CLOUD DAY 2020

29 OTTOBRE • ONLINE CONFERENCE

ANTHOS, LA PIATTAFORMA DEFINITIVA PER LE APPLICAZIONI IBRIDE E MULTI-CLOUD

GIORGIO CRIVELLARI
Google

Kudos

Microsoft

managed/designs

AWS User Group - Italy

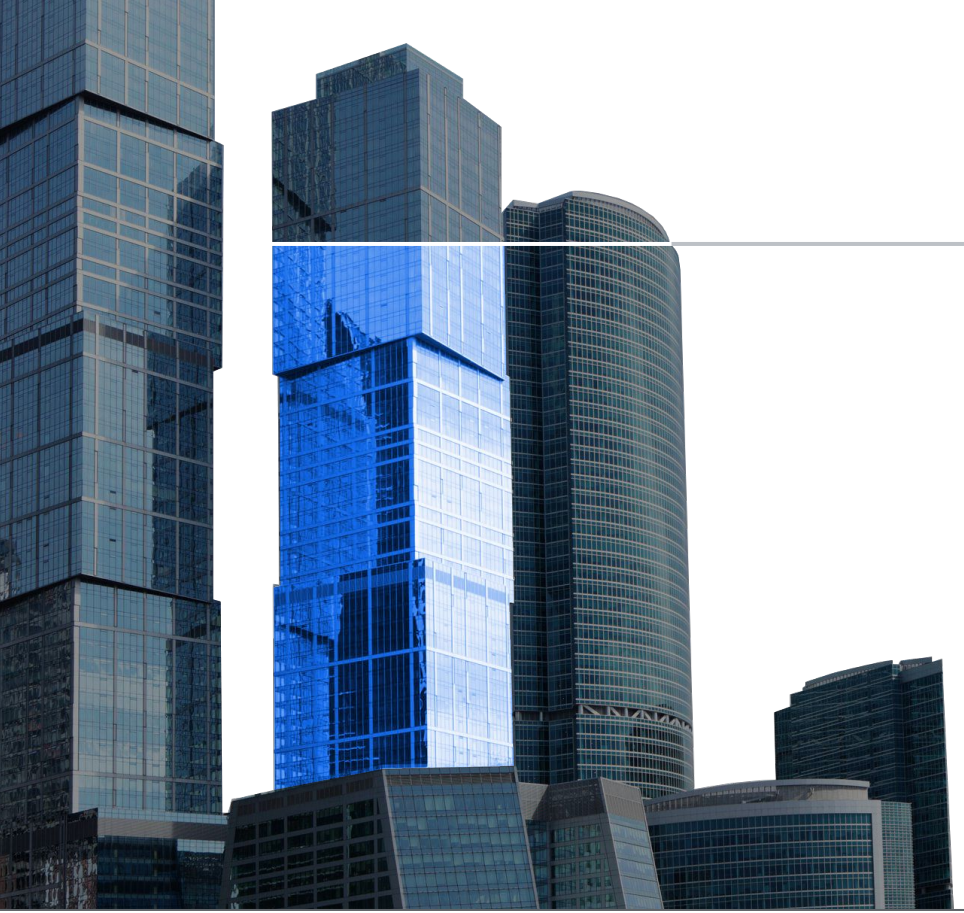
GDG Cloud Milano

Agenda


```
apiVersion: v1
kind: Agenda
metadata:
 name: cloud-day-2020
 labels:
   app: Anthos
spec:
 topics:
 -  Anthos Introduction
 -  Managed Kubernetes
 -  Multi-cluster & Feature management
 -  Managing configuration and policies
 -  Service management
 -  Operations
 -  Migrate for Anthos (VM2Container)
```

Google Cloud

https://anthos.dev



+75%

of medium and large businesses will have adopted a multi-cloud or hybrid strategy by 2021

Google Cloud

https://anthos.dev

Gartner: Increasing Reliance on Cloud Computing Transforms IT and Business Practices, December 2018

What is it?

"An *open, hybrid and multi-cloud* application platform that enables you to modernize your existing applications, build new ones, and *run them anywhere* in a secure manner."

(managed by)

Google Cloud

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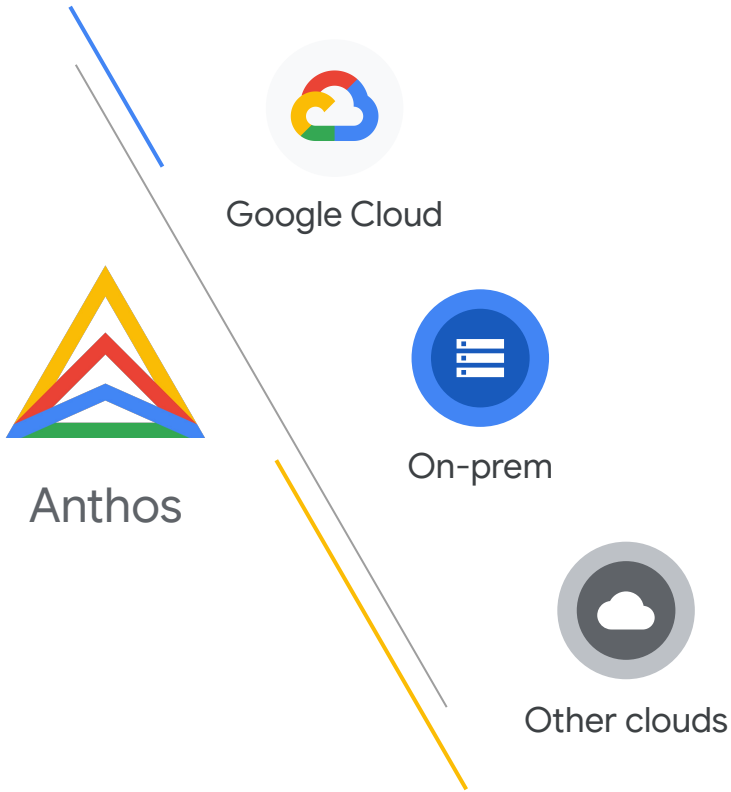

Google Cloud

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Anthos gives you freedom to modernize without being locked in

Developer

Knative → Cloud Run

Service Operator / SRE

Istio → Anthos Service Mesh

Infrastructure Operator

Kubernetes → Anthos GKE

Release Engineer

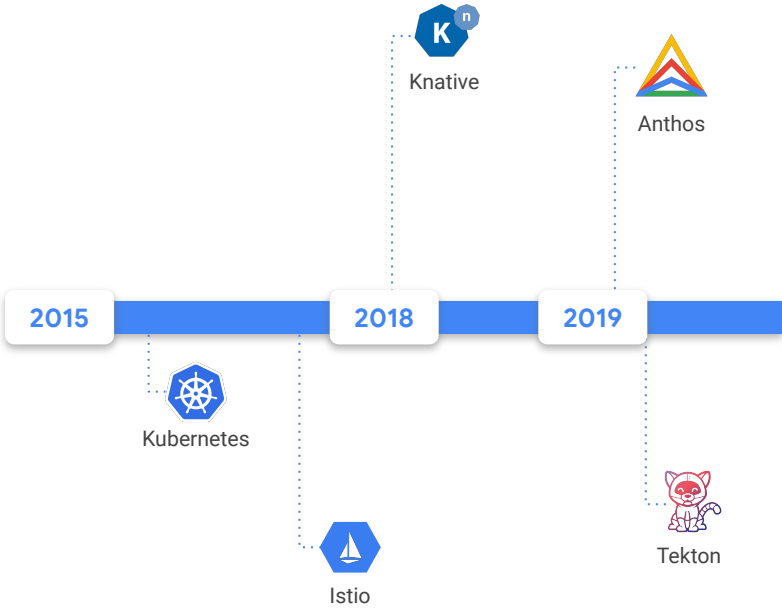
Tekton → Cloud Build for Anthos

Anthos

https://anthos.dev

The Anthos open source stack

- **Kubernetes – container orchestration**
  - Portable: runs on most clouds, hypervisors, and even bare-metal
  - The *lingua franca* of containers
- **Istio – service mesh for Kubernetes and VMs**
  - Connect, secure, manage, and monitor microservices
  - Application layer smarts: A/B testing, gradual rollouts, etc.
- **Knative – serverless primitives on Kubernetes**
  - Enabling Platform-as-a-service (PAAS) without vendor lock-in
  - Lets developers be developers – not Kubernetes experts
- **Tekton – CI/CD primitives on Kubernetes**



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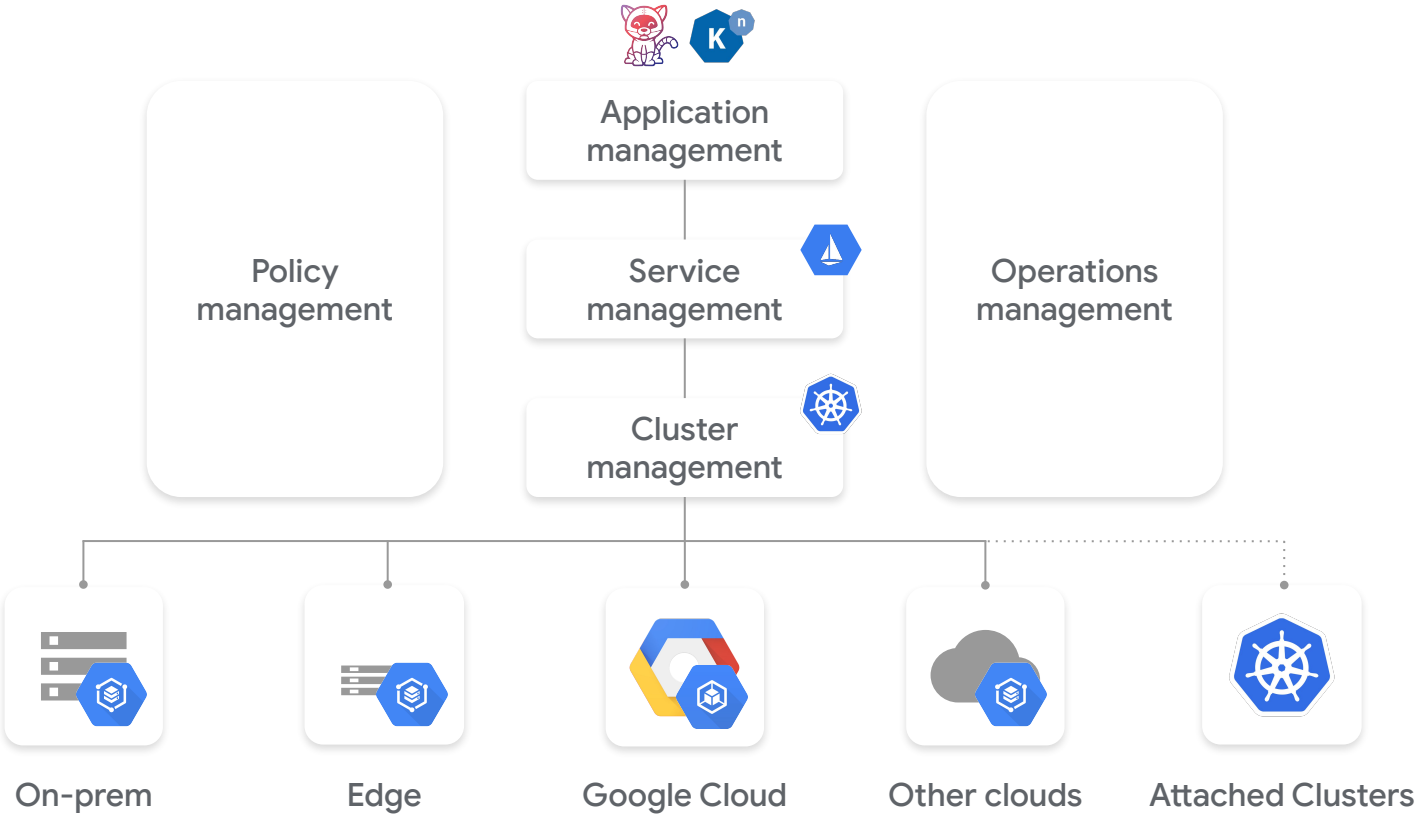

Google Cloud
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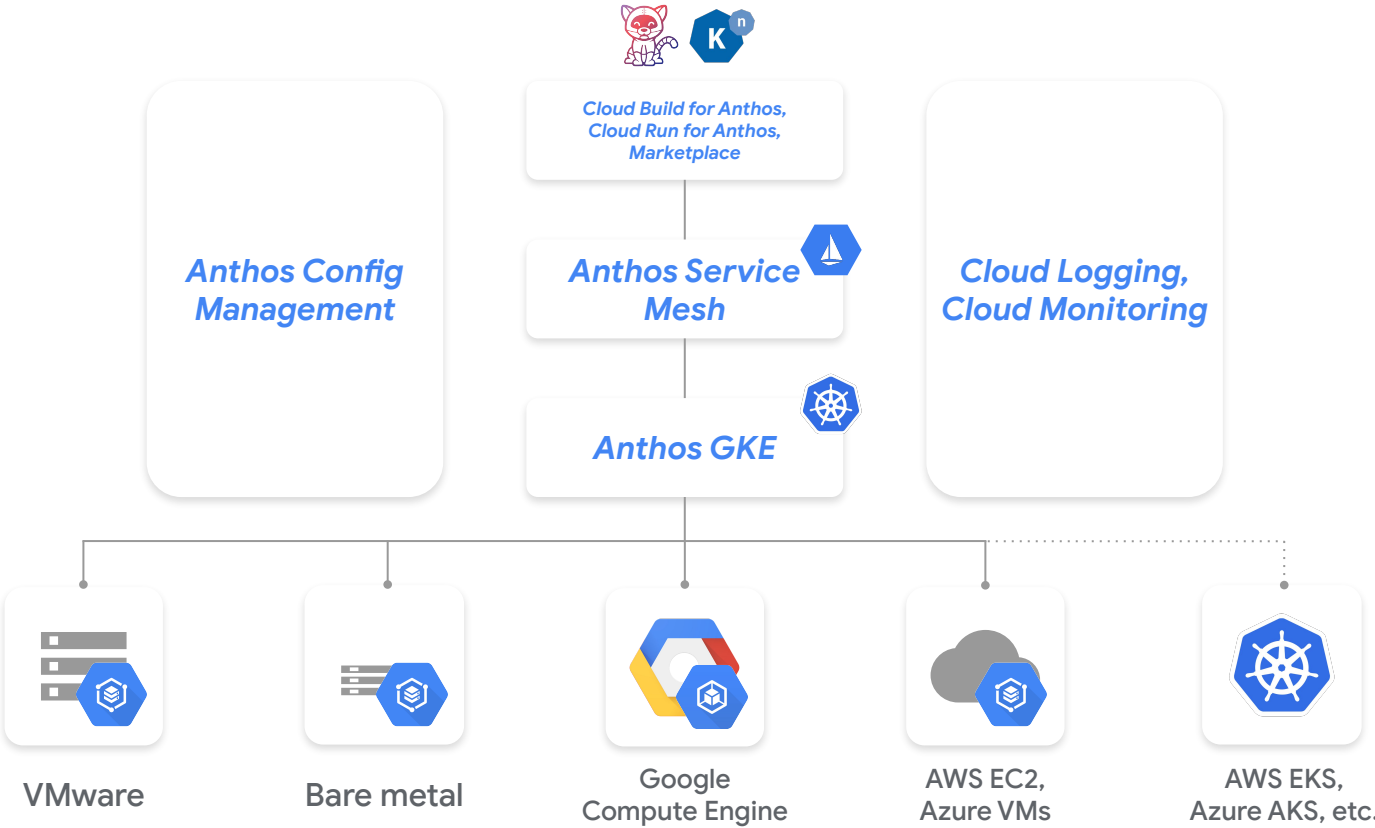
Anthos core components



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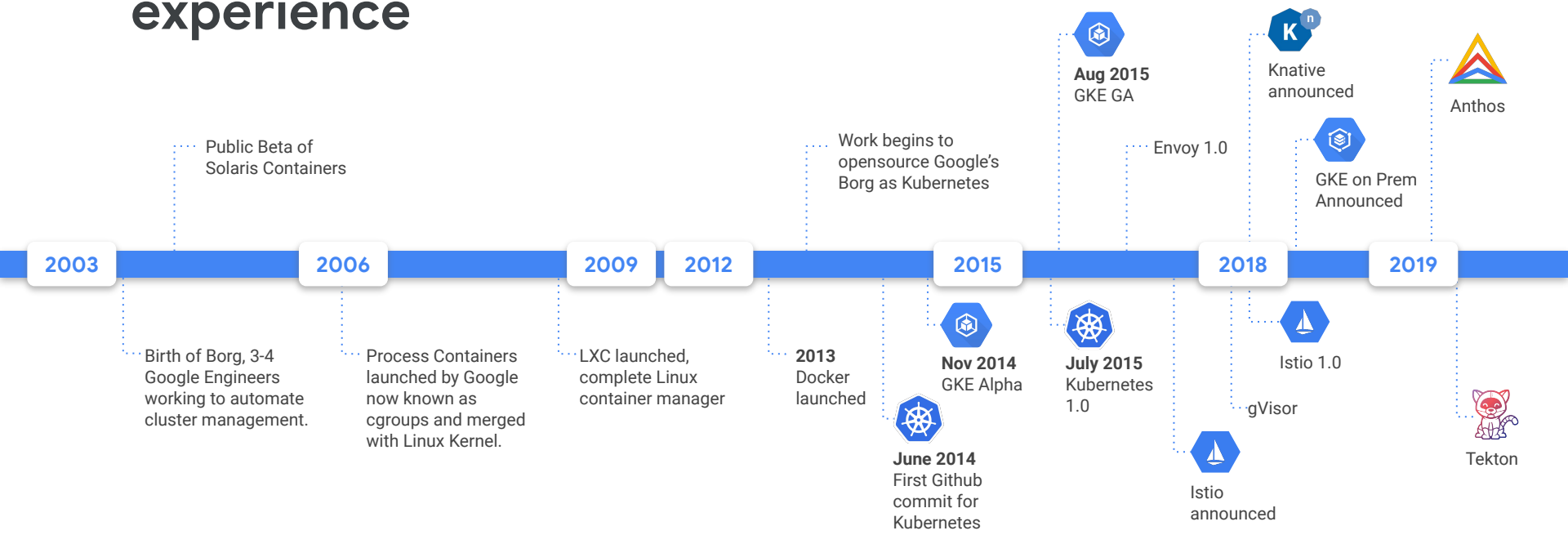
Anthos core components

Anthos builds on 15+ years of experience



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Differentiating Managed Kubernetes

Highly managed, Low customer effort

Unmanaged, High customer effort

Anthos

Customers who want to have a **Google tested, Google integrated** container deployment offering across **multiple environments**

Anthos GKE

Customers who **don't want to worry about the complexity** of Kubernetes and want Google to handle deployment, scaling and management

OSS K8s on GCP

OSS K8s on your own

Expert Kubernetes users who have **time to manage and configure various settings and deployment**, and are not looking to leverage any integrations nor take advantage of Google SRE

Google Cloud

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GKE makes scaling easy

GKE simplifies automated scaling with multiple offerings

Vertical Pod Autoscaling

Watch resource utilisation of your deployments and adjust requested CPU and RAM to stabilize the workloads

Node Auto-Provisioning

Optimizes cluster resources with an enhanced version of Cluster Autoscaling

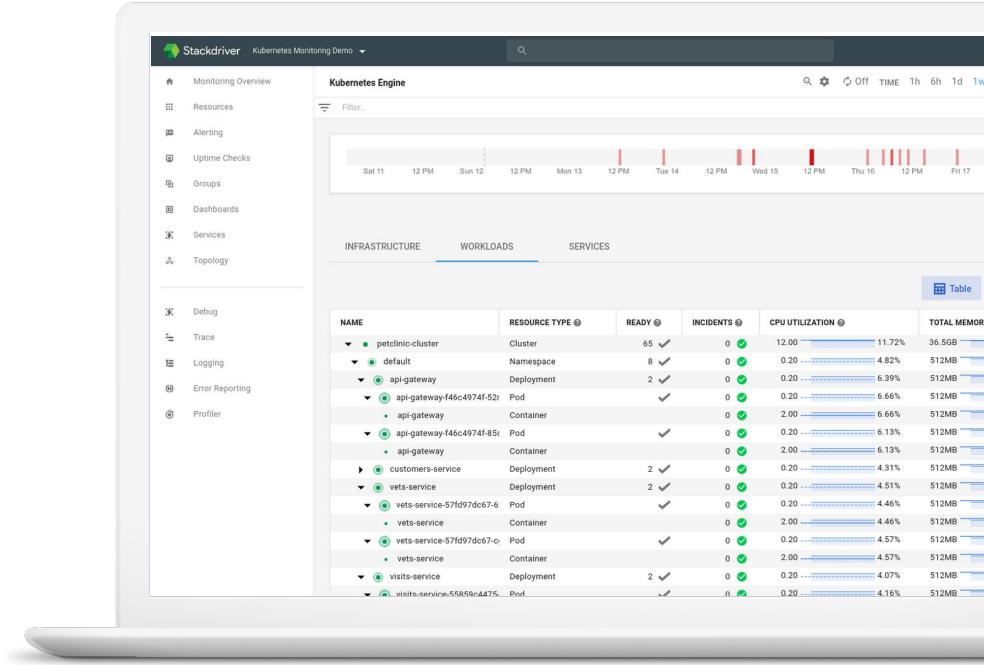
15K+ nodes on GKE

Scale to meet the needs of any workload

Google Cloud

Kubernetes Monitoring

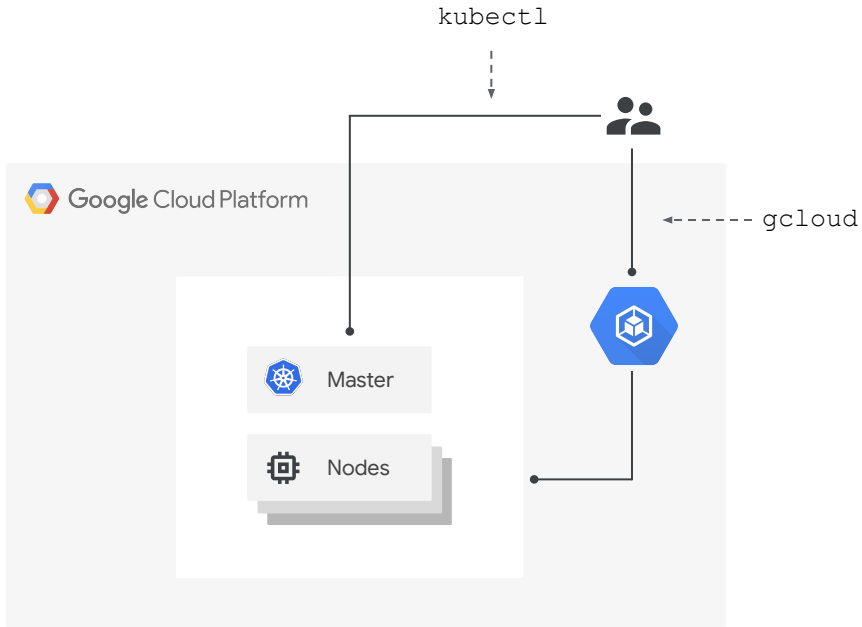
- **Comprehensive Kubernetes observability** at scale, right out of the box.
- **Works with Open Source:** Seamless integration with Prometheus.
- **Runs anywhere:** Pre-integrated on GCP, easily configured on hybrid cloud.
- **Integrated with Stackdriver:** reduces cost of using disparate tools to keep Kubernetes apps fast and available
- **Unlocks Google's SRE best practices** to developers and operators



Anthos

The GKE's

- The idea is to stand up the full GKE product on all major IAAS – on or off the cloud
  - GKE on Google Cloud (GA in Aug 2015)
  - GKE on-prem (GA in April 2019)
  - GKE on AWS (announced April 2020, GA in July)
  - GKE on Azure, currently in preview
  - GKE on Bare Metal announced
- Additionally, Anthos Attached Clusters allow for a lightweight integration with less bells and whistles



GKE, Kubernetes-as-a-service

Google Cloud

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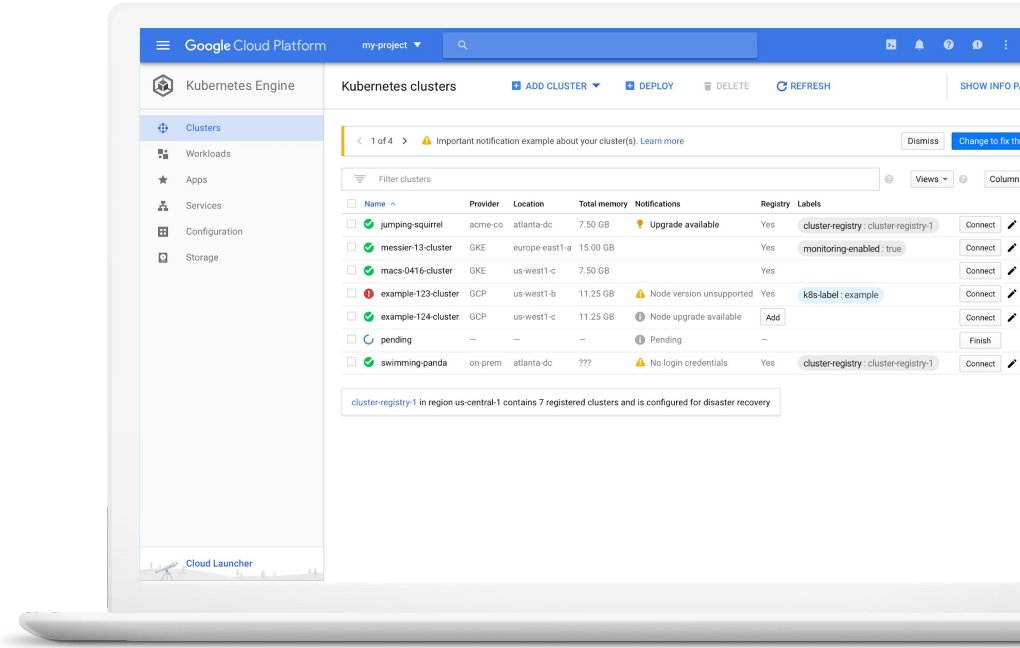
Unified Management

Single pane of glass across Google Cloud & on-premises

01 Orchestrate and manage on-prem containers
just like GKE in the cloud

02 Consistent operating model with access to GCP services across hybrid environments

03 Single-pane-of-glass for multiple Kubernetes clusters, no matter where



Anthos
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Anthos Service Mesh (ASM) provides service management and a single pane of glass for

- Metrics, logging, tracing, and SLO monitoring
- Service identity, AuthN/Z, and encryption
- Traffic management: routing, and load balancing

Additionally, ASM provides insights and recommendations, and analytics.

Google Cloud

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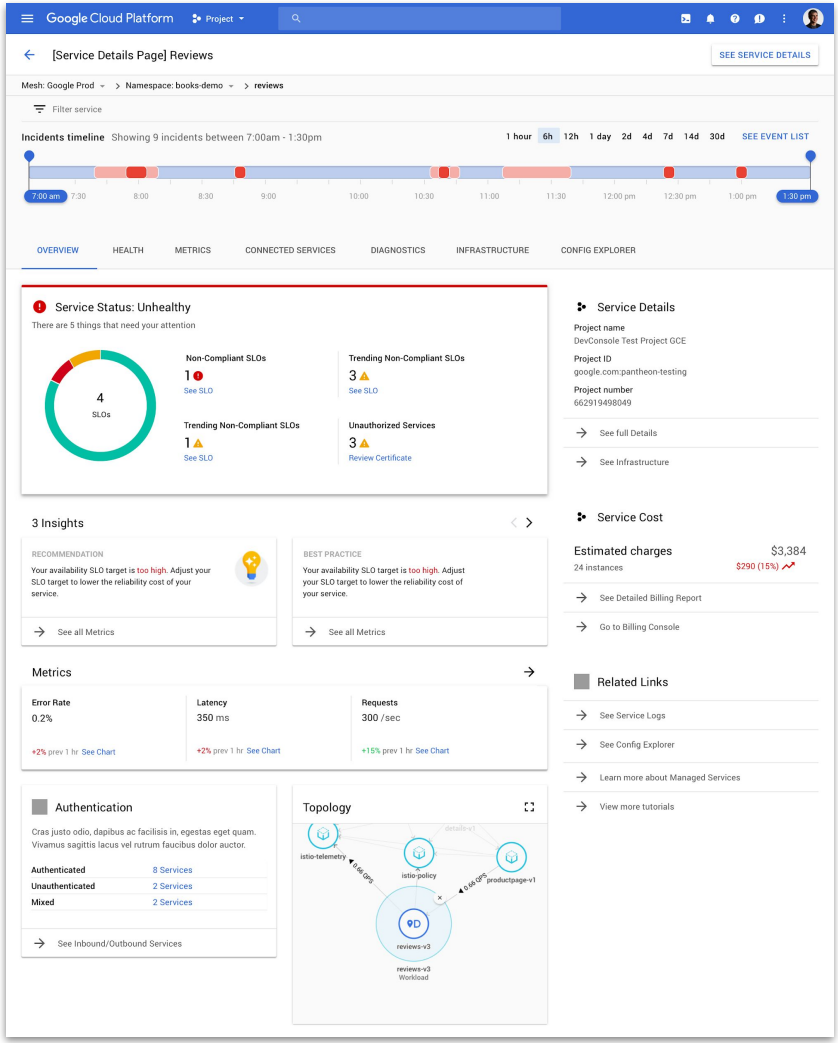
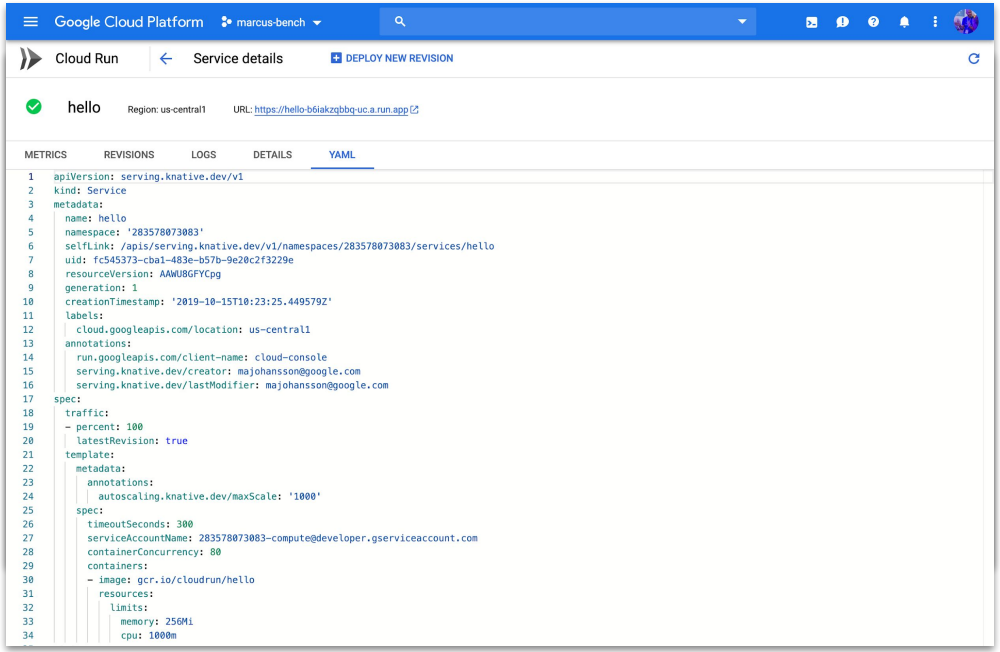


Cloud Run is a fully managed serverless product, compatible with Knative.

- Stateless containers via HTTP(s) or gRPC
- Built-in domain handling
- Scales to zero – or as high as you need

Cloud Run for Anthos enable serverless on your own cluster – wherever Anthos runs.



Google Cloud

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Cloud Build is a fully managed pay-as-you-go CI/CD automation service

- Trigger builds on source repo and other external events
- Build, test, and deploy applications
- Executed as a series of containerized tasks

Cloud Build for Anthos unlocks the experience and runs wherever Tekton, and Anthos, runs.

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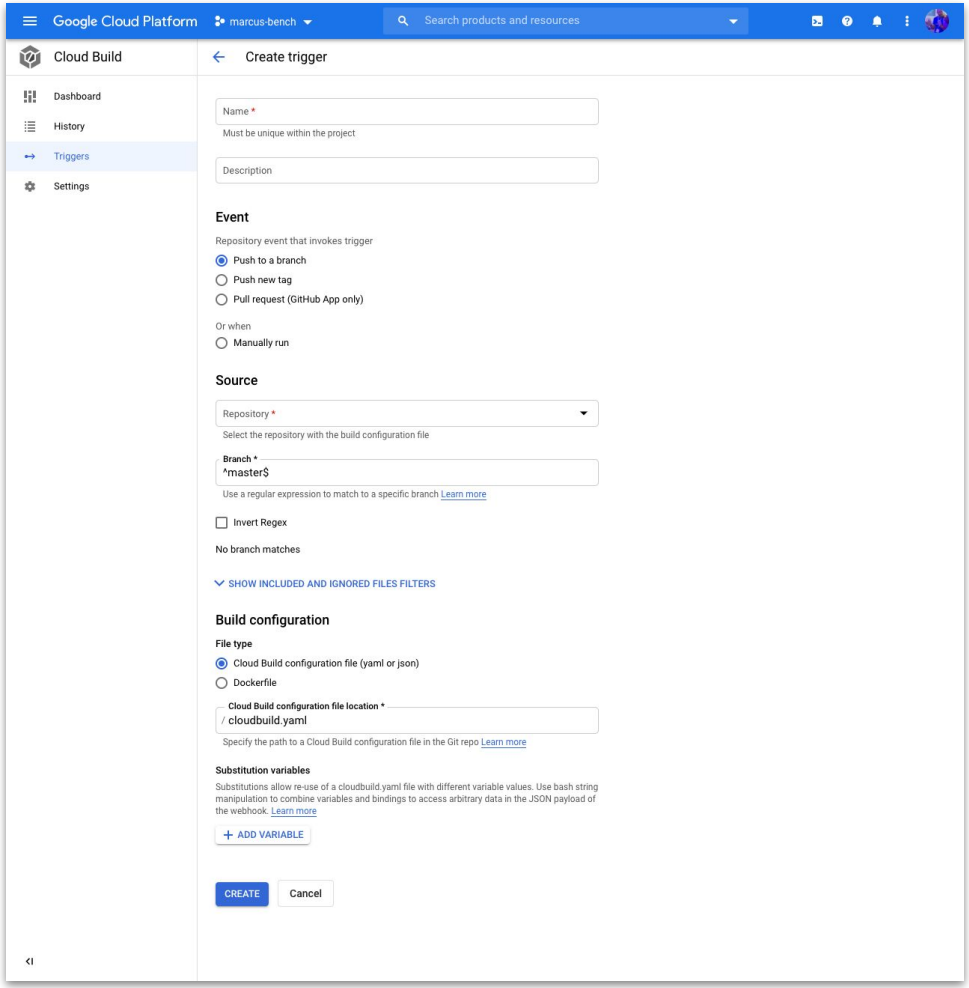
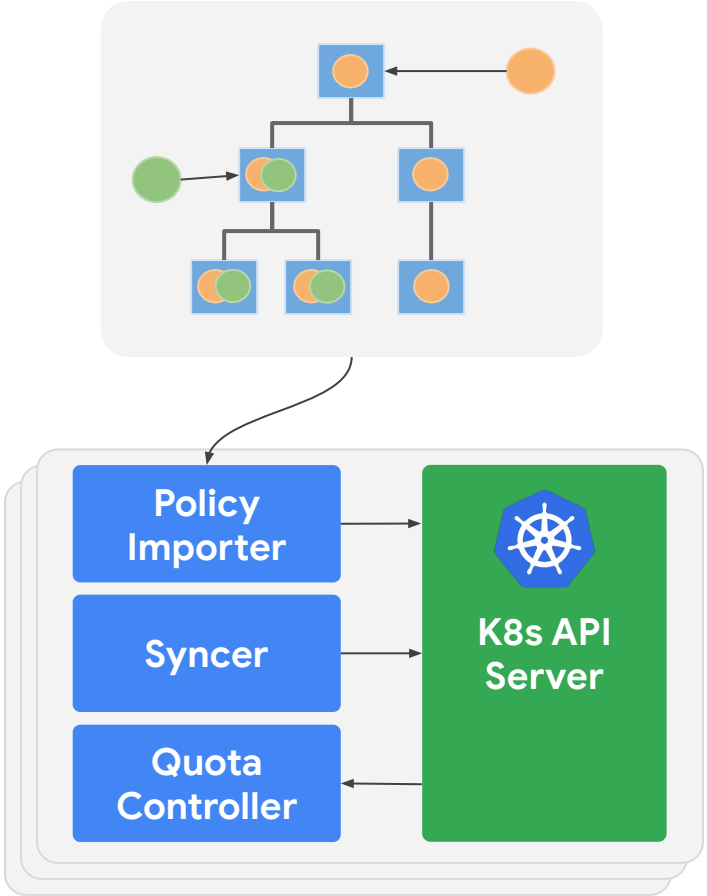


Anthos Config Management (ACM) automates policy and configuration at scale.

- Synchronize configuration across clusters on-prem and in the cloud
- Continuous enforcement and admission control of compliance policies
- Based on Git, enables auditability, review and CI through policy-as-code



Google Cloud

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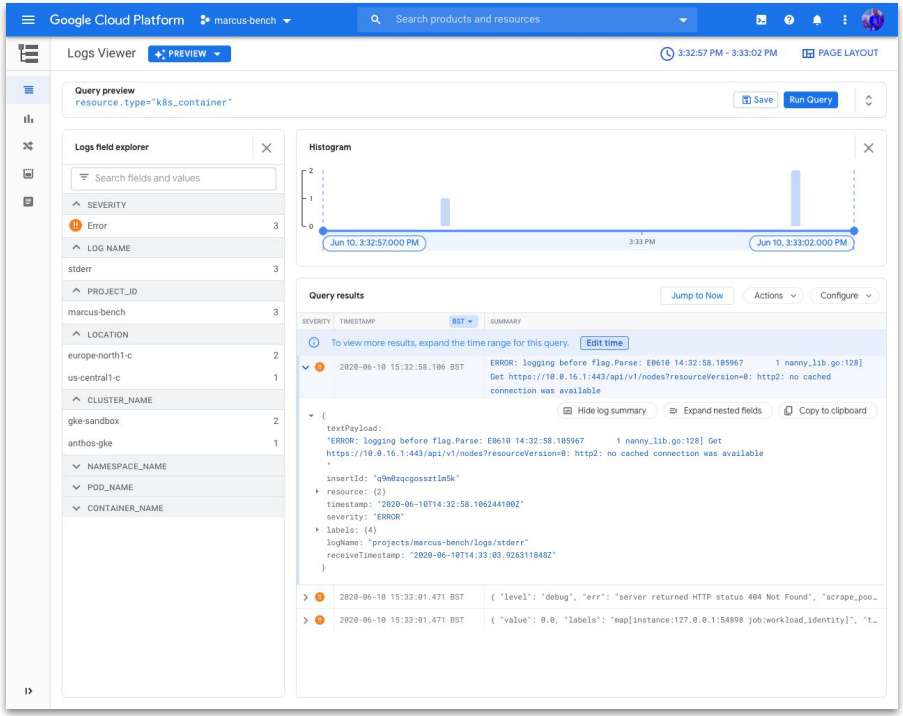
Cloud Operations is Google's operations suite enabling SRE practices

- Primarily Logging and Monitoring, but also supporting Tracing, Profiling & Debugging
- Natively supports Kubernetes, on GCP and elsewhere

In **Anthos**, Logging and Monitoring is included, but optional.



Cloud Monitoring and Cloud Logging

Google Cloud

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Marketplace for Anthos lets you manage production-grade 3rd party software in just a few clicks.

- Deploy packaged Kubernetes applications to wherever Anthos runs
- Single bill for GCP and 3rd party services
- Managed updates

Google Cloud

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Migrate for Anthos

Bringing the power of containers to existing workloads

- Live migrate VMs into containers in GKE
  - Service processes converted into Dockerfiles
  - Disks imported to Persistent Volumes
  - Everything assembled in a StatefulSet
- Capitalize on increased resource utilization, unified logging and monitoring, and improved application lifecycle management
- ***Migrates from***: VMware on-prem, AWS EC2, Azure VMs and Google Compute Engine
- ***Migrates to***: GKE in GCP and GKE OP in preview

Windows Workloads (Now in GA):

Stateless tiers of Windows web applications, application servers and web front ends meeting the following criteria:

- Running on Microsoft IIS version 7 or higher, AND
- Build on ASP.NET and .NET framework v3.5 and/or higher
- Currently running on Windows Server 2008 R2 or higher

Google Cloud

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Anthos, hybrid done right.

Runs where you run

A software-based stack means no hardware purchases required. Zero to deployed in hours instead of months.

Built on open source software

Ensuring workload portability; one platform that can run your applications both on-prem and in the cloud, without vendor lock-in.

Ready for the cloud(s)

Focus on building cloud-native applications, not managing the underlying infrastructure.

Google Cloud

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Consumption or Subscription-based, patched via automation

Based on Kubernetes, Istio, Knative, Tekton

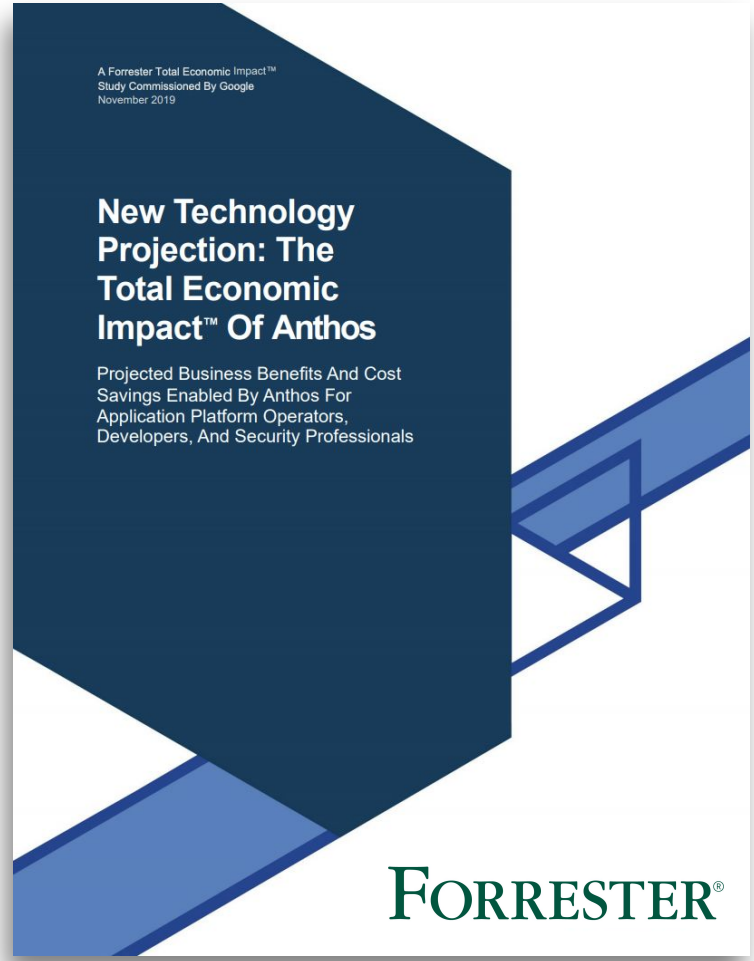
Tools to perform no-touch migration & automation

Anthos is a **managed** **application platform** for **enterprises** that want faster **modernization** and greater **consistency** in a **hybrid and multi-cloud** world.

Built for large companies with complex needs

Define declarative policies to enforce secure standards everywhere

Run on-premises, in GCP, and other public clouds

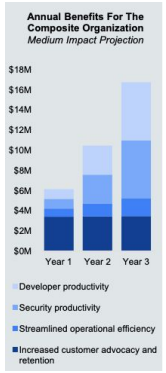


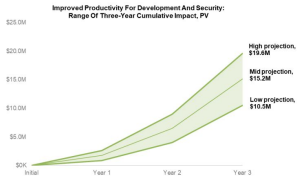
“4.8x Return on Investment (ROI) within three years”
https://cloud.google.com/blog/topics/anthos/4-ways-anthos-delivers-roi-to-customers

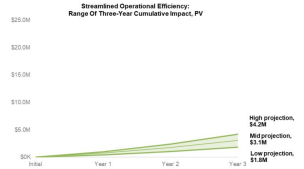
Improved Productivity

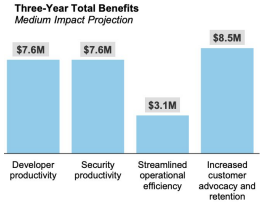
Streamlined Operational Efficiency

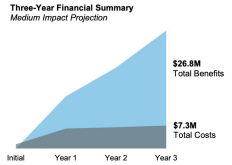
Increased Customer Advocacy And Retention



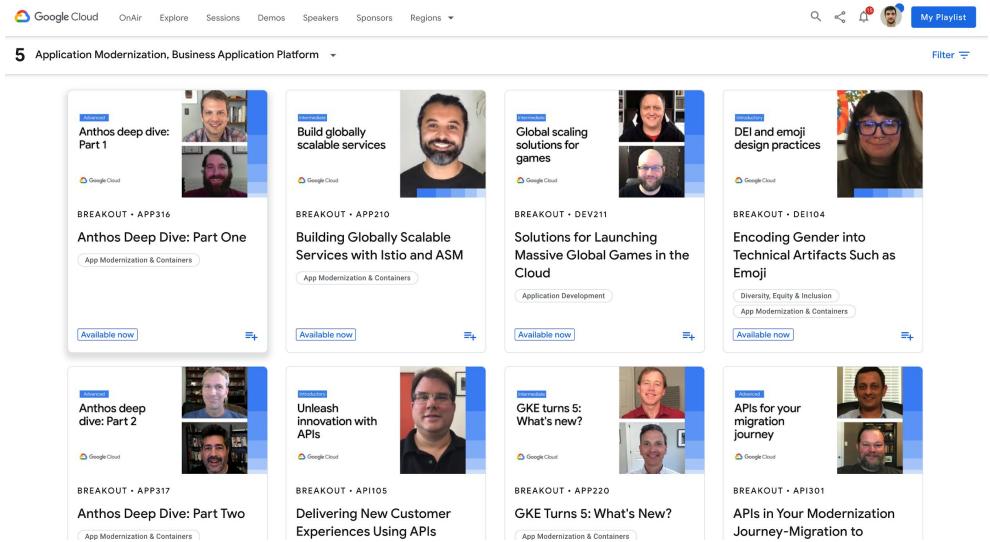








This is the App Modernization week at Google Next EMEA !!!



https://cloud.withgoogle.com/next/sf/emea

Thank you!

Google Cloud