Architecting with Google Cloud: Design and Process

Duration: 2 Days **Course Code: GO5974** **Delivery Method: Virtual Learning**

Overview:

Use Google Cloud to create new solutions or to integrate existing systems, application environments, and infrastructure.

This course features a combination of lectures, design activities, and hands-on labs to show you how to use proven design patterns on Google Cloud to build highly reliable and efficient solutions and operate deployments that are highly available and cost-effective.
This course was created for those who have already completed the Architecting with Google Compute Engine or Architecting with Google Kubernetes Engine course.

Updated 6/3/2026

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

This course is recommended to anyone looking to create new solutions or to integrate existing systems, application environments, and infrastructure with Google Cloud:
- Cloud solutions architects
- Systems operations professionals
- DevOps engineers
- IT managers

Objectives:

- **After this course participants should be able to:**
- Apply a tool set of questions, techniques and design considerations.
- Define application requirements and express them objectively as KPIs, SLOs and SLIs.
- Decompose application requirements to find the right microservice boundaries.
- Leverage Google Cloud developer tools to set up modern, automated deployment pipelines.
- Choose the appropriate Google Cloud Storage services based on application requirements.
- Discuss Google Cloud network architectures, including hybrid architectures.
- Implement reliable, scalable, resilient applications balancing key performance metrics with cost.
- Choose the right Google Cloud deployment services for your applications.
- Secure cloud applications, data and infrastructure.
- Monitor service level objectives and costs using Cloud Monitoring.

Prerequisites:

- Have completed Architecting with Google Compute Engine (GO5973), Architecting with Google Kubernetes Engine (GO6594), or have equivalent experience.
- Have basic proficiency with command-line tools and Linux operating system environments.
- Have systems operations experience, including deploying and

Testing and Certification

This course is part of the Learning Paths towards Associate Cloud Engineer and Professional Cloud Architect certification.

managing applications, either on-premises or in a public cloud environment.

Follow-on-Courses:

Depends on the profile of the participants.

Content:

Module 1: Defining the expected Service

- Describe users in terms of roles and personas.
- Evaluate KPIs using SLOs and SLIs.
- Determine the quality of application requirements using SMART criteria.

Module 2: Microservices design and architecture

- Decompose monolithic applications into microservices.
- Recognize appropriate microservice boundaries.
- Design consistent, standard RESTful service APIs.
- Identify the 12-factor best practices for implementing services.

Module 3: DevOps Automation

- Discuss the automation of service deployment using CI/CD pipelines.
- Explain how to leverage Cloud Source Repositories for source and version control.
- Automate builds with Cloud Build and build triggers.
- Manage container images with Container Registry.

Module 4: Choosing Storage solutions

- Identify the use cases for :
- Spanner.
- Cloud SQL.
- Firestore.
- Memorystore.

Module 5: Google Cloud and hybrid network architecture

- Discuss the design of VPC networks to optimize for cost, security, and performance.
- Describe how global and regional load balancers provide access to services.
- Connect networks using peering and VPNs.
- Define hybrid networks between Google Cloud and on-premises data centers using Cloud Interconnect.

Module 6: Deploying applications to Google Cloud

- Choose the appropriate Google Cloud deployment service for your applications.
- Configure scalable, resilient infrastructure using Instance Templates and Groups.
- Orchestrate microservice deployments using Kubernetes and GKE.
- Leverage App Engine for a completely automated platform as a service (PaaS).

Module 7: Designing reliable systems

- Discuss the design of services to meet requirements for availability, durability, and scalability.
- Identify the failures to be avoided to implement a fault-tolerant system.

Module 8: Security

- Identify the best practices for designing secure systems.
- Discuss the use of organizational policies and folders to simplify cloud governance.
- Identify Google Cloud services that can be leveraged for access management.
- Identify Google Cloud services that can be leveraged to mitigate DDoS attacks.

Module 9: Maintenance and Monitoring

- Discuss different ways to manage new service versions.
- Describe how to forecast, monitor, and optimize service costs.
- Observe if your services are meeting their SLOs using Cloud Monitoring and Dashboards.
- Use Uptime Checks to determine service availability.

Respond to service outages using Cloud Monitoring Alerts.

Additional Information:

Official course book provided to participants.

Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

training@globalknowledge.com.eg

www.globalknowledge.com/en-eg/

Global Knowledge, 16 Moustafa Refaat St. Block 1137, Sheraton Buildings, Heliopolis, Cairo