

Data Centre Virtualisation



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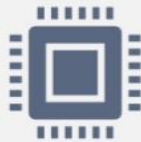
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Virtualisation

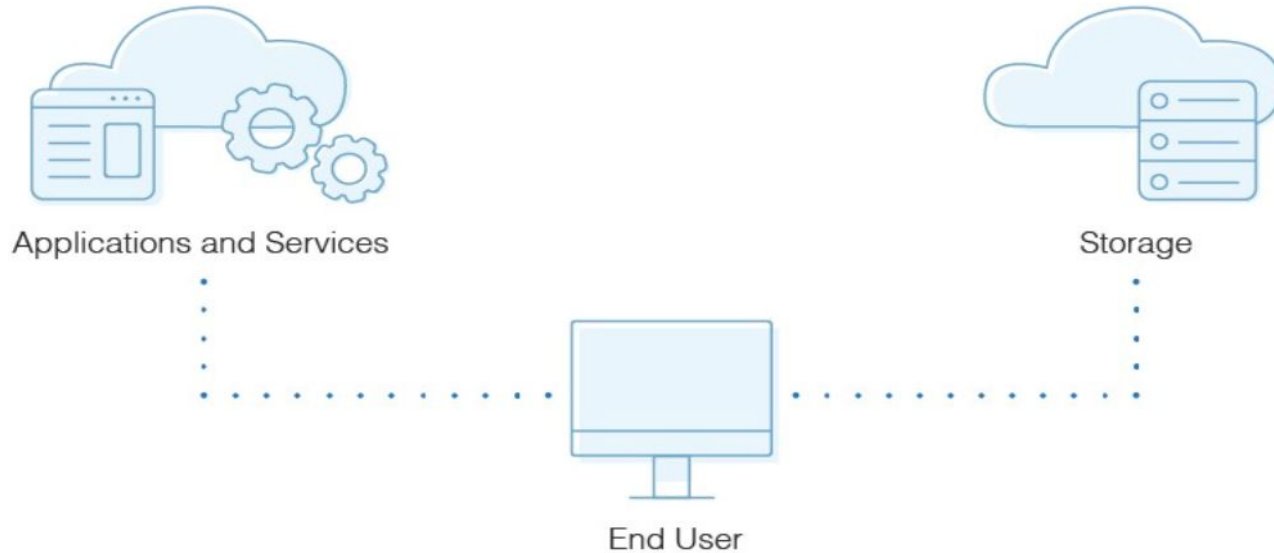


Virtualization is the process of creating a virtual instance of a device, such as a virtual server or virtual operating system. [1]



Most virtualization is performed through virtualization software. These programs have the capability to extend the hardware of the physical machine, network, or storage system, and create virtual versions of these systems. [1]

What Is Virtualization in Cloud Computing?

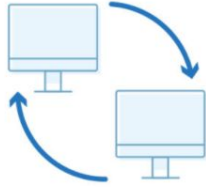


Virtualization in cloud computing allows a provider to virtualize servers, storage, or other physical hardware or data center resources, which can then, in turn, allow them to provide numerous services such as infrastructure, software, and platforms. [2]

Benefits of Virtualization in Cloud Computing



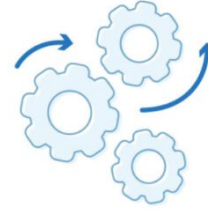
Protection from
Failure



Easy to Transfer
Machines or Data



Security



Streamlined
Processing and
Operations



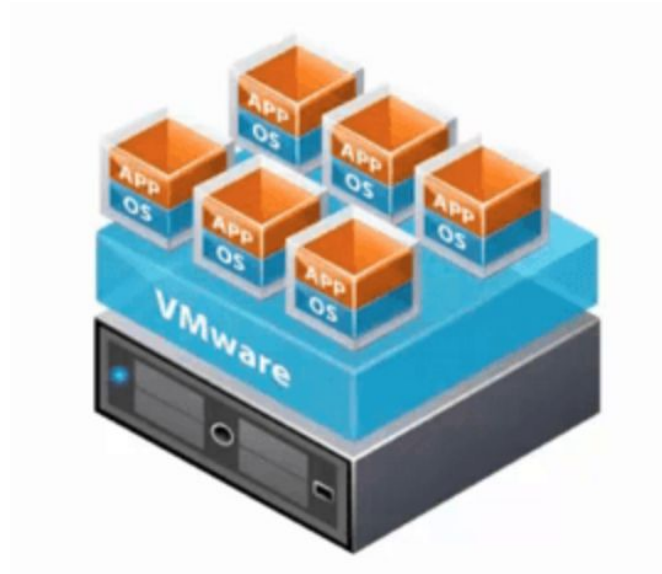
Cost

What is Virtual Machine?

A virtual machine is a program you run on a computer that acts like it is a separate computer. It is basically a way to create a computer within a computer.

Virtual machines are often used for running software on operating systems that software wasn't originally intended for.

Partitioning



- Run multiple operating system on one physical machine.
- Divide system resources between virtual machines.

Isolation



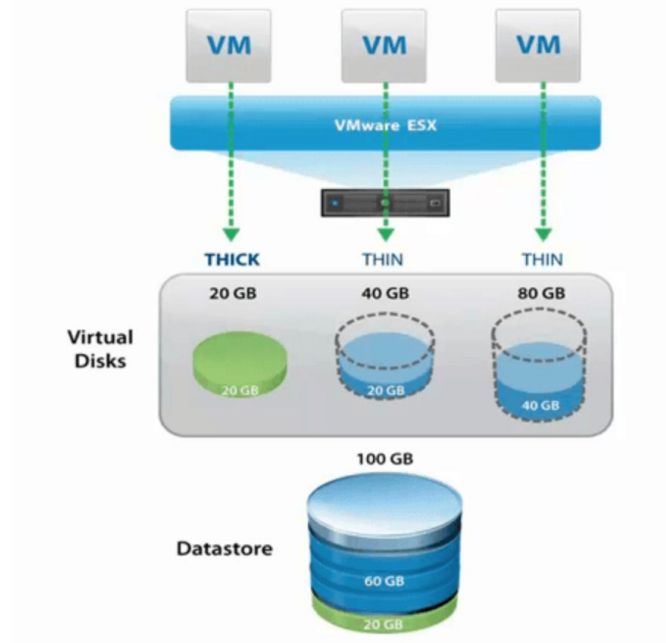
- Fault and security isolation at the hardware level.

Encapsulation



- Move and copy virtual machine easily.
- Entire state of a virtual machine as a set of files.

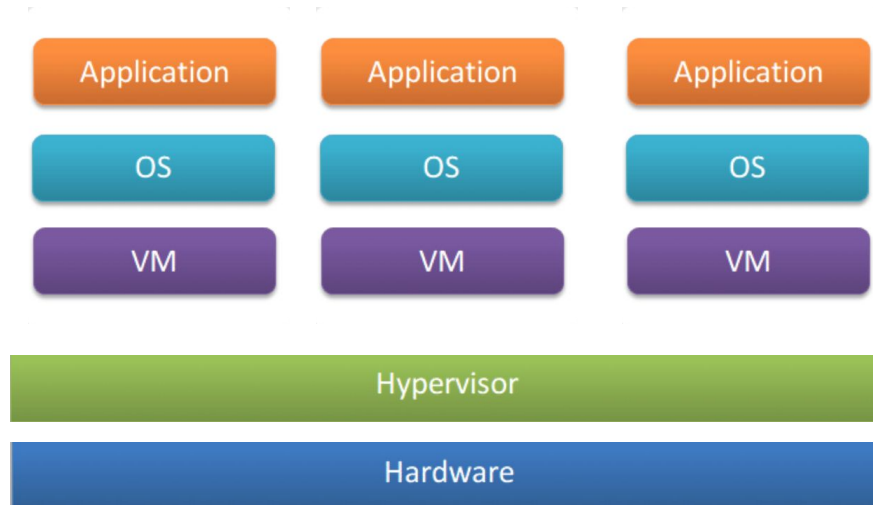
Storage



- Provisioning storage only based on what is needed.
- Save on storage costs.

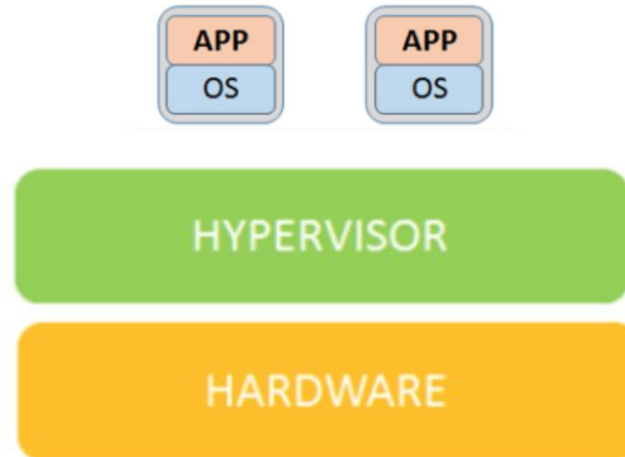
Hypervisor

The software that provides the environment in which the virtual machines (VMs) function is known as a virtual machine monitor (VMM) or hypervisor. [4]



Type 1 hypervisors

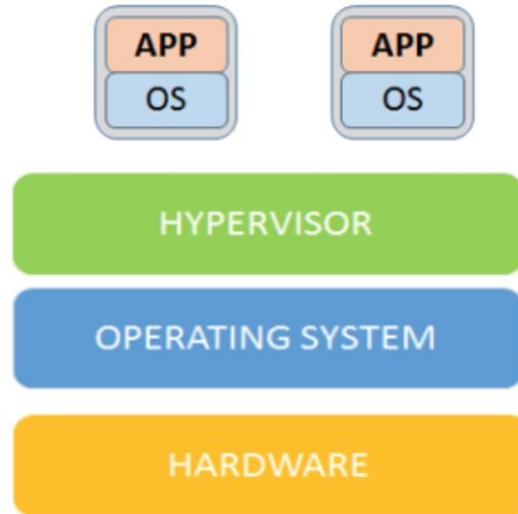
The hypervisor is installed directly on the hardware. VMs interact directly with hosts to allocate hardware resources without any extra software layers in between. [5]



Type 2 hypervisors

Type 2 hypervisors (also called hosted hypervisors) run on the host computer's operating system.

Type 2 hypervisors are slower than their type 1 counterparts as every VM action has to go through the host operating system first. [5]



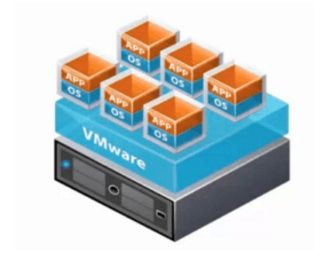
VMware

- VMware is virtualization. With VMware server virtualization, a hypervisor is installed on the physical server to allow for multiple virtual machines (VMs) to run on the same physical server. [7]



Traditional Architecture

- Single Operate System
- Single Application



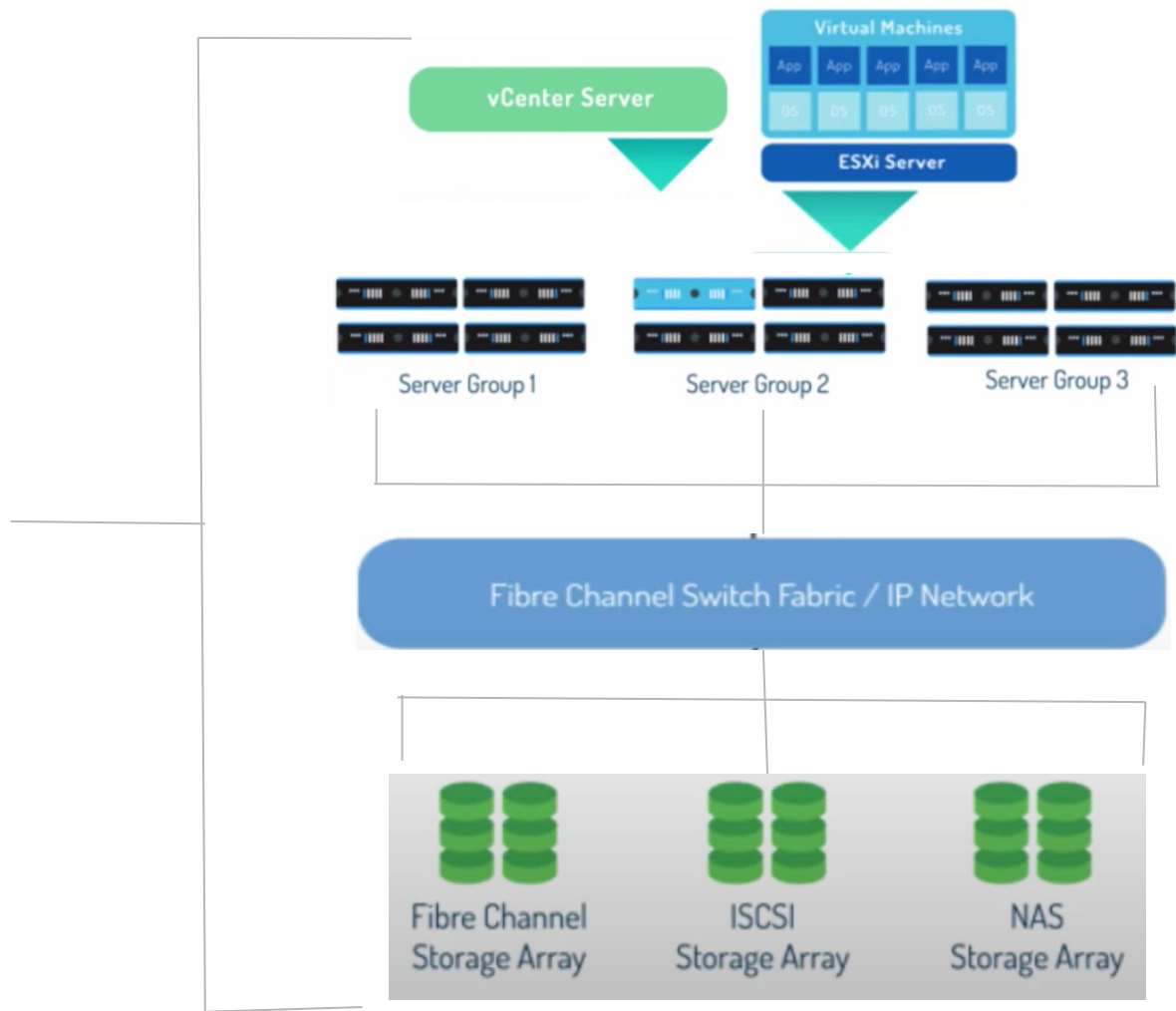
Virtual Architecture

- Virtualize many VMs using VMware Hypervisor

Benefits of VMware

- VMware allows businesses to run multiple application and operating system workloads on one server.
- With VMware you can install and test software without it affecting your actual computer.
- You can run software on a virtual machine that may not work on the operating system that you have installed.
- It improves performance and helps to reduce downtime. [8]

vSphere



vSphere 7.0

Reasons to Upgrade to vSphere 7 :

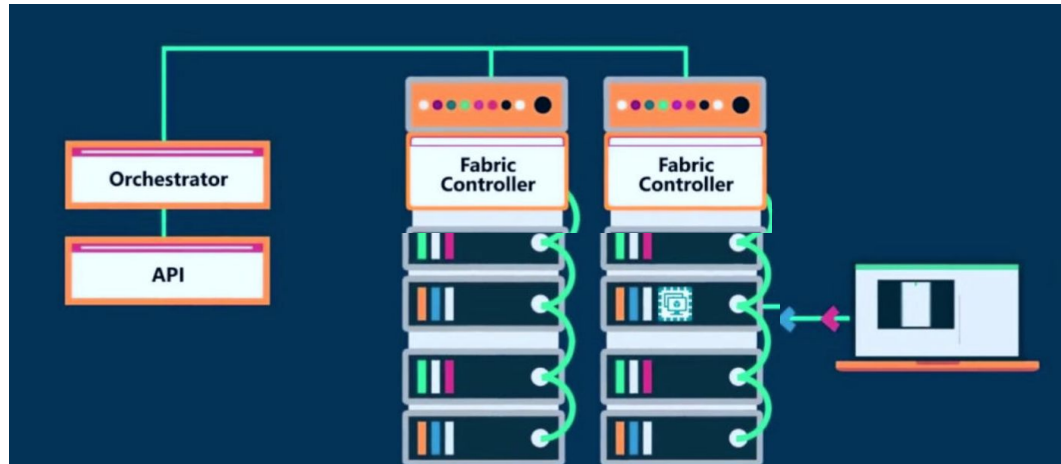
1. Build hybrid cloud infrastructure faster;
2. Simplify software patching and hardware upgrades;
3. Secure audits and account management;
4. Tighten physical infrastructure security;
5. Reduce complexity and increase scale;
6. Run any app on any cloud. [10]

Azure

Azure VMware Solution is a Microsoft service, verified by VMware, that runs on Azure infrastructure.

Azure VMs allows scalability on-demand, without any need for businesses to add physical resources like hardware and more space. [11]

How Does Microsoft Azure Work?



Azure Benefits



Citrix

Citrix Server is a virtualization mechanism that enables organizations to deliver centrally hosted applications and resources to mobile and desktop clients. Citrix Server uses the Microsoft Remote Desktop Services (RDS) infrastructure to deliver virtual applications and desktops to remote users. [13]

Citrix virtualization infrastructure, the two main editions are:

- Citrix Virtual Apps;
- Citrix Virtual Apps and Desktops. [13]

Citrix

Citrix Virtual Apps isolate the applications from the underlying operating system (OS) and deliver them to the target device. The client device doesn't need applications installed — all the configuration and data are on the server. [13]

Citrix Virtual Apps and Desktops is used to publish a whole virtual machine (VM) from a hypervisor to remote client devices. [13]

Citrix benefits



Access from
any device



Secure
BYOD



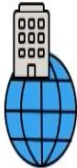
Empower work
from anywhere



Remote
Employees



Accelerate M&A
Activities



Global
Expansion

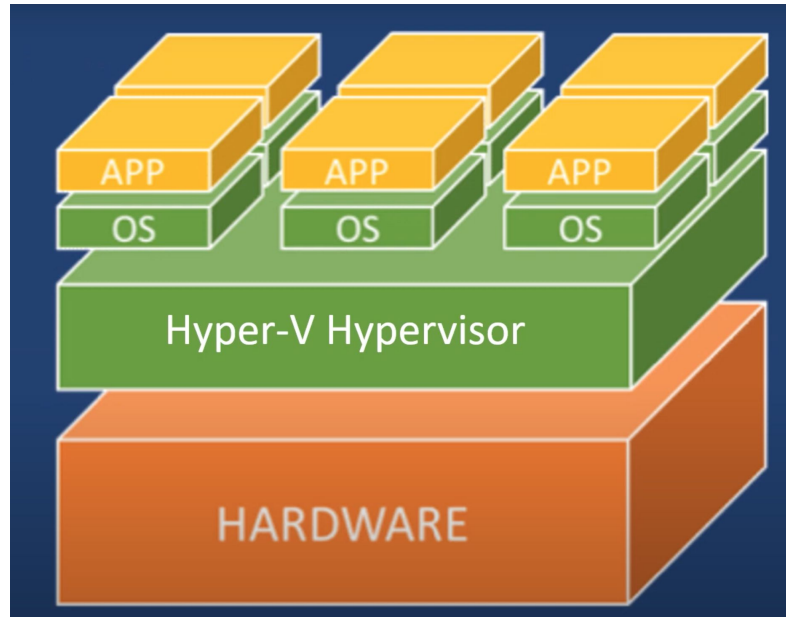


Optimized user
experience

Windows VMs

Microsoft Hyper-V is a Microsoft type 1 hypervisor.

Hyper-V runs each virtual machine in its own isolated space, which means you can run more than one virtual machine on the same hardware at the same time [14].



Windows VMs

Hyper-V can help with :

- Establish or expand a private cloud environment. Provide more flexible, on-demand IT services by moving to or expanding your use of shared resources and adjusting utilization as demand changes.
- Use your hardware more effectively.
- Improve business continuity. Minimize the impact of both scheduled and unscheduled downtime of your workloads.
- Establish or expand a virtual desktop infrastructure (VDI).
- Make development and test more efficient. [14]

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