

# Introduction to Virtualization

# What is Virtualization

- ▶ The virtualization computing approach enables a single physical machine to act as multiple virtual computers. Software abstraction layers effectively segment one computer into several “virtual” machines. Developers can then run many independent operating systems on the same hardware.
- ▶ When you apply virtualization techniques efficiently, you cut your hardware needs by maximizing available machine capacity. This eliminates costs associated with buying and maintaining underused servers and saves your organization money.

# What is Hypervisor

A hypervisor is a kind of emulator; it is computer software, firmware or hardware that creates and runs virtual machines. A computer on which a hypervisor runs one or more virtual machines is called a host machine, and each virtual machine is called a guest machine

A hypervisor is a software layer that mediates all interactions between hardware and VMs. Hypervisors allocate resources and ensure VMs play nicely while sharing the same computing power. Sometimes, the hypervisor is also referred to as a virtual machine monitor (VMM). The hypervisor is essential for enabling a single physical computer to run multiple independent operating systems simultaneously.

# Benefits of Virtualization

- ▶ Virtualization offers substantial benefits for just about any business or development environment. It has become a core strategy for improving IT efficiency.
- ▶ Let's look at how virtualization can save money, streamline DevOps, and increase your service availability.
  1. Reduced Expenses
  2. Eliminated downtime
  3. High Availability
  4. Increase Efficiency
  5. Flexible Operation
  6. Environmentally Friendly IT

# Important Virtualization Products

- ▶ In the long run, virtualization is an eco-friendly approach to IT. Reducing hardware requirements also reduces power consumption, ultimately minimizing our carbon footprint.
- ▶ VMware
- ▶ Citrix
- ▶ Microsoft
- ▶ Oracle
- ▶ Amazon