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. It is often utilized in battery-powered electronic devices because it uses very small amounts of electric power.) And most of them use different memory

modules for their random-access memory (RAM), for instance, SO-DIMM in lieu of the larger DIMMs. Utilize a touchpad or a pointing stick, though an extern can

2.4 Mainframe Computer

Mainframes are computers used mainly by large organizations for critical applications, typically bulk data processing such as census, industry and consumer statistics, ERP, and financial transaction processing. The term probably originated from the early mainframes, as they were housed in enormous, room-sized metal boxes or frames.

- Characteristics

Nearly all mainframes have the ability to run (or host) multiple operating systems and thereby operate not as a single computer but as a number of virtual machines.

In this role, a single mainframe can replace dozens or even hundreds of smaller servers, reducing management and administrative costs while providing greatly improved scalability and reliability. Mainframes can add or hot swap system capacity non-disruptively and granularly.

2.5 Super Computers

Unlike mainframes and minicomputers, supercomputers are used for the heavy stuff like weather maps, construction of atom bombs, finding oil, earthquake prediction, and sciences where a lot of calculations must be done.

They are also used to help governments eavesdrop on anything passing through telephone, data lines, e-mail, or radio waves; and anything that is written, etc. Historically, a supercomputer is associated with the fastest computer available or the largest in size. Supercomputing means "mass computing at ultra-high speed."

Though all contemporary personal computers perform in the tens or hundreds of megaflops (millions of calculations per second), they still cannot solve certain problems fast enough. Construction of supercomputers is an awesome and very expensive task. To get a machine from the laboratory to the market may take several years. Using a supercomputer is expensive as well.

As a user, you are charged according to the time you use the system what is expressed in the number of processor (CPU) seconds your program runs. Why do

we need a supercomputer? Well, as a normal person on the street, you don't. Your cell phone or PDA has more computing power than the first mainframes.

Who really needs supercomputing today are mostly scientists performing mass computing at ultra-high speed. They use such computers in all imaginable disciplines: space exploration and related imagery (picturing galaxies and intergalactic matter), environmental simulations (global warming effects) mathematics, physics (the search for the really smallest part of matter), gene technology (what gene it is that makes us old), and many others. As you can see in the table below, the ranking of a supercomputer is near the top of the computer spectrum.

2.6   Embedded Computers

Embedded computers can be compared to "computers on a chip". All in one so to speak. You will find them in all kind of appareils that surround us. Washing machines, ticket machines at the subway, cameras, cars, motors, sewing machines, clocks.

Everywhere needing something to regulate, control of check something. Historically, embedded computing is associated with self-contained preprogrammed computing.

Meaning there are mostly no connections outside the environment where that particular type of computing takes (physically) place and influences the working of that embedded computing device.

2.7   Terminals

Terminals exist in all forms and breeds. There are "smart" and "dumb" terminals used for a enormous variety of purposes. Historically, a terminal is associated with de-centralized computing. Meaning most computing takes (physically) place somewhere else then where the terminal is physically situated
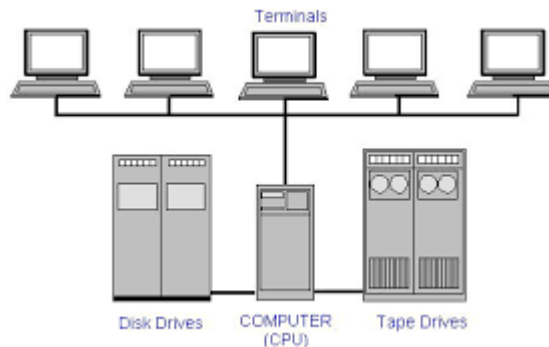
2.10 Cloud Computers (computing).

Usually based up in the satellite and stores information instead of the common current ways of storages.