Introduction to Virtualization

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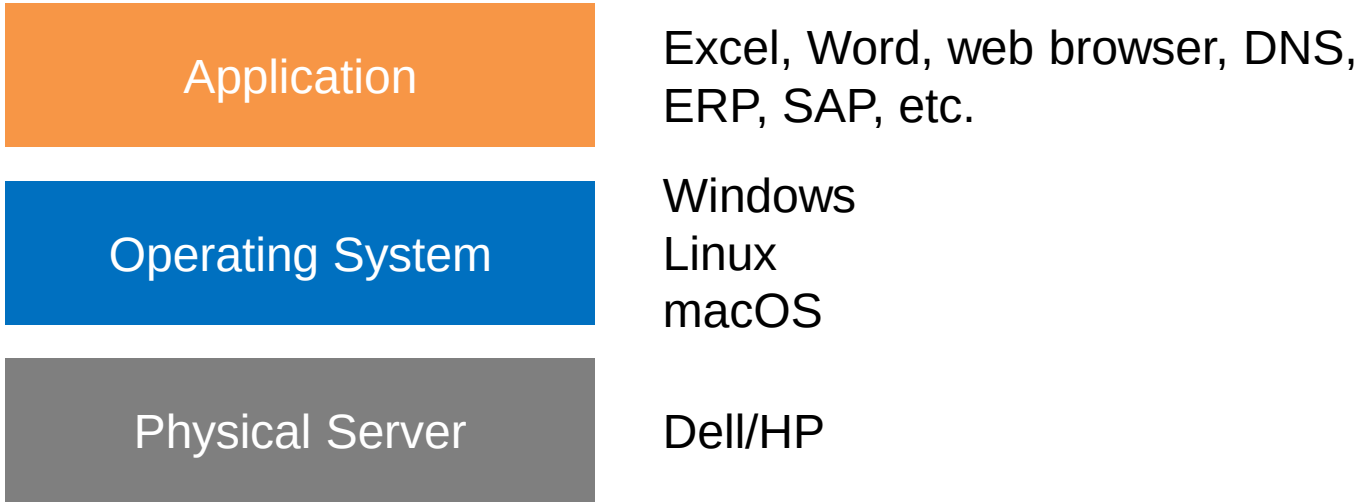
Agenda

- Basics of Virtualization
- Understanding Virtualization Terms
- Advantages of Virtualization
- Virtualization vs. Cloud
- Introduction to Vmware

What is Virtualization?

- Not real or cannot be touched
- In computer world, there are virtual computers

How a Physical Computer Works

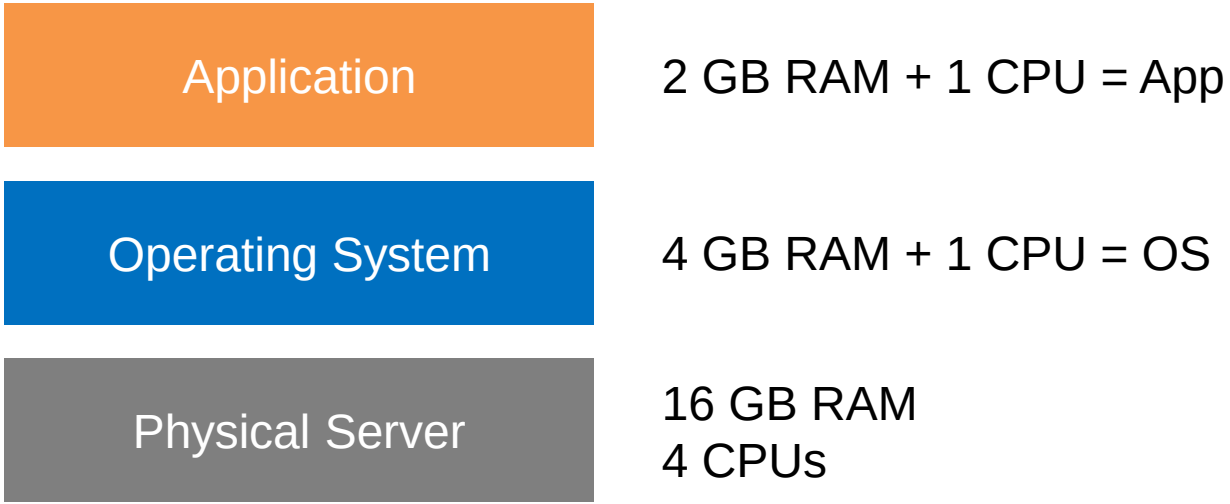


Excel, Word, web browser, DNS, ERP, SAP, etc.

Windows
Linux
macOS

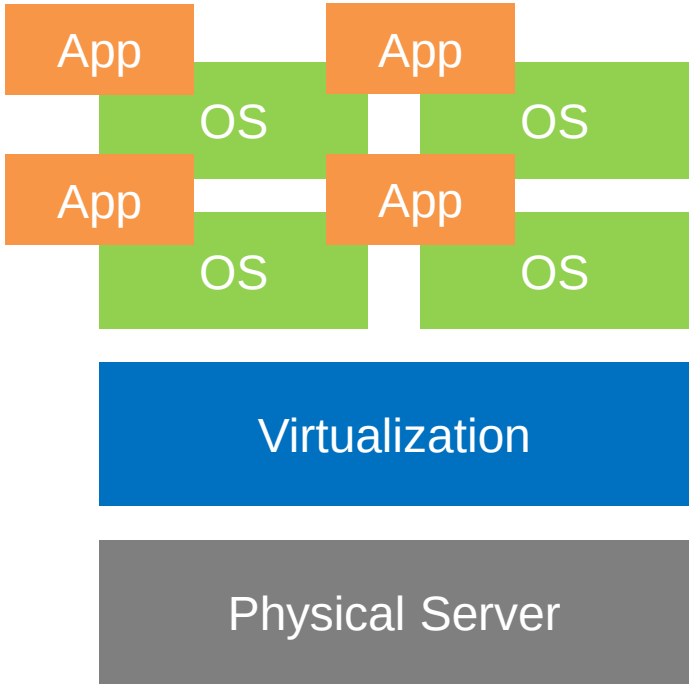
Dell/HP

How a Physical Computer Works



6 GB RAM and 2 CPUs
Resources are underutilized.

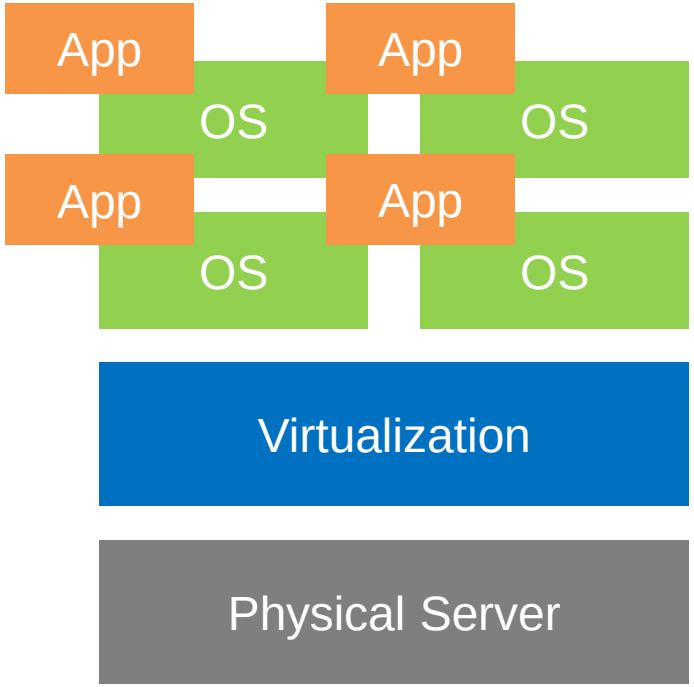
Virtualization



VMware

Dell/HP

Virtualization



4 GB RAM + 1 CPU = Each OS

16 GB RAM + 4 CPUs = Virtualization

16 GB RAM
4 CPUs

Understanding Virtualization Terms

- Bare-metal server
  - A physical server without an operating system
- Hypervisor
  - A host or virtual server
- Virtual machine (VM)
  - A guest or instance

Understanding Virtualization Terms

- Virtualization Manager
  - vCenter
  - Oracle VM Manager
- Virtual Desktop
  - Virtual desktop infrastructure (VDI)

Understanding Virtualization Terms

- P2V
  - Physical to virtual
- V2V
  - Virtual to virtual

Understanding Virtualization Terms

- VM template
- Snapshot
- Clone or cloning

Advantages of Virtualization

- Cost
- Real estate
- Electricity
- Ease of management
- Redundancy (lesser downtime)
- Faster deployment of machines
- Resource availability
- Better testing and performance
- Licensing

Virtualization vs. Cloud

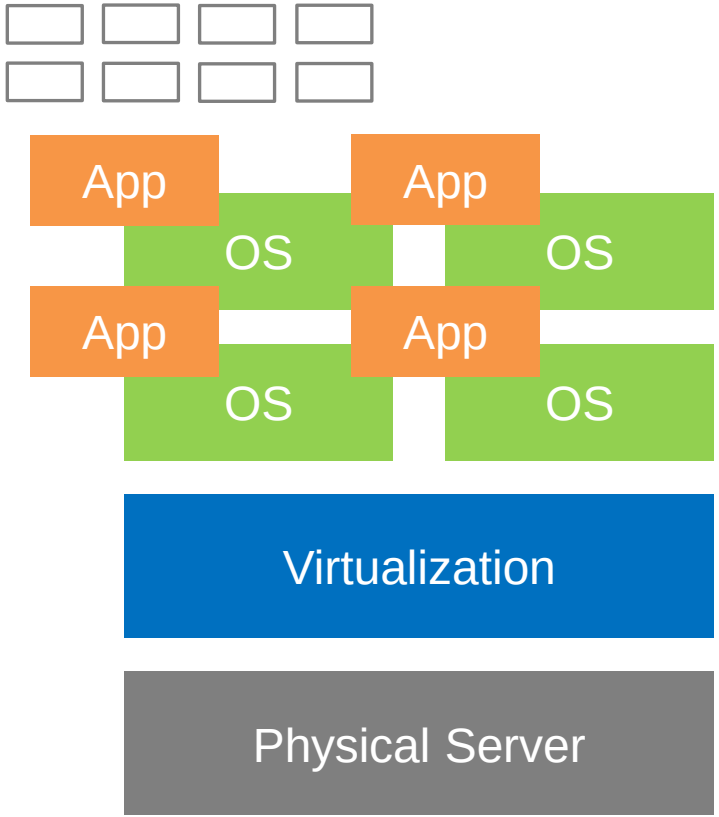
- Virtualization
  - A software technology
- Cloud
  - A remote location which utilizes virtualization technology

Virtualization vs. Cloud

Virtualization is a technology and cloud is an environment.

Cloud can include physical, virtual, and container computers.

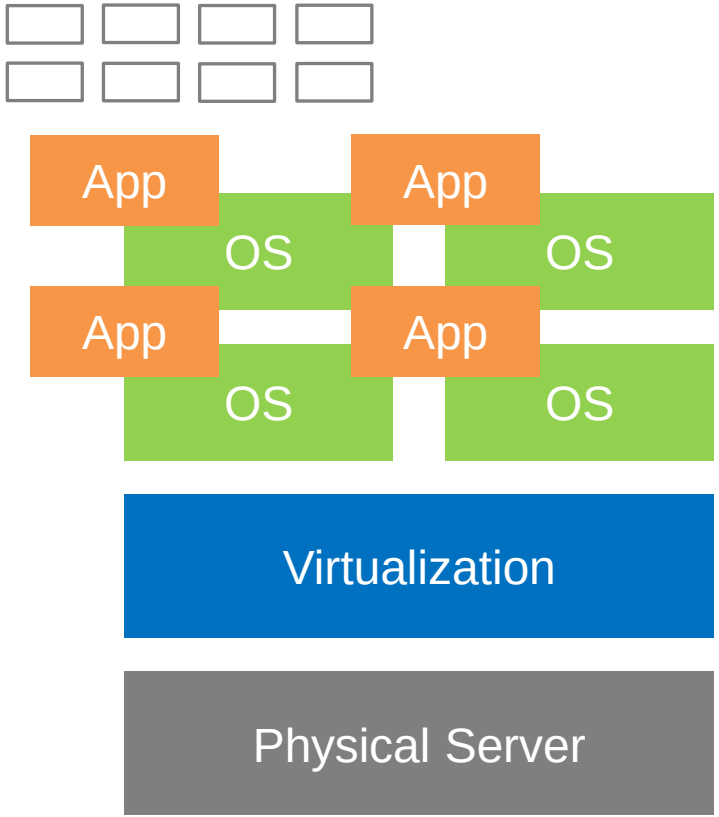
Own Data Center



Manage:

- Data center
- Hardware
- Operating system
- Licensing
- Manage applications

Cloud Data Center



Manage:

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Virtualization vs. Cloud

- Virtualization
  - A software technology
- Cloud
  - A remote location which utilizes virtualization technology
- Private cloud
  - A type of cloud computing that can be implemented using a proprietary architecture

VMware

- “VMware, Inc. is an American cloud computing and virtualization technology company with headquarters in California. VMware was the first commercially successful company to virtualize the x86 architecture.”

–Wikipedia

Introduction to VMware

- VMware is the leader in virtualization technology and has the most market share than anyone else; second in line is Microsoft.
- VMware virtualization software is called ESXi (hypervisor).
- VMware company name is the same as its virtualization software technology.

Other Virtualization Companies

- Microsoft (Hyper-V)
- Oracle (OVM/OLVM)
- Citrix (XenServer)
- Red Hat (KVM)
- IBM

VMware Workstation Player

- VMware Workstation Player is an ideal utility for running virtual machines on a Windows, Linux or macOS computer.
- Organizations use Workstation Player to deliver managed corporate desktops, while students and educators use it for learning and training.
- Free version is available for noncommercial, personal, and home use.

VMware vSphere Hypervisor (ESXi)

- Bare-metal hypervisor that installs directly onto your physical server

VMware vSphere Client

- Interface that allows you to connect to a hypervisor
- Client just like RDP for Windows or PuTTY for Linux servers
- Now a web-based client (HTML5); old version was a thick client

VMware vCenter

- Management tool to manage multiple hypervisors
- Interface is the same as vSphere Client with added functionality

Q & A