

## AWS Cloud Training

(40 Hours of training – Based on AWS public Cloud)

### Day 1:

#### Introductions

- a. Meet with your Instructor
- b. Course Overview
- c. AWS Certification Roadmap
- d. Prerequisites

#### Lesson 1 - The Cloud Revolution

- a. Cloud - why the rush?
- b. Pros and Cons
- c. Other cloud providers

#### Lesson 2 - Introduction to AWS

- a. Overview / History
- b. Management Console
- c. LAB 1 - Create an AWS Account
  - i. Create a root account
  - ii. Create an IAM account
  - iii. IAM Key Points
  - iv. Create an IAM Account
  - v. Assign Roles to an IAM Account
  - vi. Create Multi-factor Authentication
  - vii. Billing Caveats

#### Lesson 3 – AWS Security

- a. HIPPA
- b. PCI Compliance
- c. LDAP Authentication
- d. SSO solutions
- e. Hybrid Cloud solutions and AWS security

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### Day 2

#### Storage Services

#### Lesson 4 - AWS Storage

- a. Introduction to S3 (Simple Storage Services)
- b. Buckets and Policies
- c. Static Content Hosting on S3
- d. Version control
- e. S3 Security and Encryption
- f. Volumes and Snapshots

#### LAB 2 - Hosting your static Web Site

- I. Create Static Content (Picture Album)
- II. Create an S3 Bucket (naming convention caveats)
- III. Copy files to S3
- IV. Assign a public URL
- V. Secure the site with bucket policies
- VI. Test your site from desktop / mobile device

#### Lesson 5:

- a. Lifecycle Management of S3 Objects
- b. Glacier (long term cheap archival solution)
- c. AWS Storage Gateway
- d. AWS Import / Export (Snowball)
- e. Introduction to CloudFront (AWS CDN)

#### LAB 3 - Create a CloudFront CDN

#### Lesson 6:

- a. S3 compared to Dropbox, and Swift
- b. S3 for media storage streaming media
- c. S3 real industry use cases, Netflix, Amazon and others
- d. S3 production scenarios, disaster recovery situations

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### Day 3 - EC2

#### Lesson 7 - EC2 - the engine that drives AWS

- a. History
- b. Intro to EC2
- c. Reserved Instances vs. Spot Instances
- d. Classes of EC2 Machines

#### LAB 4 - Create a basic EC2 Instance

1. Create a Linux Instance
2. Create a Windows Instance
3. Shut them down (CAUTION - billing)

- e. Security Groups
- f. AMI (Amazon Machine Image)

#### LAB 5 - Create an AMI

1. Install R Studio
2. Bootstrap Scripts
3. Create an EC2 instance on this AMI
4. Shut it down

- g. Assign IAM Roles to EC2 Instances
- h. AWS Command Line Interface (CLI)

#### Lesson 8 - Auto Scaling

- a. Placement Groups
- b. Instance Metadata and User Data
- c. Retrieving Instance Metadata
- d. Adding / Retrieving User Data
- e. Cool Down Periods
- f. Scaling Policies

#### LAB 6 - Practice Auto Scaling

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1. Creating Launch Configurations
2. Creating Auto Scaling Groups
3. Create Scaling Policies
4. Watch Instance count go up and down

### LAB 7: High availability production type web infrastructure

- a. Setup load balancers
- b. Setup cluster of EC2 instances with Wordpress
- c. Setup MqSql database on remote instance

### Day 4 - Database Services

#### Lesson 9 - Relational Database Services (RDS)

- a. Introduction to Amazon RDS
- b. RDS family - Oracle, SQL Server, mySQL, PostgreSQL, Amazon Aurora
- c. Multi AZ Failover
- d. RDS Read Replicas
- e. RDS Option Groups
- f. Restoring from a DB Snapshot

#### LAB 8 - Create RDS Database Instance

#### Lesson 10 - NoSQL Database Service

- a. DynamoDB
  - o Read Capacity Units
  - o Write Capacity Units
  - o Secondary Indexes
  - o Condition Expressions
  - o Guidelines for Query and Scan
  - o Best Practices for DyanmoDB

#### LAB 9 - Create DynamoDB Instance

#### Lesson 11 - RedShift and ElastiCache

#### Lesson 12: Bigdata and AWS, Machine learning, Production examples of large scale production systems running AWS

- a. SAP on AWS

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- b. Oracle Apps on AWS
- c. Supply chain on AWS etc

### Day 5 - Network Services

#### Lesson 13 - VPC

- a. Introduction to VPC
- b. NATs and ACLs
- c. Subnets
- d. Routing Tables
- e. VPC Peering

#### LAB 10 - Build your own VPC from scratch

#### Lesson 14 - Route53

- a. DNS 101
- b. Route 53 Lab
- c. Routing Policies

LAB 11 - Create your own Routing, Create production type VPC with two networks with different subnets, create NATS for bridging between the networks

### Day 5 - Application Services

#### Lesson 15 - Simple Queue Services (SQS)

- a. Message and Payloads
- b. SQS with AutoScaling Groups
- c. Long Polling
- d. Client-side Buffering and Request Batching

#### LAB 12 - Create SQS Queue

#### Lesson 16 - Simple Notification Services (SNS)

- a. Topics and ARN
- b. Delivery Formats and Transport
- c. Contrast SNS with SQS



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LAB 13 - Create mobile notifications using SNS

Lesson 17 - Simple Workflow Services (SWF)

- a. Tasks
- b. Decided / Worker / Activity

LAB 14 - Create mobile notifications using SNS

Day 7 - Exam Whitepaper Review, Exam notes and sample questions

Lesson 18 - Security Process Whitepaper

Lesson 19 - Exam Tips and Tricks