

## Architecting with Google Compute Engine

### Overview

This 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.

### Prerequisite Comments

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.

### Target 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 Google Compute Engine.

### 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

### Course Outline

[Register Online](#)**Schedule**

Class Length: 3 Days

G2R = "Guaranteed to Run" | OLL = "Online LIVE"  
ILT = "Instructor-Led-Training"

*This course is not currently available on the public schedule. Please contact us using the information in the footer below to inquire about future dates or to schedule a private class.*

## 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

## 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

## 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

## 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

## 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

## 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

## 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

## 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

## 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

## 10 - Infrastructure Automation

Automate the deployment of GCP services using Deployment Manager or Terraform

Outline the GCP Marketplace

## 11 - Managed Services

Describe the managed services for data processing in GCP

## Related Courses, Certifications, Exams ---

- Google Cloud Fundamentals - Core Infrastructure