Amazon Web Services (AWS)

Overview:

AWS is a cloud service from Amazon, which provides services in the form of building blocks, these building blocks can be used to create and deploy various types of application in the cloud. It provides on demand computing resources and services in the cloud, with pay as you go pricing. We can run a server on AWS that we can log on to, configure, secure and run just as we would do on a server that is sitting in front of us and it provides many of the same benefits, capacity exactly matches our need and we pay only for what we use.

Introduction to Cloud Computing

- Introduction to Cloud Computing
- Benefits of Cloud Computing
- Cloud Computing Service Models
- Emerging Cloud technology and Services
- Cloud Computing Deployment Models

Getting started with AWS

- AWS Introduction
- AWS Global Infrastructure and its benefits
- Different AWS services
    - Compute
    - Storage
    - Database
    - Migration
    - Network and Content Delivery
    - Management Tools
    - Security & Identity Compliance
    - Messaging
    - Notification Services
- Amazon Management Console
- Setting up of the AWS account

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Identity and Access Management IAM

- Root Account

- Creation of user accounts in AWS

- Multi Factor Authentication (MFA)

- Groups in IAM

- Roles in IAM

- Managing Permissions

- AWS Access key & Secret Access Key

Amazon EC2 (Elastic Compute Cloud)

- Introduction to EC2

- EC2 instance

- Region for EC2 instance

- Different EC2 Instance purchasing options

- EC2 placement groups

- What is Amazon Machine Image (AMI)

- Security groups

- Instance Roles

- Key pair required access the instance

- EC2 Tags

- Assign IP to EC2 instance

- Access the EC2 instance

Simple Storage Services (S3)

- Traditional storage tiers

- Disadvantages of traditional storage

- Benefits of Cloud based storage

- AWS storage options: EBS, S3 & Glacier

- Connecting Storage: Snowball & Storage Gateway (Theory)

- What is S3 Service

- Benefits of S3

- Creating / Managing S3 Buckets

- Adding Objects in S3 Buckets

- Bucket and Object Permissions

- Versioning and logging

- Encryption

- Lifecycle rules

- Host a Static Website Using S3

Database Services

- Different database services of AWS:

  - Amazon RDS

  - DynamoDB

  - ElastiCache

  - RedShift

- Selecting the DB-Engine

- Create and Configuring MySQL Database Server

- Automatic backups, snapshots and restores

- Authorizing access to the DB with RDS Security Groups

- Security: Using IAM to Manage Access to Amazon RDS Resources

- RDS Limits

- DB Instance Life Cycle: Renaming a DB Instance

- Deleting or Rebooting a DB Instance

- Database Log Files

- Create Dynamo DB

- Working with Dynamo DB

Virtual Private Cloud & Direct Connect

- Types of AWS Network

- Subnet and Subnet Mask

- VPC and its benefits

- Default and Non-default VPC

- Components of VPC

- Internet Gateway

- Router Table

- Working with Subnet

- Private Subnet

- Public Subnet

- Security Group

- Create a Custom VPC

- Nat instance

- NAT Gateway

- Working with Elastic IP Address

- Network Access Control List (NACL)

- Direct Connect (Theory)

Elastic Load Balancing & Auto Scaling

- What is Elastic Load Balancing

- Components and types of load balancing

- Auto scaling and its benefits

- Lifecycle of auto scaling

- Create the load balancer

- Security group for load balancer

AWS Route 53

- Overview of Route 53

- What is Amazon Route 53

- DNS Service

- DNS Record Sets

- SOA

- A Record

- CNAME Record

- Alias

- DNS settings to reach AWS EC2 instance

- Configure Route 53 as our DNS Service

Simple Notification Services (SNS)

- What is SNS

- Publish / Subscribe Model

- Creation of a topic

- Subscribing to topic via Email

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Simple Queue Service (SQS)

- What is SQS

- Point to Point Model

- Creation of a queue

- Sending messages to the queue

- Retrieving messages from SQS

Elastic Beanstalk

- Introduction to Elastic Beanstalk

- Creating a Web-App using Elastic Beanstalk

AWS Lambda

- What is Serverless computing

- Function as a Service

- Create a Lambda function from Management Console

- Create a Java Lambda function and deploy