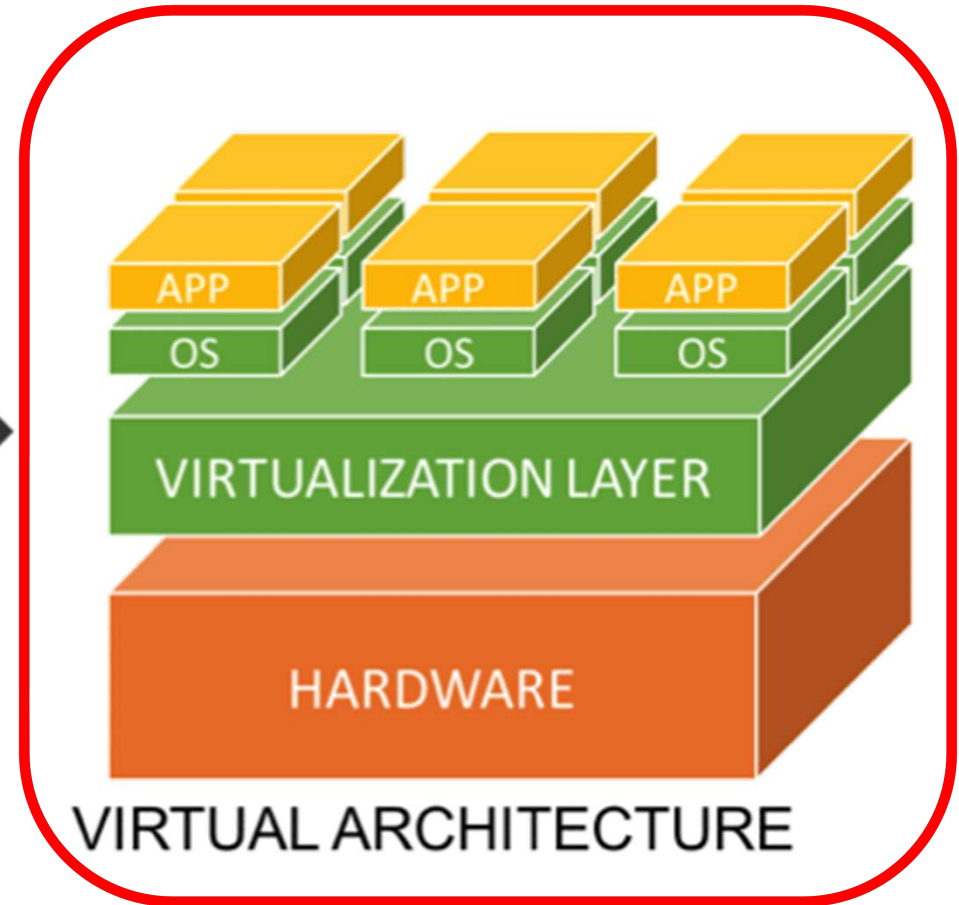
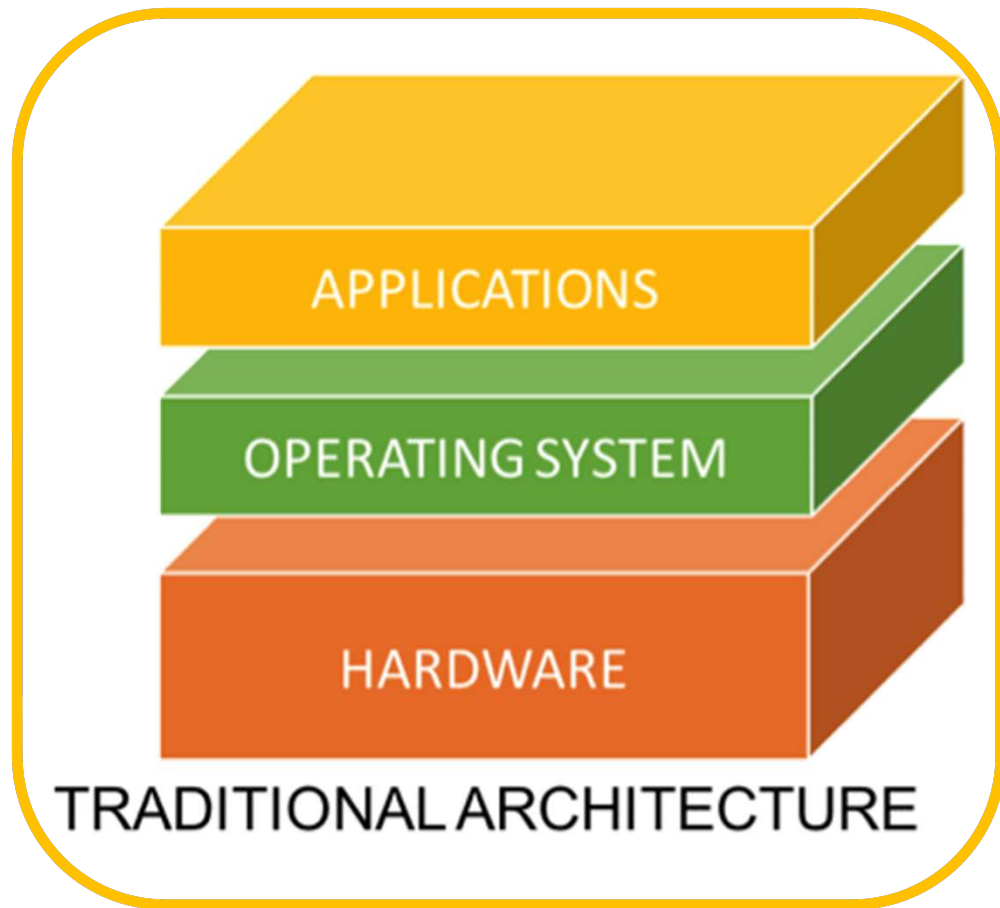


Virtualization

What is Virtualization?



What is Virtualization?

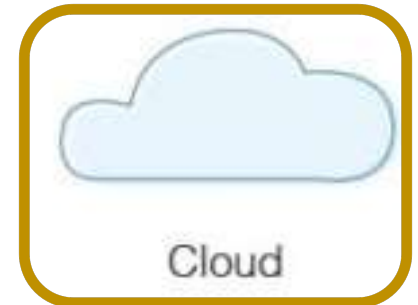
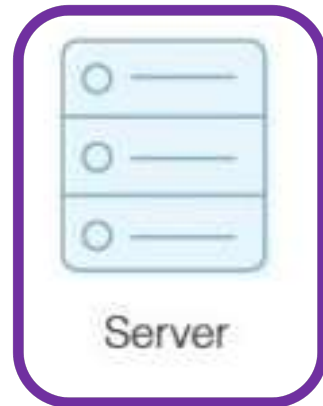
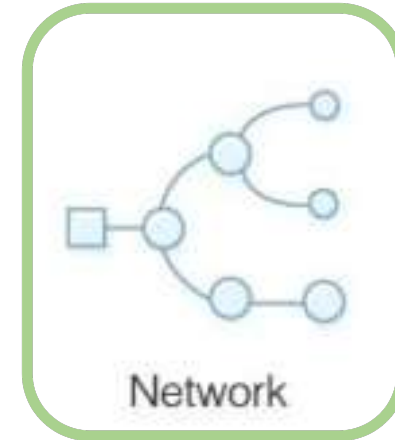
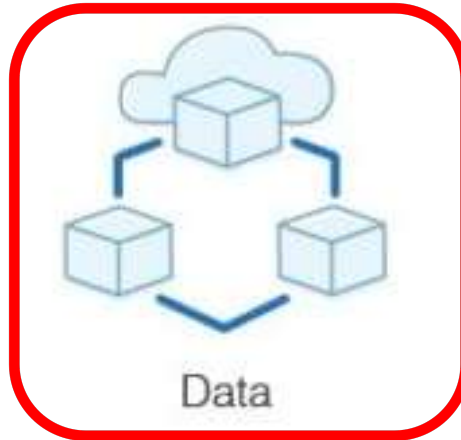
The act of creating a virtual version of

- Virtual computer hardware platforms,
- Storage devices, and
- Computer network resources etc

Single most effective way to reduce IT expenses

Boosts efficiency and agility for businesses

Types of Virtualization



Virtualization vs. Cloud Computing

Not interchangeable

Software

- Makes computing environments independent of physical infrastructure.

Cloud computing

- **Service** that delivers shared computing resources on demand via the Internet

Organizations can begin by virtualizing their servers and

- Then moving to cloud computing for even greater agility and self-service.

Virtualization Technologies

HyperV

- By Microsoft for the Windows Server Virtualization

VMWare

- Cloud based virtualization technology
- Can run Multiple instances of virtual machines

KVM

- Linux based full virtualization technology which is free and Open source virtualization

Citrix server

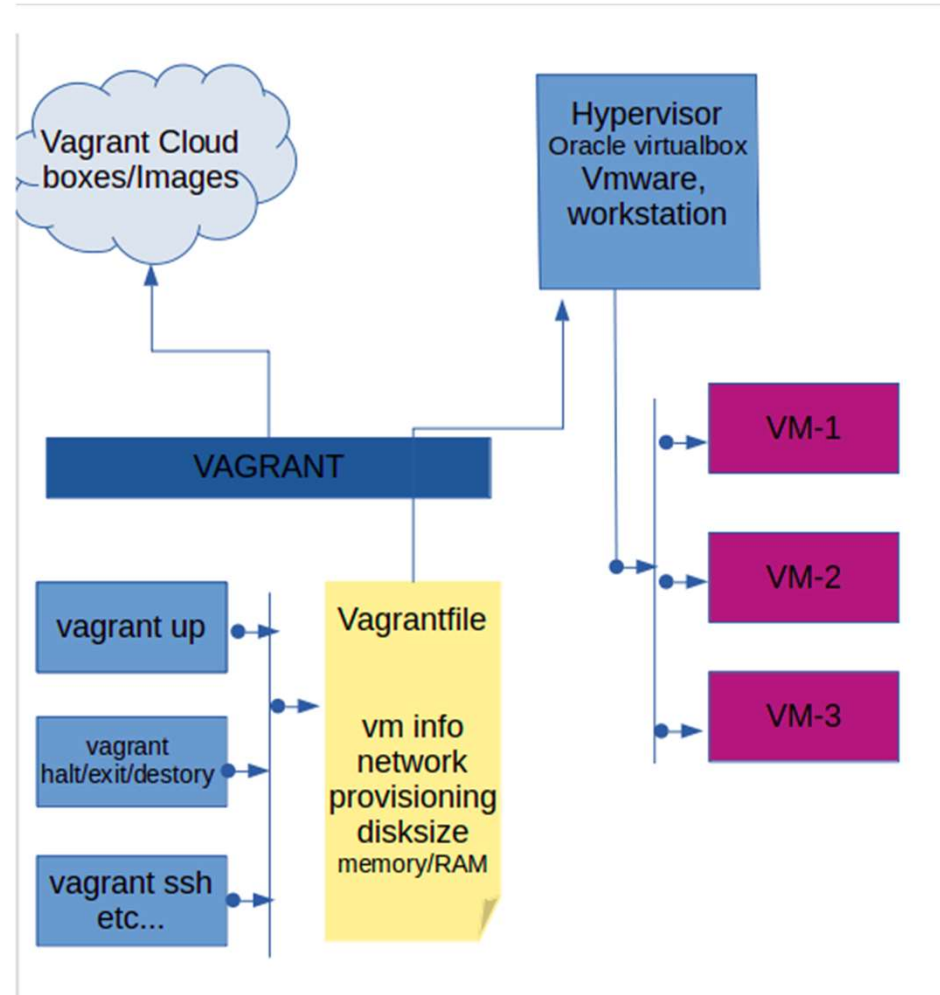
- Provides virtualization for Desktop and Application based on Xen Hypervisor

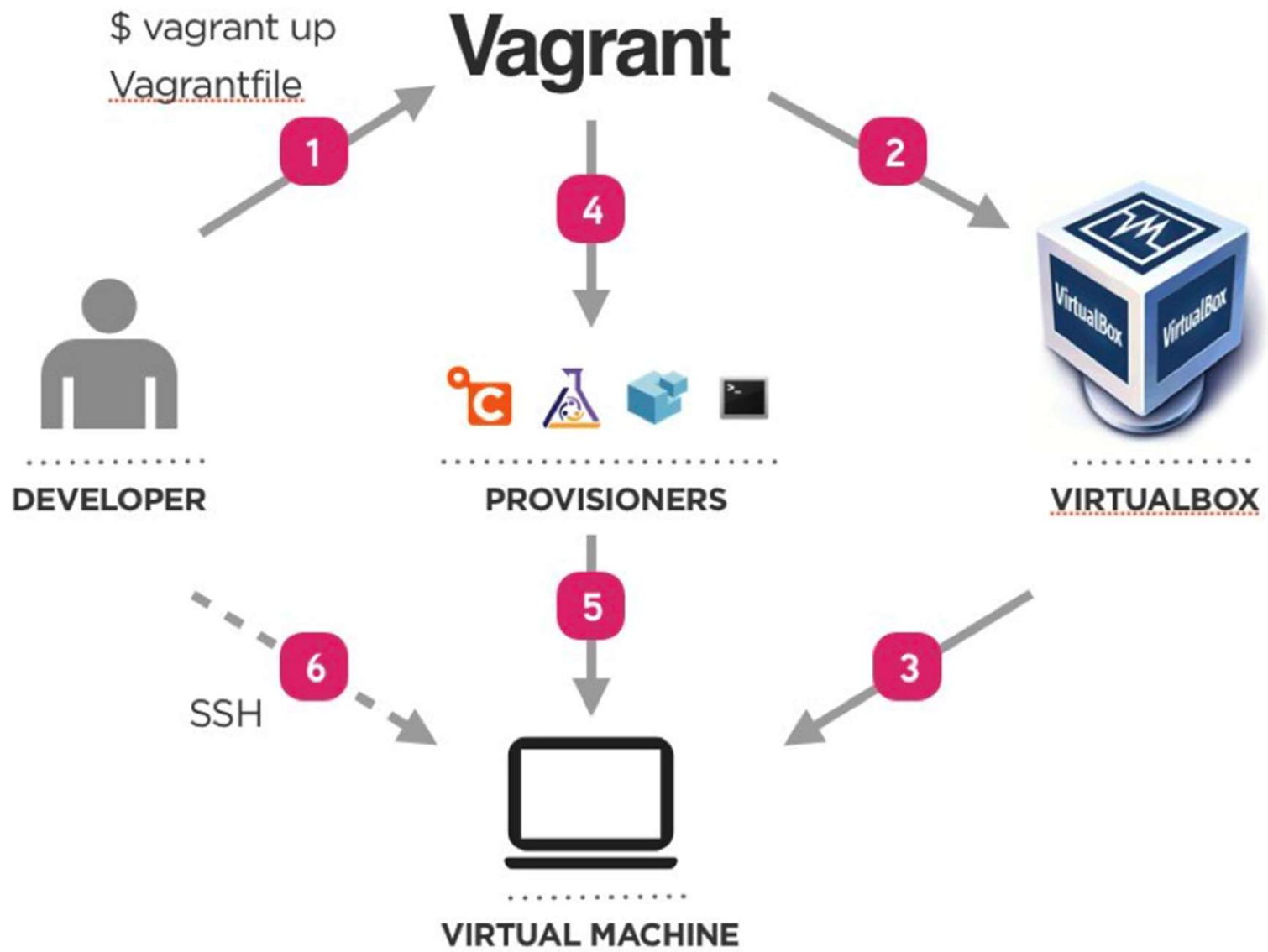
Vagrant

- Tool for building and managing virtual machine environments
- An easy-to-use workflow and focus on automation
- Lowers development environment setup time
- Increases production parity
- Makes the "**works on my machine**" excuse a relic of the past



Vagrant Concepts

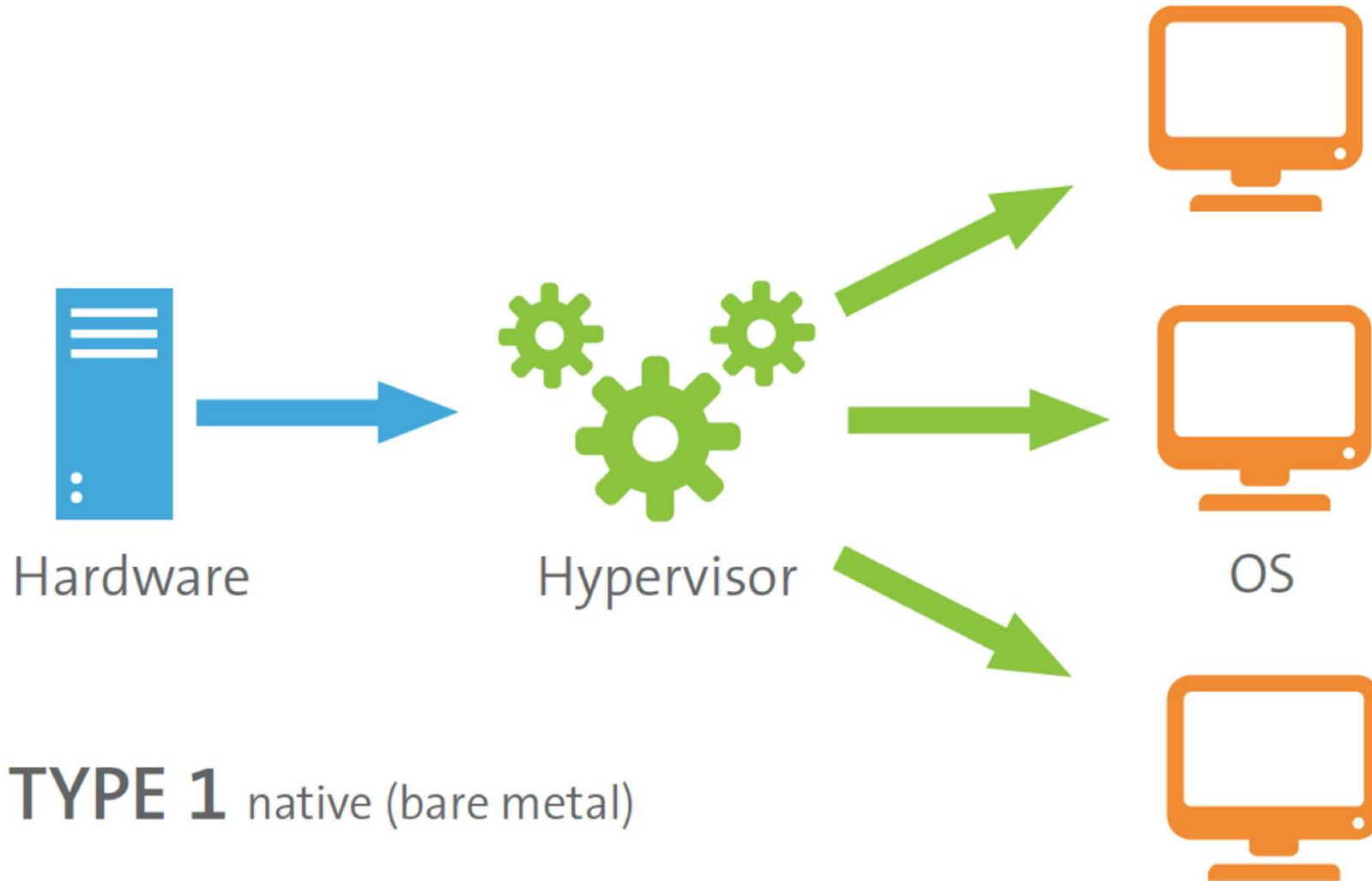




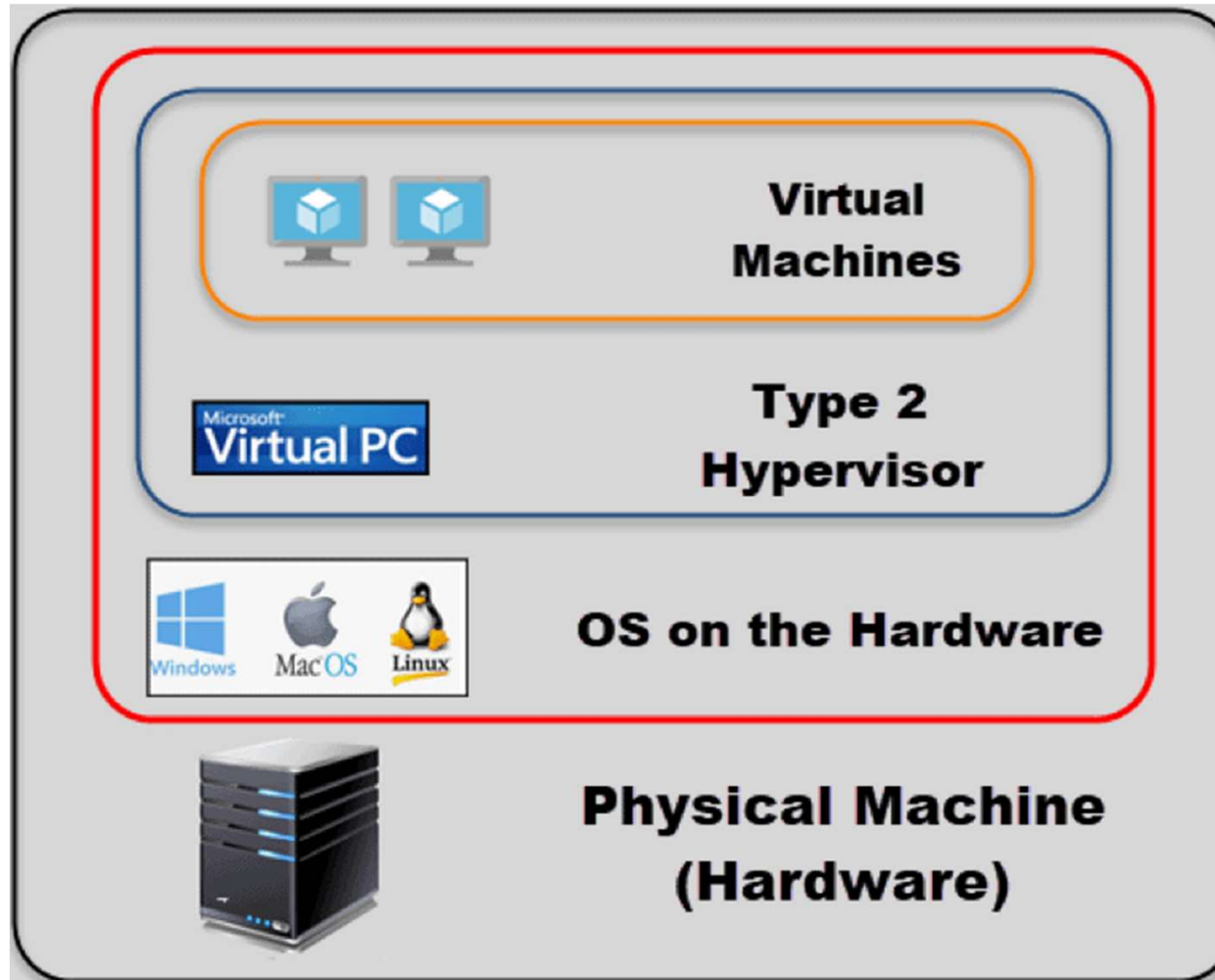
Hypervisors

- Allows a physical server to operate multiple VMs
- Each VM can run a different OS
- Allocates each VM resources such as CPU, memory, storage and network to run the guest OS and applications

Hypervisors



Hypervisors



Configuring VM using Oracle Virtual box

- Hands-on



Configuring VM using Vagrant

- Download and Install
 - <https://www.vagrantup.com/downloads.html>
- Vagrant Project Setup
 - `sudo mkdir vagrant-test`
 - `cd vagrant-test`
 - `vagrant box add ubuntu/trusty64`
 - `sudo vi vagrantfile`
 - `vagrant add ubuntu/trusty64`
 - Installs the box to the current directory
 - The Vagrantfile is placed in the same directory and can be edited or copied
 - `vagrant up`
 - `vagrant ssh`
 - `vagrant destroy`
- <https://app.vagrantup.com/boxes/search>

Vagrantfile

```
# -*- mode: ruby -*-
# vi: set ft=ruby :

Vagrant.configure("2") do |config|

  config.vm.box = "ubuntu/trusty64"

  config.vm.network "private_network", ip: "192.168.33.10"
  config.vm.network "public_network"
  config.vm.network "forwarded_port", guest: 80, host: 8080

  config.vm.synced_folder "code/", "/app/code"

  config.vm.provider "virtualbox" do |vb|
    vb.memory = 2048
    vb.cpus = 1
  end

  config.vm.provision "shell", inline: <<-SHELL
    apt-get update
    apt-get install -y apache2
    service apache2 start
  SHELL
end
```

Thanks