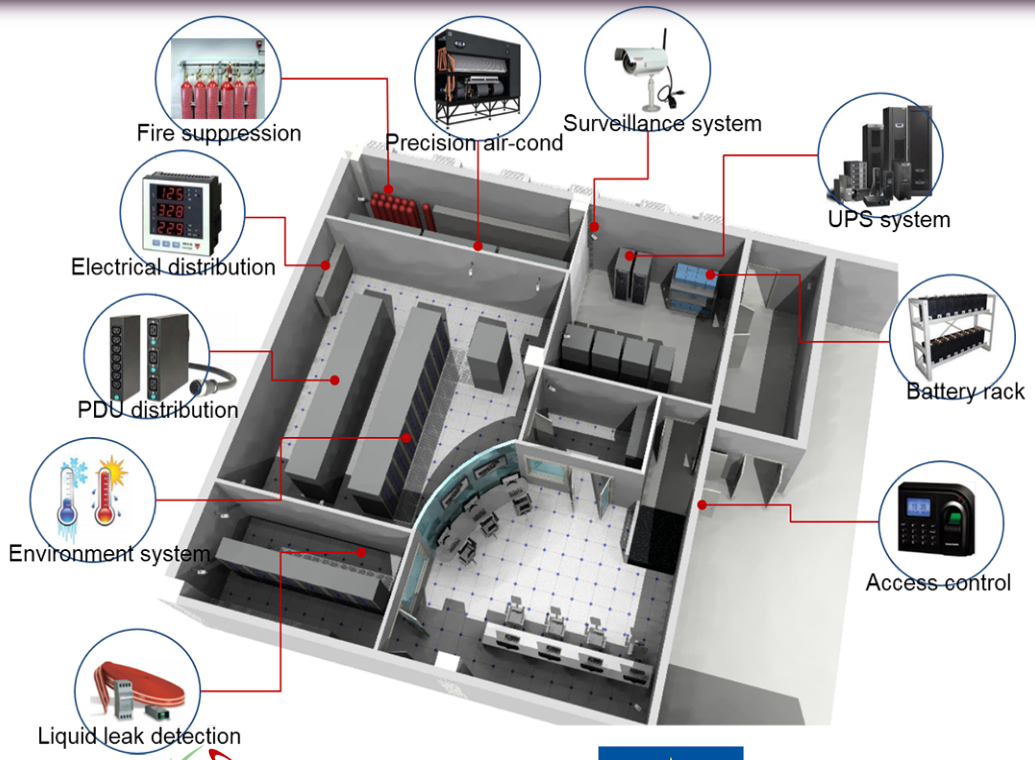
Data Center Virtualization

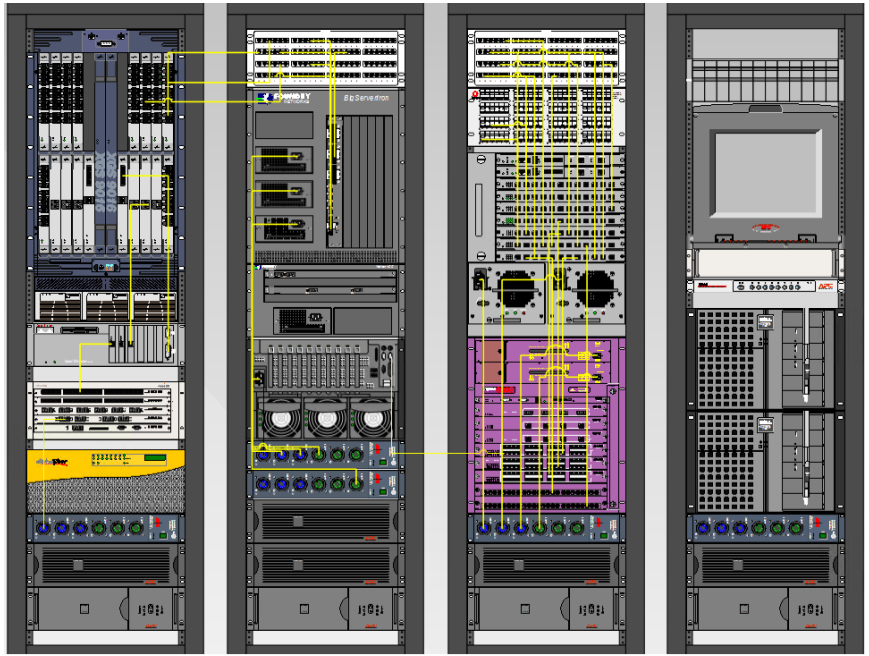
Kh. Rashedul Arefin

Outlines

- Data Center Components
- Virtualization Definition
- Types of Virtualization Technology
- Area of Data Center Virtualization
- Virtualization Technology Area

Data Center Components





BdREN

Asi@Connect

TEIN CC
COOPERATION CENTER

Data Center Components

- Real Estate (Building, Floor)
- Facility
  - Power (Grid, Generator, UPS, Rectifier)
  - Cooling (PAC, CRAC)
  - Controlled Environment (Humidity, Smoke Detection, Water Leakage etc.)
  - Physical Security (Access Control, CCTV)
- Passive Infrastructure
  - Cabling (Power, UTP, Fiber)
  - ODF
  - Patch Panel
  - Rack

- Active Infrastructure
  - Compute / Server
  - Network
  - Storage
  - Logical Security
- Application
  - ERP
  - CRM
  - SCM
  - Web

Virtualization Definition

Virtualization: Transparent emulation of IT resources producing benefits to consumers which is unavailable in physical form

- Emulation (Main Memory, Mainframe, Default Gateway IP Address etc.)
- Transparency (CPU, Mainframe Users, TCP/IP Host etc.)

Benefits:

- Memory Expansion
- Resource Optimization
- High Availability

Types of Virtualization Technology

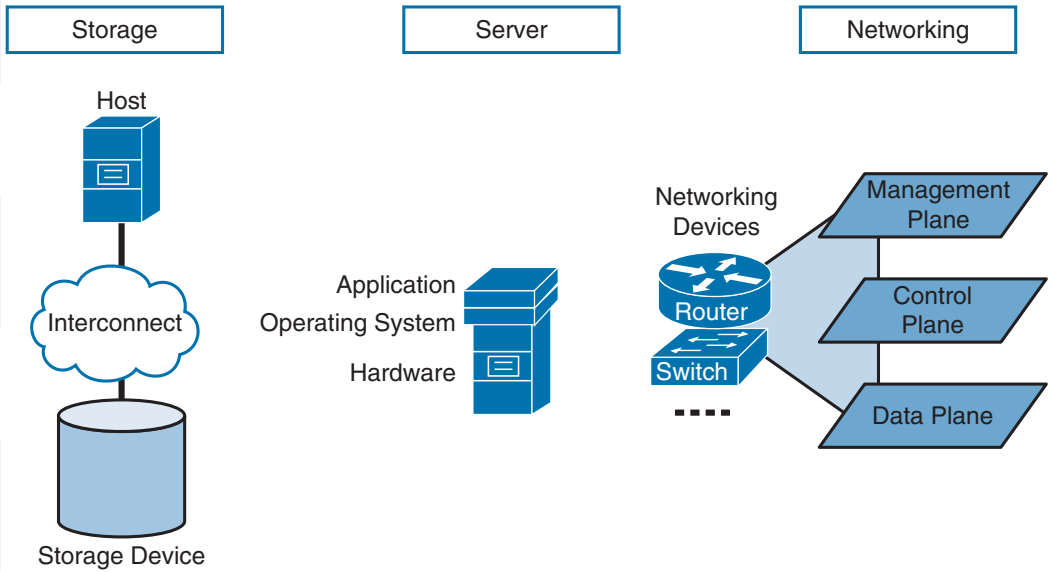
Pooling	Abstraction	Partitioning
❖Homogeneous ❖Heterogeneous	❖Address Remapping ❖Structural	❖Resource Allocation ❖No Resource Allocation

Area of Data Center Virtualization

Compute / Server
- Hardware
- Operating System
- Application

Network
- Data Plane
- Control Plane
- Management Plane

Storage
- Storage Device
- Host
- Interconnect



Virtualization Technology Area

Server	Networking	Storage
Time Sharing Mainframe Virtualization X86 Virtualization	VSS , Fabric Path , VPLS , VLAN, VDC , FEX , vPC , EoMPLS , VRF , OTV	LUN Virtualization Array Virtualization Virtual Tape Library LUN , RAID
VM-FEX , vSwitch Nexus 1000V Virtual Network Services	VM-FEX , vSwitch Nexus 1000V Virtual Network Services	
	VSAN , FCIP , NPV FCoE	VSAN , FCIP , NPV FCoE
Volume File Virtualization Virtual Memory		Volume File Virtualization Virtual Memory
UCS Service Profiles	UCS Service Profiles	UCS Service Profiles

