

ActiveNET

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AWS Course Content

1. Introduction to Cloud Computing and AWS
 - a. History of the Cloud
 - b. Basic AWS Concept
 - c. Benefits of using AWS over traditional data center
 - d. Accessing AWS services

- e. **AWS Overview**
 - f. **Whats are SaaS, PaaS, and IaaS**
 - g. **Understanding virtualization**
 - h. **Elasticity and Scalability**
 - i. **Comparing AWS cloud and on-premises data centers**
 - j. **Total Cost of Ownership (TCO) versus Return on Investments (ROI)**
 - k. **Creating a new AWS Account**
 - l. **Deleting an AWS Account**
 - m. **AWS free tier**
 - n. **Root user versus non-root user**
 - o. **AWS dashboard**
 - p. **Core AWS Services**
 - q. **Shared security responsibility model**
 - r. **AWS soft limits**
 - s. **Disaster recovery with AWS**
- 2. Getting Familiar with Identity and Access Management**
- a. **Understanding AWS root user**
 - b. **Elements of IAM**
 - i. **Users**
 - ii. **Access key and Secret key**
 - iii. **Password Policy**
 - iv. **Multi-Factor Authentication (MFA)**
 - c. **Introduction to AWS CLI**
 - d. **Group**
 - e. **IAM Role**
 - f. **Policy**
 - g. **STS**
 - h. **IAM best practices**
- 3. Virtual Private Cloud**
- a. **AWS VPC**
 - b. **Subnet**
 - c. **IP Addressing**
 - i. **Private IP**
 - ii. **Public IP**
 - iii. **Elastic IP address**
 - d. **Creating VPC**
 - i. **VPC with a single public subnet**
 - ii. **VPC with private and public subnet**
 - iii. **VPC with public and private subnets and hardware VPN access**
 - iv. **VPC with private subnet only and hardware VPN access**
 - e. **Security**

- i. Security group
 - ii. Network ACLs (Access Control List)
 - iii. Security Group versus NACL (Network ACL)
 - iv. Flow logs
 - v. Controlling access
 - f. VPC Networking components
 - i. ENI (Elastic Network Interfaces)
 - ii. Route table
 - iii. IGW
 - iv. Egress-only IGW (Internet Gateway)
 - g. NAT
 - i. Comparison of NAT instances and NAT gateways
 - h. DHCP options set
 - i. DNS
 - i. VPC peering
 - j. VPC endpoint
 - k. ClassicLink
 - l. VPC best practices
- 4. Getting Started with Elastic Compute Cloud
 - a. Introduction to EC2
 - b. Pricing for EC2
 - c. EC2 instance Lifecycle
 - d. AMI
 - e. Introducing EBS
 - i. Types of EBS
 - ii. Encrypted EBS
 - iii. Monitoring EBS volumes with CloudWatch
 - iv. Snapshots
 - v. EBS optimized EC2 instances
 - f. EC2 best practices
- 5. Handling Application Traffic with Elastic Load Balancing
 - a. Introduction to Elastic Load Balancer
 - i. Benefits of using ELB
 - ii. Types of ELB
 - iii. Features of ELB
 - iv. Step-by-Step - Creating a Classic Load Balancer
 - v. How ELB works
 - 1. The working of a Classic Load Balancer
 - 2. the working of a Application Load Balancer
 - b. ELB best practices
- 6. Monitoring with CloudWatch

- a. How Amazon CloudWatch works
 - b. Elements of Amazon CloudWatch
 - i. Namespaces
 - ii. Metrics
 - iii. Dimensions
 - iv. Statistics
 - v. Percentile
 - vi. Alarms
 - vii. Billing Alerts
 - c. CloudWatch dashboards
 - d. Monitoring types - basic and detailed
 - e. CloudWatch best practices
7. Simple Storage Service, Glacier and CloudFront
- a. Amazon S3
 - b. Creating a Bucket
 - c. Transfer Acceleration
 - d. Requester Pay Model
 - e. Understanding Objects
 - f. Versioning
 - g. Object tagging
 - h. S3 storage classes
 - i. Comparison of S3 storage classes and Glacier
 - j. Lifecycle management
 - k. Hosting static web site on S3
 - l. Cross Origin Resource Sharing (CORS)
 - m. Cross-region Replication
8. Other AWS Storage Options
- a. AWS EFS
 - b. AWS Storage Gateway
 - i. FileGateways
 - ii. Volume gateways
 - c. AWS Snowball
 - d. AWS Snowmobile
9. AWS Relational Database Services
- a. AWS RDS Components
 - b. RDS Engine Types
 - c. Creating an Amazon RDS MySQL DB instance
 - d. Monitoring RDS instance
 - e. Creating a snapshot
 - f. Restoring a DB from a snapshot
 - g. Changing a RDS instance type

- h. Amazon RDS and VPC
 - i. Connecting to an Amazon RDS DB instance
 - j. RDS Best practices
- 10. AWS DynamoDB - A NoSQL Database Service**
- a. Understand what an RDBMS is?
 - i. What is NoSQL
 - ii. SQL Vs No-SQL
 - b. Introducing Dynamo DB
 - c. DynamoDB best practices
- 11. Amazon Simple Queue Service**
- a. Why to use SQS?
 - b. How Queue works?
 - c. Main features of SQS
 - d. Types of Queue
 - e. Dead Letter Queue (DLQ)
 - f. Queue Attributes
 - g. Creating a Queue
 - h. Sending a message in a queue
 - i. Viewing / deleting a message from queue
 - j. Purging a queue
 - k. Deleting a queue
 - l. Subscribing a queue to a topic
 - m. Adding user permission to a queue
 - n. SQS limits
 - o. Queue monitoring and logging
 - p. SQS Security
- 12. Simple Notification Service**
- a. Introduction to Amazon SNS
 - b. Creating Amazon SNS topic
 - c. Subscribing to a SNS topic
 - d. Publishing a message to a SNS topic
 - e. Deleting SNS topic
 - f. Managing access to Amazon SNS topics
 - g. Invoking Lambda function using SNS Notification
 - h. Sending Amazon SNS message to a Amazon SQS queues
 - i. Monitoring SNS with CloudWatch
 - j. SNS best practices
- 13. Simple Workflow Service**
- a. When to use Amazon SWF
 - b. Workflow
 - c. Lifecycle of workflow execution

- d. Polling for tasks
- e. SWF endpoints
- f. Managing access with IAM

14. AWS CloudFormation

- a. What is a template?
- b. What is a Stack?
- c. CloudFormation best practices

15. Elastic Beanstalk

- a. Elastic BeanStalk components
- b. Architectural concepts
- c. Getting started using EBS
- d. Version lifecycle
- e. Deploying web applications to EBS environments
- f. Monitoring the web application environment
- g. EBS Best practices

16. Overview of AWS Lambda

- a. Introduction to AWS Lambda
- b. Environment variables
- c. Tagging Lambda functions
- d. Event Source mapping for AWS services
- e. Event Source mapping for AWS stream-based service
- f. Event Source mapping for custom applications
- g. AWS Lambda best practices