Google Cloud Engineer Associate Training

COURSE CONTENT

About Multisoft

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About Course

Multisoft Systems' Google Cloud Engineer Associate Training offers a comprehensive overview of the key concepts and skills required to excel in the dynamic field of cloud computing. This training program is meticulously designed to provide participants with hands-on experience in leveraging Google Cloud Platform (GCP) services and tools effectively.

Module 1: Setting up a cloud solution environment

Setting up cloud projects and accounts

- ✓ Creating a resource hierarchy
- ✓ Applying organizational policies to the resource hierarchy
- ✓ Granting members IAM roles within a project
- ✓ Managing users and groups in Cloud Identity (manually and automated)
- ✓ Enabling APIs within projects
- ✓ Provisioning and setting up products in Google Cloud's operations suite

Managing billing configuration

- ✓ Creating one or more billing accounts
- ✓ Linking projects to a billing account
- ✓ Establishing billing budgets and alerts
- ✓ Setting up billing exports
- ✓ Installing and configuring the command-line interface (CLI), specifically the Cloud SDK (e.g., setting the default project).

Module 2. Planning and configuring a cloud solution

- ✓ Planning and estimating Google Cloud product use using the Pricing Calculator
- ✓ Planning and configuring compute resources. Considerations include:
- ✓ Selecting appropriate compute choices for a given workload
- ✓ Using preemptible VMs and custom machine types as appropriate

Planning and configuring data storage options

- ✓ Product choice
- ✓ Choosing storage options

Planning and configuring network resources

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

Module 3: Deploying and implementing a cloud solution

Deploying and implementing Compute Engine resources

- ✓ Launching a compute instance using Cloud Console and Cloud SDK (gcloud)
- ✓ Creating an auto scaled managed instance group using an instance template
- ✓ Generating/uploading a custom SSH key for instances
- ✓ Installing and configuring the Cloud Monitoring and Logging Agent
- ✓ Assessing compute quotas and requesting increases

Deploying and implementing Google Kubernetes Engine resources

- ✓ Installing and configuring the command-line interface (CLI) for Kubernetes (kubectl)
- ✓ Deploying a Google Kubernetes Engine cluster with different configurations including Auto Pilot, regional clusters, private clusters, etc.
- ✓ Deploying a containerized application to Google Kubernetes Engine
- ✓ Configuring Google Kubernetes Engine monitoring and logging

Deploying and implementing Cloud Run and Cloud Functions resources

- ✓ Deploying an application and updating scaling configuration, versions, and traffic splitting
- ✓ Deploying an application that receives Google Cloud events

Deploying and implementing data solutions

- ✓ Initializing data systems with products
- ✓ Loading data

Deploying and implementing networking resources

- ✓ Creating a VPC with subnets
- ✓ Launching a Compute Engine instance with custom network configuration
- ✓ Creating ingress and egress firewall rules for a VPC
- ✓ 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

Deploying a solution using Cloud Marketplace

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

Implementing resources via infrastructure as code

- ✓ Building infrastructure via Cloud Foundation Toolkit templates and implementing best practices
- ✓ Installing and configuring Config Connector in Google Kubernetes Engine to create, update, delete, and secure resources

Module 4: Ensuring successful operation of a cloud solution

Managing Compute Engine resources

- ✓ Managing a single VM instance
- ✓ Remotely connecting to the instance
- ✓ Attaching a GPU to a new instance and installing necessary dependencies
- ✓ Viewing current running VM inventory
- ✓ Working with snapshots

✓ Working with images

✓ Working with instance groups

✓ Working with management interfaces

Managing Google Kubernetes Engine resources

✓ Viewing current running cluster inventory

✓ Browsing Docker images and viewing their details in the Artifact Registry

✓ Working with node pools

✓ Working with pods

✓ Working with services

✓ Working with stateful applications

✓ Managing Horizontal and Vertical autoscaling configurations

✓ Working with management interfaces

Managing Cloud Run resources

✓ Adjusting application traffic-splitting parameters

✓ Setting scaling parameters for autoscaling instances

✓ Determining whether to run Cloud Run (fully managed) or Cloud Run for Anthos

Managing storage and database solutions

✓ Managing and securing objects in and between Cloud Storage buckets

✓ Setting object life cycle management policies for Cloud Storage buckets

✓ Executing queries to retrieve data from data instances

✓ Estimating costs of data storage resources

✓ Backing up and restoring database instances

✓ Reviewing job status in Dataproc, Dataflow, or Big Query

Managing networking resources

✓ Adding a subnet to an existing VPC

- ✓ Expanding a subnet to have more IP addresses
- ✓ Reserving static external or internal IP addresses
- ✓ Working with CloudDNS, CloudNAT, Load Balancers and firewall rules

Monitoring and logging

- ✓ Creating Cloud Monitoring alerts based on resource metrics
- ✓ Creating and ingesting Cloud Monitoring custom metrics
- ✓ Configuring log sinks to export logs to external systems
- ✓ Configuring log routers
- ✓ Viewing and filtering logs in Cloud Logging
- ✓ Viewing specific log message details in Cloud Logging
- ✓ Using cloud diagnostics to research an application issue
- ✓ Viewing Google Cloud status

Module 5: Configuring access and security

Managing Identity and Access Management (IAM)

- ✓ Viewing IAM policies
- ✓ Creating IAM policies
- ✓ Managing the various role types and defining custom IAM roles

Managing service accounts

- ✓ Creating service accounts
- ✓ Using service accounts in IAM policies with minimum permissions
- ✓ Assigning service accounts to resources
- ✓ Managing IAM of a service account
- ✓ Managing service account impersonation
- ✓ Creating and managing short-lived service account credentials

Viewing audit logs