



# AWS Technical Essentials

Lesson 01 – Cloud Basics

# Lesson Objectives

- After completing this lesson you should be able to understand
  - Basics of Cloud Computing
  - Introduction on Virtualization
  - Cloud Deployment Models

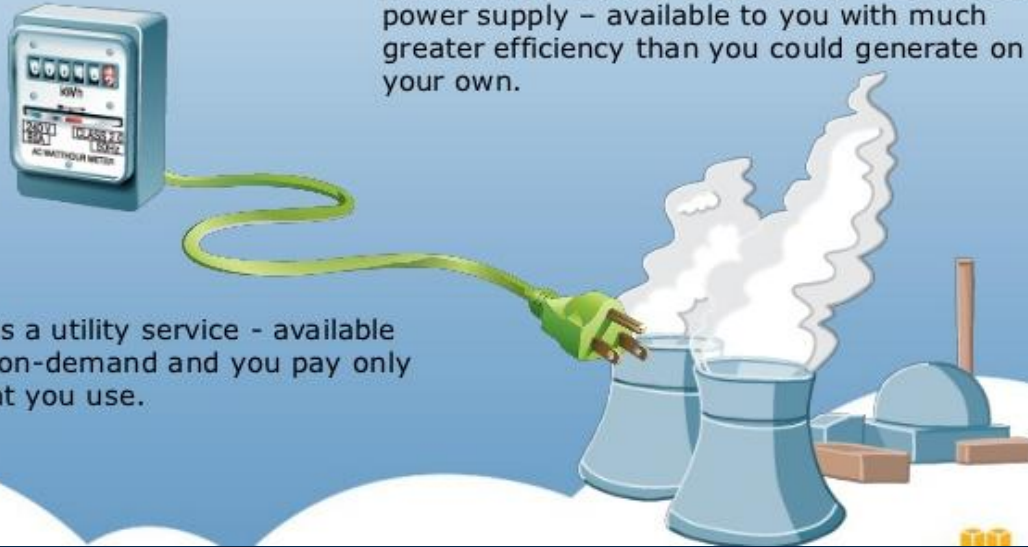


# What is Cloud Computing?

An analogy: think of electricity services...

You simply plug into a vast electrical grid managed by experts to get a low cost, reliable power supply – available to you with much greater efficiency than you could generate on your own.

Power is a utility service - available to you on-demand and you pay only for what you use.



# How Cloud Computing works

- Separate application from OS and the Hardware that runs everything

So what do we mean by this

# Traditional Computing - Few Years Back



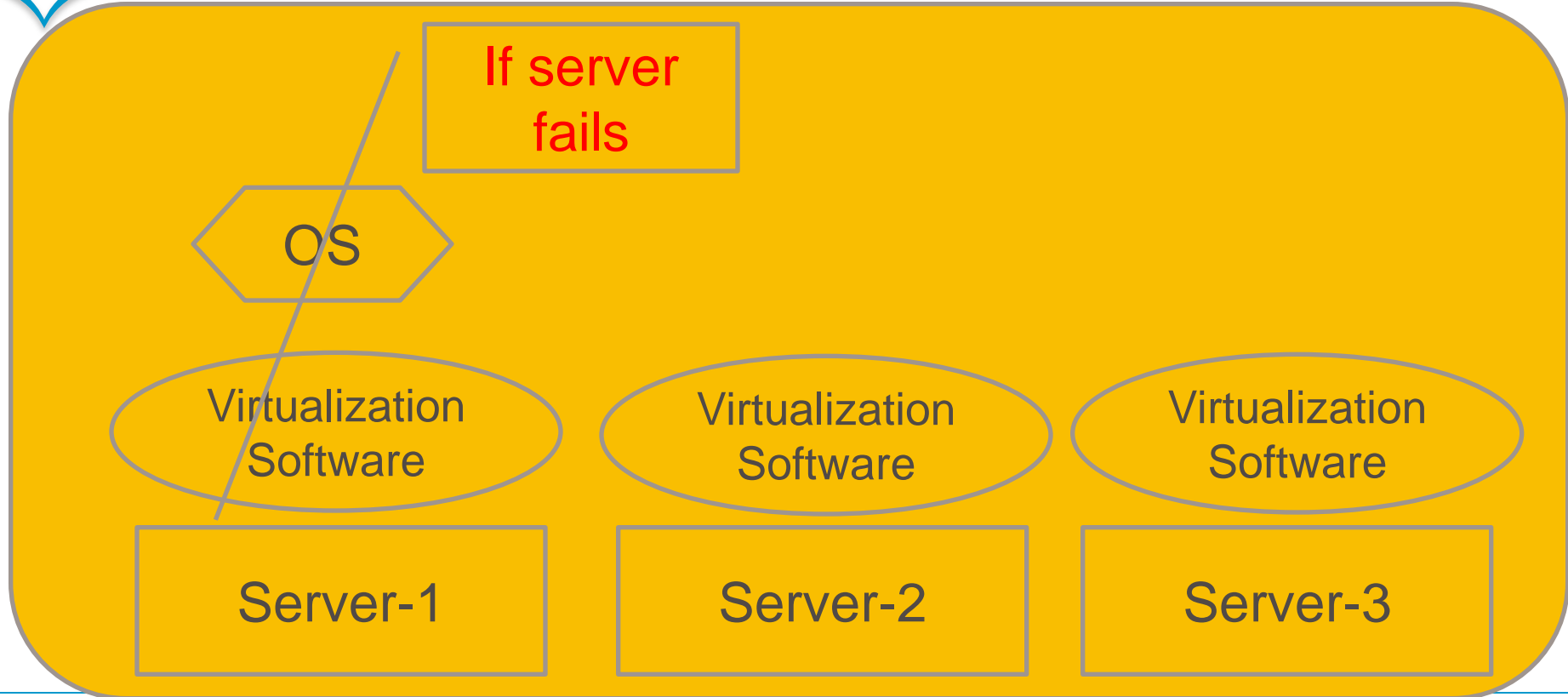
The diagram illustrates a traditional computing stack with three layers. At the top is a yellow rectangular box with a small notch at the top center, labeled 'MS Exchange Server'. Below it is a large yellow oval labeled 'Operating System'. At the bottom is a yellow rounded rectangular box labeled 'Physical Server Hardware'. The layers are stacked vertically, indicating a hierarchy where the application layer sits on top of the OS, which sits on top of the hardware.

MS Exchange  
Server

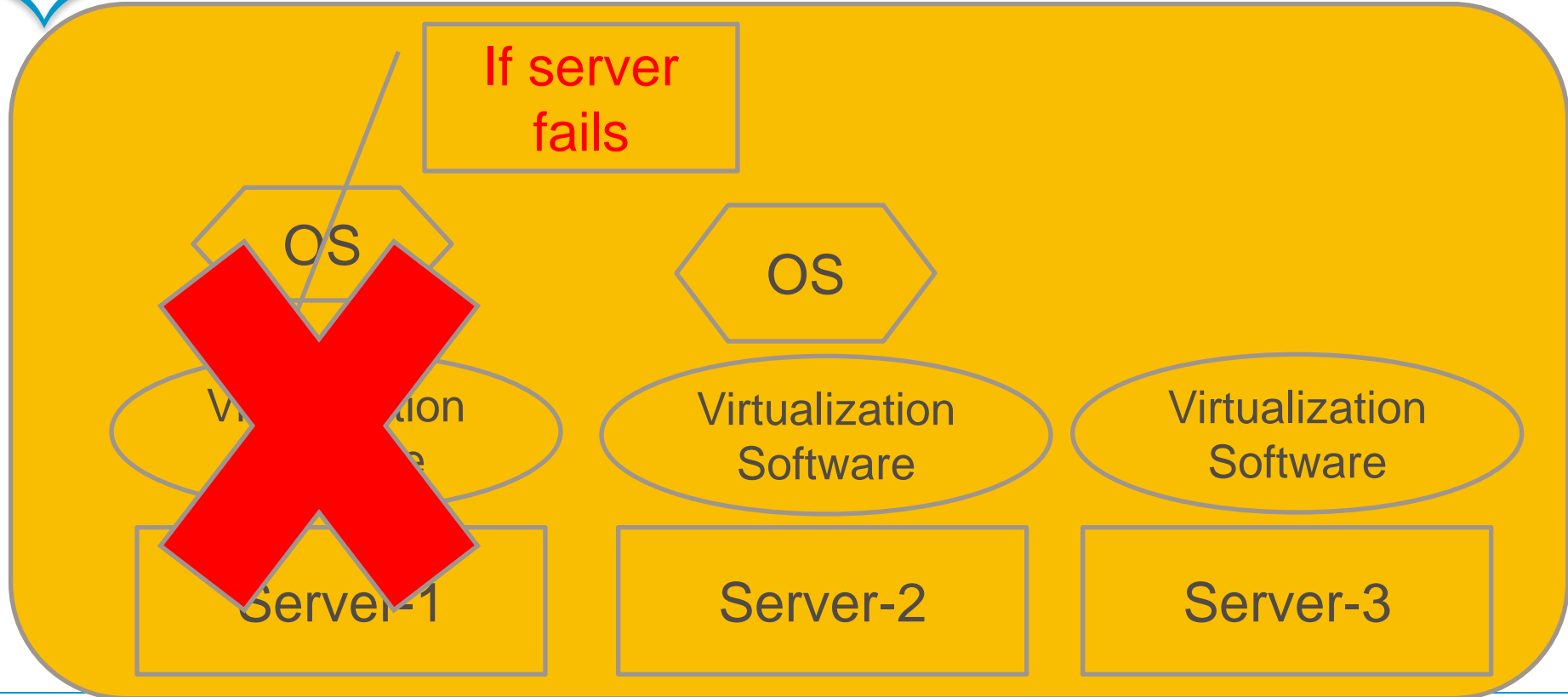
Operating System

Physical Server Hardware

# Virtual Computing



# Virtual Computing



# Virtualization

- Single physical server can run multiple Virtual servers and each Virtual server can run different operating system and applications
- Each virtual server will have a virtual hardware ( vCPU, vNIC, vRAM, vDisk)



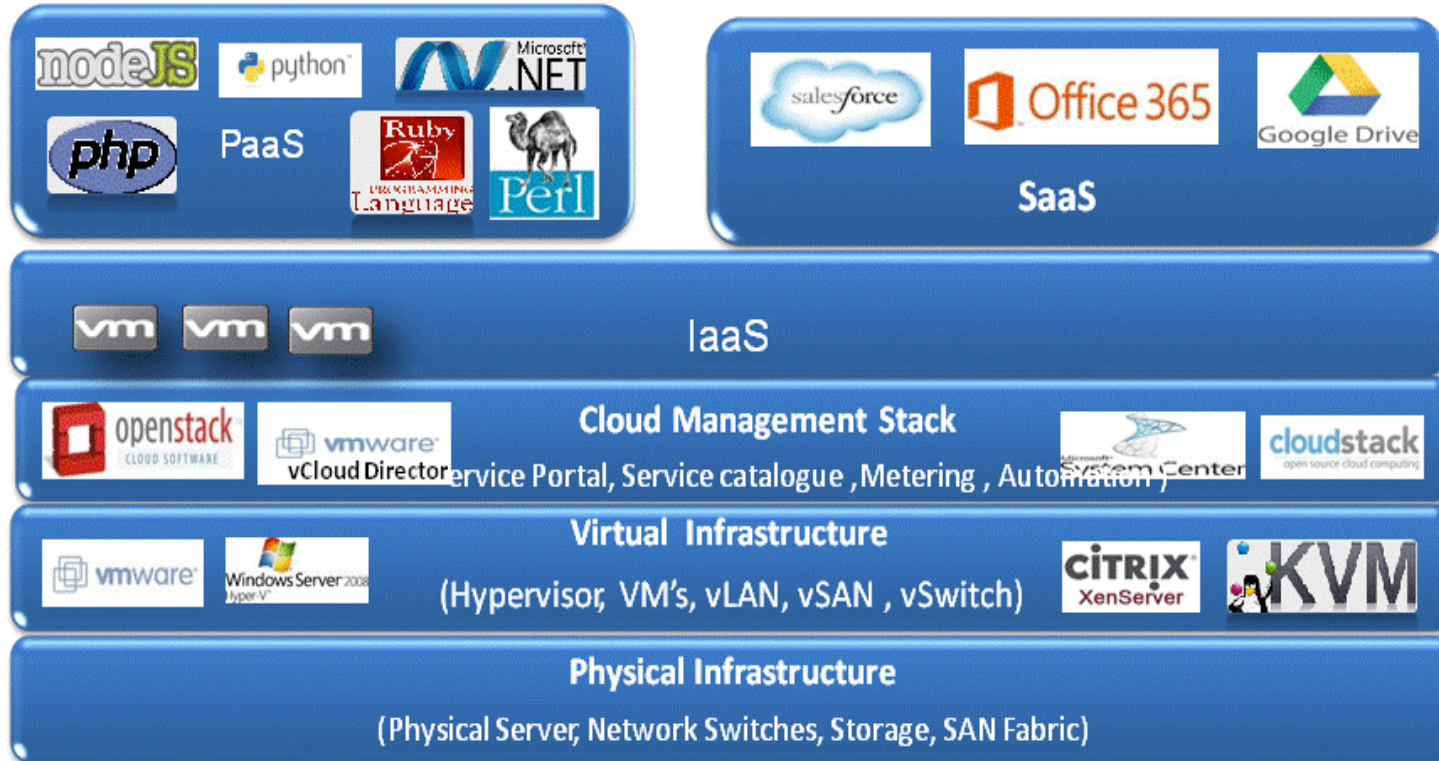
# Hypervisor

- It is a software installed on the physical hardware
- It isolates operating system and application from the underlying hardware
- This abstraction allows the underlying host machine hardware to independently operate one or more virtual machines as guests, allowing multiple guest VMs to effectively share the system's physical compute resources, such as processor cycles, memory space, network bandwidth and so on
- Citrix has XenServer, Oracle has OracleVM, VmWare has ESXI and many more

# Public Cloud Service Providers



# Cloud Computing Infrastructure Framework



# Hypervisor Installation

It gives screen with IP Address, Computer Name, few bits of information, but otherwise it does not allow you to do anything

So how to access Hypervisor

Install Management Software like vSphere

# Deployment Models- Cloud



## Private Cloud

- Single Tenancy
- CAPEX model
- Owned and managed by customer
- Customer has Complete control over resources
- Cloud infrastructure is hosted on premises or hosted at service provider data centers



## Public Cloud

- Multi-Tenancy
- OPEX Model
- Owned and Managed by Cloud Service Provider(CSP)
- CSP has complete control on resources
- Customer has limited control over his applications based on subscription



## Hybrid Cloud

- Federation of Private and Public Cloud
- Ideal for critical workloads on Private cloud and non critical workloads on Public cloud
- Results in 40 -60 % cost savings compared managing infrastructure in house and Physical data center

# Cloud Computing

## CHARACTERISTICS

- On Demand Self Service
- Broad Network Access
- Resource Pooling
- Rapid Elasticity
- Measured Service

## SERVICE MODELS

- Infrastructure-As-A-Service ( IaaS)
- Platform-As-A-Service ( PaaS)
- Software-As-A-Service ( SaaS)

## DEPLOYMENT MODELS

- Private Cloud
- Public Cloud
- Hybrid Cloud

# Cloud computing summary

Cloud Computing is also a utility service - giving you access to technology resources managed by experts and available on-demand.



You simply access these services over the internet, with no up-front costs and you pay only for the resources you use.

# Summary

- In this lesson you learnt
  - What is Cloud Computing
  - Virtualization and Cloud Deployment Models

