AWS Cloud – Associate Training Curriculum

Welcome to **SmashGaps!**

SmashGaps is an entity derived by Private Limited MNC to cater Industry Led Training with rich in contents and best in quality to create the Employment for the talent. We do not just train the resources however we **Build** the resource with respect to industry needs by Smashing the known Gaps.

Amazon Web Services Trainer Profile

Trainers Profile

- 12+ Years of Industry experience with 5+ in AWS and DevOps
- Has worked on various real-time Amazon Web Services projects
- Working in a MNC company in Pune
- Trained 50+ Students so far
- Strong Theoretical & Practical Knowledge
- Amazon Web Services Certified Professionals

Salient features:

- COMPLETE TRAINING ON ***LIVE*** **Environment with built-in Industrial Project Scenarios**
- We provide complete coverage of syllabus and have faculty with Live Industry Knowledge
- Deals in Individual/Corporate Training
- Personal attention and assessment done for everyone
- Global Certification Assistance with Mock Tests
- Be the first one to grab this opportunity and grab the best job available in the market
- Discounts to group students/group professionals

So, Hurry Up!!!!

Understanding Cloud
- Cloud Computing concept
- Cloud Technology (Virtualization and Containers)
- Cloud deployment types
- Cloud Service models
- Advantages and disadvantages of using Cloud
- About leading public cloud providers - AWS, GCP, Azure

Getting started with AWS Cloud
- First step - Creating your own AWS Account
- Understanding pricing and Free tier
- Logging into the AWS Console
- Creating user for yourself
- Get familiar with AWS console
- Setting up your Linux/Windows workstation to use AWS (AWSCLI)

Exercise 1: Using AWS CLI list users you just created.

AWS Global datacenter
- AWS Regions
- Availability Zones
- Global and Regional services
- AWS datacenter, platform security and compliance

Networking in AWS
- Virtual Private Cloud (VPC)
- VPC, Subnets and Routing tables
- Public, Private and Elastic IPs
- Understanding Classless Inter-domain routing (CIDR)
- Security groups and Network ACLs
- Network Address Translation - NAT gateway and NAT instance

Exercise 1: Create VPC with Internet Gateway

Exercise 2: Create public and Private subnets
Connecting 2 VPCs using VPC Peering
Connecting VPC to customer datacenter using IPSec VPN

AWS Compute Cloud (EC2)
- Amazon EC2 Overview
- EC2 essentials - Network, Storage, Compute
- AMI, Security Group, Key-pair, EBS
- Instance families and instance types
- Ephemeral and Persistent disk storage (Instance store vs EBS)
- Launching first EC2 virtual machine
- Logging into the machine with SSH key-pair
- Understanding Userdata and Metadata
- Automating installation of HTTP server

Exercise 1: Launch EC2 instance with EIP in Public Subnet.

Exercise 2: Install web server, configure security group and access your simple web page over internet.

Identity and Access Management (IAM)
- IAM Overview
- AWS Resource permissions
- Root user, IAM Users and Groups
- IAM Roles and Policies
- IAM Best practices

Exercise 1: Create a custom policy which grants s3 bucket write permissions and create role

Exercise 2: Launch EC2 instance with this role and see if you can write to bucket from EC2 instance without using ACCESS/SECRET keys

AWS Simple Storage Service (S3)
- Object storage vs block storage vs file storage
- Overview of S3
- Buckets and Keys
- S3 Bucket policies and Object ACLs
- S3 public endpoint
- Protecting data - Bucket policies, Object ACLs, Versioning, Encryption
- S3 storage types and Lifecycle policies
- Uploading and downloading contents to and from S3 (Console and CLI)

Exercise 1: Host your static website on S3

High Availability and Auto Scaling

- Concept - Designing highly available and fault tolerant systems
- Elastic Load Balancer (ELB)
- Scaling concept - Vertical and Horizontal scaling
- AWS Auto Scaling Group and integration with ELB
- Deployment across Availability Zones
- Scaling in/out on dynamic parameters

Exercise 1: Provision 2 EC2 instances in AutoScaling Group hosting your static web page. Configure them behind ELB

Exercise 2: Terminate 1 instance and see what happens. (Your website should be up)

Monitoring AWS Resources with CloudWatch

- Overview of Cloudwatch
- Namespaces, Metrics and dimensions
- Setting up cloudwatch alarms
- Integration with rest of AWS services
- Custom cloudwatch metrics

Exercise 1: Create cloudwatch dashboard showing CPU Utilization of all your instances

Exercise 2: Create an AutoScaling policy based on cloudwatch metrics to scale out/in based on average CPU Utilization of all your instances

Other important AWS Services

- Relational Database Service (RDS)
- NoSQL database Service (DynamoDB)
- Route53 DNS service
- SNS and SQS - Notification and queuing service
- Lambda Service

Exercise 1: Using IAM, Cloudwatch, Lambda and SNS service - Send daily emails which lists all your running instances

Security in AWS

- Security shared responsibility model
- Securing Network
- Securing Data in rest (Encryption) and data in transit (SSL/TLS)
- AWS Security best practices
- Vulnerability scanning and Compliance assessment

Exercise 1: Create and deploy SSL certificate to ELB hosting your static website

Disaster Recovery

- What is Disaster Recovery? Understanding RPO and RTO.
- Handling disk, EC2 or Availability Zone level failures
- Handling S3 unavailability
- EBS, DB backup and restore strategy
- Handling for AWS Region failure

Exercise 1: For EC2 instance hosting your static web page, take snapshot of EBS volume. Terminate instance (which also deletes volume). Recover instance with backed up volume using snapshot. You should be able to see your website back.

Closing notes

- Quick recap of what we learnt
- What next and How
- Preparing for AWS Certification Exams
- Exercise:-) Provide your valuable feedback about this course.

TOTAL COURSE DURATION:

6 Weekends (10% Buffer)

AVAILABLE TIMINGS:

Saturday and Sunday 11 AM to 2 PM OR 1 PM to 4 PM (3 Hours of session/day)

PRACTICAL TIMINGS:

Practicing on Free AWS Cloud Account is mandatory

CERTIFICATION DETAILS:

New Exam Released in February 2018:	Old Exam to complete before August 2018:
• Multi Choice and Multi Response Questions • 65 Questions • 130 Minutes to answer • Exam Fee: USD 150.00 • Sample Questions with Answers attached	• Multi Choice and Multi Response Questions • 80 Questions • 55 Minutes to answer • Exam Fee: USD 150.00 • Sample Questions attached

Other Workshops at SmashGaps:

OS:: UNIX | Redhat Linux | IBM AIX | Solaris | Wintel

DBA:: Oracle DBA | MS-SQL DBA | Sybase DBA | PL/SQL

Cloud:: Azure Cloud | VMWare

Others:: DevOps | Hadoop Administration | Hadoop Development | Bigdata

AWS Certified Solutions Architect Associate (Released February 2018) SAA-C01 Exam Guide

Introduction
The AWS Certified Solutions Architect – Associate(SAA-C01) examination is intended for individuals who perform a Solutions Architect role. This exam validates an examinee's ability to effectively demonstrate knowledge of how to architect and deploy secure and robust applications on AWS technologies.

It validates an examinee's ability to:
• Define a solution using architectural design principles based on customer requirements
• Provide implementation guidance based on best practices to the organization throughout the lifecycle of the project.

Recommended AWS Knowledge
One year of hands on experience designing available, cost efficient, fault tolerant, and scalable distributed systems on AWS
• Hands on experience using compute, networking, storage, and database AWS services
• Hands on experience with AWS deployment and management services
• Ability to identify and define technical requirements for an AWS based application
• Ability to identify which AWS services meet a given technical requirement
• Knowledge of recommended best practices for building secure and reliable applications on the AWS platform
• An understanding of the basic architectural principles of building on the AWS cloud
• An understanding of the AWS global infrastructure
• An understanding of network technologies as they relate to AWS
• An understanding of security features and tools that AWS provides and how they relate to traditional services

Exam Content
Response Types
There are two types of questions on the examination:
• Multiple choice: Has one correct response and three incorrect responses (distractors)
• Multiple response: Has two correct responses out of five options

Content Outline
This exam guide includes weightings, test domains, and objectives only.
It is not a comprehensive listing of the content on this examination. The table below lists the main content domains and their weightings.

DOMAIN	% of Examination
Domain 1: Design Resilient Architectures	34 %
Domain 2: Define Performant Architectures	24 %
Domain 3: Specify Secure Applications and Architectures	26 %
Domain 4: Design Cost-Optimized Architectures	10 %
Domain 5: Define Operationally Excellent Architectures	06 %
TOTAL	**100 %**

Domain 1: Design Resilient Architectures
1.1 Choose reliable/resilient storage.
1.2 Determine how to design decoupling mechanisms using AWS services.
1.3 Determine how to design a multi-tier architecture solution.
1.4 Determine how to design high availability and/or fault tolerant architectures.

Domain 2: Define Performant Architectures
2.1 Choose performant storage and databases.
2.2 Apply caching to improve performance.
2.3 Design solutions for elasticity and scalability.

Domain 3: Specify Secure Applications and Architectures
3.1 Determine how to secure application tiers.
3.2 Determine how to secure data.
3.3 Define the networking infrastructure for a single VPC application.

Domain 4: Design Cost-Optimized Architectures
4.1 Determine how to design cost-optimized storage.
4.2 Determine how to design cost-optimized compute.

Domain 5: Define Operationally-Excellent Architectures
5.1 Choose design features in solutions that enable operational excellence.

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Certification Roadmap