

Architecting with Google Cloud Platform: Infrastructure

Duration: 40 Hours (5 Days)

Overview

The "Architecting with Google Cloud Platform: Infrastructure" course is an in-depth training program designed to equip learners with the skills and knowledge necessary to create and manage a secure, scalable, and intelligent cloud infrastructure using Google Cloud Platform (GCP). The course covers various foundational and advanced topics, from understanding the core infrastructure components, such as Compute Engine and Cloud Storage, to mastering network design and implementing data storage services. Participants will gain hands-on experience through labs and demos, reinforcing their learning and preparing them for the GCP Cloud Architect Certification. Key areas such as Virtual Networks, IAM, Load Balancing, Autoscaling, and Managed Services are thoroughly explored, ensuring a comprehensive GCP Architect Training. Upon completion, learners will be well-positioned to architect robust GCP solutions, contributing to their organizations' successful digital transformation.

Audience Profile

The Architecting with Google Cloud Platform: Infrastructure course is designed for IT professionals seeking to leverage Google Cloud for scalable, secure infrastructure.

- Cloud Architects
- Systems Engineers
- IT Infrastructure Specialists
- DevOps Engineers
- Network Engineers
- Security Specialists
- Cloud Infrastructure Planners
- IT Managers overseeing cloud adoption
- Application Developers using Google Cloud services
- Data Engineers and Data Analysts focusing on Google Cloud-based solutions
- Technical Leads and Technical Project Managers working with GCP
- Software Engineers interested in deploying applications on GCP
- IT Professionals looking to understand GCP for comprehensive cloud solutions

Course Syllabus

Essential Cloud Infrastructure: Foundation

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

Essential Cloud Infrastructure: Core Services

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)

Elastic Cloud Infrastructure: Scaling and Automation

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

Elastic Cloud Infrastructure: Containers and Services

Module 14: Application Infrastructure Services

- Cloud Pub/Sub, API Management, Cloud Functions, Cloud Source
- Repositories, Specialty APIs

Module 15: Application Development Services

- App Engine

Module 16: Containers

- Containers, Kubernetes Engine, Container Registry
- Lab: Kubernetes Load Balancing
- Kubernetes Engine, App Engine, or Containers on Compute Engine?