Virtual machine16_01.pdfs

* **Virtual Machine** abstracts the hardware of our personal computer such as CPU, disk drives, memory, NIC (Network Interface Card) etc, into many different execution environments as per our requirements, hence giving us a feel that each execution environment is a single computer. For example, VirtualBox.
* When we run different processes on an operating system, it creates an illusion that each process is running on a different processor having its own virtual memory, with the help of CPU scheduling and virtual-memory techniques.
* The **initial releases of OS/360 were strictly batch systems**.
* But many users wanted to be able to work interactively at a terminal, so OS designers decided to write timesharing systems for it.
* Types of Virtual machines are:
* VM/370
* Virtual Machines Rediscovered
* The Java Virtual Machine
* **Advantages:**
  + There are no protection problems because each virtual machine is completely isolated from all other virtual machines.
  + Virtual machine can provide an instruction set architecture that differs from real computers.
  + Easy maintenance, availability and convenient recovery.
* **Disadvantages:**
  + When multiple virtual machines are simultaneously running on a host computer, one virtual machine can be affected by other running virtual machines, depending on the workload.
  + Virtual machines are not as efficient as a real one when accessing the hardware.