GCP-COSMA: Cloud Operations and Service Mesh with Anthos

Course Code: GCP-COSMA
Duration: 1 day
Instructor-led Training (ILT) | Virtual Instructor-led Training (VILT)

OVERVIEW

This second course of the Architecting Hybrid Cloud Infrastructure with Anthos series equips students to operate and observe Anthos environments. Topics include adjusting existing clusters, setting up advanced traffic routing policies, securing communication across workloads, and observing clusters in Anthos. This course is a continuation of Multi-cluster, Multi-cloud with Anthos and assumes direct experience with Anthos clusters from that course.

SKILLS COVERED

- Observe and monitor services running on Anthos clusters in multiple environments.
- Install Anthos Service Mesh on Anthos clusters in multiple environments.
- Configure traffic routing, improve network security, and enhance observability with Anthos Service Mesh.
- Create multi-cluster networking architectures with Anthos Service Mesh.

WHO SHOULD ATTEND?

Customers, Googlers

PREREQUISITES

- Google Cloud Platform Fundamentals: Core Infrastructure
- Architecting with GKE
- Multi-cluster, Multi-cloud with Anthos

MODULES

Module 1: Introducing Anthos Service Mesh

- Introduction to Anthos Service Mesh
- Architecture
- Installation
- Life of a request in the mesh
- Mesh telemetry and instrumentation
- Anthos Service Mesh dashboards
- Anthos Service Mesh pricing and support

Objectives

- Understand the benefits of Anthos Service Mesh, including running distributed services across clusters and enhancing service observability, traffic management, and security.
- Install Anthos Service Mesh on different Anthos clusters and choose capabilities depending on the level of management and automation you want.
- Collect workload telemetry including metrics, traces, and logs, and learn to visualize your services on the Anthos Service Mesh dashboards.
- Understand Anthos Service Mesh and the capabilities, limitations, and costs of running it on different Anthos clusters.

Module 2: Managing Traffic Flow with Anthos Service Mesh

- Networking and service discovery
- Anthos Service Mesh API resources
- Network resilience and testing

Objectives

- Understand how Anthos Service Mesh learns the network from Kubernetes

and builds on top to provide advanced routing capabilities.
- Deploy mesh API resources such as the VirtualService, DestinationRule, Gateway, Service Entry, and the sidecar to configure the mesh.
- Harden the mesh network by introducing new functionality such as request retries, request timeouts, and circuit breakers.
- Test the mesh network by creating failures and delays on specific services to improve the overall resilience.

Module 3: Securing Network Traffic with Anthos Service Mesh

- Security across services
- Authentication and encryption
- Service authentication in the mesh
- End-user authentication in the mesh
- Authorization in the mesh
- Bonus: Employee authentication and authorization in the mesh

Objectives

- Encrypt traffic between microservices to prevent anyone in the network from accessing private information.
- Authorize services and requests; ensuring that services only access the information that is allowed access from other services.
- Authenticate services and requests to verify trust among services in the mesh and among end users.
- Limit service access in the network so that granular controls over the communication can be established.

Module 4: Multi-Cluster Networking with Anthos Service Mesh

- Fleet networking
- Single network east-west routing
- Multiple network east-west routings
- North-south routing

Objectives

- Understand how to do multi-cluster networking, both north-south and east-west routing, with different network configurations.
- Learn how to configure east-west networking on different Anthos clusters running on multi-cloud and hybrid locations with Anthos Service Mesh.
- Install Anthos Service Mesh on different Anthos GKE clusters, and choose the right network configuration depending on where you want to run your cluster.
- Combine Anthos Service Mesh with multi-cluster Gateways and multi-cluster services (MCS) to seamlessly run distributed services.

END OF PAGE