amazon web services

Training & Consulting

Amazon Web Services (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

Amazon Web Services(AWS)

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 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
- 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

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 Behaviour
- 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

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

Abstracts:

1. Introduction to Cloud Computing

Learning Objectives - What Cloud Computing and what are the different models of Cloud Computing along with the key differentiators of different models, services and concepts.

Topics - Introduction to Cloud Computing, AWS Architecture, AWS Management Console, Setting up AWS Account.

2. Amazon EC2 and Amazon EBS

Learning Objectives - Introduction to compute offering from AWS EC2. Different instance types and Amazon AMIs. A demo on launching an AWS EC2 instance, connect to an instance and hosting a website on AWS EC2 instance. We will also cover EBS storage Architecture (AWS persistent storage) and the concepts of AMI and snapshots.

Topics - Amazon EC2, Amazon EBS, Demo of AMI Creation, Backup, Restore, EC2 Services and EBS persistent storage.

3. Amazon Storage Services: S3, RRS, CloudWatch

Learning Objectives - Various kind of scalable storage services like S3, RRS and learn how to host a static website on AWS. Monitoring AWS resources and setting up alerts and notifications for AWS resources and AWS usage billing with AWS CloudWatch.

Topics - AWS Storage Services: S3, RRS & Glacier, Amazon Cloud Watch, Alerts, Notification.

4. Scaling and Load Distribution in AWS

Learning Objectives - 'Scaling' and 'Load distribution techniques' in AWS. A demo of Load distribution & Scaling resources horizontally based on time or activity.

Topics - Amazon Scaling Service: ELB and Auto Scaling.

5. AWS VPC & Route 53

Learning Objectives - Introduction to Amazon Virtual Private Cloud. We will cover how you can make public and private subnet with AWS VPC. A demo on creating VPC, overview of AWS Route 53.

Topics - Amazon VPC with subnets, Gateways, Route tables and Amazon Route 53 overview.

6. Identity and Access Management (IAM) Techniques and Managed Relational Database (RDS)

Learning Objectives - Distribution of access control with AWS using IAM. We will talk about the managed relational database service of AWS called RDS.

Topics - Amazon IAM Overview, Amazon RDS.

7. Multiple AWS Services and Managing the Resources' Lifecycle

Learning Objectives - Manage life cycle of AWS resources and follow the DevOps model in AWS. Notification and email service of AWS along with Content Distribution Service in this module.

Topics - AWS CloudFront, AWS DynamoDB, AWS Import / Export, Overview of AWS Products such as Elastic Beanstalk, Cloud Formation, AWS OpsWorks, SES.

8. AWS Architecture and Design

Learning Objectives - Architecture and design aspects of AWS. Cost planning and optimization techniques along with AWS security best practices, High Availability (HA) and Disaster Recovery (DR) in AWS.

Topics - AWS Backup and DR Setup, AWS High Availability Design, AWS Best Practices (Cost +Security), AWS Calculator & Consolidated Billing.

9. Migrating to Cloud & AWS Case Study

Learning Objectives - How to migrate to cloud. Also we discuss a case study for AWS Implementation.

Topics - AWS Cloud Migration guidelines. AWS Case Study.

10. Project

Learning Objectives – A demo of an AWS Project using a real-life case study. This module will also have a Question and Answer session to prepare associates for AWS certifications.

Topics - Hands on Labs, Q/A, Overview of AWS Certification.