

# Operating System

- 1.how is cmd process executed?
- 2.what is process?
- 3.what is virtual memory?
- 4.what the difference between memory cache and virtual memory?
- 5.what is CPU protect mode?
- 6.difference between BIOS and UEFI under CPU protect mode?

# 3 pieces operating system

## Virtualization

**The Abstraction: The process**

**Interlude: Process API**

**Mechanism: Limited Direct Execution**

**Scheduling: Introduction**

**Scheduling: The multi-level feedback queue**

**Scheduling: Introduction**

**Mechanism: Limited Direct Execution**

**Scheduling: Proportional Share**

**Multiprocessor Scheduling**

**CPU Virtualization**

**Memory Virtualization**

**The abstraction: Address Space**

**Interlude: Memory API**

**Mechanism: Address Translation**

**Segmentaion**

**Free-Space Management**

**Paging: Introduction**

**Paging: Faster Translation(TLBs)/Smaller tables**

**Beyond Physical Memory: Mechanisms/Policies**

**Complete Virtual Memory Systems**

**Memory Virtualization Summary**

## Concurrency

**Concurrency: An Introduction**

**Interlude: Thread API**

**Locks**

**Lock-based concurrent data structure**

**Condition Variables**

**Semaphores**

**Common Concurrency Problems**

**Event-based concurrency(Advanced)**

**Summary of Concurrency**

## Persistence

**A Dialogue on Persistence**

**I/O Devices**

**Hard Disk Drives**

**Redundant Arrays of Inexpensive Disks(RAIDs)**

**Interlude: Files and Directories**

**File System Implementation**

**Locality and the fast file system**

**Crash Consistency: FSCK and Journaling**

**Log-structured file systems**

**Flash-based SSDs**

**Data Integrity and Protection**

**Summary Dialogue on Persistence**

**A Dialogue on Distribution**

**Distributed Systems**

**Sun's Network File System(NFS)**

**The Andrew File System(AFS)**

**Summary Dialogue on Distribution**