

AWS Solutions Architect

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

(AWS Amazon Web Services)

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 Beanstack

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 LoadBalancer(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
- DHCP Options Sets & DNS
- 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

- Debugging cloud related issues
- 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

Relational Database Service (RDS)

- Creation of Web-App using Elastic
- 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 Behaviour

- Serving Private Content through CloudFront
- Using an HTTPS Connection to Access Your Objects
- Using IAM to Control Access to CloudFront Resources

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 JSO
- 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

Amazon Web Services – DevOps

- DevOps Basics
- What is DevOps and Why
- What Problem DevOps Paradigm Addresses
- What is meant by Continuous Integration in DevOps What is meant by Continuous Delivery in DevOps
- What is meant by Continuous Deployment in DevOps What is meant by Continuous Improvement in DevOps Autonomy of DevOps Teams

DevOps Tools in AWS

- AWS CodeCommit
- AWS CodeBuild
- AWS CodeDeploy

- AWS CodePipeline
- AWS Lambda
- AWS Lambda Overview
- AWS Lambda Console
- AWS ECS (Elastic Container Service)
- AWS Elastic Beanstalk
- AWS CloudFormation
- Packer
- Terraform
- Jenkins
- Ansible