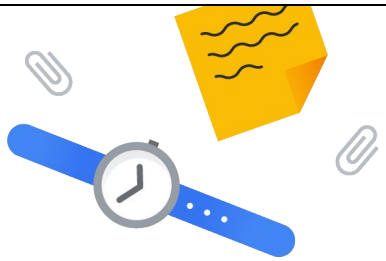


Today's agenda

01 Introduction to Anthos Service Mesh

02 Lab: Anthos Service Mesh Walkthrough

03 Lab review

04 Architecture

05 Installation

06 Life of a request in the mesh

07 Mesh telemetry and instrumentation

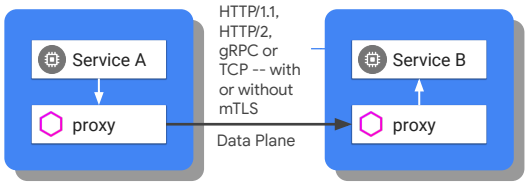
08 Anthos Service Mesh dashboards

09 Anthos Service Mesh pricing and support

10 Lab: Observing Anthos Services

Anthos Service Mesh data plane

- The data plane encompasses all network communication between microservices.
- Envoy, an open source, high-performance C++, distributed network proxy, is deployed as a sidecar proxy to each pod in the mesh.
- Envoy takes care of the communication protocol, the security, and the observability in the mesh.



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Anthos Service Mesh is composed of the data plane and the control plane.

The data plane encompasses all network communication between microservices.

It does so by leveraging Envoy, an open-source, high-performance C++, distributed network proxy, that is deployed as a sidecar proxy to each Kubernetes pod in the mesh.

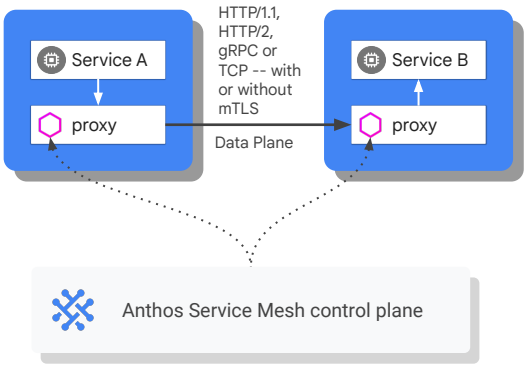
Envoy takes care of the communication protocol, security, and observability in the mesh.

You can use:

- Protocols such as HTTP 1 and 2, gRPC or TCP.
- Encryption over TLS, mutual TLS, or none at all, having the communication go over plain text.
- And telemetry reporting on the mesh, capturing information such as requests latencies and package sizes.

Anthos Service Mesh control plane

- Manages and configures the Envoy proxies to route traffic.
- Acts as a certificate authority (CA) to authenticate and establish trust between microservices.
- Administrators configure the control plane with Kubernetes CustomResourceDefinitions (CRDs).
- The control plane configures Envoy proxies over the Envoy xDS APIs.



Google Cloud

The control plane manages and configures the Envoy proxies to route traffic. CA is separate from control plane; the control plane works with CA to authenticate and establish trust between microservices. To configure the Envoy proxies, administrators use Kubernetes CustomResourceDefinitions implemented by the Istio project. Once they are applied, the control plane then synchronizes changes with the Envoy proxies over the Envoy xDS APIs.

CA is separate from control plane; the control plane works with CA to authenticate and establish trust between microservices.

CA Service

- In addition to Mesh CA, you can configure Anthos Service Mesh to use CA Service.
- CA Service is suitable for the following use cases:
  - If you need different certificate authorities to sign workload certificates on different clusters.
  - If you want to use istiod custom CA plugin certificates.
  - If you need to back your signing keys in a Google-managed HSM.
  - If you are in a highly regulated industry and are subject to compliance.
  - If you want to chain up your Anthos Service Mesh CA to a custom enterprise root certificate to sign workload certificates.
- CA Service provides an SLA and is charged separately (Mesh CA is included in ASM and does not provide an SLA).

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CA Service provides an SLA and is charged separately.

While Mesh CA does not provide an SLA and the service is included in the Anthos Service Mesh base price.