Architecting with Google Kubernetes Engine

Duration: 2 Days Course Code: GO6594 Delivery Method: Virtual Learning

Overview:

Learn how to deploy and manage containerized applications on Google Kubernetes Engine (GKE).

Learn how to use other tools on Google Cloud that interact with GKE deployments. This course features a combination of lectures, demos, and hands-on labs to help you explore and deploy solution elements—including infrastructure components like pods, containers, deployments, and services—along with networks and application services. You'll also learn how to deploy practical solutions, including security and access management, resource management, and resource monitoring.
Products:
- Google Kubernetes Engine
- Google Cloud networking
- Google Cloud Storage
- Cloud IAM
- Cloud Observability
- Cloud SQL
- Cloud Deploy

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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:

- Cloud architects, administrators, and SysOps/DevOps personnel.
- Individuals using Google Cloud to create new solutions or to integrate existing systems, application environments, and infrastructure with Google Cloud.

Objectives:

- **After this course participants should be able to:**
- Create and manage workloads in Google Kubernetes Engine.
- Explain how pod networking works in Google Kubernetes Engine.
- Define and work with different Kubernetes storage abstractions.
- Describe and manage authentication, authorization, and security in Google Kubernetes Engine.
- Monitor applications running in Google Kubernetes Engine.
- Explore Google Cloud managed storage services options.
- Configure CI/CD pipelines for Google Kubernetes Engine.

Prerequisites:

- Completed “Getting Started with Google Kubernetes Engine” or have equivalent experience

Testing and Certification

None

Follow-on-Courses:

No recommendation

Content:

Module 0: Course Introduction

- Introduce the course goals and preview each section of the course.

Module 1: Workloads: Deployments and Jobs

- Define, configure, inspect, manage, and update Deployments.
- Define what Jobs and CronJobs are in GKE, and explore relevant use cases. Create and run Jobs.
- Explain how to scale clusters manually and automatically.
- Configure node and pod affinity.

Module 2: Google Kubernetes Engine Networking

- Explore Kubernetes networking, including Pod and cluster networking.
- Create services to expose to applications running within Pods.
- Configure load balancers to expose services to external clients. Explore container native load balancing in GKE.
- Configure Google Kubernetes Engine networking.

Module 3: Persistent Data and Storage

- Define and work with Kubernetes storage abstractions.
- Run and maintain sets of pods using StatefulSets.
- Use ConfigMaps to decouple configuration from Pods.
- Manage and store sensitive access and authentication data.
- Configure persistent storage for Google Kubernetes Engine.

Module 4: Access Control and Security in Kubernetes and Google Kubernetes Engine

- Authentication and authorization
- Kubernetes role-based access control
- Workload Identity
- Kubernetes control plane security
- Pod security

Module 5: Google Kubernetes Engine Logging and Monitoring

- Identify the tools included in the Google Cloud Observability .
- Configure the Google Cloud operations suite to monitor and manage the availability and performance.
- Inspect logs using the kubectl command.
- Inspect Kubernetes logs using Google Cloud Observability.
- Configure GKE-native Monitoring and Logging.

Module 6: Using Google Cloud Managed Storage Services with Google Kubernetes Engine

- Contrast managed storage services with self-managed storage.
- Identify use cases for Cloud Storage for Kubernetes applications.
- Compare the range of Google Cloud managed database services.
- Explore Cloud SQL Auth Proxy and how it connects to Cloud SQL from within GKE.
- Use Cloud SQL with Google Kubernetes Engine.

Module 7: Using CI/CD with Google Kubernetes Engine

- Define continuous integration and continuous delivery and identify why it is important.
- Examine CI/CD pipelines and how they can optimize app releases.
- Explore first-party and third-party CI/CD tools supported by Google Cloud.
- Explore Google's best practices for a GKE CI/CD pipeline.

Module 8: Course Summary

- Review the main objectives from each section of the course.

Additional Information:

Official course book provided to participants

Further Information:

For More information, or to book your course, please call us on +1 (800) 268 7737

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