AWS Developer Certification Course

Why Cloud- 1 hour

- Why Cloud? (Duration-1hr)
- Why Cloud and What is Cloud Computing?
- Identify the features and benefits of cloud computing
- Different types of Cloud Computing deployment model
- Public Cloud, Private Cloud, Hybrid Cloud.
- Different types of services and its difference in Cloud computing
- IaaS, PaaS, SaaS
- Importance of scaling and elasticity in cloud computing
- Different types of scaling and its applications
- Issues we overcome using cloud and applications
- Cost model that we use in cloud computing

Lab:

  - Create a free tier account with your email id in aws.amazon.com

AWS -An Overview (1 hr)

- Describe the features of AWS
- The features of AWS marketplace
- Describe the features of Amazon Compute Services

- Describe the features of Amazon Storage Services
- Describe the features of Amazon Network Services
- Describe the features of Amazon Database services
- Describe the various services in AWS
- Global Infrastructure – Regions and Availability Zones
- Create a free tier account in AWS
- Introduction AWS management console

Lab:

Go over the various services in the AWS management console

Understand Identity Access Management of AWS (2 hrs)

- Protect your AWS by IAM
- Password policies set for users
- AWS User Account and Groups in detail
- Creating custom policies in AWS
- Introduction about Roles and its use
- Creating Roles and associating policies
- Creating programmatic access and management console access for users
- Associating policies to the user and groups

Lab

Install CLI

Create access keys, access key and secret access key from console and CLI

Create Users(Using CLI and console)

Create Groups(Using CLI and console)

Create Roles(Using CLI and console)

Create policies(Using CLI and console)

Attach policies to users, groups and roles(Using CLI and console)

Delete Users, groups, roles and policies (Using CLI and console)

Explain the use of roles in EC2 access to S3

Create MFA access

EC2 Instance (2hrs)

- Describe AMI and AWS Marketplace templates
- Launch a basic EC2 instance
- Different types of Instances Reserved, On-demand, Spot, Dedicated
- Security groups and tags for EC2 instance
- Public key – Private key introduction and protecting EC2 with keys
- Attaching and detaching EBS volumes
- Launch an ec2 instance from an AMI
- Create custom AMI and working with different region
- Make use of amazon EBS volume and create snapshots

- Manage the configuration of your application
- Deploying a new instance from the created AMI

Lab

Download putty, puttygen, key pair and ssh into an ec2 instance

Demonstrate user data by installing apache and an index page in /var/www/html(Launching a Web server)

Install aws configure on ec2 instance

Copy files from ec2 to s3 buckets

Run a python script on ec2 to perform add/delete from S3 buckets

Monitor an ec2 instance

Modify security groups to allow/disallow http/ssh access

Start, stop and terminate an ec2 instance

Create an AMI from an instance

  - Launch an ec2 instance using the created ami in another region

Auto-scaling (1 hr)

- Get Started with Auto Scaling Using the Console
- Creating Launch configurations and make use of it for autoscaling groups
- Maintain a Fixed Number of Running EC2 Instances
- Dynamic Scaling
- The lifecycle of autoscaling

Lab

Create Launch Configuration

Create auto scaling group

Test the results by terminating some instances

Load Balancing (1hr

- Introduction to Load balancer (ELB)
- Different types of Load balancer in AWS
- Application Load balancer
- Network Load balancer
- Classic Load balancer

Lab

Launch Web servers

Connect to each Web server

Create a Load balancer

View Elastic Load balancing metrics in cloud watch

Terminate instances and test with autoscaling

EBS (Elastic Block Storage) (1 hr)

- Create EBS volumes
- Delete EBS Volumes
- Attach and detach EBS volumes with EC2 instance
- Creating and deleting snapshots

Lab

Create a new EBS volume

Attach the volume to an instance

Connect to your instance

Create an EBS Snapshot

Restore an EBS snapshot

Automate EBS Snapshot with boto3 python

Delete snapshots

S3 Object Storage in Cloud (2 hrs)

- Understanding S3 durability and redundancy
- Introduction about S3 Buckets
- How S3 Uploading works and how to Download
- How to S3 Permissions
- How to implement S3 Object Versioning S3 Lifecycle Policies
- Storage Gateway
- Import Export
- S3 Transfer Acceleration
- Glacier storage

Lab

Create a bucket

Upload an object to the bucket

Make an object public

Create a bucket policy

Enable Versioning

Delete an object and restore it

Set a Lifecycle rule to move the data in S3 to IA after 30 days and delete it after 60 days

Cloud Front (1 hr)

- Describing cloud front
- Creating a cloud front distribution
- Hosting a website of cloud front distribution
- Configuring origins

Lab

Create a cloudfront web distribution

Test your static website with cloud front distribution

Update your site

Invalidate your cache

Route 53(2 hrs)

- Describe Hosted zones and Domain name understanding
- How to create hosted zones
- Hosting a website with custom domain name
- Understanding routing policies

Lab

Create a hosted zone for your domain

Create DNS records for EC2 instances

Add Route 53 health check to Amazon ec2 web server

Configure DNS failover to Static Website

Test health check failover

Amazon Virtual Private loud (VPC) (2hrs)

- Introduction to Amazon Virtual Private Cloud (VPC).
- VPC Advantages and understanding IP addressing CIDR
- Default and Non-default VPC
- Different Components in VPC
- Describe, create, and manage Amazon Virtual Private Cloud
- Amazon VPC, Private Subnet, and Public Subnet
- AWS Networking, Security Groups, and Network ACLs
- Configuration and management of VPN connectivity
- Subnet and Subnet Mask

Lab

Create a VPC

Explore the basic components of a VPC

Create a public facing subnet and private subnet

Configuring Route tables

Launch an ec2 instance and configure the security groups

Relational Database Service (RDS)(1hr)

- Introduction to RDS
- Different database services of AWS: Amazon RDS, Dynamo DB, Redshift etc.
- Create MYSQL RDS Instance, Oracle RDS Instance, MS SQL RDS Instance
- Configuring the database
- Configuring backups
- Configuring the maintenance windows
- Connecting to the database

Lab

Create and connect to an rds instance

Launch an rds instance and connect it to an ec2 instance

Deploy an RDS instance and connect it to a Web page

Launch a multi az rds instance in a vpc subnet

Monitoring Services (Cloud Watch and Cloud Trail)(2 hrs)

- Knowledge on Cloud watch – A monitoring service
- Create and Configuring Monitoring services
- How to perform Setting thresholds and Configuring actions
- Creating a cloud watch alarm
- Getting statistics for ec2 instances

- Monitoring other AWS services
- Configuring Notifications
- Integrating cloud watch with Autoscaling
- Enabling cloud trail
- Querying logs with Athena

Lab

Start and stop ec2 instances based on cloudwatch events

Enable cloud trail and use Athena to query the logs

Lambda (1 hr)

- What is Lambda
- Creating a lambda function
- Testing a lambda function
- Versioning
- Stages

Lab

Use Lambda and api gateway to create a responsive website.

Start and stop ec2 instances using lambda

Use Lambda to read dynamodb database

Additional functions using Lambda

API Gateway (1hr)

- What is API gateway

- API gateway in conjunction with other services
- Swagger files

Lab

Import swagger files

Create an api gateway endpoint and call a lambda function on a http request

Cloud Formation (1 hr)

- What is Cloud formation
- Cloud formation templates and stacks
- Fields in a template.
- Creation of cloud formation using designer, CLI, boto3

Lab

Deploy a cloud formation template that creates an AMAZON vpc

Examine the components of the template

Update a Cloud Formation stack

Examine a template with the cloud formation designer

Delete a Cloud formation stack

Other Services (1 hr)

- SQS
- SNS
- Trusted advisor

- DynamoDB
- AWS Config

Lab

Create a cloud watch event, alarm and sns notification

Create a SQS queue

Record resource activity using aws config

CI/CD Pipelines (1 hr)

- Code Commit
- Code build
- Code Deploy
- Code Pipeline

Lab

Create a ci/cd pipeline to deploy a web application

AWS Cost Calculation (1 hr)

- Billing dashboard
- Cost explorer
- Summary report
- Budgeting
- AWS best practices to cost optimize applications

Lab

Setting budgets

Cost calculation

Analyse the billing dashboard