



# KPLABS Course

AWS Certified Cloud Practitioner 2020

Fundamentals of Cloud Computing

**ISSUED BY**

Zeal Vora

**REPRESENTATIVE**

[instructors@kplabs.in](mailto:instructors@kplabs.in)

# Section - Fundamentals of Cloud Computing

## Module 1: Introduction to Cloud Computing

Data Center Approach:

Requirement: Your company wants to host their website.

Solution -

System Administrator's responsibility.

Arranging all the entire things.

- i) Choose the DataCenter / Hosting Provider.
- ii) You need to typically send them an enquiry about your requirements.
- iii) They will contact you and price negotiations.



When there are any issues, the system administrator has to run.



## 1.2 Challenges with Data Center Model

Example 1:-

Due to some big promotion, server capacity needs to be increased from 4GB RAM to 32 GB RAM

Data Center Provider Way:-

Buy a 32 GB RAM stick & install it onto your server

Hosting Provider Way:-

Raise a support ticket and expect a response within 15 minutes to 12 hours for a response.  
Get the DC guys to resize your Server.

Cloud Way:-

Stop the Server & change the instance size.

## 1.3 Introduction to Cloud Computing

Cloud Computing is a model in which computing resource is available as a service.

3 important characteristic of Cloud Computing :

On-demand & self-serviced [ Any time launch without manual intervention ]

Elasticity. [ Can scale up and down anytime ]

Measured Service [ Pay what you use ]

## Module 2: Cloud Computing Models

There are 3 types of Cloud Computing models

Software as Service [ Google Docs, Office 365 ]

Platform as Service [ Google App Engine ]

Infrastructure as Service [ AWS, Linode, Digital Ocean ]

It is very important to choose a right cloud service provider based on your use-case.

AWS is one of the most comprehensive Cloud providers.

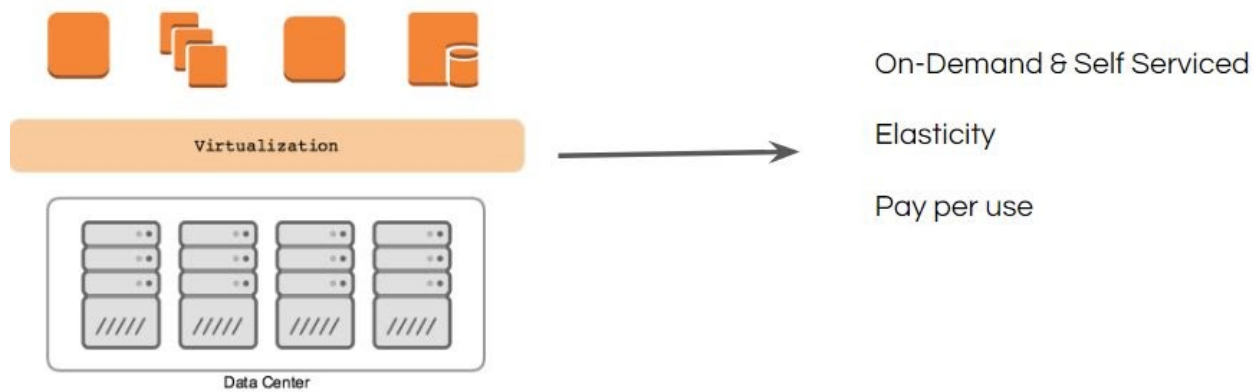
It provides all the type of cloud models

- Software as Service
- Platform as Service
- Infrastructure as Service

But if you just depend on AWS for everything, you will lose a lot of money. Hence many of the organizations opt for Multi-Cloud based approach.

## Module 3: Architecture of Cloud Environments

The cloud from behind the scenes is the data center only.



Virtualization Technology plays a very important role in Cloud Computing.

Virtualization allows us to run multiple OS on a single hardware.

There are many virtualization software available like:

- VMware Workstation / vSphere
- KVM
- XEN
- VirtualBox

## Module 4: On-Demand & Self Service - Characteristics of Cloud

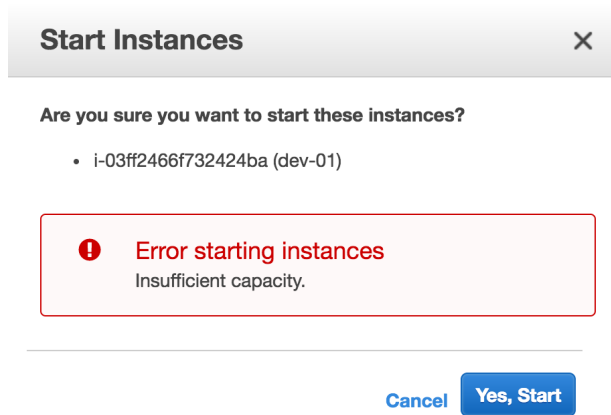
A person can provision resources in the cloud whenever needed, without requiring any human interaction with a service provider.

On-demand makes self-service with automation possible in a seeming less way.

Challenges with On-Demand Model:

On-Demand does not always mean that you will be able to launch instances at any given point of time.

Even a Cloud provider has limits, though it might be high, these limits are definitely reached.



## Module 4: Elasticity

Elasticity deals with adding and removing capacity, whenever it is needed in the environment.

Capacity generally refers to mostly processing & memory.

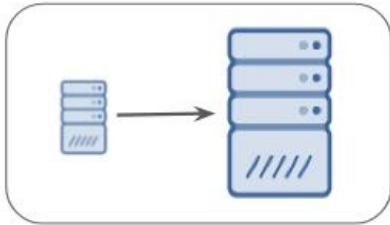
It is like a rubber band.



## 4.1 Overview of Scalability

Horizontal Scalability: Adding or Removing instances from the pool like cluster farm

Vertical Scalability: Adding or Removing resources for existing servers.



Vertical Scalability



Horizontal Scalability

## 4.2 Overview of Auto Scalability:

Scaling servers on-demand is the real deal.

It can be achieved through Auto Scaling functionality.

### Use Case Scenario:

- Whenever CPU Load > 70%, scale up to two more servers
- Whenever CPU Load < 30%, scale down by two servers.

Here is the sample auto-scaling based configuration:

#### Create Auto Scaling Group

You can optionally add scaling policies if you want to adjust the size (number of instances) of your group automatically. A scaling policy is a rule that you assign to it. In each policy, you can choose to add or remove a specific number of instances or a percentage of the existing group's instances and adjust the size of your group accordingly. [Learn more](#) about scaling policies.

☐ Keep this group at its initial size

☒ Use scaling policies to adjust the capacity of this group

Scale between  and  instances. These will be the minimum and maximum size of your group.

#### Scale Group Size

Name:

Metric type:

Target value:

Instances need:  seconds to warm up after scaling

Disable scale-in: ☐

[Scale the Auto Scaling group using step or simple scaling policies](#) ⓘ

