**Overview of the AWS Service Course**

1. Introduction to the cloud computing and AWS
   1. Service Model
   2. Deployment Model
   3. Fundamentals of AWS Cloud.
2. Computing Services
   1. EC2
   2. Elastic BeanStalk
   3. Lambda
3. Storage Service
   1. Aws s3
   2. EFS
   3. Glacier
   4. EBS
4. Networking Service
   1. VPC
   2. Route 53
   3. CloudFront
5. Monitoring and management
   1. Cloudwatch
   2. CloudFormation
   3. Load Balancer
6. Security Service
   1. IAM
7. Database Service
   1. AWS Redshift
8. Devops on AWS
   1. AWS code pipeline
   2. AWS code commit
   3. AWS code build
9. **Introduction to the cloud computing and AWS**

-> Before AWS:

For host any server we need the following things.

Buy Stack of Servers

High Traffic then need more serves

Monitoring and Maintaining Serves.

Disadvantage:

Cost for the servers are very high

Troubleshooting is difficult

Since traffic are very, Servers will be idle most of th times.

**Cloud Computing:**

It is the process of storing, accessing and retrieving the data from the cloud. From any where you can access the cloud.

**Cloud Computing Service Models:**

**IaaS: Infrastructure as a Service,** Infrastructure is provided for development.

Provides virtualization computing resources over the internet.

**PaaS: Platform as a Service,** Provide a platform to develop an application.

Ex: Google App Engine, create application and put app in Google app engine to use by the others.

**SaaS: Software as a Service,** Cloud provider lease applications or Softwares which are owned by them to its client. Ex: Gmail - only use the service, not concerned about the scaling and security issue that is handled by google.



**Deployment Models:**

1. **Public Cloud:** Access to the Every one
2. **Private Cloud:** Firewall can give access to only the particular uses.
3. **Hybrid Cloud:** Public Cloud + Private Cloud
   1. If the traffic is more on the private cloud then we can move the public cloud and every one can use that.

**Cloud Provides:** Google Cloud Platform, Digital Ocean, IBM Cloud, Amazon Web Service, Microsoft Azure, Terremark.

Amazon Web Service optimizes the Power and reduces the power, so it is cost effective as compared to other services.

**AWS:** it is the cloud service platform to provide the computing power, database storage, content delivery and other functionalities to help the business to scale and grow.

Features/Advantages:

Flexibility, Cost Effective, Scalability, Security

Architecture: Regions(Location across the world), Availability Zones(Data Centers).

In India we have two Regions Mumbai(3 Availability zones), Hyderabad (coming soon)

**Domains of AWS**

1. Compute:
   1. EC2 (Elastic cloud Compute) = We can modify the configuration as per the requirements.
   2. Elastic BeanStalk = Predefined library. We can use that module configuration.
   3. Lambda
2. Migration:
   1. Snowball: Physical Migration of the Data between the Regions.
3. Security and Compliance: IAM, KMS
4. Storage:
   1. S3 = bucket/ objects,
   2. Glacier = Store the archive.

An archive is a place where people can go to gather firsthand facts, data, and evidence from letters, reports, notes, memos, photographs, and other primary sources.

1. Networking:
   1. VPC: virtual Network, move or launch the resources.
   2. Direct Connect: least Internet connection which can be used inside the AWS.
2. Messaging: Cloud trial, ops works.
3. Database:
   1. Storage can store the Executable files.
   2. Database: Aurora: same as the sql, DynamoDb: no relational Database.
4. Management Tools:
   1. Cloud Watch: Monitoring tool. Used to set the alarm and all.

**EC2 Instance**

Instance: is the virtual server for running the application. It has its hd, network connections, os but all is virtual.

Amazon Elastic Compute Cloud (EC2) is a web service that provides a resizable compute service in the cloud.

Advantage: Scalable, Cost Efficient, Flexible

**Types of Instances:**

1. General Purpose Instance: balance of performance and cost.

Prompt Response, Cost Effective, less Processing

Ex: Email Response System

1. Compute Instance: require lots of processing from the CPU.

Ex: Analyzing Streaming Data

1. Memory Instance: heavy in nature and requires more RAM.
2. Storage Instance: use when we require to store the large size of data.
3. GPU Instance: when we have heavily graphical rendering. Ex: 3D Modeling.

**EC2 Instance Pricing Model:**

On-Demand: used for the limited hours. Provide the instance on demand.

Dedicated: used for Organization. High security and Isolation.

On Sport: Biding. Set the maximum price for instance. If the price increases then the instance is terminated. Used for volatile Data.

Reserved: When we have to use the instances for a longer duration with the same configuration then we reserved the instance for the particular time.

**EC2 Instance Based on the Function:**

Burstable: used when we have used the fixed cpu power. If traffic is more in that then scale the cpu power to 200% of current. Ex: Analysis of the Customer’s Data

EBS Optimized: Processing data in Higher Speed. High input output. Ex: Auto Response Email System

Cluster Networking: Different cluster to make one cluster to be efficient on the CPU power and make another cluster as Storage optimized and that both can work as a cluster. Ex: Searching and Browsing

Dedicated: used for Organization. High security and Isolation. Ex: Confidential Data Processing.