

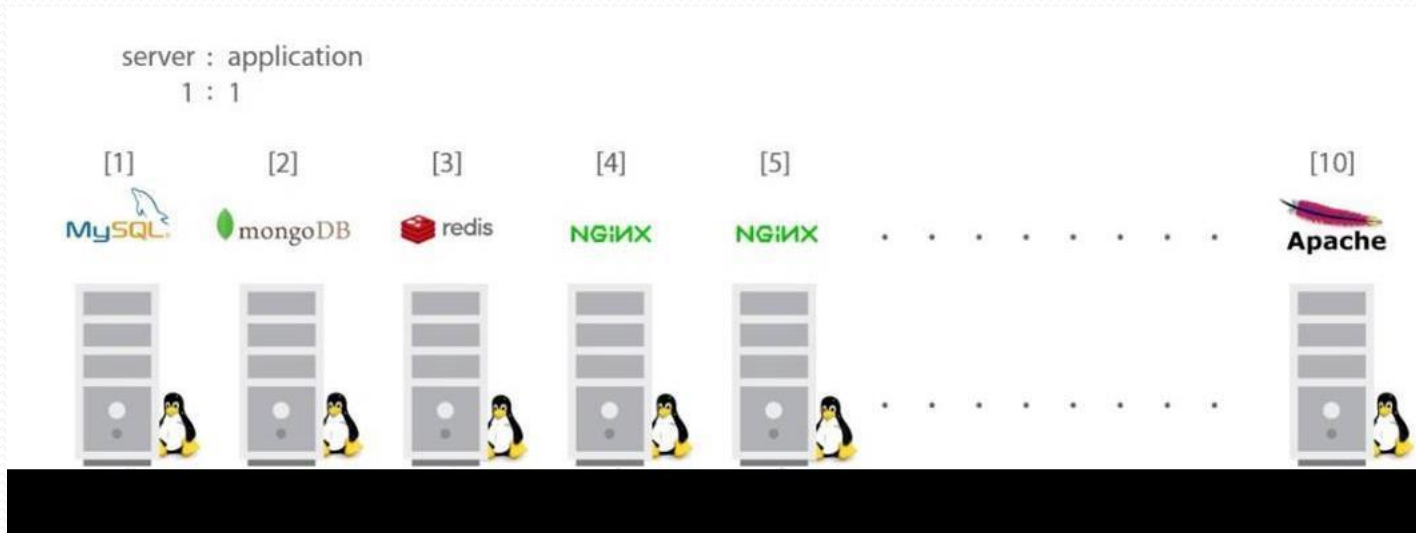
TNGS Learning Solution VIRTUALIZATION

What is Virtualization?

- Virtualization is a technology to run multiple same or different operating systems which are completely isolated from each other on the same machine.
 - Example: Running both Windows and Linux on the same machine

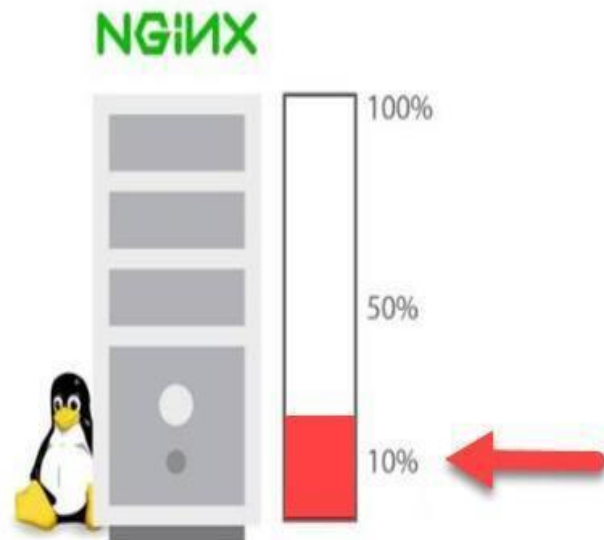
VIRTUALIZATION

Problem



RESOURCE UTILIZATION

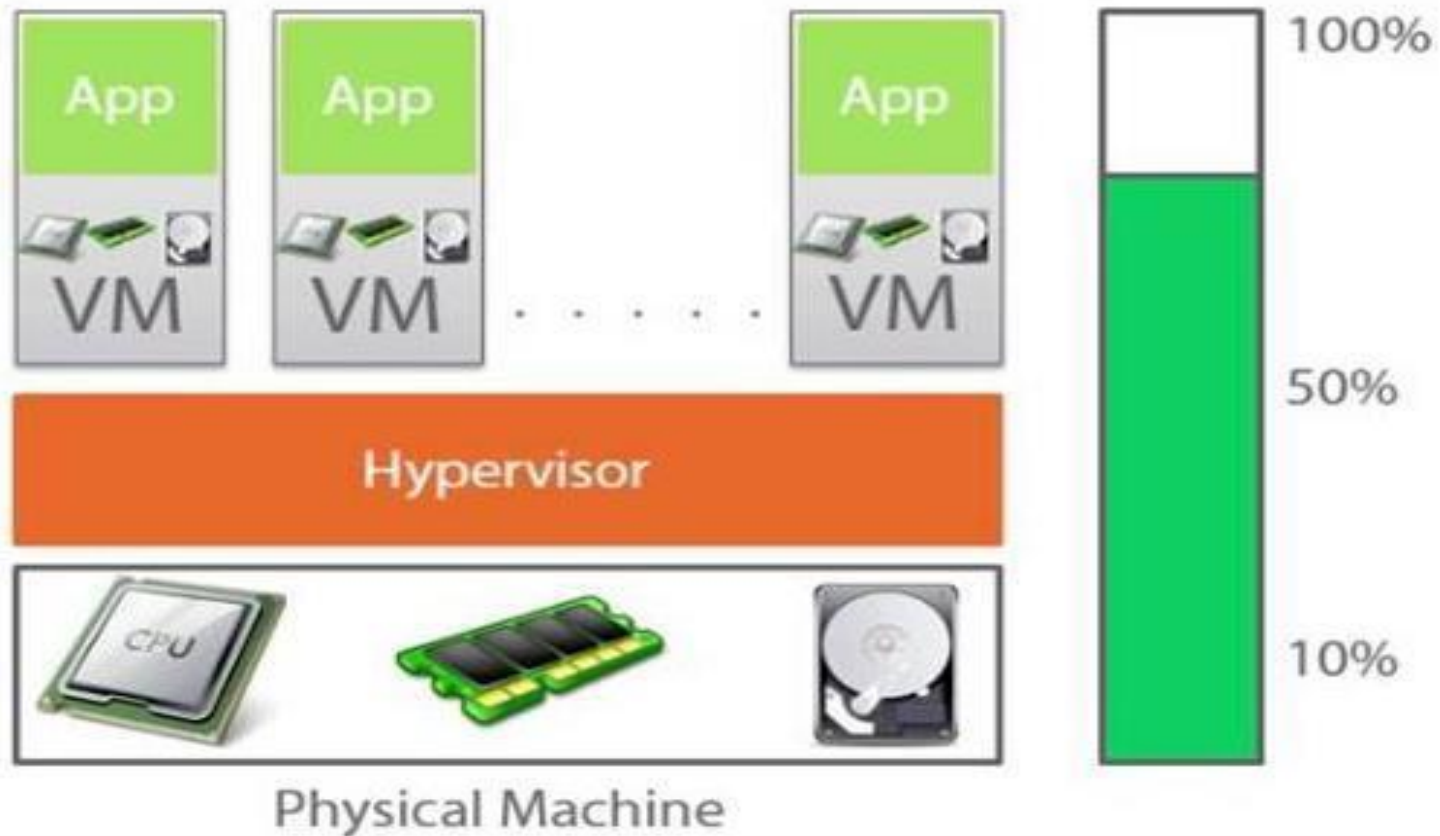
WASTING A LOT OF RESOURCES



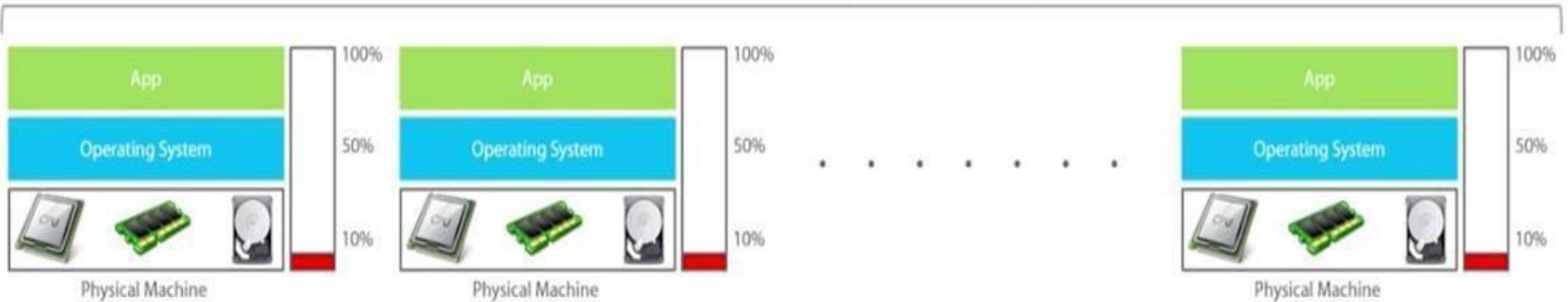
What IS Hypervisor?

- Hypervisor is a software layer that sits between Hardware and OS which will interact with hardware and resources and provide an interface to share the available resources to virtual containers.

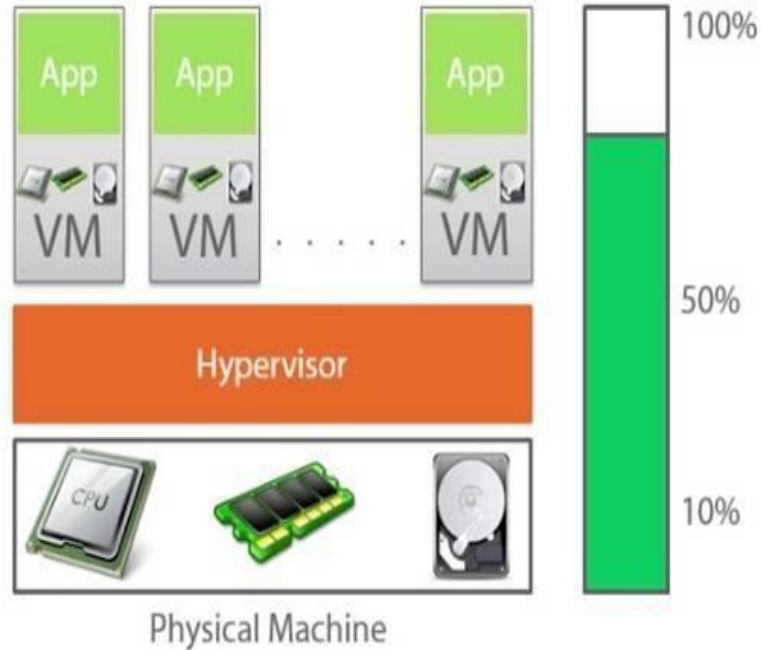
SOLUTION - VIRTUALIZATION

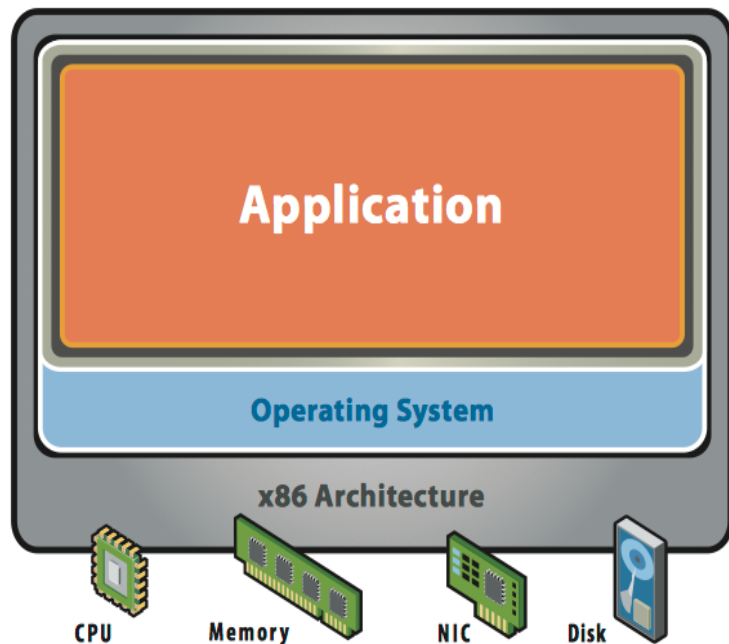


10 x Apps | 10 x Physical Machines | Less than 10% utilization



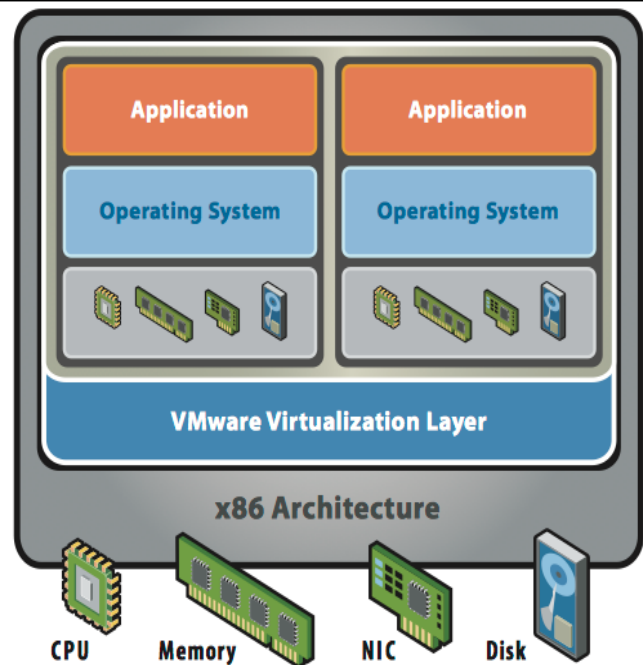
10 x Apps
1 x Physical Machines
~80% utilization





Before Virtualization:

- Single OS image per machine
- Software and hardware tightly coupled
- Running multiple applications on same machine often creates conflict
- Underutilized resources
- Inflexible and costly infrastructure



After Virtualization:

- Hardware-independence of operating system and applications
- Virtual machines can be provisioned to any system
- Can manage OS and application as a single unit by encapsulating them into virtual machines

Virtualization and Cloud Computing

- Virtualization is a technology whereas Cloud Computing is a service.
- Without virtualization, there is no Cloud Computing.
- Cloud Computing is built on top of Virtualization.



Virtualization Benefits

- Virtualization offers major savings in data center operations.
- Virtualization makes possible significant reductions in the costs of managing data centers, with simplification of systems management tasks.
- Virtualization offers back-up and increased redundancy for delivery of high performance and high availability services.
- Virtualization is a step in the direction of “cloud computing”.
- Centralized management

Vendors



Microsoft



vmware®