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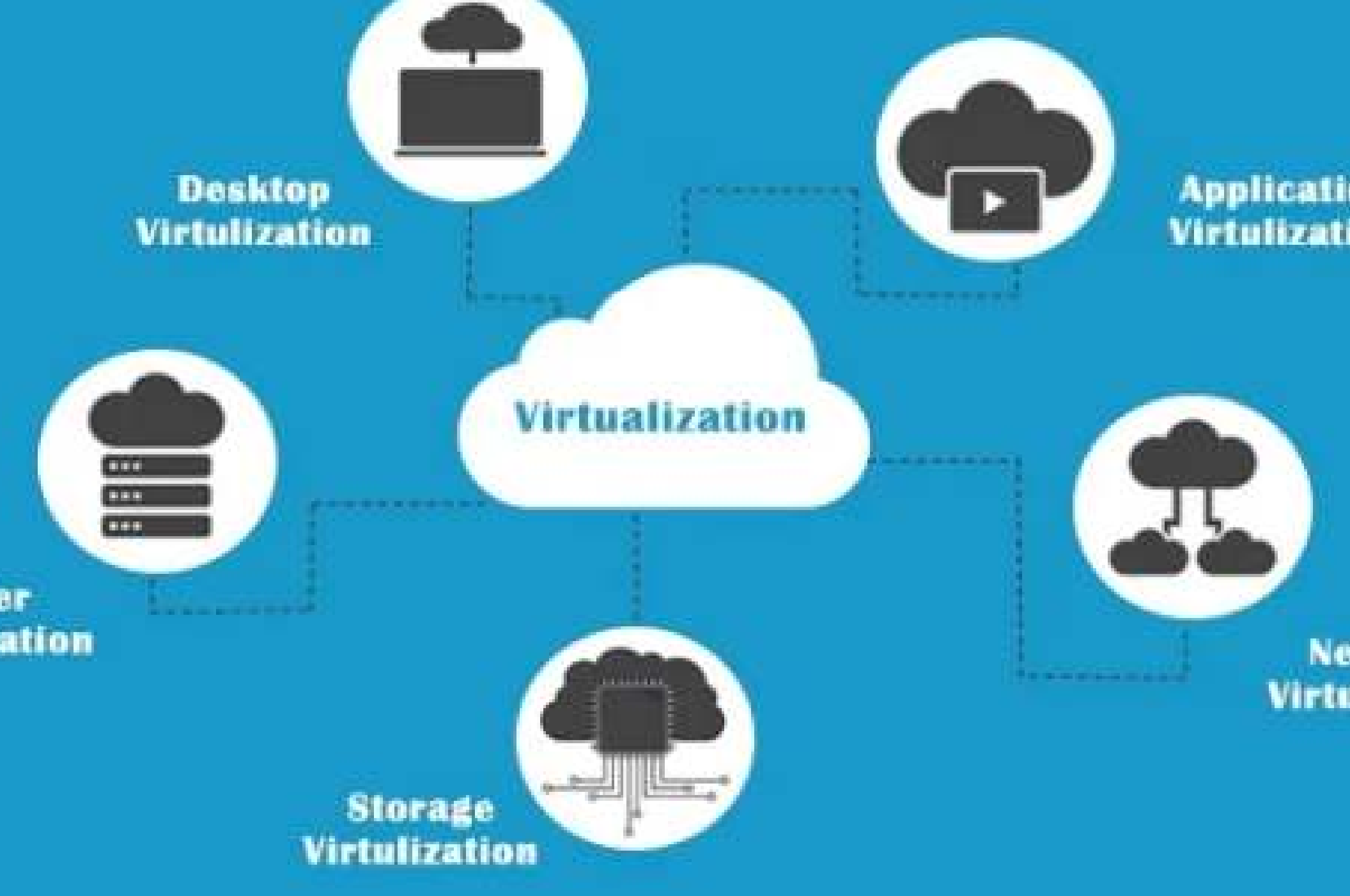
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Department of Information Technology

s of Virtualization

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https://www.youtube.com/watch?time_continue=148&v=OoGFibXTNjY&

Types of Virtualization

Platform Virtualization (Close to Cloud Computing)

- ▶ Full Virtualization
- ▶ Paravirtualization
- ▶ Hardware-assisted Virtualization
- ▶ Partial Virtualization
- ▶ OS-level Virtualization

Memory Virtualization

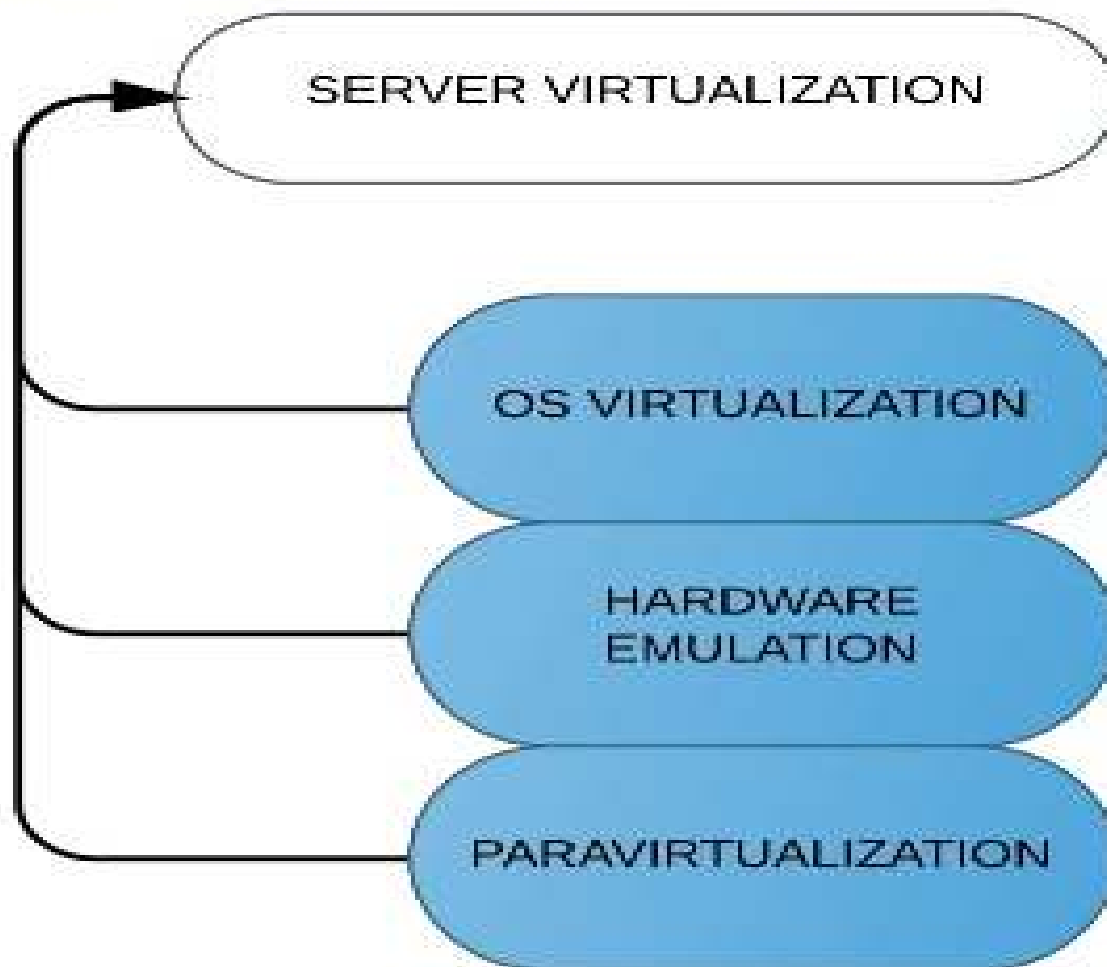
Desktop Virtualization

Application Virtualization

Network (Device and I/O) Virtualization

Server Virtualization

Combining multiple physical servers into virtual servers that run on a single server.



virtualization also known as hardware-assisted virtualization runs on the concept that an individual piece of hardware or a physical server, may be made up of multiple software segments or servers, essentially consolidating multiple servers into virtual servers that run on a single primary

tion

t software does not require any modifications since hardware is fully simulated.

tualization –

rtual machine simulates the hardware and becomes an operating system does not require any modifications.

tion

hardware is not simulated and the guest software runs.



Benefits Hardware Virtualization

Economical
1

Efficient backup and recovery
2

File and Application Replication

3 Efficient its operations

Tape backup
5

Disaster recovery
4

Hardware and Software Redundancy

Software Virtualization

Virtualization involves the creation of an operating system environment on the host machine. It creates a complete virtual hardware that lets the guest operating system to

System Virtualization – hosting multiple OS on the machine

Application Virtualization – hosting individual applications in a container separate from the native OS

Process Virtualization – hosting specific processes and services in a container
Application

Memory across different servers is aggregated into a shared memory pool. It provides the benefit of an enlarged memory pool.

Application level control – Applications access the memory pool directly.

Operating system level control – Access to the memory pool is managed by the operating system.

Storage Virtualization in Cloud Computing

Why Implemented

Types

Risks

Methods

Address Space Remapping

Importance

Advantages

Centralized Management

ical storage devices are grouped together, which
e device.

various advantages such as homogenization of
es of multiple capacity and speeds, reduced
better optimization of performance and speed.

ization – Multiple storage devices are consolidated

tion – Storage system grants access to files that

data virtualization

manipulate data, as the data is presented as an independent of data structure and database system formatting errors.

tualization, multiple sub-networks can be created
rk, which may or may not is authorized to con

restriction of file movement across networks
lows better monitoring and identification of da
k administrator's scale up the network appropriat

rk: Enables a single system to function like a netw

rk: Consolidation of multiple networks into a sing
single network into multiple ones

Desktop virtualization

is the most common form of virtualization for users. The user's desktop is stored on a remote server, allowing access from any device or location.

Users can work conveniently from the comfort of their homes. While there are security concerns placed over secure protocols, any risk of data theft is minimized.