COURSE OUTLINE

GC-AGCD - Architecting with Google Cloud Design and Process

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
2 days	200 - Intermediate	Google Cloud	VILT / ILT	N/A

INTRODUCTION

Use proven Google Cloud design patterns to build reliable, efficient, highly available, and cost-effective solutions through lectures, design activities, and labs.

AUDIENCE PROFILE

Cloud solution architects, site reliability engineers, systems operations professionals, DevOps engineers, IT managers, and Google Cloud practitioners.

PRODUCTS

- App Hub
- Cloud Build
- Cloud Run
- Advanced Networking
- Access Context Manager
- Application Load Balancer
- App Engine
- Cloud Functions
- IAM
- Cloud Load Balancing
- Compute Engine
- Container Registry
- VPC Networking

COURSE OUTLINE

PREREQUISITES

- Architecting with Google Compute Engine or Architecting with Google Kubernetes Engine, or equivalent experience.
- Basic command-line and Linux proficiency.
- Systems operations experience.

COURSE OBJECTIVES

- Define requirements as KPIs, SLOs, and SLIs.
- Decompose applications into microservices.
- Design automated deployment pipelines.
- Choose storage, networking, compute, and security services.
- Design reliable, scalable, resilient systems.
- Monitor SLOs and costs.

COURSE CONTENT

Module 01 | Defining the Service

Topics

- Roles and personas
- KPIs, SLOs, and SLIs
- SMART criteria

Objectives

Classify users, formulate SLOs and SLIs, and validate requirements.

Activities

- 3 activities
- Quiz

Module 02 | Microservice Design and Architecture

Topics

- Application decomposition
- Service boundaries
- REST APIs
- 12-factor practices

COURSE OUTLINE

Objectives
Design decoupled microservices and standardized APIs.

Activities
2 activities
Quiz

Module 03 | DevOps Automation

Topics
- CI/CD
- Source control
- Cloud Build
- Container Registry

Objectives
Design automated pipelines and manage artifacts.

Activities
Lab
Quiz

Module 04 | Choosing Storage Solutions

Topics
- Spanner
- Cloud SQL
- Firestore
- Memorystore

Objectives
Select storage services based on requirements.

Activities
2 activities
Quiz

COURSE OUTLINE

Module 05 | Google Cloud and Hybrid Network Architecture

Topics

- VPC design
- Load balancing
- Peering and VPN
- Cloud Interconnect

Objectives

Design secure, performant hybrid networks.

Activities

2 activities
Quiz

Module 06 | Deploying Applications

Topics

- Deployment services
- Instance groups
- Kubernetes and GKE
- App Engine

Objectives

Select and deploy appropriate compute platforms.

Activities

Lab
Quiz

Module 07 | Designing Reliable Systems

Topics

- Availability
- Durability
- Scalability
- Fault tolerance

Objectives

Design reliable and fault-tolerant services.

Activities

2 activities
Quiz

COURSE OUTLINE

Module 08 | Security

Topics

- Secure design
- Organization policies
- IAM
- DDoS mitigation

Objectives

Implement governance, access, and edge protection.

Activities

Activity
Quiz

Module 09 | Maintenance and Monitoring

Topics

- Version management
- Cost optimization
- SLO monitoring
- Uptime checks
- Alerts

Objectives

Implement zero-downtime releases and monitoring.

Activities

Activity
Lab
Quiz