**Day 3 Assignment**

**Virtualization & its Basics**

The main enabling technology for Cloud Computing is Virtualization. Virtualization is a partitioning of single physical server into multiple logical servers. Once the physical server is divided, each logical server behaves like a physical server and can run an operating system and applications independently. Many popular companies’s like VmWare and Microsoft provide virtualization services, where instead of using your personal PC for storage and computation, you use their virtual server. They are fast, cost-effective and less time consuming.

Virtualization is mainly used for three main purposes

1) Network Virtualization 2) Server Virtualization 3) Storage Virtualization

To create virtual machines (VM) on physical hardware requires processing power, memory, storage and network bandwidth. The more VMs you create, the higher the cost, but there’s almost no limit to configuration. In other words, it’s possible to run an operating system not typically supported by your setup using virtualization, since all the OS sees are useable resources rather than hardware constraints.  
  
To properly manage your virtual environment you require a hypervisor — an admin-level program that handles VM requests and portions out resources. Without a hypervisor, resource distribution and consumption become unmanageable, and you can become the victim of “virtual sprawl”: too many instances with no specific purpose.

**HyperVisor**

The hypervisor is a software that can virtualize the hardware resources.

There are two types of hypervisors:  
Type 1 hypervisor: hypervisors run directly on the system hardware without any underlying operating systems or software.– A “bare metal” embedded hypervisor.Some examples of the type 1 hypervisors are Microsoft Hyper-V hypervisor, VMware ESXi.  
Type 2 hypervisor: hypervisors run on a host operating system that provides virtualization services, such as I/O device support and memory management.is a hosted hypervisor that runs as a software layer within a physical operating system. The hypervisor runs as a separate second layer over the hardware while the operating system runs as a third layer. The hosted hypervisors include Parallels Desktop and VMware Player.