

GCP Cloud Associate Engineer (Duration:2 days)

Section 1. Setting up a cloud solution environment

1.1 Setting up cloud projects and accounts. Activities include:

- 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

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

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

Section 2. Planning and configuring a cloud solution

2.1 Planning and estimating Google Cloud 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, Cloud Run, Cloud Functions)
- Using preemptible VMs and custom machine types as appropriate

2.3 Planning and configuring data storage options. Considerations include:

- Choosing storage options (e.g., Zonal persistent disk, Regional balanced persistent disk, 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

Section 3. Deploying and implementing a cloud solution

3.1 Deploying and implementing Compute Engine resources. Tasks include:

- Launching a compute instance using the Google Cloud console and Cloud SDK (gcloud) (e.g., assign disks, availability policy, SSH keys)
- Creating an auto scaled managed instance group using an instance template
- Generating/uploading a custom SSH key for instance
- Assessing compute quotas and requesting increases

3.2 Deploying and implementing Cloud Run and Cloud Functions resources. Tasks include, where applicable:

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

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, network 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, regional internal load balancer)

3.6 Deploying a solution using Cloud Marketplace. Tasks include:

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

4.1 Managing Compute Engine resources. Tasks include:

- Managing a single VM instance (e.g., start, stop, edit configuration, or delete an instance)
- Remotely connecting to the instance
- Attaching a GPU to a new instance and installing necessary dependencies
- 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., Google Cloud console, Cloud Shell, Cloud SDK)

4.2 Managing Google Kubernetes Engine resources. Tasks include:

- Viewing current running cluster inventory (nodes, pods, services)
- Browsing Docker images and viewing their details in the Artifact Registry
- 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)
- Managing Horizontal and Vertical autoscaling configurations
- Working with management interfaces (e.g., Google Cloud console, Cloud Shell, Cloud SDK, kubectl)

4.3 Managing Cloud Run resources. Tasks include:



- Adjusting application traffic-splitting parameters
- Setting scaling parameters for autoscaling instances
- Determining whether to run Cloud Run (fully managed) or Cloud Run for Anthos

4.4 Managing storage and database solutions. Tasks include:

- Managing and securing objects in and between Cloud Storage buckets
- Setting object life cycle management policies for Cloud Storage buckets

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
- Load Balancers and firewall rules

Section 5. Configuring access and security

5.1 Managing Identity and Access Management (IAM). Tasks include:

- Viewing IAM policies
- Creating IAM policies
- Managing the various role types and defining custom IAM roles (e.g., primitive, predefined and custom)

5.2 Managing service accounts. Tasks include:

- 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