Amazon Web Services (AWS)

Introduction to Cloud Computing

* A Short history
* Client Server Computing Concepts
* Challenges with Distributed Computing
* Introduction to Cloud Computing
* Why Cloud Computing?
* Benefits of Cloud Computing

Cloud Computing Deployment Models

* Private Cloud
* Public Cloud
* Hybrid Cloud

Cloud Delivery/Service Models

* Software as a Service (SaaS)
* Platform as a Service(PaaS)
* Infrastructure as a Service (IaaS)

Linux Basics

* Linux basic Commands
* Linux basic Administration

Introduction to AWS Services

* Amazon Elastic **Compute Cloud(EC2)**
* **Amazon Simple Storage Service (S3)**
* Elastic Block Storage (EBS)
* **Elastic Load Balancing (ELB)**
* Amazon Relational Database Service (RDS)
* Amazon DynamoDB
* Auto Scaling
* Amazon ElastiCache
* Identity and Access Management (IAM)
* Virtual Private Cloud (VPC)
* Cloud Formation
* Simple Email Services (SES)
* Simple Queue Services (SQS)
* Simple Notification Services (SNS)
* Server less computing (Lambda)
* Import/Export (Snowball)
* Code Commit
* Cloud Trail
* Elastic Beanstalk
* Cloud Front
* Route-53
* Glacier
* Key Management Service (KMS)

Introduction to AWS

* Subscription to AWS
* Introduction to the AWS Management Console

Elastic Compute Cloud (EC2) Essentials

* Regions and Availability Zones – Choose the right Region
* Amazon Machine Images (AMI)
* Working with AMIs
* Choosing the right AMI
* Deciding what goes into an AMI
* Finding the right AMI
* Pricing model in EC2 instances
* On-demand, Reserved, Scheduled, Spot instances, Dedicated Hosts
* EC2 Reserved Instance Marketplace
* Importing and Exporting Instances

EC2 Instances

* Building an EC2 Windows instance & Linux Instance
* Boot strapping with user-data
* Setting up security
* Security with Key Pairs
* Working with the Security Group
* Different IPs assigned to an EC2 instance
* Assigning Elastic IPs
* Login/Access to the instance
* Creating your own custom AMI, Registering & Granting access to the AMI
* Placement groups
* EC2 instance protection
* Instance Roles
* Importing and Exporting Instances
* Elastic Network Interfaces(ENIs)
* Resources and Tags
* Accessing Meta-Data & use cases.

Elastic Block Store (EBS)

* EBS Volume Types
* EBS Encryption
* EBS Performance
* Instance Store volumes
* Instance Stores Available on Instance Types
* Instance Store Usage Scenarios
* Adding Instance Store Volumes to an AMI
* Optimizing Disk Performance
* Creating and deleting volumes
* Attaching and detaching volumes
* Mounting and Unmounting the attached volume
* Increasing the volume size
* Creating snapshots
* Creating Volumes & AMIs from Snapshots.
* Cross-Region snapshot copy & use cases.

Elastic Load Balancer (ELB)

* What Is Elastic Load Balancing
* How Elastic Load Balancing Works
* Classic & App ELB types.
* Creating load balancer
* Internal & External Load balancers
* Load balancing protocols
* Listener Configurations
* SSL Negotiation Configurations
* Attach & Detach Subnets
* Security groups for the load balancer
* Configure health check for the load balancer
* Adding multiple instance to the load balancer
* Custom Domain Names
* Cross-Zone Load Balancing
* DNS Failover
* Sticky Sessions
* Monitoring and Logging
* DNS Failover
* Sticky Sessions
* Monitoring and Logging
* Cross-zone load balancing
* Connection Draining
* ELB traffic logging

Auto Scaling

* What is auto scaling
* Auto scaling components
* Benefits of auto scaling
* Creating launch configuration, and its prerequisites.
* Creating Auto Scaling Groups (ASG)
* Attach & Detach EC2 Instances in ASG
* Configuration of auto scaling policies based on the Load on EC2 instances.
* Using Auto scaling with Elastic Load balancer (ELB).
* Temporarily Removing Instances
* Suspend and Resume Process
* Shut Down Your Auto Scaling Process
* Monitoring Your Auto Scaling Instances
* Health Checks
* Getting Notifications When Your Auto Scaling Group Changes

Simple Storage Service (S3)

* Creating and deleting buckets
* Adding objects to buckets
* Getting objects
* Deleting objects
* Notifications
* Uses of S3 storage
* Working with Permissions of S3, Access Control, Bucket policy
* S3 Data encryption types
* Enable Versioning, Logging for S3 objects
* Lifecycle rules in s3
* Accessing S3 storage with Tools
* Hosting a Static Website
* Cross-Origin Resource Sharing
* Cross-region replication
* Audit Logging with AWS CloudTrail

Glacier Storage

* Creating Vaults
* Working with Archives
* Accessing the Glacier vault using tools
* Using Glacier for backups
* Job Operations
* Data Retrieval Policy Operations

Identity and Access management (IAM)

* Creation of user accounts
* Setting up multi factor Authentication (MFA)
* Roles in IAM
* Groups in IAM
* Delegation of permissions for users
* Creation of custom policies for delegation
* Using Identity Providers
* Cross-Account Access
* Account settings
* Credential Report
* Encryption - Key Management Service (KMS)

Virtual Private Cloud (VPC)

* Different types of networks that can be setup in AWS
* Creating a custom VPC
* NACLs & Security Groups
* Creation of Internet Gateway(IGW)
* Connecting to instances in the gateway
* Subnets, Route Tables & Association
* NAT Instances & NAT-Gateways
* VPC Peering
* VPN overview & components

Route 53

* Configuring Amazon Route 53 as Your DNS Service
* Registering a Domain Name and Configuring Amazon Route 53 as the DNS Service
* Migrating DNS Service for an Existing Domain to Amazon Route 53
* Creating a Subdomain That Uses Amazon Route 53 without Migrating the Parent Domain
* Working with Public Hosted Zones
* Working with Private Hosted Zones
* Working with Resource Record Sets
* Health Checks and DNS Failover
* Creating, Updating, and Deleting Health Checks
* Transferring a Domain from a Different AWS Account or Registrar
* Using IAM to Control Access to Amazon Route 53 Resources

Cloud watch

* Monitoring the AWS Service Health Dashboard
* Monitoring with Cloud watch
* Getting statistics for a specific EC2 instance
* Getting aggregated statistics
* Metrics for other AWS Services and related namespaces
* Setting up notifications

Simple Notification Services (SNS)

* Creation of a topic
* Subscribing to topic via Email
* Setting notification for EC2 instance changes

Simple Queue Service (SQS)

* Creation of a queue
* Sending messages to the queue
* Sending SNS to SQS
* Retrieving messages from SQS

Simple Email Services (SES)

* Setting up email domain
* Limits of SES
* Test Email setup

Elastic Beanstalk

* Creation of Web-App using Elastic Beanstalk
* Building a sample application using Beanstalk
* Modifying the properties of the deployment.

Relational Database Service (RDS)

* DB Instances
* Selecting the DB-Engine
* Configuring the Database Server
* Creating your Database
* Setting up automatic backups, snapshots & restores
* Authorizing access to the DB with RDS Security Groups
* DB Instance Replication
* Security: Using IAM to Manage Access to Amazon RDS Resources
* RDS Limits
* Managing MySQL Database server
* DB Instance Life Cycle: Renaming a DB Instance
* Deleting or Rebooting a DB Instance
* Working with Storage Types
* Upgrading a DB Instance
* Working with Option Groups & DB Parameter Groups
* Working with Reserved DB Instances
* Monitoring
* Database Log Files

Cloud Front

* How CloudFront Delivers Content
* Working with Distributions
* Working with Web Distributions
* Working with Objects
* Request and Response Behavior
* Serving Private Content through CloudFront
* Using an HTTPS Connection to Access Your Objects
* Using IAM to Control Access to CloudFront Resources
* Monitoring CloudFront Activity Using CloudWatch

ElastiCache

* ElastiCache Terminology and Concepts
* Backup and Restore
* Clusters Explanation ( Memcached and Redis )
* CloudWatch Metrics with ElastiCache
* Managing ElastiCache
* Managing Replication Groups
* DNS Names and Underlying IP

Cloud Formation

* Building AWS infrastructure as a code
* Utilization of Sample templates
* Introduction to JSON

Amazon Kinesis

* Kinesis Essentials
* Kinesis workflow, Procedures & Consumers
* Elastic Map Reduce Essentials

Use Cases

* Cloud Architecture Best Practices
* Cost Optimization
* Security Considerations
* Cost Calculation
* AWS CLI & use case to check instance, ELB, EBS states
* Building a simple web application in the AWS cloud
* Certification Track & guidance