SOS

lec 1 - intro to os (Part 2)

Caching

method of storing frequently used data to RAM. Whe program need to be executed it first looks for cache, if cache not there fetch it and execute it first.

Migration of a data from Disk to registers,

if a data originally initiated as 5 in the storage and when it in processing it should be as 5, mainly in multiprocessor environment.

magnetic disk → main memory → cache → register
a = 5 a = 5 a = 5 a = 5

Cache coherency → means all cpu's must have the most recent value of the variable in cache.

I/O Sub system jobs,

- Memory managment
- Buffering - storing data temporarily while transfer
- Caching
- Spooling - overlapping a output of another job with input of another job.
- general device-driver interface.

Protection and Security.

Protection - Controlling / limiting the users or proces-ses can happen at a given time.

Security - protecting the system from internal and external attacks. (user ID, group ID)

- Privilege escalation - allows users to change ID to more effetive way.

Virtualization.

- having different OS's withing the one device.
- Used VMM (virtual machine manager).

Emulation - used when cpu type different from target type. (slow)

Virtualization - OS compiled according to CPU structure, guest OSes also compiled according to CPU.

Distributed Systems.

- Collection of devices that connected though the internet.

ex: LAN
WAN
MAN
PAN

Network operating system - provide features between systems along the network.

Computer System architecture

multiprocessors / parallel systems / tightly coupled System - Which having more than a 1 processor.

Advantages:
- increased reliability
- increased processing speed
- fast output.

Types of multiprocessing systems. (2)
- Asymmetric - each processor has separat task
- Symmetric - perform all tasks.

- Dual core design
- Non-uniform memory Access System

refer lec slid 1.56 - 1.57

Clustered Systems.

Same as multiprocessor systems but in here multiple systems work together Storage shared using Storage-area-network (SAN)

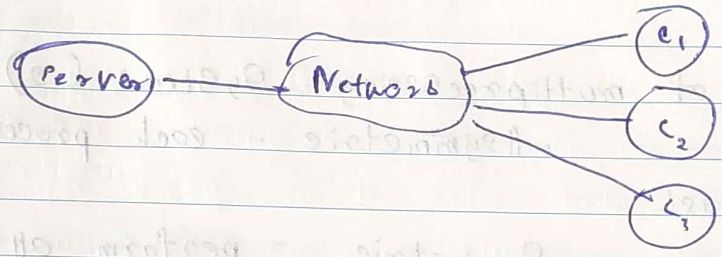
- Asymmetric clustering - have one machine stand by.
- Symmetric clustering - multiple devices running applications.

Distributed lock manager (DLM) - have to avoid collision between operations.

Computing environments.

- Traditional - refer 1.63
- Mobile - refer 1.64
- Client-server
- Peer to peer
- Cloud computing
- Real time Embedded

Client - server.



- Servers responding to request made by Client.
  - Compute - Server systems - provide an interface to request services (~~DB~~ PB) ~~(DB)~~
  - File - server system - provide interface to store and retrieve files.

Peer to peer (P2P)

- Connection between client, client act as Server and client.

Cloud computing,

Computing, storage, app can be used over the network. Use virtualization.

Cloud types.

Public cloud - available to everyone.
Private cloud - run by a company for their use
Hybrid cloud - include both private and Publice.

Cloud computing provides.
- Software as service (~~sos~~ saas)
- Platform as service (paas)
- infastructure as a service (iaas)

Real-Time Embedded Systems.
- Special purpose real time oser.

Can perform tasks without os as well.

kernel data structure
(refer 1.73 - 1.76)