# Architecting with Google Compute Engine (GCE)

## Duration: 3 Days  Course Code: GO5973  Delivery Method: Company Event

## Overview:

**Develop essential skills for managing and administering solutions in Google Cloud.**
This course will familiarize you with Google Cloud's flexible infrastructure and platform services, with a specific focus on Compute Engine. This course uses a combination of lectures, demos, and hands-on labs to explore and deploy solution elements, including infrastructure components like networks, systems, and application services.
You'll also learn how to deploy practical solutions such as hybrid networking, customer-supplied encryption keys, security and access management, quotas and billing, and resource monitoring.
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Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

## Target Audience:

Experienced developers who are responsible for managing big data transformations including: Cloud Solutions Architects, DevOps Engineers. IT specialists using Google Cloud to create new solutions or to integrate existing systems, application environments, and infrastructure, with a focus on Compute Engine

## Objectives:

- After this course participants should be able to:
- Interact with the Google Cloud console and Cloud Shell
- Deploy solutions using Google Cloud Marketplace
- Implement VPC networks and firewall rules
- Create and customize VM instances using Compute Engine
- Administer Identity and Access Management for resources
- Implement data storage services in Google Cloud
- Manage and examine billing of Google Cloud resources
- Monitor resources using Google Cloud services
- Connect your infrastructure to Google Cloud
- Configure load balancers and autoscaling for VM instances
- Automate the deployment of Google Cloud infrastructure services
- Leverage managed services in Google Cloud

## Prerequisites:

- Have completed Google Cloud Fundamentals: Core Infrastructure or have equivalent experience
- Have basic proficiency with command-line tools and Linux operating system environments
- Have systems operations experience, including deploying and managing applications, either on-premises or in a public cloud environment

## Testing and Certification

## Follow-on-Courses:

- GO6591 Getting Started with Google Kubernetes Engine
- GO6494 Architecting with Google Kubernetes Engine

## Content:

1. Introduction to Google Cloud

- List the different ways of interacting with Google Cloud
- Interact with the Google Cloud console and Cloud Shell
- Create Cloud Storage buckets
- Deploy solutions using Google Cloud Marketplace
- Lab: Console and Cloud Shell
- Lab: Infrastructure Preview

2. Virtual Networks

- List the VPC objects in Google Cloud
- Explore VPC Networking
- Implement Private Google Access and Cloud NAT
- Lab: VPC Networking
- Lab: Implement Private Google Access and Cloud NAT

3. Virtual Machines

- Recall the CPU and memory options for virtual machines
- Describe the disk options for virtual machines
- Explain VM pricing and discounts
- Create and customize VM instances using Compute Engine
- Lab: Creating Virtual Machines
- Lab: Working with Virtual Machines

4. Identity and Access Management (IAM)

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

5. Storage and Database services

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

6. Resource Management

- Describe the cloud resource manager hierarchy
- Recognize how quotas protect Google Cloud customers
- Organize resources using labels
- Explain the behavior of budget alerts in Google Cloud
- Examine billing data with BigQuery
- Lab: Examining Billing Data with BigQuery

7. Resource Monitoring

- Describe the services for monitoring, logging, error reporting, tracing, and debugging
- Create charts, alerts, and uptime checks for resources with Cloud Monitoring
- Identify and fix errors using Cloud Debugger
- Lab: Resource Monitoring
- Lab: Error Reporting and Debugging

8. Interconnecting Networks

- Recall the Google Cloud interconnect and peering services available to connect your infrastructure to Google Cloud
- Determine which Google Cloud interconnect or peering service to use in specific circumstances
- Create and configure Google Cloud HA VPN
- Recall when to use Shared VPC and when to use VPC Network Peering
- Lab: Virtual Private Networks (VPN)

9. Load balacing and Autoscaling

- Recall the various load balancing services
- Determine which Google Cloud load balancer to use in specific circumstances
- Describe autoscaling behavior
- Configure load balancers and autoscaling
- Lab: ILT Configure an HTTP Load Balancer with Autoscaling
- Lab: Configuring an Internal Load Balancer

10. Infrastructure Automation

- Automate the deployment of Google Cloud services using Terraform
- Outline the Google Cloud Marketplace
- Lab: Automating the Deployment of Infrastructure Using Terraform

11. Managed Services

- Describe the managed services for data processing in Google Cloud

## Additional Information:

Official course book provided to participants.

## Further Information:

For More information, or to book your course, please call us on +1 (800) 268 7737

ilt.customerservice@globalknowledge.com

www.globalknowledge.com/en-us/

Global Knowledge Training LLC, 103 Foulk Road, Suite 202, Wilmington, Delaware, 19803