Kernel I/O Subsystem

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I/O ?

- Essential task of computer.
- Used to direct computer and displaying information
- Many devices are used
- Each device comes with different behavior

Category of Device

aspect	variation	example
data-transfer mode	character block	terminal disk
access method	sequential random	modem CD-ROM
transfer schedule	synchronous asynchronous	tape keyboard
sharing	dedicated sharable	tape keyboard
device speed	latency seek time transfer rate delay between operations	
I/O direction	read only write only readÐwrite	CD-ROM graphics controller disk

Device Characteristics

According to their Operational Parameter

- Byte/Block

eg: Keyboard, disk, tapes

- Sequential/Random

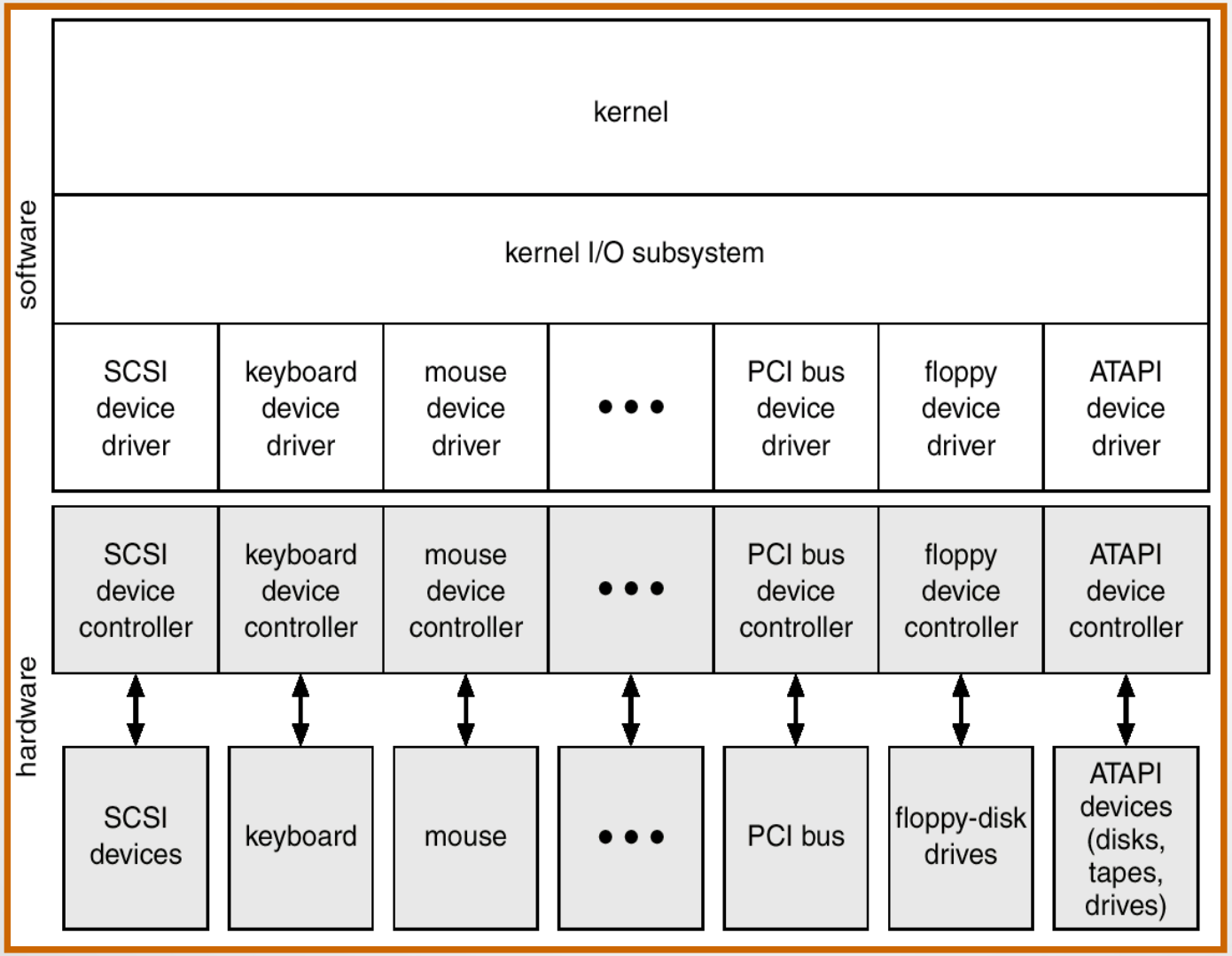
eg: tape, disk, cd

- Polling/Interrupt

Why do we need I/O Subsystem?

Standard interface to application and the I/O hardware

I/O Subsystem Structure



Kernel I/O Subsystem

Provides common interfaces

- Device Reservation : Exclusive access to a device

System calls for allocation and deallocation

Watch for deadlocks

- Caching : Fast memory holding copy of data

Always just a copy

Key to performance

- Scheduling : I/O request reordering

via per-device queue

- Spooling : Hold a copy of output for a device

if device can serve one request at a time eg: printing

THANK YOU