

Session 1 Introduction to the Professional Cloud Architect Certification

1. Reasons to Take the Professional Cloud Architect Exam
2. Prerequisite Knowledge
3. What to and what not to expect

Session 2 Overview of Cloud Computing and Google Cloud

1. Overview of Cloud Computing
2. Google Cloud vs. Other Clouds
 1. Security First
 2. Open Cloud
 3. Analytics and Artificial Intelligence
 4. Global Data Centers and Network
 5. Principles of System Design
3. Overview of Google Cloud Platform
 1. Compute Solutions
 2. Storage Solutions
 3. Database Solutions
 4. Data Analytics
 5. Networking Solutions
 6. Operations Solutions
 7. Developer Tools
 8. Hybrid Cloud and Multi-Cloud Solutions
 9. Migration Solutions
 10. Security and Identity Solutions
4. Interacting with the GCP
 1. Google Cloud Console
 2. Command-Line Interface
 3. Client Libraries
5. Business and Technical Context for the Google Cloud Architect

1. Assessing Business Requirements
2. Assessing Technical Requirements

Session 3 Cloud Identity

1. Setting Up a Cloud Identity and Admin Account
2. Security Principles in the Cloud
 1. The AAA Security Model
 2. Least Privilege and Separation of Duties
3. Cloud Identity Overview
 1. Managing Users in Cloud Identity
4. How Users Authenticate to GCP
 1. 2-Step Verification
5. Security Auditing

Session 4 Resource Management

1. Cloud Resource Manager Overview
2. Organization Hierarchy
 1. Organization, Folders, Projects, and Resources
3. Organization Policies

Session 5 Cloud Identity and Access Management

1. Cloud IAM Overview
2. Members, Roles, and Policies
 1. Google Accounts
 2. Groups
 3. Service Accounts
 4. IAM Roles
 5. IAM Policies
3. IAM Conditions

4. Accounting and Technical Compliance

Session 6 Networking

1. Networking Deep Dive

1. Google's Global Network
2. Network Tiers
3. Virtual Private Cloud, Subnets, Regions, and Zones
4. Subnet Ranges and IP Addressing
5. Routes and Firewall Rules
6. Private Access
7. Cross-Project Communication
8. Cloud DNS

2. Connectivity to Your Cloud

1. Cloud Router
2. Cloud VPN
3. Cloud Interconnect

3. Cloud Load Balancing

1. Overview
2. Cloud CDN

4. Network Security

1. Network Security Principles
2. Google Front End
3. Firewalls
4. Cloud Armor
5. Cloud NAT
6. VPC Service Controls
7. Identity-Aware Proxy
8. Network Logging

Session 7 Compute and Containers

1. Google Compute Engine
 1. Virtual Machine Instances
 2. Images
 3. Instance Templates and Instance Groups
 4. Storage Options
 5. OS Login
2. Google App Engine
 1. App Engine Flex vs. App Engine Standard
3. Google Kubernetes Engine
 1. Cluster Architecture
 2. Configuration
 3. Node Upgrades
4. Cloud Functions
5. Cloud Run
6. API Management
 1. Apigee
 2. Cloud Endpoints
 3. Secure Your APIs

Session 8 Storage, Databases, and Data Analytics

1. Storage
 1. Google Cloud Storage
 2. Cloud Filestore
 3. Persistent Disk
 4. Local SSD
2. Databases
 1. Cloud SQL
 2. Cloud Spanner
 3. Cloud Bigtable
 4. Cloud Firestore
 5. Cloud Memorystore
3. Data Analytics
 1. BigQuery
 2. Cloud Dataproc
 3. Cloud Dataflow
 4. Cloud Pub/Sub
4. Data Security
 1. Data Classification
 2. Cloud DLP
 3. Encryption

Session 9 DevOps

1. The DevOps Philosophy

2. Continuous Integration and Continuous Deployment
 1. Continuous Integration
 2. Continuous Deployment
3. Infrastructure as Code
4. Deployment Strategies
 1. Blue-Green Deployment
 2. Rolling Deployment
 3. Canary Deployment
 4. A/B Deployment
5. Deployment Tools
 1. Google Cloud Deployment Manager
 2. Cloud Build
 3. Cloud Source Repositories
 4. Container Registry

Session 10 Cloud Operations

1. Cloud Logging
 1. Log Types
2. Cloud Trace, Cloud Profiler, and Cloud Debugger
3. Cloud Monitoring
 1. Workspaces
 2. Monitoring Agent
 3. Uptime Checks
 4. Metrics and Alerts
 5. Dashboards
4. The Importance of Resilience

Session 11 Security

1. Security Fundamentals
 1. CIA Triad

- 2. Control Categories
 - 3. Control Functions
 - 4. Asset × Threat × Vulnerability = Risk
 - 5. Security Modernization
 - 6. Compliance
- 2. Infrastructure Security Highlights
 - 1. Identity Security
 - 2. Resource Management Security
 - 3. IAM Security
 - 4. Network Security
 - 5. Application Layer Security
 - 6. Data Security
 - 7. DevOps Security
- 3. Security Operations
 - 1. Cloud Asset Inventory
 - 2. Security Command Center

Session 12 Billing, Migration, and Support

- 1. Billing Fundamentals
 - 1. Cost Control
 - 2. Migration Planning
 - 1. Resource Quotas vs. Capacity
 - 2. Transferring Applications and Data
 - 3. Training and Enablement
 - 3. Google Cloud Support