

COURSE OUTLINE

Architecting with Google Compute Engine

Duration: 3 Days

Course Description:

This three-day class introduces participants to the comprehensive and flexible infrastructure and platform services provided by Google Cloud Platform, with a focus on Compute Engine. Through a combination of presentations, demos, and hands-on labs, participants explore and deploy solution elements, including infrastructure components such as networks, systems, and application services. This course also covers deploying practical solutions including securely interconnecting networks, customer-supplied encryption keys, security and access management, quotas and billing, and resource monitoring.

Course Objectives:

Configure VPC networks and virtual machines
 Administer Identity and Access Management for resources
 Implement data storage services in GCP
 Manage and examine billing of GCP resources
 Monitor resources using Stackdriver services
 Connect your infrastructure to GCP
 Configure load balancers and autoscaling for VM instances
 Automate the deployment of GCP infrastructure services
 Leverage managed services in GCP

Prerequisites:

Completion of Google Cloud Platform Fundamentals or equivalent experience
 Basic proficiency with command-line tools and Linux operating system environments
 Systems operations experience, including deploying and managing applications, either on-premises or in a public cloud environment

Audience:

Cloud Solutions Architects, DevOps Engineers
 Individuals using Google Cloud Platform to create new solutions or to integrate existing systems, application environments, and infrastructure, with a focus on Compute Engine

Course Outlines:

The course includes presentations, demonstrations, and hands-on labs.

Module 1: Introduction to Google Cloud Platform

- List the different ways of interacting with GCP
- Use the GCP Console and Cloud Shell
- Create Cloud Storage buckets
- Use the GCP Marketplace to deploy solutions

Module 2: Virtual Networks

- List the VPC objects in GCP
- Differentiate between the different types of VPC networks
- Implement VPC networks and firewall rules
- Design a maintenance server

Module 3: Virtual Machines

- Recall the CPU and memory options for virtual machines
- Describe the disk options for virtual machines
- Explain VM pricing and discounts
- Use Compute Engine to create and customize VM instances

Module 4: Cloud IAM

- Describe the Cloud IAM resource hierarchy
- Explain the different types of IAM roles
- Recall the different types of IAM members
- Implement access control for resources using Cloud IAM

Module 5: Storage and Database Services

- Differentiate between Cloud Storage, Cloud SQL, Cloud Spanner, Cloud Firestore and Cloud Bigtable
- Choose a data storage service based on your requirements
- Implement data storage services

Module 6: Resource Management

- Describe the cloud resource manager hierarchy
- Recognize how quotas protect GCP customers
- Use labels to organize resources
- Explain the behavior of budget alerts in GCP
- Examine billing data with BigQuery

Module 7: Resource Monitoring

- Describe the Stackdriver services for monitoring, logging, error reporting, tracing, and debugging
- Create charts, alerts, and uptime checks for resources with Stackdriver Monitoring
- Use Stackdriver Debugger to identify and fix errors

Module 8: Interconnecting Networks

- Recall the GCP interconnect and peering services available to connect your infrastructure to GCP
- Determine which GCP interconnect or peering service to use in specific circumstances
- Create and configure VPN gateways
- Recall when to use Shared VPC and when to use VPC Network Peering

Module 9: Load Balancing and Autoscaling

- Recall the various load balancing services
- Determine which GCP load balancer to use in specific circumstances
- Describe autoscaling behavior
- Configure load balancers and autoscaling

Module 10: Infrastructure Automation

- Automate the deployment of GCP services using Deployment Manager or Terraform
- Outline the GCP Marketplace

Module 11: Managed Services

- Describe the managed services for data processing in GCP

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