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Google Kubernetes Engine Training

formerly Anthos

3 days (21 hours)

Overview

Google Kubernetes Engine (GKE) Fleets allows you to group and manage multiple Kubernetes clusters within a single platform, whether they are deployed on Google Cloud, in a hybrid environment, or across different cloud infrastructures.

Our Google Kubernetes Engine: Fleets and Hybrid Cloud training will help you transition from managing isolated clusters to implementing a true multi-cluster strategy. You'll learn how to create and organize Fleets, register your clusters, and centralize their management.

You'll discover how to integrate Kubernetes environments outside of Google Cloud, including attached AWS and Azure clusters, as well as the role of Google Distributed Cloud for hybrid and on-premises infrastructures.

You'll learn how to secure access and workloads with Fleet Workload Identity Federation and Connect Gateway, and then how to standardize your cluster configuration using Config Sync and GitOps principles.

Finally, you'll be able to enforce common security and compliance policies with Policy Controller, monitor your various clusters, and diagnose the main incidents encountered in a hybrid GKE architecture.

By the end of this training, you'll be able to manage, secure, and govern multiple Kubernetes clusters consistently from a GKE Fleet architecture.

Like all our training courses, this one will introduce you to **the latest stable version** of Anthos technology (1.10.16) and its new features.

Objectives

- Design and organize a multi-cluster GKE architecture with Fleets
- Register and manage hybrid and multi-cloud Kubernetes clusters
- Secure identities and access with Fleet Workload Identity Federation
- Synchronize multi-cluster configurations with Config Sync
- Enforce security and compliance policies with Policy Controller
- Monitor and troubleshoot a hybrid GKE platform in production

Target Audience

- Kubernetes and GKE administrators
- Cloud Engineers
- Platform Engineers
- DevOps engineers
- Cloud and Infrastructure Architects

Prerequisites

- Strong proficiency with Kubernetes and its key components
- Hands-on experience administering Google Kubernetes Engine (GKE)
- General knowledge of cloud architectures and IAM principles
- Completion of our GKE training or equivalent experience

Our Google Kubernetes Engine training program: Fleets and Hybrid Cloud

[Day 1 - Morning]

Designing a multi-cluster architecture with GKE Fleets

- Understand the evolution from Anthos to Google Kubernetes Engine and the current role of Fleets
- Explore GKE Fleets concepts: fleet host project, memberships, and features at the fleet level
- Understand the principles of grouping and consistently managing multiple Kubernetes clusters
- Identify multi-cluster, hybrid, and multi-cloud use cases
- Design a fleet strategy tailored to the organization’s environments, teams, and constraints
- Hands-on workshop: Design a GKE Fleet architecture comprising multiple clusters and define their organization.

[Day 1 - Afternoon]

Register and manage hybrid and multi-cloud clusters

- Register GKE clusters in a fleet and manage their memberships
- Understand the integration of Kubernetes clusters located outside of Google Cloud
- Integrating attached AWS and Azure clusters into a multi-cloud strategy
- Understand the role of Google Distributed Cloud for on-premises and hybrid environments
- Use centralized management capabilities to manage multiple Kubernetes environments
- Hands-on workshop: Register multiple clusters in a fleet and verify their centralized management.

[Day 2 - Morning]

Managing identities and access within a fleet

- Understanding the challenges of multi-cluster identity management
- Use IAM to control access to fleet resources and features
- Understand how Fleet Workload Identity Federation works
- Assign identities to workloads and secure their access to Google Cloud resources
- Use Connect Gateway to access registered clusters and simplify their administration
- Hands-on workshop: Configure access to a fleet and enable a workload to securely access a Google Cloud resource.

[Day 2 - Afternoon]

Standardize multi-cluster configuration with Config Sync

- Understand the principles of GitOps as applied to a multi-cluster Kubernetes infrastructure
- Use Config Sync to synchronize configurations across multiple clusters
- Organize a Git repository as the single source of truth for Kubernetes resources
- Deploy and maintain consistent configurations across an entire fleet
- Identify and correct configuration drift across clusters
- Hands-on workshop: Connect a fleet to a Git repository and synchronize a common configuration across multiple clusters.

[Day 3 - Morning]

Govern and secure clusters with Policy Controller

- Understanding the Role of Policy Controller in Kubernetes Environment Governance
- Define and enforce common security and compliance constraints across clusters
- Use policy bundles to accelerate policy implementation
- Understand the modes of auditing and enforcing rules
- Centralize governance and monitor resource compliance across the fleet
- Hands-on workshop: Deploy a common policy across multiple clusters, detect a non-compliant resource, and apply remediation.

[Day 3 - Afternoon]

Operating and monitoring a hybrid GKE platform

- Centralize cluster monitoring and track the status of environments within the fleet
- Identify incidents related to memberships, identities, configurations, and multi-cluster policies
- Apply a troubleshooting methodology to hybrid and multi-cloud environments
- Organize operations and changes across multiple clusters while minimizing configuration drift
- Define best practices for operating a multi-cluster GKE platform in production
- Hands-on workshop: Diagnose multiple incidents across a fleet and develop an operations plan for a hybrid GKE platform in production.

Target Audience

This training is intended for both individuals and companies—large or small—seeking to train their teams in new, advanced IT technologies or to acquire specific domain knowledge or modern methodologies.

Pre-training Assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency level across various types of technologies, as well as their expectations and personal goals for the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Hands-On Training: 60% Practical, 40% Theoretical. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the instructor—supported by examples and reflection sessions—and group work.

Assessment

At the end of the session, a multiple-choice quiz is administered to verify that participants have successfully acquired the skills.

Certification

A certificate will be issued to each trainee who has completed the entire training program.

Training organization registered under number 11 75 54743 75. This registration does not constitute state accreditation.
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