[GC-SOW]: Google Cloud – System Operations Workshop

Length : 4 days
Delivery Method : Instructor-led (Classroom)

At Course Completion

Prepares you as per certification requirements for Google Cloud System Operations to manage deploy resource on google cloud.

Pre-Requisites

Basic Linux commands like working with files and directories is desired.

Course Outline

Module 1: Introduction to Google Cloud Platform
Lessons

- Identify project resources and quotas
- Explain the purpose of Google Cloud Resource Manager and Identity and Access Management
- Use the Google Developers Console to create and manage multiple projects
- Use service accounts and permissions to share view-level access between projects

Lab: Google Cloud Platform Projects

Module 2: Instances
Lessons

- Create an instance using the Google Developers Console
- Configure the Cloud SDK on the Compute Engine instance
- Initialize Cloud Source Repositories using Git

Module 3: Networks Learning Objectives
Lessons

- Explain how to create and manage networks in projects
- Identify how to create and manage firewall rules, routes, and IP addresses
- Create a non-default network
- Compare default and non-default networks
- Create firewall-rules with and without tags
- Review network configuration in Google Cloud Monitoring

Lab: Google Compute Engine Networks

Module 4: Disks and Images

Lessons

- Explain how to create and manage persistent disks
- Identify how to create and manage disk images
- Create an instance and install the Java 7 JRE from OpenJDK
- Create a customized Compute Engine image
- Launch and test a Compute Engine instance based on your image

Lab: Google Compute Engine Disks and Images

Module 5: Authorization

Lessons

- Explain the purposes of and use cases for Google Compute Engine service accounts
- Identify the types of service account scopes
- Set authorization scopes for a Compute Engine instance
- Reserve the external IP address for the new instance
- Install and configure Jenkins on a Compute Engine instance

Lab: Google Compute Engine Authorization

Module 6: Snapshots

Lessons

- Identify the purpose of and use cases for disk snapshots
- Explain the process of creating a snapshots
- Prepare and snapshot a Compute Engine instance
- Restore and test the snapshot to a different zone
- Snapshot a data disk without shutting down an instance

Lab: Google Compute Engine Snapshot

Module 7: Google Cloud Storage

Lessons

- Explain the purpose of and use cases for Google Cloud Storage
- Identify methods for accessing Google Cloud Storage buckets and objects
- Explain the security options available for Google Cloud Storage buckets and objects
- Create and configure Nearline and DRA buckets
- Modify the lifecycle management policy for a bucket
- Copy data to a bucket using the Cloud SDK
- Review, modify, and test bucket ACLs
- Configure Jenkins to perform a backup to Cloud Storage
- Test and verify that the backups are working
- Create a customized Jenkins build node instance
- Create an image using the instance's boot persistent disk
- Create a test build node instance based on the new image
- Test uploading images to Google Container Registr

Lab: Google Cloud Storage for Backups

Lab: Google Container Registry

Module 8: Instance Groups
Lessons

- Identify the purpose of and use cases for instance groups
- Explain the process of creating and using instance groups
- Create a Compute Engine instance group with instances
- Define Jenkins build tasks and run them
- Run the build tasks to create a guestbook image

Lab: Google Compute Engine Instance Groups

Module 9: Google Cloud SQL
Lessons

- Understand how to create and administer Cloud SQL instances
- Explain how to access Cloud SQL instances from Compute Engine instances
- Create a Cloud SQL instance using the Cloud SDK
- Create a Compute Engine instance from a custom image
- Deploy and test the Guestbook web application

Lab: Google Cloud SQL

Module 10: Metadata
Lessons

- Explain the purpose of metadata and identify the use cases for project and instance metadata
- Identify how to set and query metadata
- Add instance and project metadata
- Query instance and project metadata using the Cloud SDK
- Query metadata from inside a Compute Engine instance

Lab: Google Compute Engine Metadata

Module 11: Startup and Shutdown Scripts
Lesson

- Identify the purpose of and use cases for startup and shutdown scripts
- Create an instance with a startup script in metadata
- Create an instance with a startup script from Cloud Storage
- Create an instance with a shutdown script and install the Cloud Logging agent
- Use the API Explorer to query an API request
- Run sample code that uses the Google API Client Library
- Test and build a container that uses the Cloud SQL API
- Create a new Compute Engine image

Lab: Google Compute Engine Startup Scripts

Lab: Google API Client Library

Module 12: Autoscaling
Lesson

- Explain the use cases for autoscaling and how autoscaling functions
- Identify the purpose of autoscaling policies
- Create an instance template and managed instance group
- Configure the managed instance group for autoscaling
- Generate an artificial load to trigger scaling of your cluster

Lab: Google Compute Engine Autoscaler

Module 13: Autoscaling
Lesson

- Explain the differences between network load balancing and HTTP load balancing
- Identify the purpose of and use cases for cross-region and content-based load balancing
- Create multiple autoscaled managed instance groups
- Configure fault-tolerant HTTP load balancing
- Test health checks for use with HTTP load balancing
- Create a Guestbook deployment using a plain YAML format
- Manage a Guestbook deployment using a Jinja template
- Create a Guestbook deployment using Python templates
- Delete Google Cloud Platform resources
- Test dependencies between resources
- Delete Google Cloud Platform projects

Lab: HTTPS Load Balancing

Lab: Google Cloud Deployment Manager

Lab: Deleting Cloud Platform Projects and Resources