

Architecting with Google Compute Engine

Course 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.

This is a 3-day class



Who Should Attend

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

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

Course Outline

1 INTRODUCTION TO GOOGLE CLOUD PLATFORM

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

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

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3 VIRTUAL MACHINES

Compute Engine
Lab: Creating Virtual Machines
Compute options (vCPU and Memory)
Images
Common Compute Engine actions
Lab: Working with Virtual Machines

4 CLOUD IAM

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

5 DATA STORAGE SERVICES

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

6 RESOURCE MANAGEMENT

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

7 RESOURCE MONITORING

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

8 INTERCONNECTING NETWORKS

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

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

10 AUTOSCALING

Autoscaling, Policies, Configuration
Lab: Autoscaling

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11 INFRASTRUCTURE AUTOMATION WITH GOOGLE CLOUD PLATFORM APIS

Infrastructure automation, Images, Metadata, Scripts, Google Cloud API

Lab: Google Cloud Platform API Infrastructure Automation

12 INFRASTRUCTURE AUTOMATION WITH DEPLOYMENT MANAGER

Deployment Manager, Configuration, Cloud Launcher

Lab: Deployment Manager

13 MANAGED SERVICES

Cloud Dataproc, Cloud Dataflow, BigQuery, Cloud Datalab