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1. Driver \Rightarrow They can teach Operating system to interact with hardware.

For example, sound card, networking cards, USB peripherals, and so on. All of the examples are rely on drives:

2. Multiprogramming. which allow many projects in the memory simultaneously, and CPU can choose which it wants to execute.

Benefit:

A: Increase CPU utilization / Memory utilization

B: Increase throughput

C: CPU is never idle

3. Multicore systems \Rightarrow Multiple computing cores rides on a single chip.

Advantage:

A. The cost of Multicore system is less than Multiprocessor system.

B. If we need to run a single program, multicore system is faster than multiprocessor system.

4. Message-passing model & Share-memory model.

Strengths V.s. Weaknesses

Message-pass model

• Strength

A. Exchanging smaller amounts of data

\Rightarrow no conflict to avoid.

B. Easier to implement than share-memory for intercomputer communication.

• Weaknesses

A slower than sharing-memory model

Sharing-memory model

• Strength.

A. allow maximum speed.

B. better convenience of communication.

• Weaknesses.

A. Security issue.

B. Make sure that they don't write in error memory location

(Same location simultaneously)

5. In loadable kernel modules, we don't need to implement all things in the beginning, we just need to implement when either OS running or boot up, and implement what they want.

6. a. Writing the Operating System source code.

b. Configure the Operating System for system on which it will run.

c. Compile the Operating System.

d. Install the Operating System.

e. Boot the computer and its new Operating System.

7. a. Failure Analysis

b. Performance monitoring and tuning.

8. Core dump: file capturing memory of process.

Crash dump: file containing kernel memory