

# Architecting with Google Compute Engine

Learn via: **Classroom/AFA**

Duration: **3 Day**

## **Overview**

This three-day instructor-led class introduces participants to the comprehensive and flexible infrastructure and platform services provided by Google Cloud Platform. Through a combination of presentations, demos, and hands-on labs, participants explore and deploy solution elements, including infrastructure components such as networks, systems and applications 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.

This class is intended for the following participants:

- Cloud Solutions Architects, DevOps Engineers.
- Individuals using Google Cloud Platform to create new solutions or to integrate existing systems, application environments, and infrastructure with the Google Cloud Platform.

## **Prerequisites**

To get the most out of this course, participants should have:

- Completed Google Cloud Platform Fundamentals or have 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

## **What You Will Learn**

- Consider the entire range of Google Cloud Platform technologies in their plans.
- Learn methods to develop, implement, and deploy solutions.
- Distinguish between features of similar or related products and technologies.
- Recognize a wide variety of solution domains, use cases, and applications.
- Develop essential skills for managing and administering solutions.
- Develop knowledge of solution patterns -- methods, technologies, and designs that are used to implement security, scalability, high availability, and other desired qualities.

## **Outline**

### **Module 1: Introduction to Google Cloud Platform**

- Google Cloud Platform (GCP) Infrastructure
- Using GCP
- Lab: Console and Cloud Shell
- Demo: Projects
- Lab: Infrastructure Preview

### **Module 2: Virtual Networks**

- Virtual Private Cloud (VPC), Projects, Networks, Subnetworks, IP addresses, Routes, Firewall rules
- Subnetworks for resource management instead of physical network topology
- Lab: Virtual Networking
- Lab: Bastion Host

### **Module 3: Virtual Machines**

- Compute Engine
- Lab: Creating Virtual Machines
- Compute options (vCPU and Memory)
- Images

- Common Compute Engine actions
- Lab: Working with Virtual Machines

#### **Module 4: Cloud IAM**

- Organizations, Roles, Members, Service accounts, Cloud IAM best practices
- Lab: Cloud IAM

#### **Module 5: Data Storage Services**

- Cloud Storage
- Lab: Cloud Storage
- Cloud SQL
- Lab: Cloud SQL
- Cloud Spanner, Cloud Datastore
- Lab: Cloud Datastore
- Cloud Bigtable

#### **Module 6: Resource Management**

- Cloud Resource Manager, Quotas, Labels, Names, Billing
- Demo: Billing Administration
- Lab: Examining Billing Data with BigQuery

#### **Module 7: Resource Monitoring**

- Stackdriver, Monitoring
- Lab: Resource Monitoring (Stackdriver)
- Logging, Error Reporting, Tracing, Debugging
- Lab: Error Reporting and Debugging (Stackdriver)

#### **Module 8: Interconnecting Networks**

- Cloud Virtual Private Network (VPN)
- Lab: Virtual Private Networks (VPN)
- Cloud Router, Cloud Interconnect, External Peering, Cloud DNS

#### **Module 9: Load Balancing**

- Managed Instance Groups, HTTPS load balancing, Cross-region and content-based load balancing, SSL proxy/TCP proxy load balancing, Network load balancing
- Lab: VM Automation and Load Balancing

#### **Module 10: Autoscaling**

- Autoscaling, Policies, Configuration
- Lab: Autoscaling

#### **Module 11: Infrastructure Automation with Google Cloud Platform APIs**

- Infrastructure automation, Images, Metadata, Scripts, Google Cloud API
- Lab: Google Cloud Platform API Infrastructure Automation

#### **Module 12: Infrastructure Automation with Deployment Manager**

- Deployment Manager, Configuration, Cloud Launcher
- Lab: Deployment Manager

#### **Module 13: Managed Services**

- Cloud Dataproc, Cloud Dataflow, BigQuery, Cloud Datalab