Cloud Computing

- What is Cloud Computing?
- Benefit of cloud computing
- Overview of IAAS, PAAS, SAAS
- Types Of Cloud private, public & hybrid

Amazon Web Services (AWS)

- Introduction to Cloud Computing.
- Introduction to Amazon Webservices – Services Overview and AWS Infrastructure overview.
- Preparatory Topics – Virtualization, Networking and Storage concepts.
- AWS Management Console and AWS Account.
- Amazon EC2 – Instance types, families, generations.
- Amazon EBS – Magnetic, SSD, Provisioned IOPS.
- Amazon VPC – Subnets, ACLs, Routing rules, Security Groups.
- Hands-on activity: Creating a VPC, Creating instances (VMs) on EC2 and configuring all necessary services, attaching EBS volumes, Elastic IPs, etc.
- Overview – Object Storage, file shares and their use cases.
- Amazon S3, Glacier, (File Share Service), CloudFront.
- Amazon Cloudwatch – Monitoring service.
- Hands-on activity: Creating S3 buckets, putting and getting objects from S3, hosting a static website on S3.
- Amazon ELB.
- Amazon Auto-scaling – Launch Configurations, Auto-scaling Policies.
- Hands-on activity – configuration of auto-scaling rules and using them to automatically scale EC2 instances.

- AWS Database services overview – RDS, DynamoDB, Elasticache, Redshift.
- Hands-on activity – creating RDS instances, configuring Multi-AZ failover, accessing a database hosted on RDS.
- AWS IAM overview
  Configuring IAM users, groups and policies – Secret Keys and API Access
- Brief introduction to Devops enabling tools.
- AWS Devops services overview – CodeCommit, CodePipeline and CodeDeploy,Brief overview of Git.
- Hands-on activitiy – Configuring a Git repository on Codecommit and working with the repository.
- Brief introduction to Infrastructure as Code methodology.
- AWS Services Overview – Cloudformation, OpsWorks and ElasticBeanstalk Fundamentals of Cloudformation templates.
- Hands-on activity – creating and working with cloudformation templates and deploying a Stack using them.
- AWS Services Overview – Application Services (SES, SNS, SQS, etc).
- Architecting with AWS – Design guidelines and best practices.
- High Availability Design, Backup and DR.
- Cost Estimation using Simple Monthly Calculator.
- Hands-on Activity – configuring Simple Email Service (SES).
- Brief introduction to Hadoop and Big-Data.
- AWS Service Overview – Elastic Mapreduce (EMR).
- Q&A session for all previously covered topics, preparation tips for AWS SA-Associate Level Certification exam.
- Hands-on workshop/Project: Deploying a 3-tier web-application using AWS services.

- Bonus: Brief introduction to Vagrant and Chef.
- Hands-on workshop/Project: Automated deployment of Test/Dev environments using Vagrant, Chef and AWS.

Microsoft Azure

- Introduction to Azure
- Azure Hosting Models
- Azure Services
- Subscribing to Microsoft Azure
- Azure Portals
- Azure Resource Group
- Installing Microsoft Azure SDK
- App Types
- Deploying Web App directly from Visual Studio
- Monitoring, Debugging and Diagnosis
- Comparing SQL Azure Database to Azure / OnPremise SQL Server
- Creating and Using SQL Server and SQL Database
- Azure SQL Database Tools
- About Azure Storage
- C# / MS.NET Azure Storage SDK
    - Working with Blob Storage
    - Working with Tables Storage
    - Working with Queues Storage
    - Working with Files Storage

- REST API
    - Working with Storage Tables
    - Working with Azure Queues
- Azure Service Bus
    - Service Bus Basics
    - Hosting WCF Service in Azure
    - Relayed Messaging
    - Service Bus Queues
    - Topics and Subscriptions
- Azure IAAS Virtual Machine
    - Introduction
    - Comparing VM with Web Apps and Cloud Services
    - Create a Windows Virtual Machine using Portal / PowerShel
    - Understanding and Capture VM Images
    - Deploy a New VM Instance from the captured Image
    - Deploy popular application frameworks by using Azure Resource Manager templates
    - Understanding and Creating Availability Sets.
    - Load Balancing between multiple Virtual machines

OPENSTACK ADMINISTRATION

- OpenStack Platform architecture.
- Understand Linux OpenStack Platform features and terminology.
- Red Hat Enterprise Linux OpenStack Platform installation.
- Install Red Hat Enterprise Linux OpenStack Platform using packstack.
- Create an instance with the Horizon web front-end.
- Qpid message broker.
- Install and configure the Qpid message broker service.

- Secure Qpid using authentication and encryption.
- Keystone identity service.
- Install, configure, and use the Keystone authentication services.
- Swift object storage service.
- Install, configure, and use the Swift object storage service.
- Glance image service.
- Install and use the Glance image service.
- Cinder block storage service.
- Install the Cinder block storage service.
- Manage Cinder volumes.
- Networking service.
- Install, configure, and manage Red Hat Enterprise Linux OpenStack Platform networking service.
- Nova compute and controller services.
- Install Nova compute and controller services.
- Deploy an instance from the command line.
- Implement an additional compute node.
- Learn to add and remove additional Nova compute nodes.
- Heat orchestration service.
- Install the Heat orchestration service.
- Launch a stack using preconfigured templates.
- Ceilometer metering service.
- Install and manage the ceilometer metering service.
- The future of the OpenStack development community.
- Learn about the future of OpenStack.
- Comprehensive review.

- Review the installation and management of Red Hat Enterprise Linux OpenStack Platform.