Lesson 1

**hardware platform** - set of compatible hardware

**platform** - word extremely useful in IT

**HARDWARE PLATFORM RELATED COMPONENTS**

**processor** - an integrated electronic circuit

- found in many modern electronic devices

***4 basic elements of processor:***

**ALU -** arithmetic logic unit

**FPU** - floating-point unit

**registers** - store instructions

**cache memories** - store copies of data/similarly to RAM

**CPU** - fetch, decode, and execute

**I/O devices** - hardware used by a human operator/other system to communicate with a computer

- computers would not able to access/save date w/o it

examples of I/O

1. **User Input**

2. **Display**

3. **Sound**

4. **Storage**

5. **Printing**

6. **Memory**

**bus interface** - common hardware interface between CPU and peripheral devices

**PCI express** - (parallel/serial) current bus interface

**Switched Architecture** - Multiple lanes

- 32 independent, serial lanes (x1-x32) transfer in parallel

**USB** - (serial) permanently or temporarily attach almost anything

types of USB

1. **type b usb 3.0**

2. **type a usb 3.0**

3. **micro usb 3.0**

4. **micro usb 2.0**

5. **mini usb 2.0**

**Device Class Typical Use**

*Printer Printing  
 Mass Storage USB storage drive  
 Media Transfer Music transfer  
Hub USB hub  
 Video Camera  
 Wireless Bluetooth*

Lesson 2

**platform** - synonym of *operating system*

- underlying computer system (hardware/software)

***3 categories of platforms:***

**Mainframe** - industry term for a large computer

**IBM(OS/390)**

**Midrange (server)** - less computational power than mainframes

**Sun( Solaris) IBM(AS/400)**

**Workstation** - computer intended for individual/can also be connected to servers

**Intel(Windows) Apple(Macintosh) Intel(Linux)**

**OS Terminology**

**Multitasking** - ability of an OS to support multiple programs simultaneously

**Time slicing** - one microprocessor running the work station / simulated by time slicing

**Single user system** - personal comp / workstation intended to serve one person at a time

**Multiuser system** - has multiple workstations connected to it / can be accessed via local area network

**Client/Server** - server provides a resource ex. printer, database to clients

**Processes/Threads** - a task that competes for execution/share the resources of the parent process

**Virtual memory** - a computer design feature, permits software to use more main memory

**OS Examples**

**OS/390 (MVS)** OS/390 is the IBM OS most commonly installed on its S/390 line of mainframes

**UNIX**  - originated at Bell Labs in 1969

**Linux** - a UNIX-like OS that was designed to provide free/very low-cost OS

**Macintosh**(Mac) - introduced in 1984 by Apple Computer/first widely-sold with GUI

**Windows** - generic name for Microsoft's family of OS/dominate the workstation & PC markets

Lesson 4

**IT Infrastructure** - composite hardware/software

- allows organization to deliver IT solutions/services to its employees/partners/customers

***7 Main Components***

**Computer hardware platforms**

*ex. Dell, IBM, Sun, HP, Apple, Linux Machines*

**OS platforms**

*ex. MS Windows, Unix, Linux, Mac OS X, Chrome, Android, iOS*

**Enterprise software app**

*ex. SAP, Oracle, Microsoft, IBM*

**Data management & storage**

*ex. IBM DB2, Oracle, SQL Server, Sybase, MySQL, EMC, Apache, Hadoop*

**Networking/telecommunications platforms**

*ex. MS Windows Server, Linux, Novell, Cisco, Alcatel-Lucent, Nortel, AT&T Verizon*

**Internet platforms**

*ex. Apache, Microsoft IIS, .NET, Unix, Cisco, Java*

**Consulting system integration services**

*ex. IBM, HP, Accenture*

**Computer Hardware Platforms**

***Client Machines*** - Desktop PCs, mobile devices - PDAs, laptops

***Servers***  - Blade servers: ultrathin computers stored in racks

***Mainframes*** - IBM mainframe equivalent to thousands of blade servers

***Top chip producers*** - AMD, Intel, IBM

***Top firms*** - IBM, HP, Dell, Sun Microsystems

**CONTEMPORARY HARDWARE PLATFORM TRENDS**

***The mobile Digital Platform***

* Cell phones, smartphones
* Data transmission, web surfing, e-mail, IM duties

**Netbooks**

* small lightweight notebooks

Tablets(iPad)

Networked e-readers(Kindle and Nook)

***BYOD (Bring your own device)***

* Allowing employees to use personal device

***CONSUMERIZATION OF IT***

* New IT emerges in consumer markets
* Forces businesses and IT departments to rethink

***GRID COMPUTING***

* Connects geographically remote computers
* Provides cost savings,speed,agility

***VIRTUALIZATION***

* run multiple instances of OS
* reduces hardware and power expenditures

***CLOUD COMPUTING***

* On-demand computing services obtained over network

Infrastructure as a service

Platform as a service

Software as a service

* cloud can be public or private
* allows companies to minimize IT investments
* Drawbacks:

concerns of security, reliability

* hybrid cloud computing model

***OPEN-SOURCE SOFWARE:***

*ex. Apache web server, Mozilla Firefox browser, OpenOffice*

***LINUX***

* Open-source OS

*used in mobile devices, local area networks, web servers, high-performance computing*

***WEB SERVICES***

* XML: Extensible Markup Language
* More powerful and flexible than HTML

***SOA: Service-Oriented Architecture***

*ex. an "invoice service" to serve whole firm for calculating and sending printed invoices*

***SOFTWARE OUTSOURCING AND CLOUD SERVICES PT1***

Three external sources for software:

1. Software packages and enterprise software

2. Software outsourcing

* Contracting outside firms to develop software

3. Cloud-based software services

* Software as a service (SaaS)
* Accessed with Web browser over Internet
* Service Level Agreements (SLAs):formal agreement with service providers

***Mashups***

* combinations of 2 or more online app

***Apps***

* small pieces of software that run on the internet
* generally delivered over the internet