

Course Title: Cloud Computing (CDV1) with Amazon Web Services

Duration: 40 hours

Module – 1 (Concepts)

- What is Cloud and Why Cloud?
- Cloud Vs Traditional Computing
- What are the Services provided by Cloud?
- Types of Cloud Models
- Cost Benefit Analysis (Capital Cost/Expenditure Vs Operational Expenditure)

Module – 2 (Virtualization)

- What is Virtualization and types of Virtualization
- Details on Virtual Machines (VM) and its use/benefits
- How to create your own VM (Non Cloud/Desktop)?
- VM Networking Concepts/Types
- Create a 3 tier environment in your own Machine

Module – 3 (Cloud Architecture and Implementation Models)

- Cloud Architecture, components and interfaces within
- Public Cloud - Characteristics, Benefits and Disadvantages, Security & Compliance
- Private Cloud - Characteristics, Benefits and Disadvantages, Security & Compliance
- Hybrid Cloud - - Characteristics, Need and Usage

Module – 4 (Cloud Services with AWS Hands On)

- Infrastructure as a Service - Concepts + Example
- Software as a Service - Concepts + Example
- Platform as a Service - Concepts + Example
- Difference between hosting an application in Cloud Vs Creating a cloud enabled App
- AWS (Amazon Web Services) Explained –
 - Compute (EC2 & EBS)
 - Storage (S3)
 - RDS (Remote Database Service)
 - Notification (SNS & SES)
 - Monitoring (CloudWatch)

Module – 5 (AWS - Amazon Web Services Concepts + Hands On)

- Creating an Account. What is a Free Tier?
- Different Types of Services Provided (IaaS/SaaS/PaaS/Storage/Big Data Related Services etc.)
- Creating Your First VM in AWS
- Creating a 3 tier environment in AWS
- Write Code to realize the auto provisioning and de-commissioning features with AWS SDK

Module – 6 (OpenStack + Cloud Security/Access Control + Hands On)

- OpenStack Concepts and Architecture
- How to create your own Private Cloud in OpenStack
- Understanding Cloud Security features
 - EC2 Virtual Machine Security (Ports, Networks and Firewall)
 - Access Control – IAM (Identity and Access Management)
- Hands on in AWS Environment for Authentication, Limits, User Groups
- VPC (Virtual Private Cloud) and ELB (Elastic Load Balancer)

Module – 7 (Industry Alignment)

- Overview of AWS Elastic Beanstalk, Redshift, CloudFormation, Lambda, DB Migration Service, Analytics and AI (Machine Learning) Services
- Industry/Client Use Cases and Architectures in Cloud Computing
 - Web and Standalone Applications (SaaS model)
 - Data/Storage – Migration, Big Data/Analytics/Machine Learning
 - Overview of Cloud Foundry + Docker and real life use cases
- Pitfalls in Cloud Implementations

Module – 8 (Backup, Recovery and Automation/DevOps Concepts)

- How to create personal backup from AWS
- How to recover from Personal Backups into AWS
- DevOps - Feature, Tools and Benefits

Module – 9 (Summary)

- Distribution of Materials
- Sample Industry Use Cases for Cloud
- Certifications which can be done (AWS and Google)
- References (Books, Tutorials and Use Cases)
- Roadmap - Advanced Course(s) on Cloud and Complex Use Cases

Prerequisites:

1. Linux, Shell and Programming (Core Java, python) preferred. However, if not present a crash course on the same can be organized.
2. Laptop (Intel i3/i5 Dual Core) with at least 4 GB RAM (8GB preferred).