Os organization and System calls

- Unix Interface
- abstracts the hardware resource
- processe : instead of CPU
- exec : Astracts memo.
- files : instead of disk block

so what we mean here is that we have once CPU abstracted away into a processes, so for instance the riscV processor we use has 4 cores, so it will run one process on each core, if we have 5 then one of the process has to wait for to get cpu cycle. multiple processors cannot use one core at the same time.

- Os should be defensive
app cannot crash the Os
app cannot out of its isolation
strong isolation between apps + Os.

User/Kernel mode

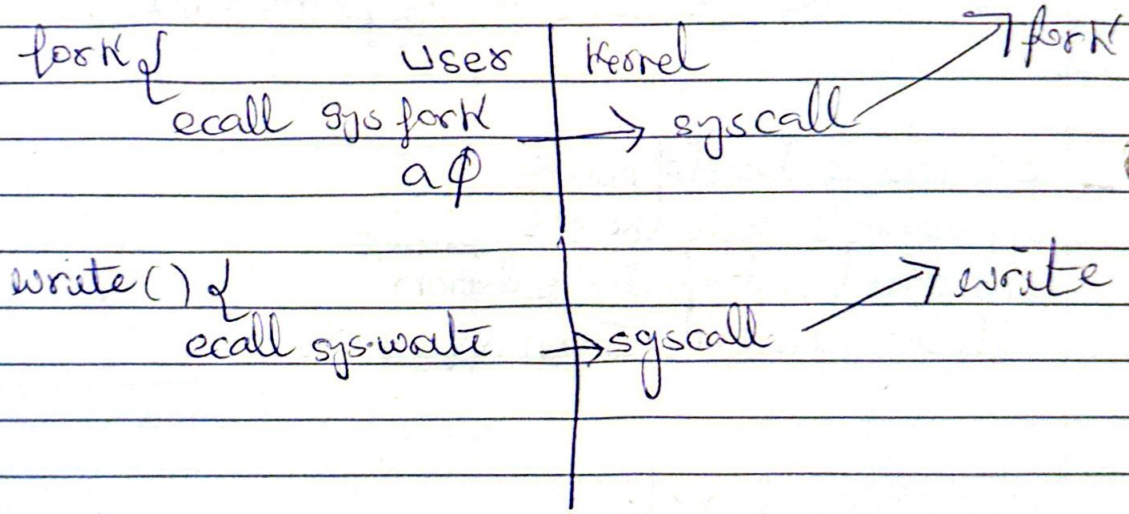
↳ privileged instructions

unprivileged instructions

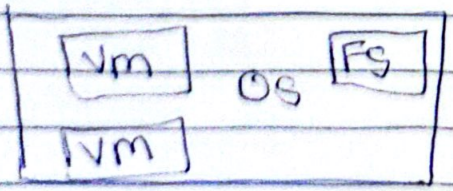
CPUs provide virtual memory

- process has something called the page table. which basically maps virtual addr → physical address
- process has its own page table; so it is allowed to use only that physical memory that shows up in this page table, hence it provides secure isolation

Entering kernel



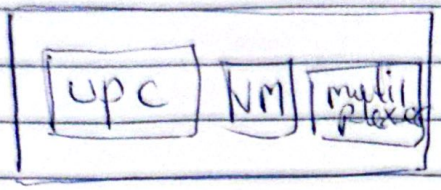
- Monolithic kernel design _ linux



→ tight integration good performance

Microkernel Design

echo sh



kernel is small (less bugs)
less integration
difficult to get high performance.