

Istio – What is Service Mesh?

Service Mesh manages communication between microservices

- ✓ Business logic (BL)
- ✓ Communication configuration(COMM)
- ✓ Security(SEC)
- ✓ Retry logic(RT)
- ✓ Metrics & tracing logic(MT)

✗ These **Non Business logic** must be added to **each application**

✗ Developers don't work on actual service/app logic



Anthos Service Mesh is powered by Istio, a highly configurable and powerful open source service mesh platform, with tools and features that enable industry best practices. Anthos Service Mesh is deployed as a uniform layer across your entire infrastructure. Service developers and operators can use its rich feature set without making changes to application code.

Istio - Service Mesh manages communication between microservices

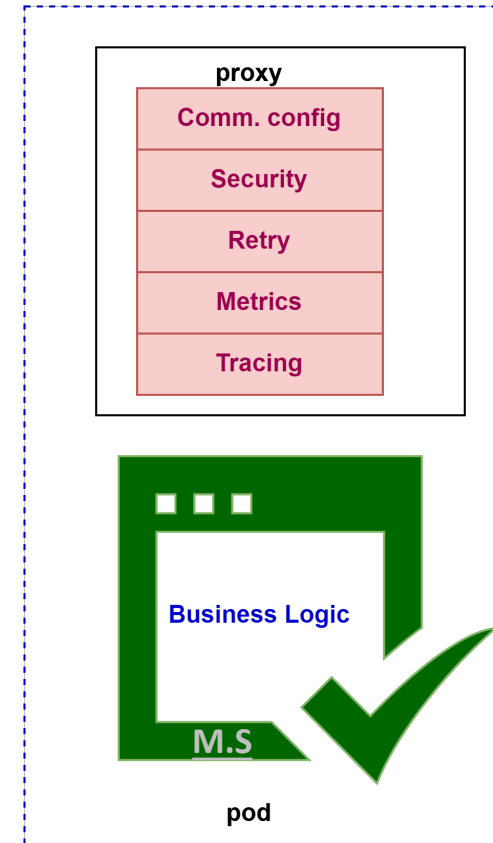
Solution : Service Mesh with Sidecar Pattern

Sidecar Proxy

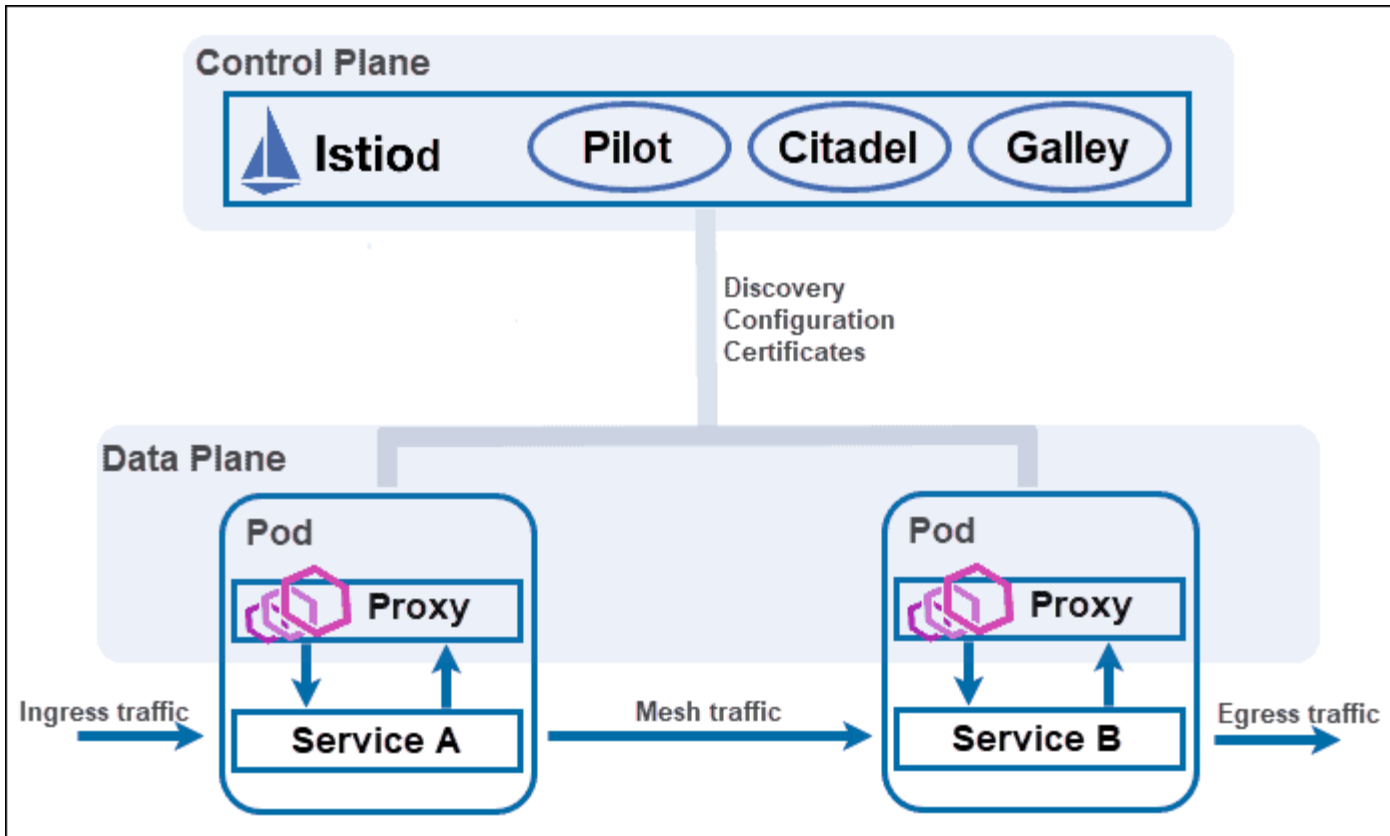
- *Handles these networking logic*
- *Acts as a Proxy*
- *Third party application*
- *Cluster operators can configure it easily*

Control Plane

- *Control Plane injects the sidecar Proxy*



Istio - Architecture



Control Plane

Istiod

- ✓ **Pilot** traffic management, routing, and service discovery.
- ✓ **Citadel** managing user authentication, certificate, and credential management.
- ✓ **Galley** configuration management, ingestion, distribution, and processing

Data Plane

Envoy proxies deployed into the pods as sidecars. They interact with and manage traffic for all services within the system. This includes controlling all network communication between microservices.

Envoy proxies provide:

- Dynamic service discovery
- Load balancing
- Health checks
- TLS termination
- HTTP/2 and gRPC proxies
- Circuit breakers
- Staged rollouts with percentage-based traffic split
- Fault injection
- Rich metrics

Istio - Advantages and Disadvantages



Advantages

- Insight into network performance issues
- Secure service-to-service and pod-to-pod communication
- Routing rules and policies that manage communication and data transfer
- Canary deployments and A/B testing

Disadvantages

- Time-consuming to set up and implement
- Difficult to configure the .yaml files to ensure the right setup and encryption communication



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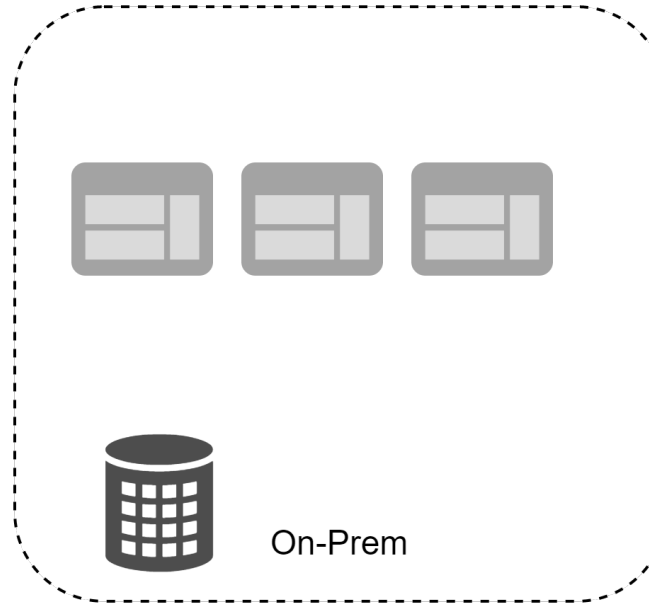
How can Anthos Service Mesh help me? With Anthos Service Mesh, you get an Anthos tested and supported distribution of Istio, letting you create and deploy a service mesh on GKE on Google Cloud and other [platforms](#) with full Google support.

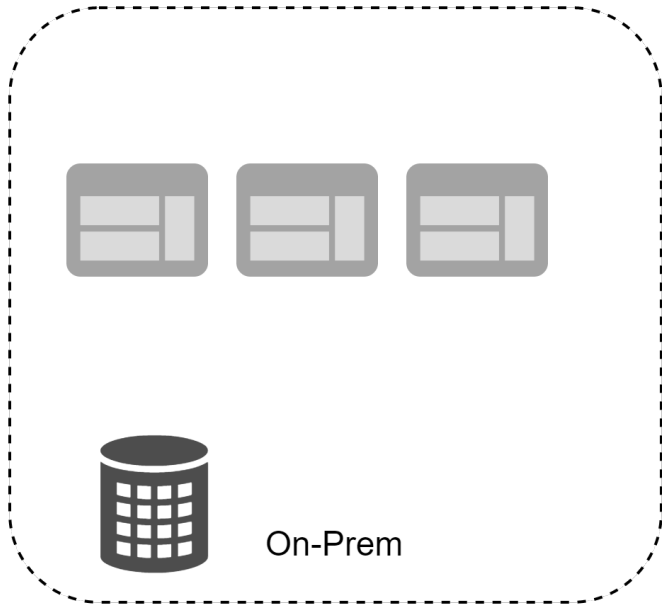
[Learn more...](#)

Anthos - Platform to Manage Apps in Hybrid Cloud Environment

What does hybrid cloud environment means ?

- Security
 - Scalability
 - Simplicity
- what cloud
offers





How do you manage these application?

- Can we deploy them?
- Can we scale them?
- Can we manage them just like application running on cloud?

Still better what if we can able to manage the apps on cloud and on prem using one single configuration and control plane?

Anthos - Platform to Manage Apps in Hybrid Cloud Environment



Google cloud Anthos helps you to manage apps running on GCP and on your own data center using one single config and control plane

Anthos – Platform to Manage Apps in Hybrid Cloud Environment

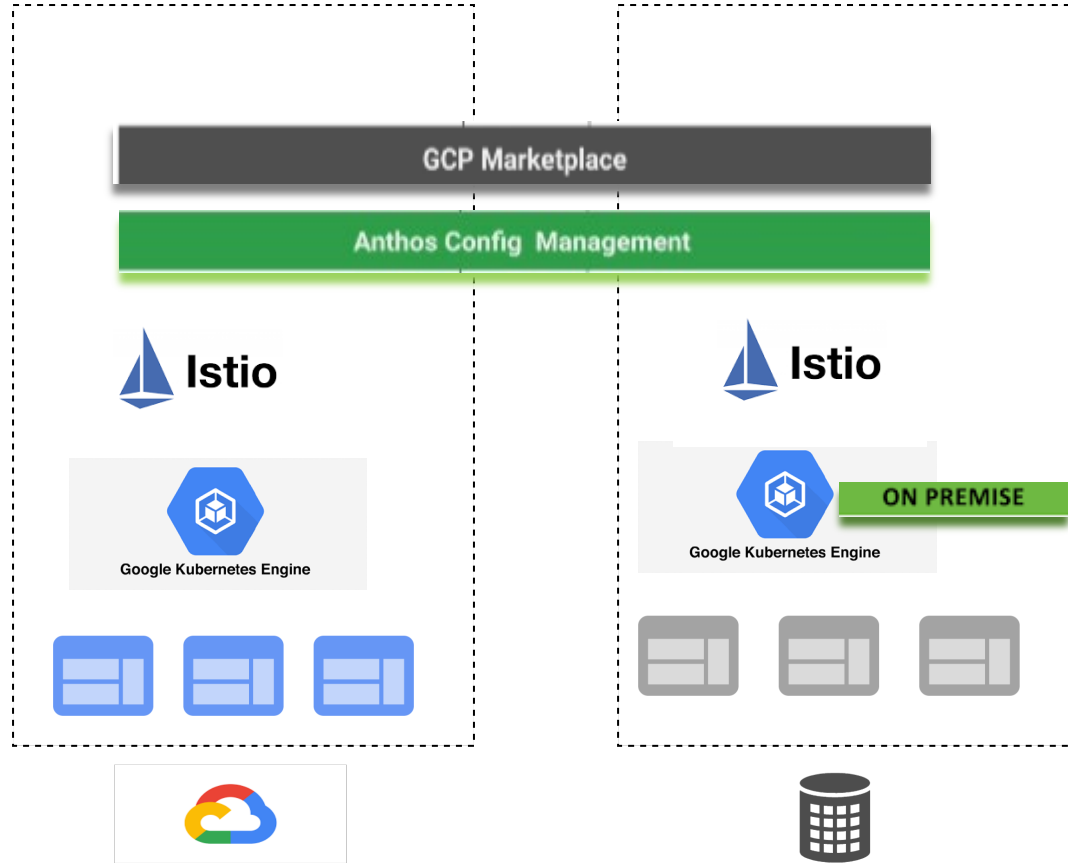
Anthos is Google's modern solution for hybrid and multi-cloud systems and services management

- Kubernetes and GKE On-Prem create the foundation.
- On-premises and Cloud environments stay in sync.
- A rich set of tools is provided for:
 - Managing services on-premises and in the Cloud.
 - Monitoring systems and services.
 - Migrating applications from VMs into your clusters.
 - Maintaining consistent policies across all clusters, whether on-premises or in the Cloud.

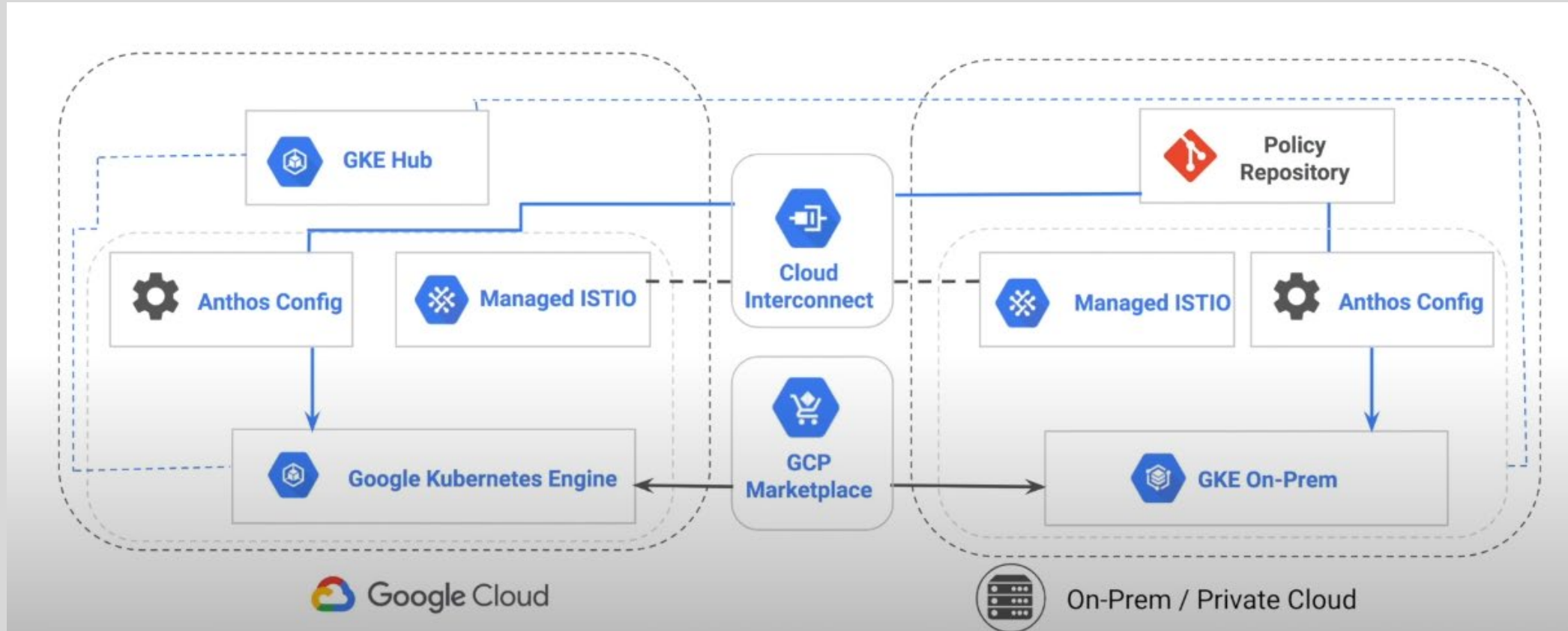
Anthos – Build, Deploy, Deliver, Manage – Application Anywhere

Lets look at the architecture stack how google cloud Anthos help you build deploy deliver manage the apps across GCP and On-Prem private cloud data centers?

Anthos – Build, Deploy, Deliver, Manage – Application Anywhere



Anthos - Architecture - Components



Anthos – to know more about

- [Anthos service mesh](#)
- [Anthos Setup on GCP](#)
- [Anthos\(Hybrid Cloud\)](#)
- [Monitoring](#)

Thank you!