Возможности для реализации и эксплуатации микросервисных архитектур

Google Cloud
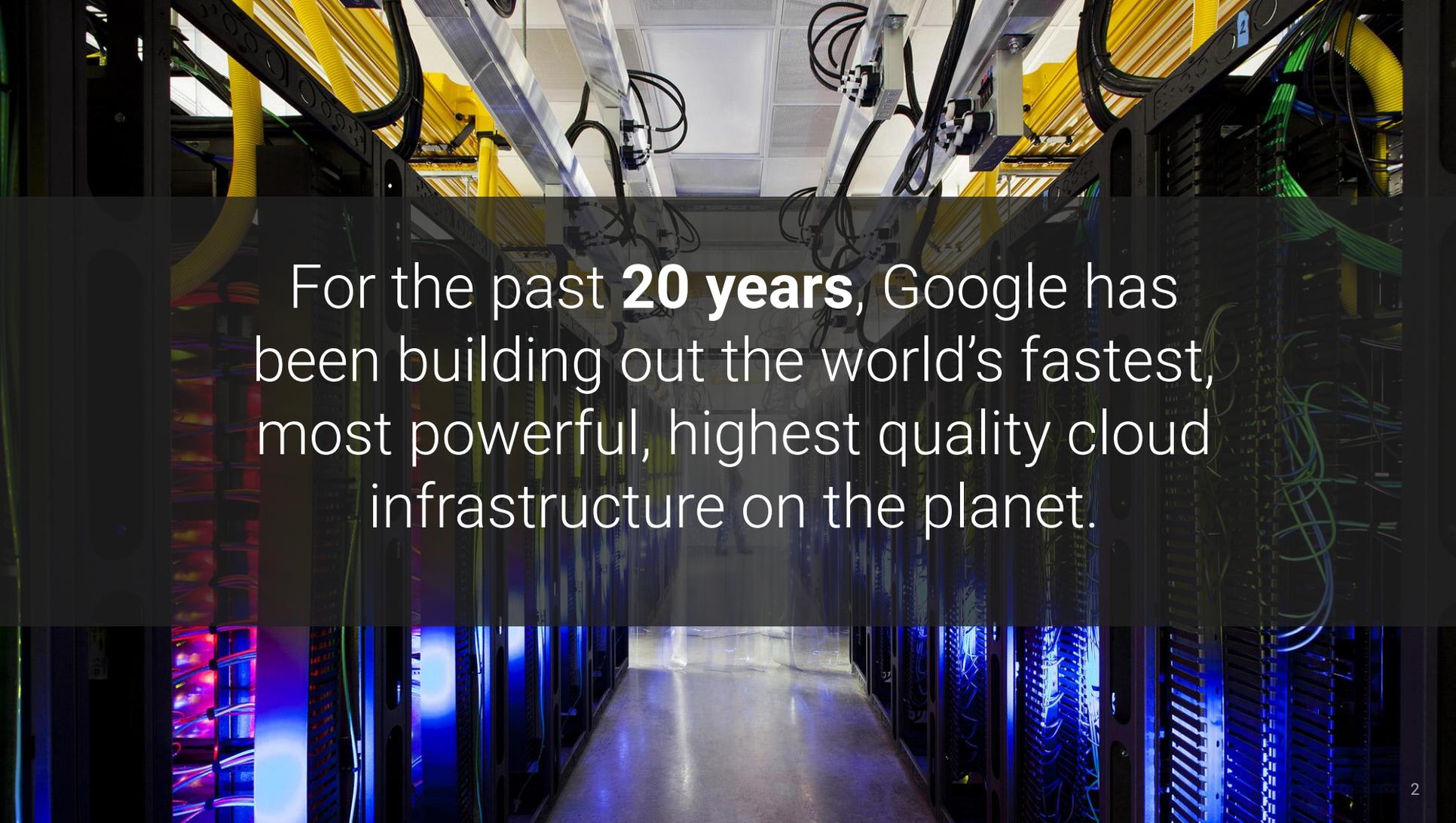
For the past **20 years**, Google has been building out the world's fastest, most powerful, highest quality cloud infrastructure on the planet.

1 Billion Users

Our commitment to cloud

$45B

3 year
investment

20 Eiffel Tower's worth of
steel in our Data Centers

Google Cloud

Google Cloud Infrastructure

Our infrastructure in numbers

20 Cloud Regions (+3 announced regions) [url](url)

61 Zones [url](url)

134 Edge POPs [url](url)

96 CDN locations [url](url)

81 Dedicated Interconnect locations [url](url)

16 Google Data Centers [url](url)

30 Renewable Energy Project Locations [url](url)
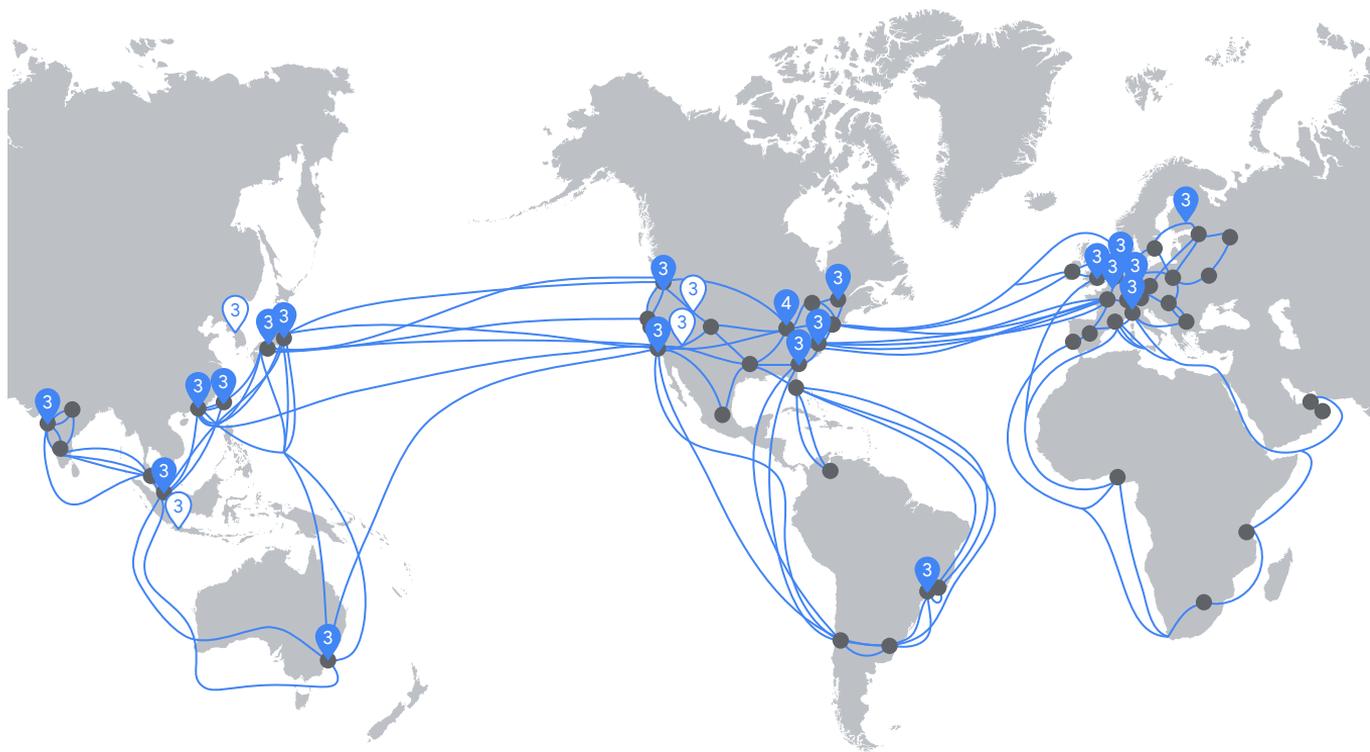
100,000s of miles of fiber optic cable poster

13 Subsea Cable Investments poster

Google Cloud Platform
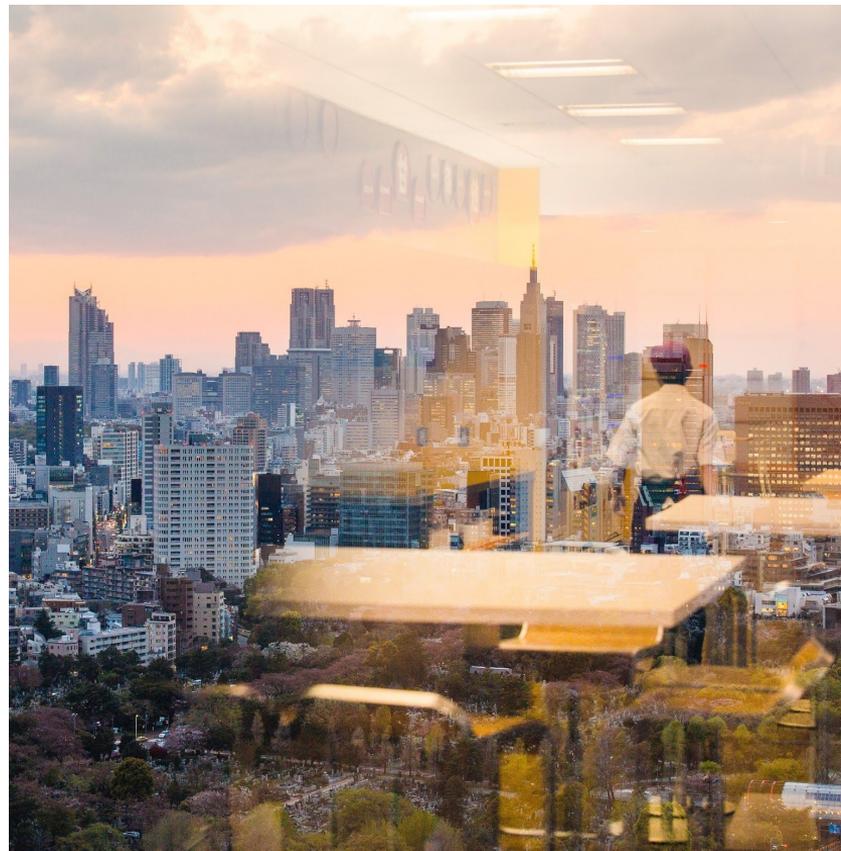
134 points of presence and
14 subsea cable investments
around the globe

Current regions
and number of zones

Future regions
and number of zones

Edge points
of presence
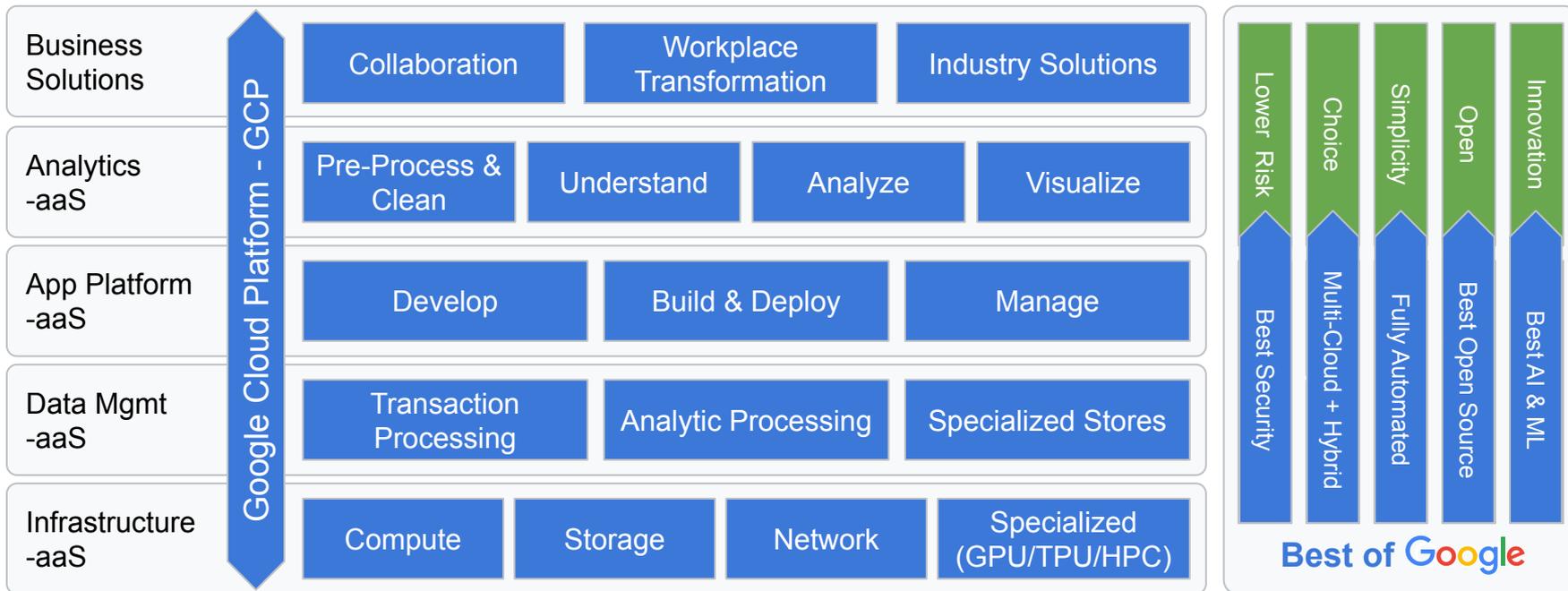
Network

Google Cloud

What makes Google Cloud different

Best-in-class Security ❯ Protect systems, data, and users

Hybrid & Multi-Cloud ❯ Enables choice

Fully Managed No Ops ❯ Ease of use with serverless

Embedded AI & ML ❯ Intelligence in everything

Best of Google ❯ Bringing culture of innovation to customers and partners

Google Cloud

GCP - A Complete XaaS Stack for Digital Enterprise
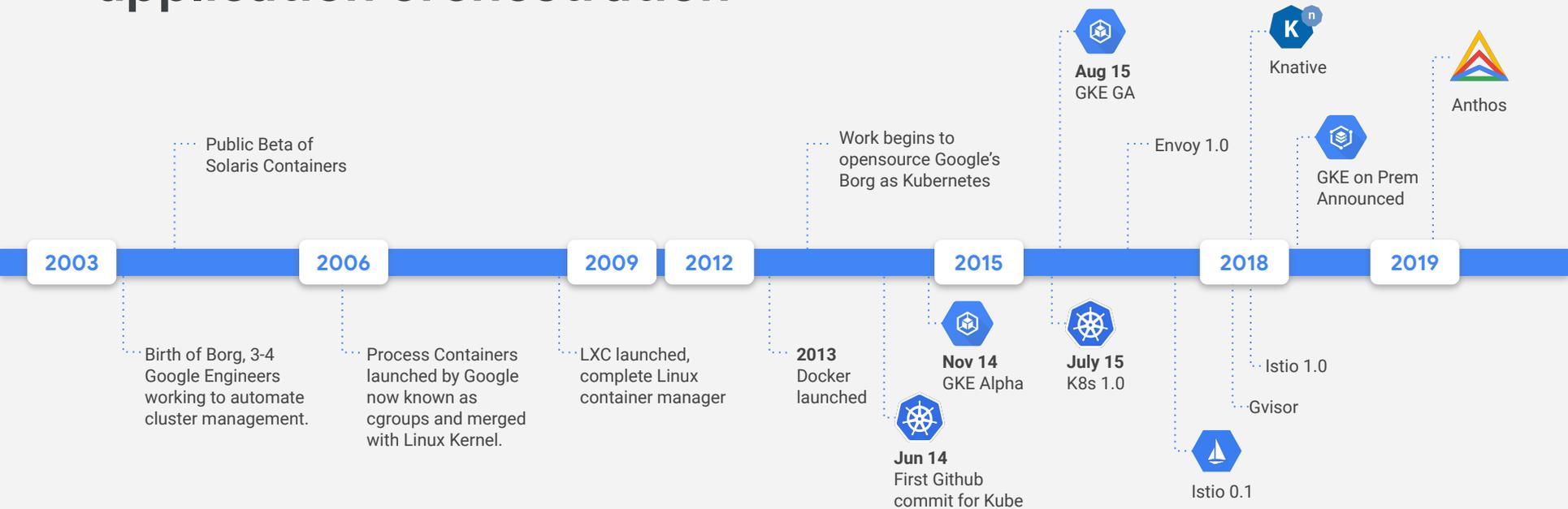
Your Enterprise Digital Transformation

Business Solutions			
Collaboration	Workplace Transformation	Industry Solutions	

Analytics -aaS			
Pre-Process & Clean	Understand	Analyze	Visualize

App Platform -aaS		
Develop	Build & Deploy	Manage

Data Mgmt -aaS		
Transaction Processing	Analytic Processing	Specialized Stores

Infrastructure -aaS			
Compute	Storage	Network	Specialized (GPU/TPU/HPC)

Google Cloud Platform - GCP

Lower Risk — Best Security

Choice — Multi-Cloud + Hybrid

Simplicity — Fully Automated

Open — Best Open Source

Innovation — Best AI & ML

Best of Google

Google Cloud

15+ years experience in application orchestration

Public Beta of Solaris Containers

Work begins to opensource Google's Borg as Kubernetes

Aug 15
GKE GA

Knative

Envoy 1.0

GKE on Prem Announced

Anthos

| 2003 | 2006 | 2009 | 2012 | 2015 | 2018 | 2019 |

Birth of Borg, 3-4 Google Engineers working to automate cluster management.

Process Containers launched by Google now known as cgroups and merged with Linux Kernel.

LXC launched, complete Linux container manager

2013
Docker launched

Nov 14
GKE Alpha

July 15
K8s 1.0

Jun 14
First Github commit for Kube

Istio 1.0

Gvisor

Istio 0.1

Anthos is our platform for application modernization

> " Anthos' multi-cloud capabilities are so far **unique** in the industry

Anthos

Marketplace

Service Management

Managed Operations

Google Cloud

On-prem

Other Clouds
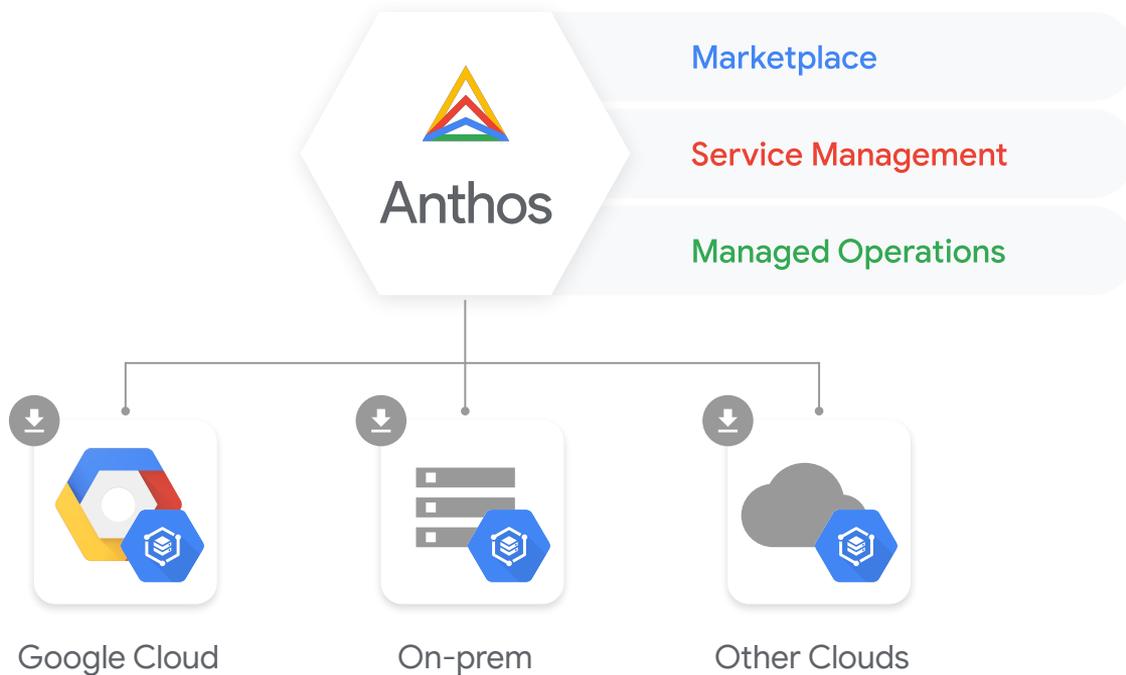
Anthos technology stack

Run on-prem or in the cloud

Manage from a single pane of glass

Secure from the ground up

Anthos Control Plane

| Policy Management | Service Management | Cluster Management |

| Istio / CSM | Istio / CSM |
| GKE | GKE On-Prem |

Clusters

Google Cloud

Develop once deploy anywhere

Google Kubernetes Engine

- Most advanced container orchestration service available

- Mature – general availability in August 2015

- Fully managed Kubernetes control plane at no extra cost

- Auto node repair, auto upgrade, auto scaling

- Regional clusters for high availability with multiple masters, node storage replication across 3 zones

GKE On-Prem

- Turn-key, production-grade, conformant Kubernetes with best-practice configuration

- Easy upgrade path to the latest Kubernetes releases that have been validated and tested by Google

- Access to Container services on GCP such as Cloud Build, Container Registry, Audit Logging, and more.

- Integration with Istio, Knative, Marketplace Solutions

Google Cloud

Securing Your Connection to GCP

- GKE Connect Agent installs in your cluster

- No public IP required for your cluster

- Authenticated and encrypted connection from the Kubernetes cluster to GCP

- Uses VPC Service Controls to ensure that GCP is an extension of your private cloud

- Can traverse NATs and firewalls

- User interactions with clusters are visible in Kubernetes Audit Logs

Google Cloud

Google Cloud Platform

GCP Console

GKE Workloads Web UI

GKE Connect Proxy

On-premises Data Center

Outbound TLS connection

GKE On-Prem

Kubernetes API Server

GKE Connect Agent
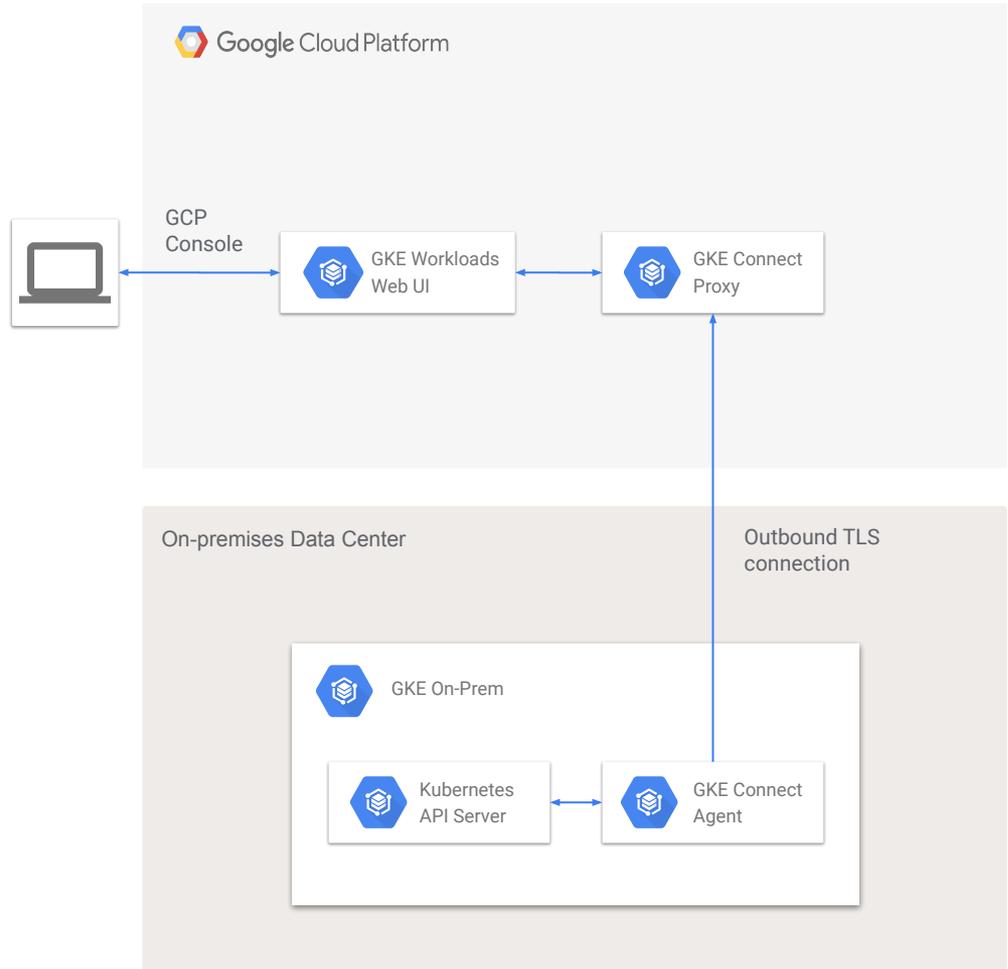
Single pane of glass across GCP & on-prem

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

Consistent operating model with access to GCP services across hybrid environments

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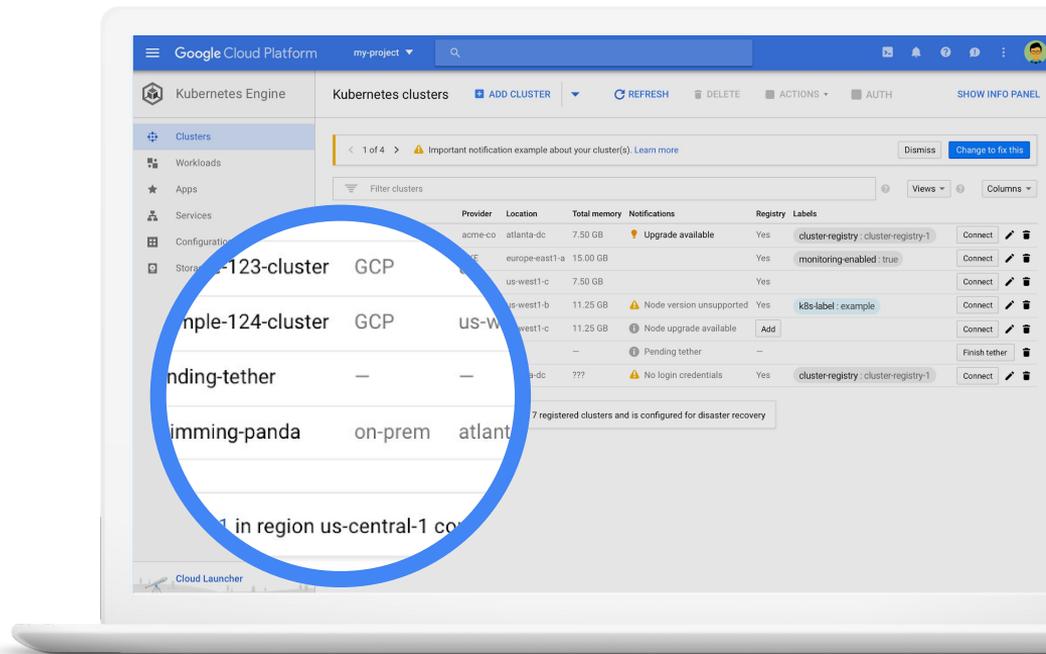
Google Cloud

Istio: Service mesh and observability

consistent flow
logs and metrics

understand
service
dependencies

monitor services
using SLOs

Anthos Config Management

A single pane of glass for managing configurations and policies both on-prem and in the cloud

Multi-cluster management

Central Git repository manages access control policies, resource quotas, and namespaces

Declarative and continuous

Declare new desired state, continuously checks for changes that go against state

Hybrid support

Manages both on-prem and in the cloud; change central file and apply across the fleet

Simple migration

Uses YAML or JSON, so no rewriting of existing Kubernetes configs

Google Cloud

Upgrade VMs/servers directly into containers in GKE

Migrate for Anthos ^{BETA}

- Migrate & modernize VMs from on-prem, GCE, or other clouds directly into containers in GKE.
- Introduces a "lift & modernize" play.
- Built-in testing
- Minimal labor, downtime, complexity

Google Cloud

Kubernetes applications in Marketplace
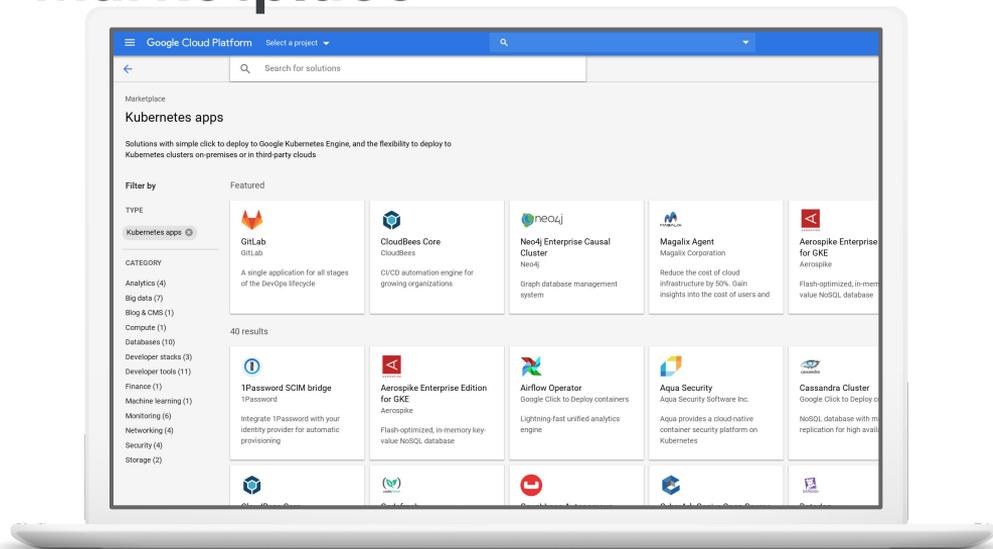
Run anywhere
On premises, Anthos, or to Kubernetes clusters hosted in other environments

Be more productive
Prebuilt deployment templates and default configurations, click to deploy to GKE, and managed upgrades (alpha)

Simplify billing
Usage metering follows the application no matter where it is deployed. Consolidated with other GCP spend

Google Cloud | GCP Marketplace

Monitor and manage operations with Stackdriver

Monitoring
- Platform, system, app, & custom metrics
- Uptime/health checks
- Alerts

Logging
- Platform, system, app,, audit logs & metrics
- Log search/view/filter
- Error notification & Dashboard

APM
- Trace - Latency analysis across distributed apps
- Profiler - CPU and memory profiling
- Debug - In production debug and conditional snapshots

IRM
- End-to-end incident lifecycle management for holistic data gathering and analytics
- Data-driven intelligence to better leverage the abundance of monitoring data and accelerate investigations - Insights.

Questions?

Google Cloud