TechyEdz Solutions

Training | Consulting | Developement | Outsourcing

AWS + GCP

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AWS + GCP Combo Course

Course Overview:

This course teaches AWS professionals about the core capabilities of Google Cloud in the four technology pillars: networking, compute, storage, and database. It is designed for AWS system administrators, solutions architects, and SysOps administrators who are familiar with AWS features and setup and want to gain experience configuring Google Cloud products immediately. This course uses lectures, demos, and hands-on labs to show you the similarities and differences between the two platforms and teach you about some basic tasks on Google Cloud.
An Associate Cloud Engineer deploys applications, monitors operations of multiple projects, and maintains enterprise solutions to ensure that they meet target performance metrics. This individual has experience working with public clouds and on-premises solutions. They are able to use Google Cloud Console and the command-line interface to perform common platform-based tasks to maintain one or more deployed solutions that leverage Google-managed or self-managed services on Google Cloud.

AWS Certified Solutions Architect – Associate (SAA-C02)

Course Outline:

1. Fundamentals of Cloud Computing

- Course Introduction
- Introduction of Cloud Computing
- Key characteristics of Cloud Computing
- Cloud Analogy
- Cloud Computing Service Models
- Cloud Computing Deployment Models
- Comparison between Cloud and Legacy IT systems
- Advantages of Cloud Computing

2. AWS Cloud Overview

- Introduction to AWS Cloud
- History of AWS Cloud
- Global Infrastructure of AWS
- AWS Service scope in this course
- AWS Global vs. Regional Services
- Overview on Billing and Pricing

3. AWS Free Tier Account

- Introduction
- AWS Free Tier Account Creation
- Basic account Setting & Management
- Setting up Billing Alarm & Budget
- Activate MFA on Root Account

4. AWS IAM: Security & Authentication

- Introduction to Identity & Access Management
- Components of IAM
- Creating and Managing Users & Groups
- Creating and Managing IAM Policies
- Roles and its use cases
- Multi-Factor Authentication - [MFA]
- Security Token Service [STS]
- Security Features in IAM
- Best Practices of IAM
- Pricing

5. AWS Compute (EC2, ECS, Lambda and Lightsail)

- Introduction to EC2
- EC2 vs. Traditional Servers
- Introduction to Elastic Cloud Compute (EC2)
- Amazon Machine Images (AMI) and its Uses
- Configuring EC2 Instance and its types
- Security Groups - Creation & Management
- Launching & Connecting to EC2 instance (Hands On)

- Instance User Data and Instance Metadata
- Instance User Data and Instance Metadata (Hands On)
- Setting up a web server on EC2 Instance - Hosting a website
- Amazon Elastic Container Service(ECS)
- AWS Lambda (Serverless Computing)
- AWS Lambda Hands On
- Amazon Lightsail
- Amazon Lightsail Hands on (create Lightsail WordPress Site)
- Pricing

6. AWS Load Balancers and Auto Scaling Configuration

- Introduction
- Types of Load Balancer in AWS
- Important Components of Load Balancer
- How Health-Check Works for Load Balancer
- Creating and Configuring Application Load Balancer (Hands On)
- Understanding Launch Configuration and AutoScaling Group
- Creating and Configuring Autoscaling group (Hands On)
- Pricing

7. AWS Storage (S3, EFS and Storage Gateway)

- Introduction to Storage services
- Difference Between Object, Block and File Storage
- Introduction to Simple Storage Service (S3)
- S3 Storage Classes (or Tiers)
- S3 Consistency model
- Important Properties, Permissions and Management of S3 bucket
- Versioning of Objects
- Hosting a static-website in S3 (Hands On)
- Cross-Region & Same Region replication in S3
- S3 Transfer Acceleration
- Security feature of S3-Encryption, Bucket Policy and Permissions
- Storage Pricing
- Launch EC2 instance with IAM role and view data
- Amazon Elastic Block Store (EBS)

- AWS EBS Volume types
- Amazon EBS snapshots
- Instance Store Volumes
- Take snapshot, create AMI and Launch new Instance
- AWS Elastic File System (EFS)
- Create and mount EFS (Hands On)
- AWS Storage Gateway
- Pricing (Block store, EFS and Storage Gateway)

8. AWS Virtual Private Cloud (VPC)

- Introduction
- Amazon VPC
- Amazon VPC console Walkthrough Hands On
- Create Custom VPC Hands On
- IP Address and CIDR Block concepts
- Subnet and Route Tables
- Public, Private and Elastic IP addresses
- Internet Gateway and NAT
- Creating and managing NAT Gateways and NAT Instances
- Network Access Control List - NACL
- VPC Peering and VPC Endpoints
- Securely Connecting to the VPC
- VPN and CGW

9. AWS Relational Database Services (RDS)

- Introduction to RDS
- Components of RDS
- DB engines provided by RDS
- Snapshots and Back-up in RDS
- Read Replicas in RDS
- Creating and connecting to a RDS database
- RDS Security Groups
- Amazon DynamoDB

- Amazon DynamoDB Table Hands On
- Amazon Redshift
- Amazon Elasticache
- Limitations and Best Practice – RDS
- Pricing in RDS

10. AWS Content Delivery

- Introduction to CloudFront
- Create CloudFront Distribution with S3 Bucket (Hands On)
- CloudFront Caching, Caching Invalidations and Cache Hit Ratio
- Pricing

11. AWS Monitoring and Logging services

- Introduction
- Important Components of CloudWatch
- Create and view Alarms & Events in CloudWatch
- Amazon CloudTrail
- Create and view CloudTrail records
- Limitations and Best Practices
- Pricing

12. AWS Automation and Platform services

- Introduction to Cloud Automation
- CloudFormation introduction
- CloudFormation Stack creation Hands On
- Understanding Beanstalk
- Benefits of Beanstalk
- Create/ Deploy PHP application with Beanstalk service
- Pricing

13. AWS Migration and Data Transfer services

- Introduction
- AWS Data Migration Service
- AWS Server Migration Service
- AWS Snowball
- AWS Snowmobile
- AWS Migration Hub

14. AWS Cloud Security and Encryption

- AWS Security Overview
- AWS Shared Security Responsibility Model
- AWS Cloud Compliance and AWS Artifact
- AWS Config
- KMS and CloudHSM
- AWS Inspector and Trusted Advisor
- AWS Personal Health Dashboard
- AWS WAF & Shield
- AWS Direct Connect
- IAM Identity Providers and Federation
- AWS Single Sign-on
- AWS Directory Service
- AWS Macie
- Use cases and Pricing

15. AWS DNS Service and Routing Policies

- Introduction to Route53
- How Route53 Works
- Domain Registration in Route53
- Health Checks in Route53
- Routing Policies in Route53
- Creating and Managing different Routing Policies

- Records Sets supported by Route53
- Alarms and Notifications in Route53
- Limitations & Best Practices in Route53
- Pricing - Route53

16. DynamoDB, AWS NoSQL Database Service

- Difference between SQL and NoSQL
- Components of DynamoDB
- AutoScaling in DynamoDB
- DynamoDB Streams
- Primary and Secondary Indexing in DynamoDB
- Data Distribution in DynamoDB
- Backup and Monitoring in DynamoDB
- Creating Table and loading data into DynamoDB
- Best Practices – DynamoDB
- Pricing in DynamoDB

17. AWS Cloud Management Services

- Understanding and configuring Trusted Advisor
- Understanding and configuring Config
- Understanding and configuring AWS System Manager
- Use Cases
- Pricing

18. AWS AWS SNS, Notification Service

- How SNS Works?
- Important Components of SNS
- Creating and Managing Topics in SNS
- Adding Subscriber in SNS
- Managing SNS Policies
- Pricing in SNS

19. AWS Kinesis

- Types of Data Streaming in Kinesis
- Kinesis Firehose and its Architecture
- Kinesis Analytics and its Architecture
- Best Practice in Kinesis
- Use cases
- Pricing in Kinesis

20. AWS CLI, Amazon Command Line Interface

- Setting-Up AWS CLI on local machine
- Creating Users and groups using AWS CLI
- Creating & Managing Policy using AWS CLI
- Creating and Managing IAM Roles using AWS CLI
- AWS CLI Command Syntax walkthrough

21. AWS SQS

- How SQS Works - Architectural Walkthrough
- Important Components of SQS
- Pricing in SQS
- Best Practice - SQS

22. AWS Billing and Pricing

- Introduction
- AWS Budgets and Cost Explorer
- AWS Monthly Cost Calculator and TCO
- AWS Monthly Cost Calculation with an example
- AWS Support Plans
- AWS Resource grouping and Tagging
- AWS Organization and Consolidated Billing
- Pricing discussed as per modules above

GCP Associate Cloud Engineer

Course Outline:

1. Setting up a cloud solution environment

1.1 Setting up cloud projects and accounts. Activities include:

- Creating projects
- Assigning users to predefined IAM roles within a project
- Managing users in Cloud Identity (manually and automated)
- Enabling APIs within projects
- Provisioning one or more Stackdriver workspaces

1.2 Managing billing configuration. Activities include:

- Creating one or more billing accounts
- Linking projects to a billing account
- Establishing billing budgets and alerts
- Setting up billing exports to estimate daily/monthly charges

1.3 Installing and configuring the command line interface (CLI), specifically the Cloud SDK (e.g., setting the default project).

2. Planning and configuring a cloud solution

2.1 Planning and estimating GCP product use using the Pricing Calculator

2.2 Planning and configuring compute resources. Considerations include:

- Selecting appropriate compute choices for a given workload (e.g., Compute Engine, Google Kubernetes Engine, App Engine, Cloud Run, Cloud Functions)
- Using preemptible VMs and custom machine types as appropriate

2.3 Planning and configuring data storage options. Considerations include:

- Product choice (e.g., Cloud SQL, BigQuery, Cloud Spanner, Cloud Bigtable)
- Choosing storage options (e.g., Standard, Nearline, Coldline, Archive)

2.4 Planning and configuring network resources. Tasks include:

- Differentiating load balancing options
- Identifying resource locations in a network for availability
- Configuring Cloud DNS

3. Deploying and implementing a cloud solution

3.1 Deploying and implementing Compute Engine resources. Tasks include:

- Launching a compute instance using Cloud Console and Cloud SDK (gcloud) (e.g., assign disks, availability policy, SSH keys)
- Creating an autoscaled managed instance group using an instance template
- Generating/uploading a custom SSH key for instances
- Configuring a VM for Stackdriver monitoring and logging
- Assessing compute quotas and requesting increases
- Installing the Stackdriver Agent for monitoring and logging

3.2 Deploying and implementing Google Kubernetes Engine resources. Tasks include:

- Deploying a Google Kubernetes Engine cluster
- Deploying a container application to Google Kubernetes Engine using pods
- Configuring Google Kubernetes Engine application monitoring and logging

3.3 Deploying and implementing App Engine, Cloud Run, and Cloud Functions resources. Tasks include, where applicable:

- Deploying an application, updating scaling configuration, versions, and traffic splitting
- Deploying an application that receives Google Cloud events (e.g., Cloud Pub/Sub events, Cloud Storage object change notification events)

3.4 Deploying and implementing data solutions. Tasks include:

- Initializing data systems with products (e.g., Cloud SQL, Cloud Datastore, BigQuery, Cloud Spanner, Cloud Pub/Sub, Cloud Bigtable, Cloud Dataproc, Cloud Dataflow, Cloud Storage)
- Loading data (e.g., command line upload, API transfer, import/export, load data from Cloud Storage, streaming data to Cloud Pub/Sub)

3.5 Deploying and implementing networking resources. Tasks include:

- Creating a VPC with subnets (e.g., custom-mode VPC, shared VPC)
- Launching a Compute Engine instance with custom network configuration (e.g., internal-only IP address, Google private access, static external and private IP address, network tags)
- Creating ingress and egress firewall rules for a VPC (e.g., IP subnets, tags, service accounts)
- Creating a VPN between a Google VPC and an external network using Cloud VPN
- Creating a load balancer to distribute application network traffic to an application (e.g., Global HTTP(S) load balancer, Global SSL Proxy load balancer, Global TCP Proxy load balancer, regional network load balancer, regional internal load balancer)

3.6 Deploying a solution using Cloud Marketplace. Tasks include:

- Browsing Cloud Marketplace catalog and viewing solution details
- Deploying a Cloud Marketplace solution

3.7 Deploying application infrastructure using Cloud Deployment Manager. Tasks include:

- Developing Deployment Manager templates
- Launching a Deployment Manager template

4. Ensuring successful operation of a cloud solution

4.1 Managing Compute Engine resources. Tasks include:

- Managing a single VM instance (e.g., start, stop, edit configuration, or delete an instance)
- SSH/RDP to the instance
- Attaching a GPU to a new instance and installing CUDA libraries
- Viewing current running VM inventory (instance IDs, details)
- Working with snapshots (e.g., create a snapshot from a VM, view snapshots, delete a snapshot)
- Working with images (e.g., create an image from a VM or a snapshot, view images, delete an image)
- Working with instance groups (e.g., set autoscaling parameters, assign instance template, create an instance template, remove instance group)
- Working with management interfaces (e.g., Cloud Console, Cloud Shell, GCloud SDK)

4.2 Managing Google Kubernetes Engine resources. Tasks include:

- Viewing current running cluster inventory (nodes, pods, services)
- Browsing the container image repository and viewing container image details
- Working with node pools (e.g., add, edit, or remove a node pool)
- Working with pods (e.g., add, edit, or remove pods)
- Working with services (e.g., add, edit, or remove a service)
- Working with stateful applications (e.g. persistent volumes, stateful sets)
- Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)

4.3 Managing App Engine and Cloud Run resources. Tasks include:

- Adjusting application traffic splitting parameters
- Setting scaling parameters for autoscaling instances
- Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)

4.4 Managing storage and database solutions. Tasks include:

- Moving objects between Cloud Storage buckets
- Converting Cloud Storage buckets between storage classes
- Setting object life cycle management policies for Cloud Storage buckets
- Executing queries to retrieve data from data instances (e.g., Cloud SQL, BigQuery, Cloud Spanner, Cloud Datastore, Cloud Bigtable)
- Estimating costs of a BigQuery query
- Backing up and restoring data instances (e.g., Cloud SQL, Cloud Datastore)
- Reviewing job status in Cloud Dataproc, Cloud Dataflow, or BigQuery
- Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)

4.5 Managing networking resources. Tasks include:

- Adding a subnet to an existing VPC
- Expanding a subnet to have more IP addresses
- Reserving static external or internal IP addresses
- Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)

4.6 Monitoring and logging. Tasks include:

- Creating Stackdriver alerts based on resource metrics
- Creating Stackdriver custom metrics
- Configuring log sinks to export logs to external systems (e.g., on-premises or BigQuery)
- Viewing and filtering logs in Stackdriver
- Viewing specific log message details in Stackdriver
- Using cloud diagnostics to research an application issue (e.g., viewing Cloud Trace data, using Cloud Debug to view an application point-in-time)
- Viewing Google Cloud Platform status

- Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)

5. Configuring access and security

5.1 Managing identity and access management (IAM). Tasks include:

- Viewing IAM role assignments
- Assigning IAM roles to accounts or Google Groups
- Defining custom IAM roles

5.2 Managing service accounts. Tasks include:

- Managing service accounts with limited privileges
- Assigning a service account to VM instances
- Granting access to a service account in another project

5.3 Viewing audit logs for project and managed services.

Prerequisites:

- Have basic proficiency with networking technologies like subnets and routing
- Have basic proficiency with command-line tools
- A basic knowledge of windows administration and networking knowledge.
- A Basic Knowledge of linux administration

Who Can attend:

- AWS Absolute Beginners. No prior AWS experience necessary
- Existing Solutions Architects
- Programmers interested in deploying applications on AWS
- Developers, systems operations professionals, and solution architects getting started with Google Cloud.

- **Number of Hours: 80hrs**

- **Certification: AWS Certified Solutions Architect – Associate (SAA-C02) & GCP Associate Cloud Engineer (ACE)**

- **Key Features:**

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- Real Time Projects
- Virtual Live Experience
- Preparing for Certification