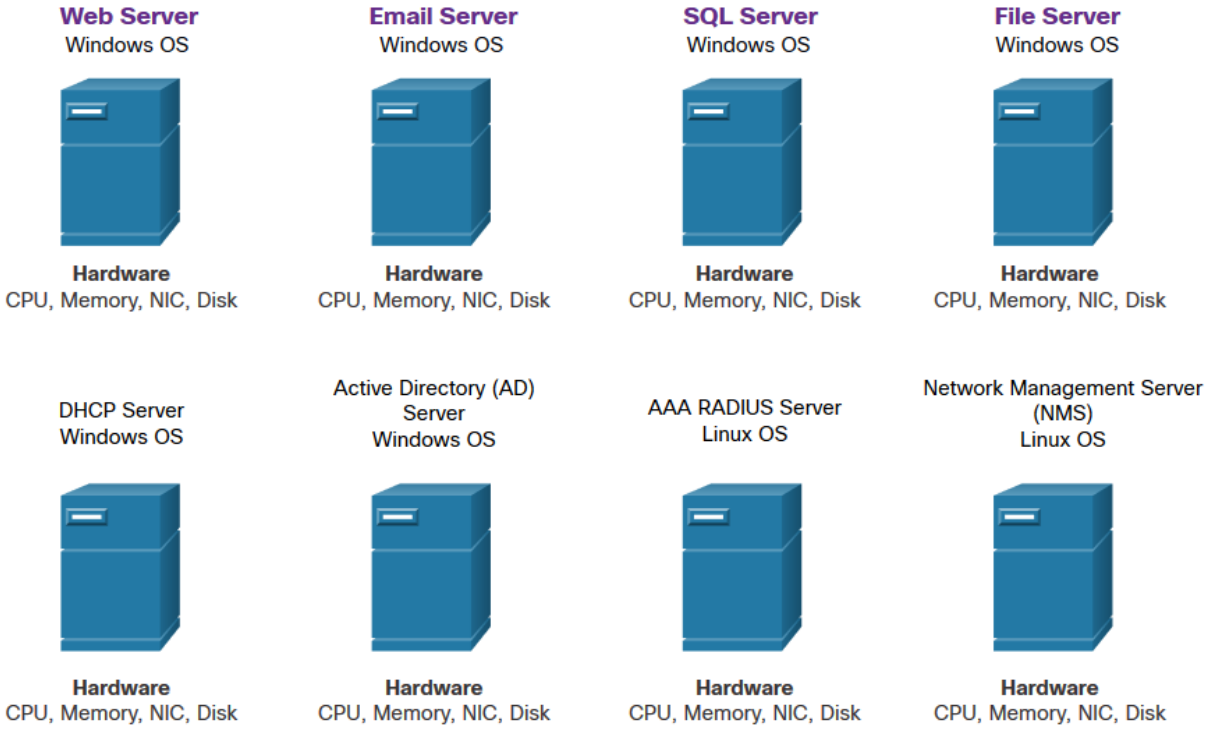
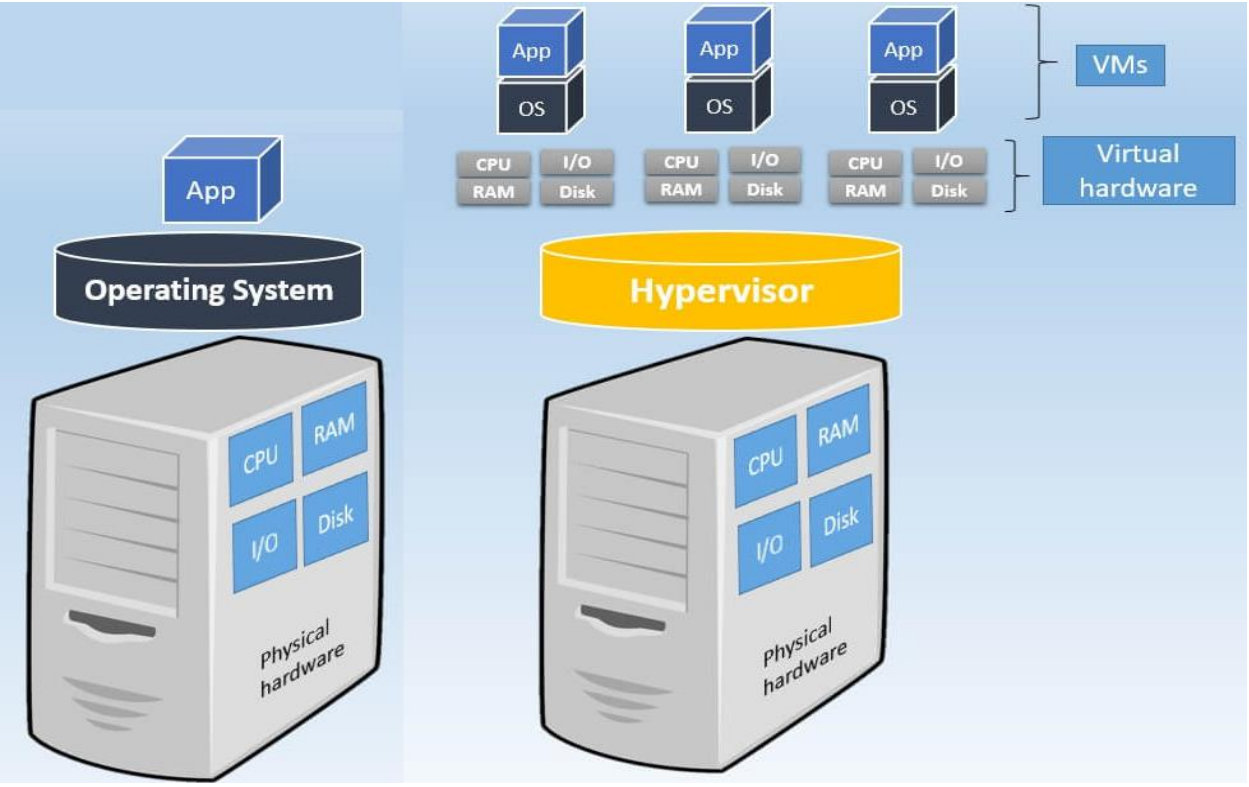
Physical Server:

- The physical server vs virtual server comparison should start with the definition.
- Physical server, also known as a 'bare-metal server,' is ingle-tenant computer server.
- Meaning that a specific physical server is designated to use & utilize a single user.
- Resources & components of physical server are not shared between multiple users.
- Each physical server includes memory, processor, network connection, hard drive.
- Each Physical server includes operating system for running programs & applications.
- Bare-metal server is large in size due to powerful processing components that contains.



VM (Virtual Machine):

- VM is a virtualization term, which is stands for Virtual Machine.
- A virtual machine is pretty identical to a physical server except it's virtual.
- VM is special piece of software which emulates operation of physical machine.
- Virtual hardware (CPUs, memory, storage, etc.) which runs on a hypervisor.
- VM is a software emulation of a physical server with an operating system.
- Virtual machine is a file often called hypervisor that acts as physical computer.
- Server virtualization takes the advantage of idle resources and consolidates.
- The operating system the virtual machine is installed on is called the host OS.
- the operating system of the virtual machine itself is referred to as the guest OS.



Hypervisor:

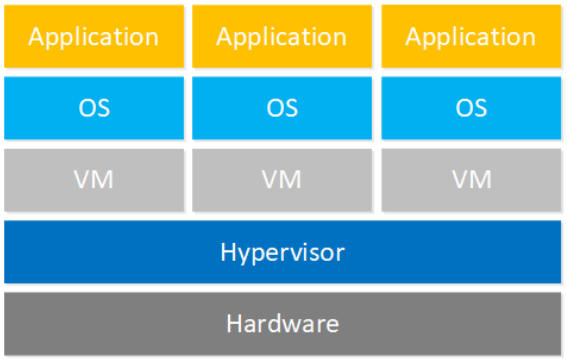
- The hypervisor is the server virtualization software that runs on the physical server.
- All virtual hardware which powers guest OS is handled by engine called hypervisor.
- In the world of Virtualization, the hypervisor is known as virtual machine manager.
- Allocates physical resources to each of systems & ensures do not interrupt each other.
- Where create virtual machines & configure how much CPU cores, memory, storage, etc.
- The Virtualization software that creates VMs and performs the hardware abstraction.
- Virtualization software to allow multiple VMs to run concurrently is known as hypervisor.

Type 1 Hypervisor:

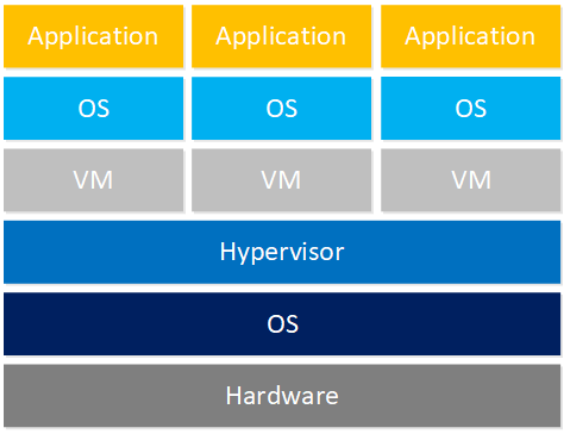
- Type one (1) Hypervisor is type of hypervisor runs directly on the system hardware.
- Type one (1) Hypervisor is commonly referred to as “bare metal” or “native” as well.
- Examples are VMware vSphere, Microsoft Hyper-V, Citrix XenServer, & Red Hat (KVM).

Type 2 Hypervisor:

- This hypervisor runs on top of an operating system like MS Windows, MacOS, or Linux.
- Type two 2 Hypervisor is the type of hypervisor that is typically used by client devices.
- This type of hypervisor for example, VMware Fusion, VMware requires a host OS to run.
- We usually use a type two (2) hypervisor on desktops or the laptops system to run VMs.
- Two popular hypervisors are Oracle VM VirtualBox and VMWare Workstation in windows.



Type 1



Type 2

Advantages of VM:

- If physical server needs memory upgrade, VMs migrated to other with no downtime.
- VM is that we are familiar physical servers, easy to understand, it's server, but virtual.
- Use all management & security tools we know to manage our physical or virtual servers.
- Multiple OS environments exist simultaneously on same machine, isolated from each other.
- VM is easy maintenance, application provisioning, availability and convenient recovery.
- Another advantage of Virtualization technology is that it provides high availability.
- For example, if a server fails, the VMs can be spun up on other servers in the network.
- Biggest point for VM, is that, it is offer the greatest amount of deployment flexibility.
- Use of virtualization normally includes redundancy to protect from single point of failure.
- Services running on VMs are virtual and dynamically installed or uninstalled, as needed.
- Advantage of virtualization is Less equipment; less energy and Less space is required.