

Reimagining the IDP

How cloud changes your
developer platform

Google
 Cloud
Next 25

Proprietary



Richard Seroter

Chief Evangelist
Google Cloud



Anna Berenberg

Engineering Fellow
Google Cloud



Do you ever watch those chaotic
“cooking challenge” shows where
chefs race to prepare

distinct meals
in their own way,
with unique ingredients?



Platform engineering brings consistency & speed to software teams through

internal development platforms.

The top 5 IDP components

1

Application
configuration
management

2

Infrastructure
orchestration

3

Environment
management

4

Deployment
management

5

Role-based
access

There's still **pain** with IDPs



Too many tools

The number of commercial and open source components is staggering. Developers already face tool sprawl just to get their basic work done!



Lack of self-service

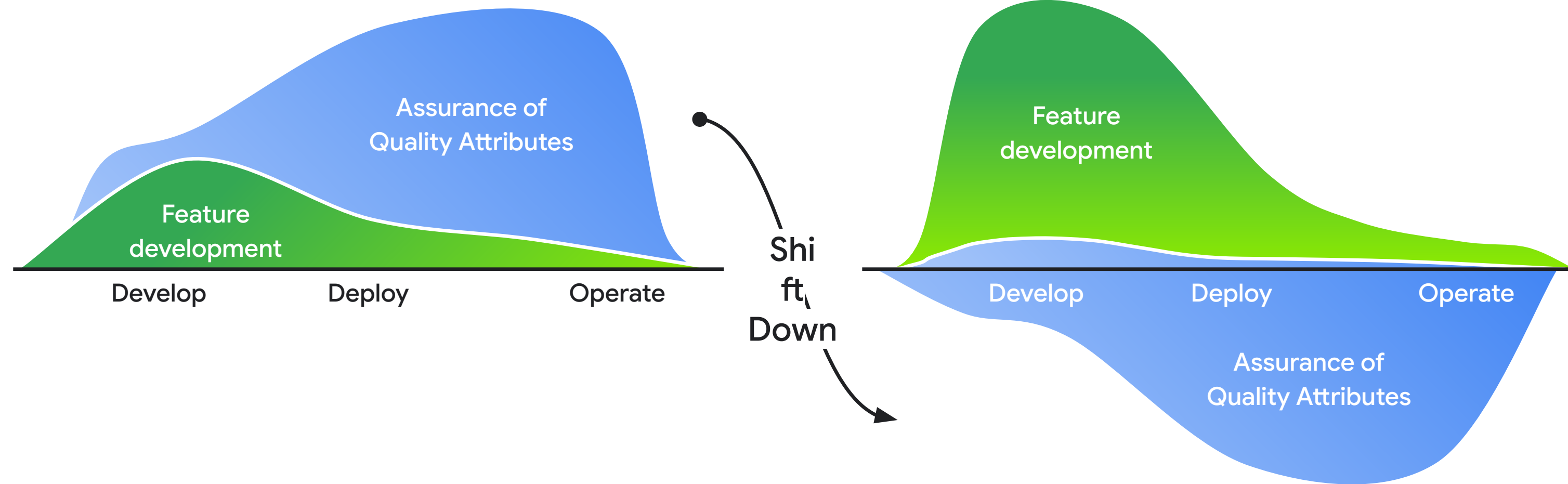
94% of developers are unhappy with the self-service tooling available to them. Still too many manual steps.



High cost of integration

Disjoined, independently acquired platform technology doesn't cleanly integrate, making platforms brittle and hard to update.

Shift Down



Principles of a good IDP



Treated as a product

The platform is a product, which means it has product management, a dedicated software team, a backlog, and regular release cadence.



Opinionated yet extensible

An IDP should have a well-integrated set of parts that can be swapped out or extended as needed by the software team.



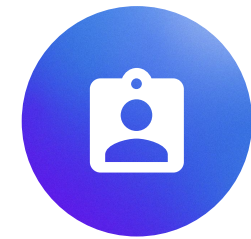
Uses open APIs

Default to open APIs for components and use open formats for data import/export.



Reduces cognitive load of devs

IDPs need to make life easier for the developer by abstracting infrastructure complexity and making it easier to do the right things.



Hyper-automated

Every action in the IDP needs to be powered by underlying automation. All self-service activities offered to developers should be automated!

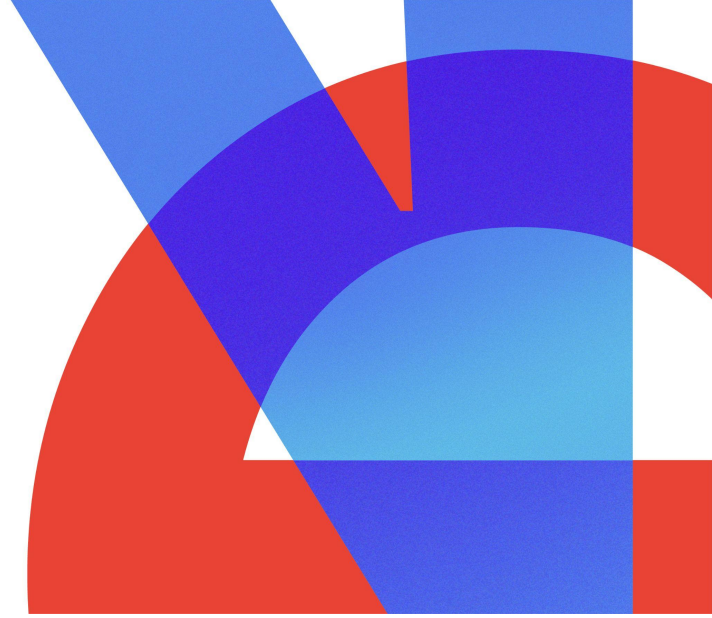


Enforces standards and practices

Templates, guardrails, and policies should be embedded in the IDP.



Introducing the Cloud IDP



Complete

The Cloud IDP offered by Google Cloud offers a complete set of services for platform engineers that want to enable developers.

Integrated

Each component works closely together to minimize toil, improve speed, and enhance security.

App-Centric

From design, through deployment, observability, and cost management, make the “app” the focus.



- ✓ One IDP for all : Customers, partners, Googlers
- ✓ Portable : All GCP runtimes and environments
- ✓ Prefers open source and industry standards
- ✓ Assemble into a cloud application platform
- ✓ Platform for policy-driven development and operations



 The Google Cloud IDP

Cloud Application Platform

[App Hub](#) is the central place for tracking applications, services, and workloads across your Google Cloud projects

 Google Cloud

Developer Experience

 Cloud Code  Dev Connect

App Templates and Catalog

 App Design Center

Security policies and compliance

 Identity & Access Management

 Security Command Center

Compliance Policies

Application Centric Uniform Foundation

 One Network

 Security

 Observability

Runtimes

 Compute Engine

 GKE

 Cloud Functions

 Cloud Run

 Cloud Spanner

 Cloud SQL

 AlloyDB

 BigQuery

Cloud Application Platform

 Asset Inventory

 App Hub

 Cloud APIs

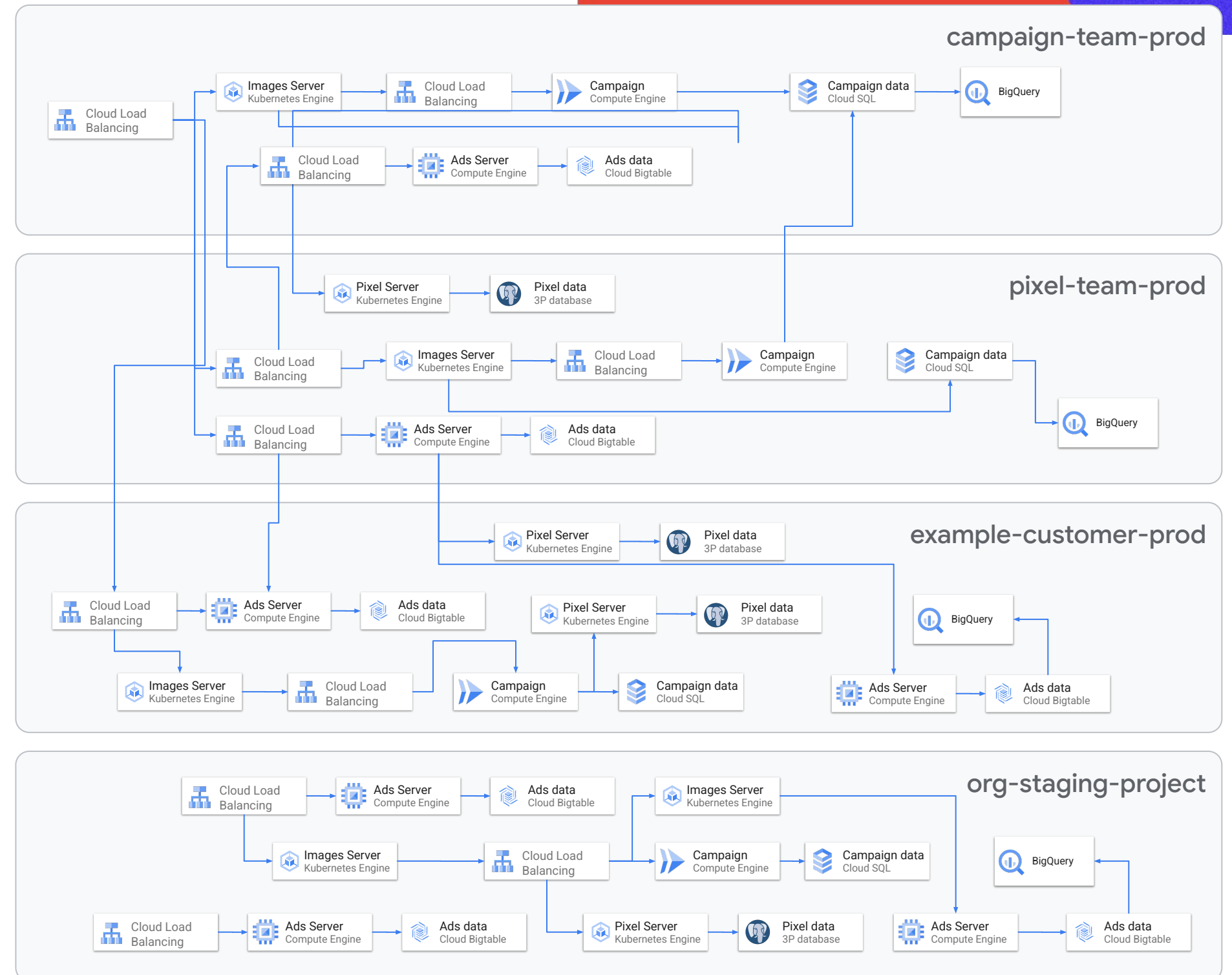
 Artifact Registry

 Product Catalog

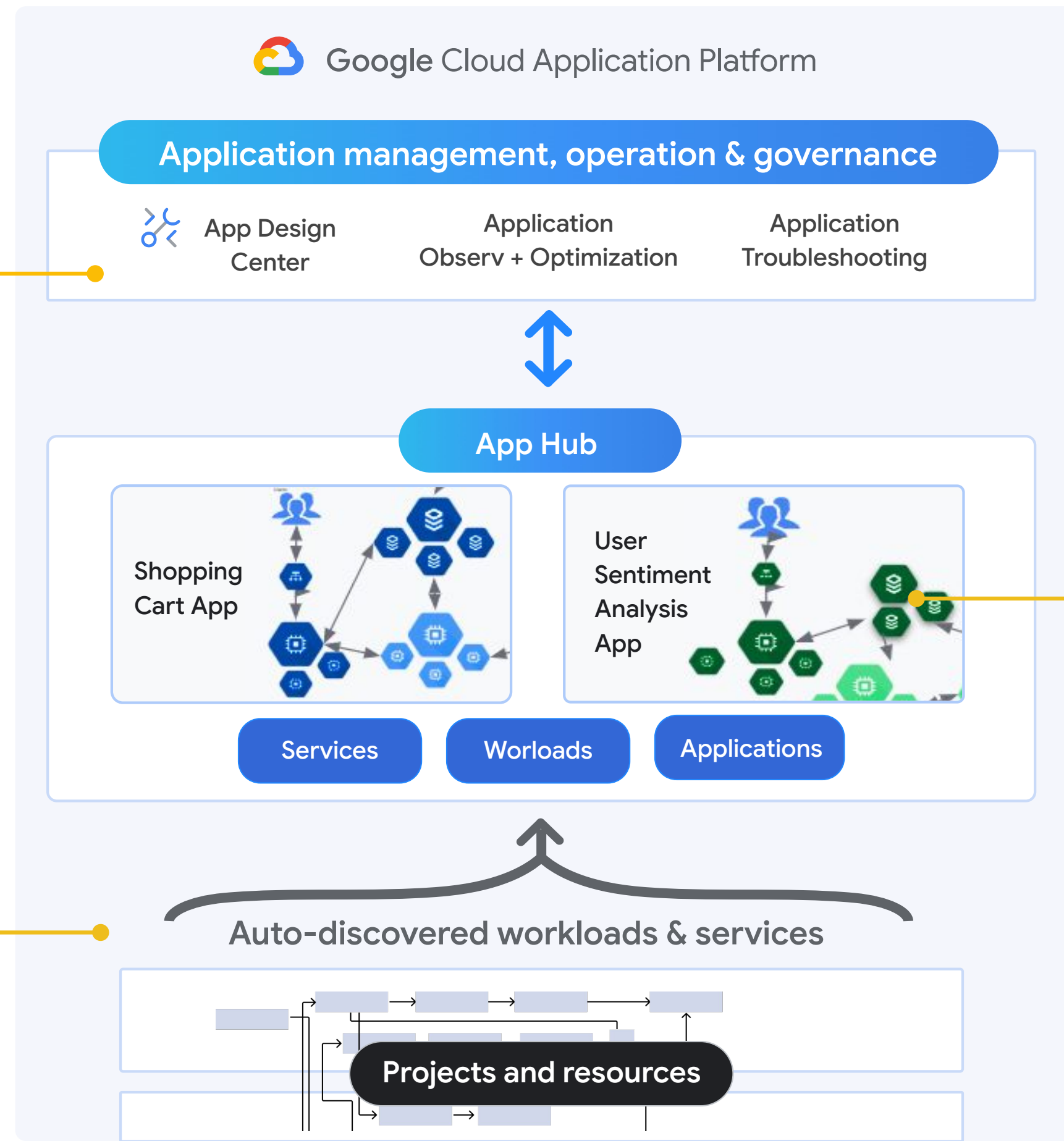
 Zones & Regions DB

Today: Project view

- ❌ Modern apps are typically not single-service. Difficult to manage and operate across 300+ products on Google Cloud
- ❌ Company organizations may have dozens of teams with their own unique permissions and policies
- ❌ Static and rigid groupings makes it difficult to adapt based on the needs of the application



Solution: Application, Services, Workloads

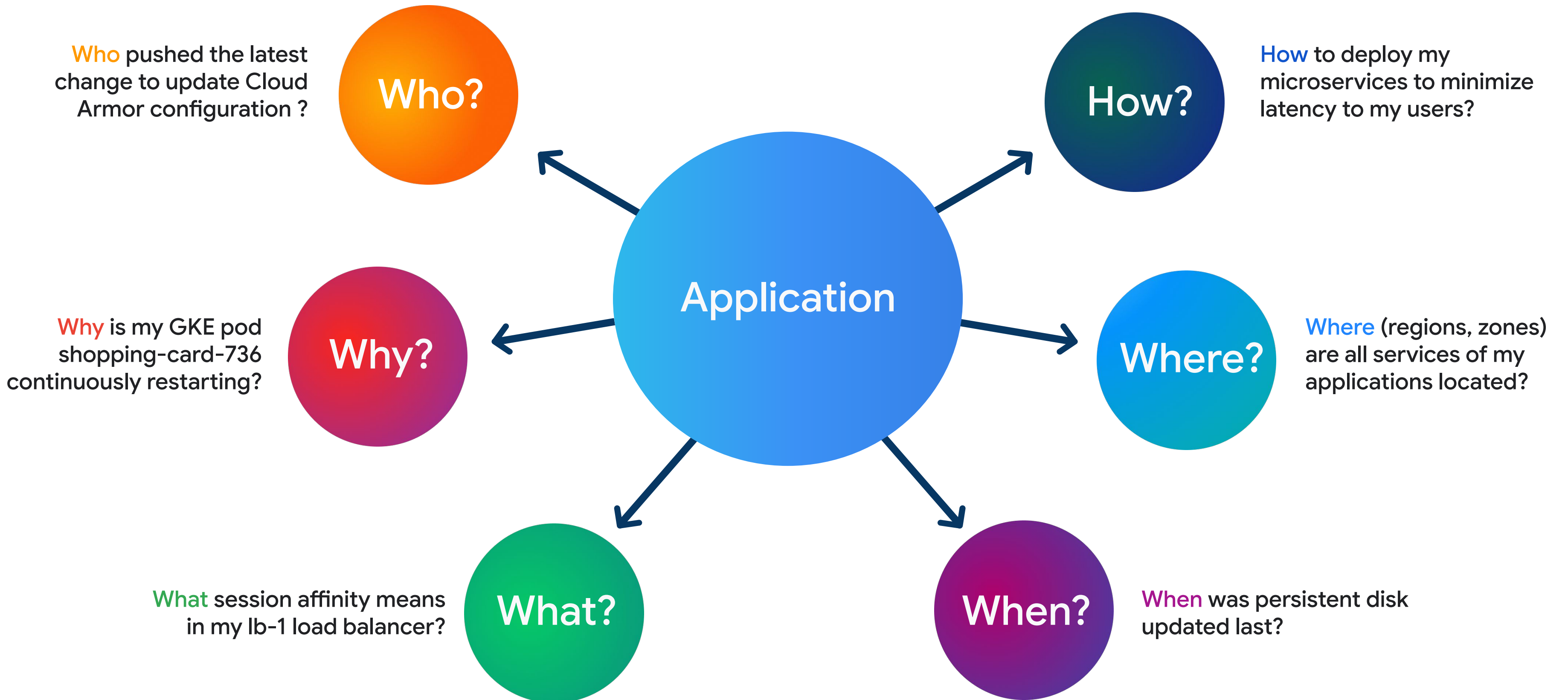


Design, observe, secure, optimize, troubleshoot Applications as a unit.

Runtime resources are discovered and modeled as Services, Workloads and Applications.

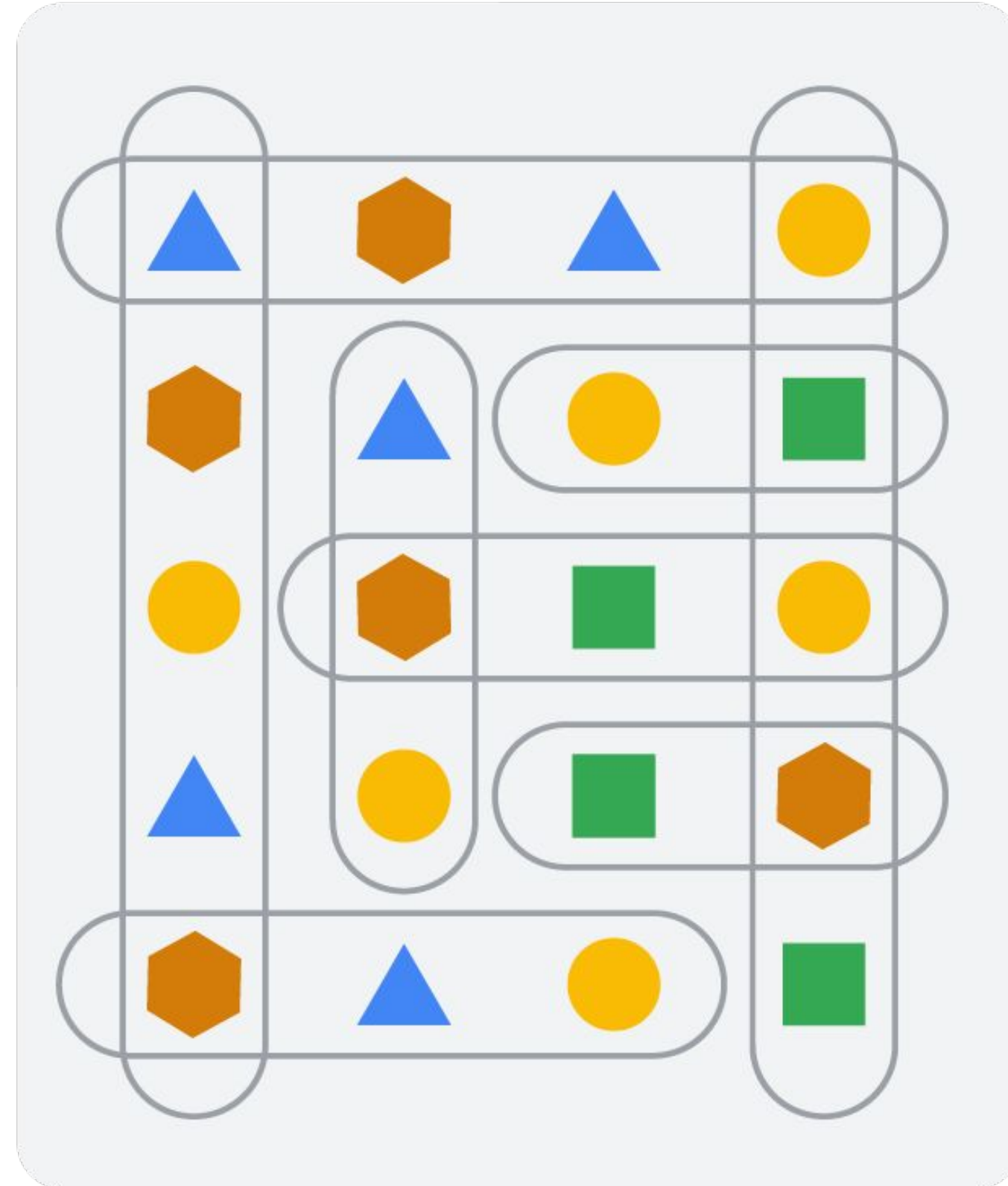
Application preserves its business context across design and runtime.

Now you can connect the dots



Start focusing on **apps**, not infrastructure

- ➔ Common Keys (Service, Workload, Application) across Google Cloud Platform
- ➔ Well defined sources of truth
- ➔ Correlated data across 40+ data sources



Get a unified view in Cloud Hub

Status	Issue	Application name	Criticality	Environment	Last modified
Failed	Not enough quota	website-solution	Mission Critical	Production	May 22, 2024
Failed	Missing permissions	e-commerce-app		Production	May 22, 2020

Affected Application	Updated template	Updated on
website-app	e-commerce, v3.0	
school-app	e-commerce, v3.0	

Application Deployments and alerts

Title	Investigate
New investigation - Mar 10, 2025, 1:46	
VM Quota Exceeded	Investigate
VM Quota Exceeded	Investigate
VM Quota Exceeded	Investigate

Health & troubleshooting of your application

- + Key metrics per service & workload
- + Error Groups

Workload	Cost	Cost change
ollama-gemma-deployment	\$943.62 USD	0.0%
movie-guru-dev-database	\$49.37 USD	3.7%

Optimization

- + Cost and utilization reporting and recommendations

Service	Usage
Compute Engine API: In-use	110.416667%
Compute Engine API: C2 CPL	100%
Compute Engine API: GPUs	100%

Name	Type
reservation-1 (e2-medium)	
reservation-2-delete (c2-standard-4)	
reservation-2-test-delete-2 (c2-standard-4)	

Reservation & quota

- + Reservation
- + Usage
- + Quota

Name	Resource type	Category	Resource progress
Cloud Interconnect planned maintenance	compute.googleapis.com/	Infrastructure	2 / 4
Cloud Interconnect planned maintenance	compute.googleapis.com/	Infrastructure	0 / 4

Planned and scheduled maintenance

Title	Priority	Status	Project	Case number
test case	P1	Closed	compute-ux-team	29931319
vm connectivity	P2	Closed	compute-ux-team	29839233

Support cases Investigations

 The Google Cloud IDP

Runtimes

 All Google Cloud Runtimes

 Compute Runtimes

 Google managed services

 SaaS Runtime - Deployment Management

 Partners managed services

 Customer shared services

 Google Cloud

Developer Experience

 Cloud Code  Dev Connect

App Templates and Catalog

 App Design Center

Security policies and compliance

 Identity & Access Management

 Security Command Center

Compliance Policies

Application Centric Uniform Foundation

 One Network

 Security

 Observability

Runtimes

 Compute Engine

 GKE

 Cloud Functions

 Cloud Run

 Cloud Spanner

 Cloud SQL

 AlloyDB

 BigQuery

Cloud Application Platform

 Asset Inventory

 App Hub

 Cloud APIs

 Artifact Registry

 Product Catalog

 Zones & Regions DB



Introducing

SaaS Runtime

Simplified tenant management

Designed to simplify and automate service management tasks, such as deployment, rollouts, maintenance, and experiments across SaaS tenants

Integration into GCP ecosystem

Seamlessly integrates with other GCP products - e.g., Billing, Observability, Resource Manager etc. for diagnostics, analytics and governance

Consistency across environments

Consistently manage services across various platforms including Google Cloud Platform (GCP), Google Distributed Cloud (Air-gapped / Connected)

Flexible & templatable modules

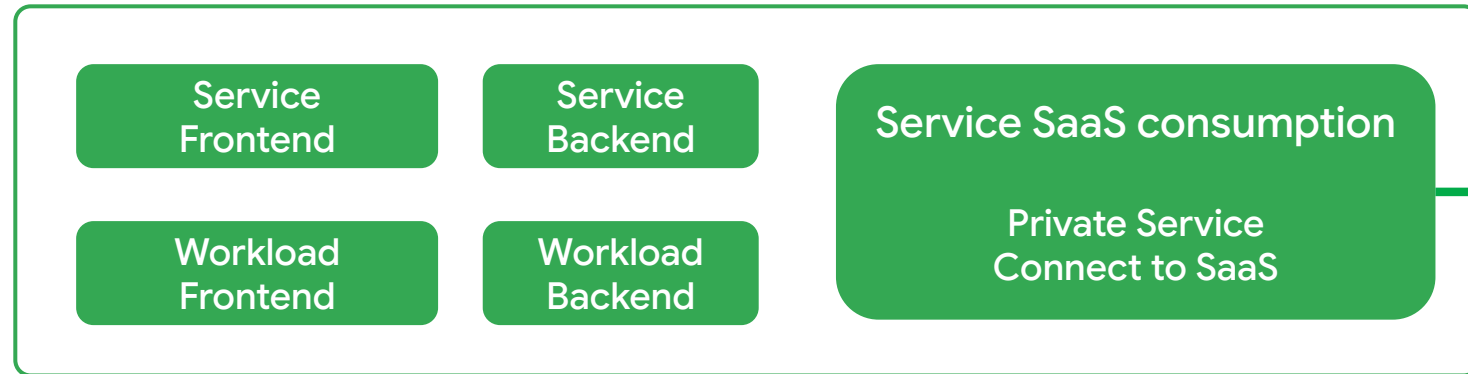
Promotes flexible composition of applications and infrastructure into units deployed and updated as a group for improved efficiency and reusability

Extensible to other clouds with open architectural framework

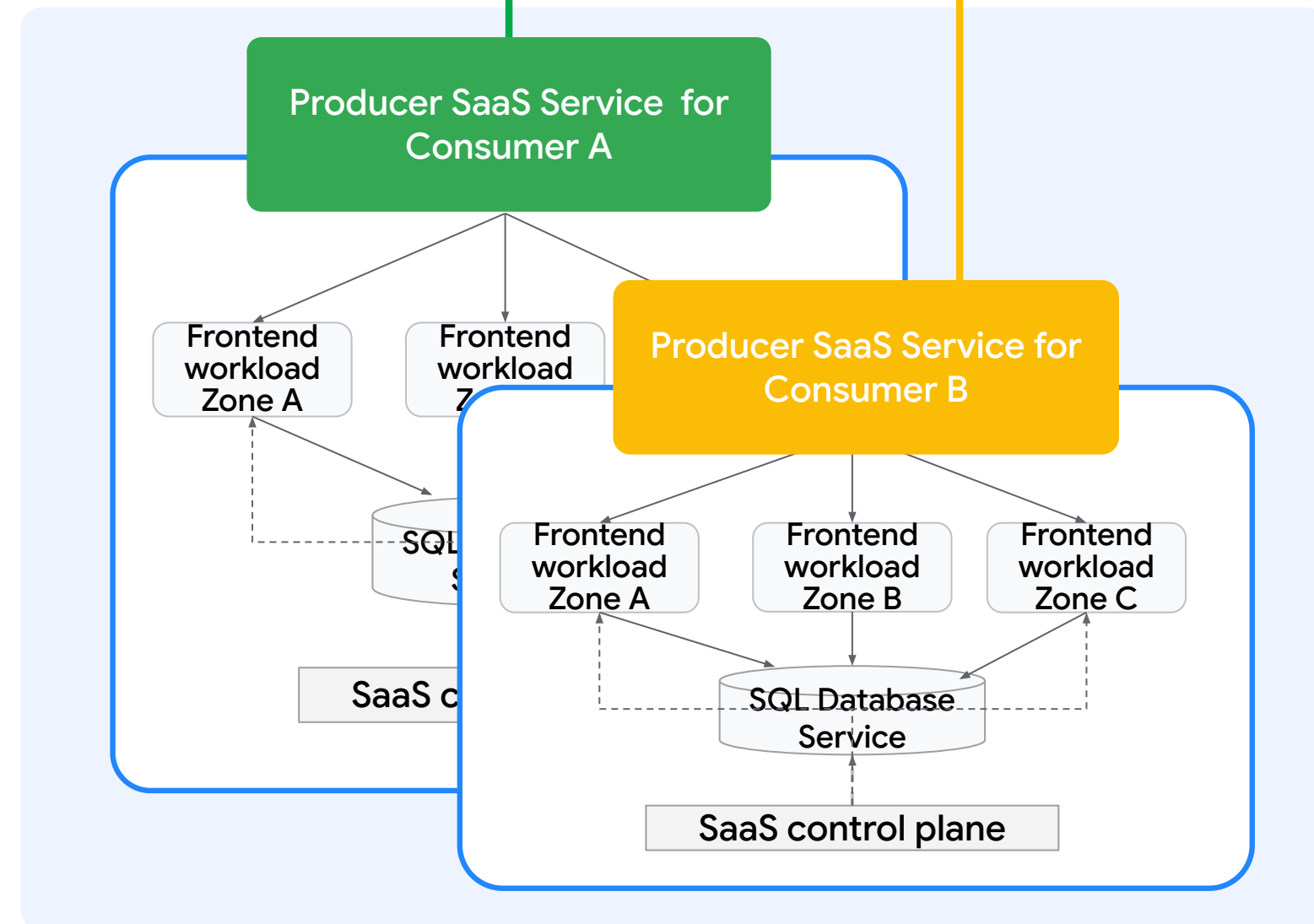
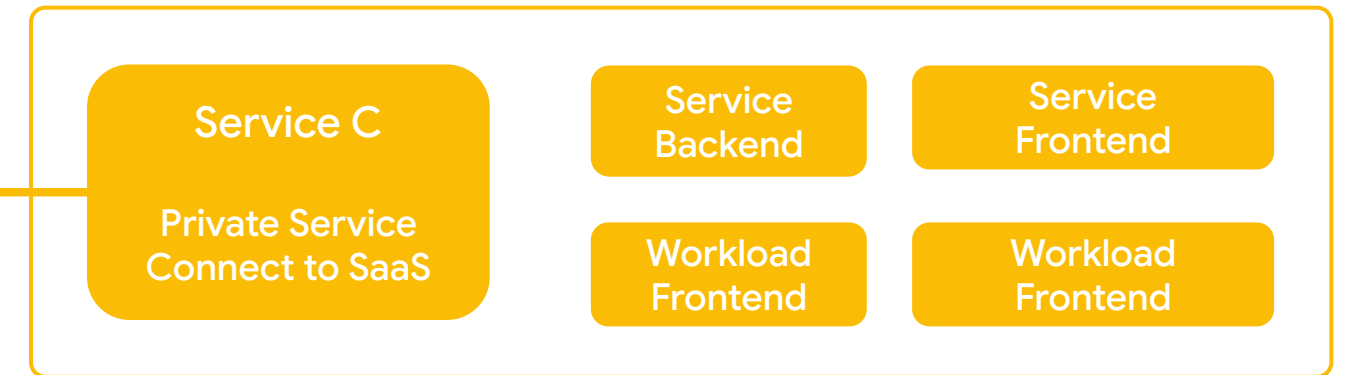
Streamline your SaaS deployment and upgrades across clouds by using SaaS platform open framework and an open source control plane

Anatomy of a SaaS Application

ConsumerA application



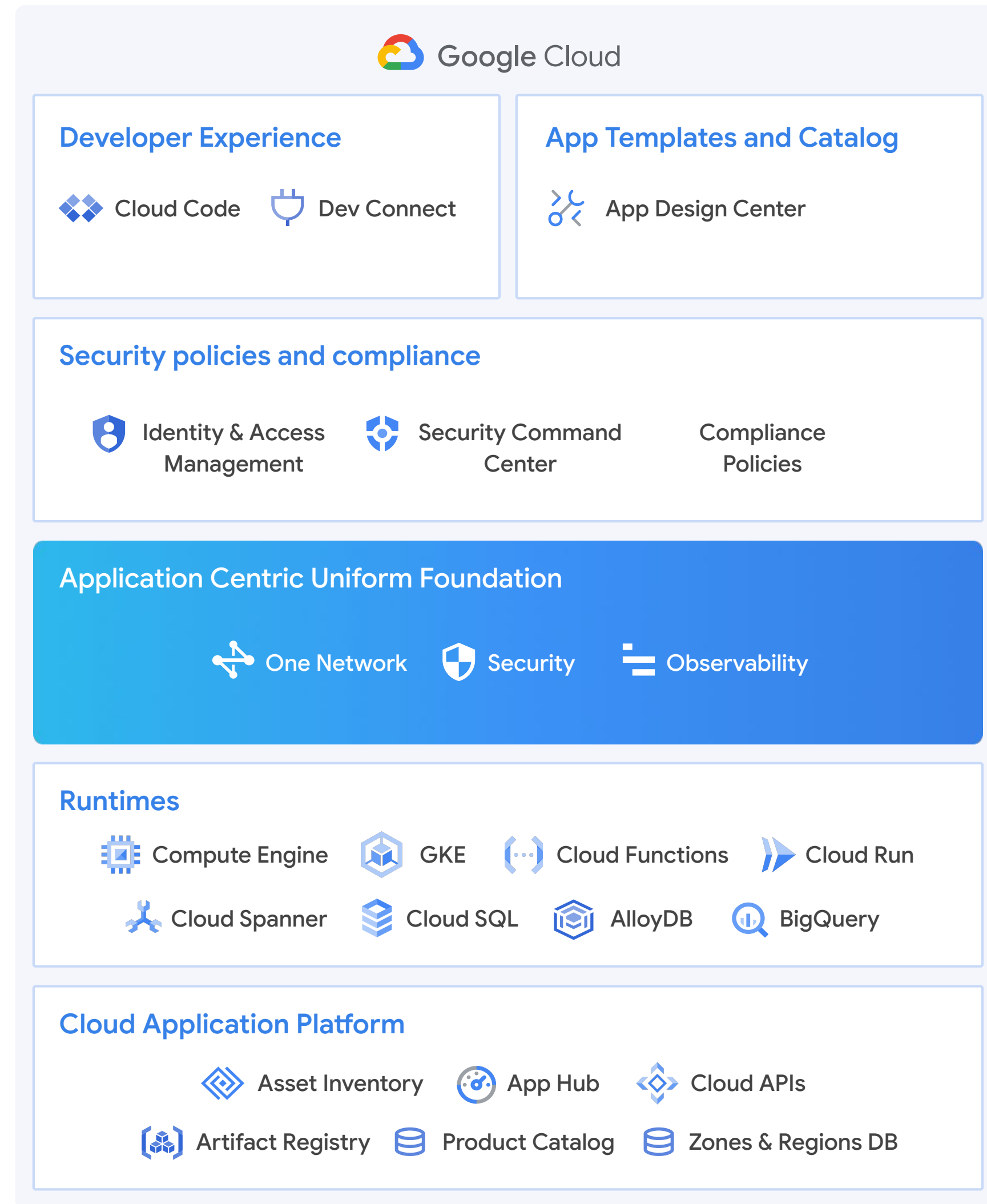
ConsumerB application






SaaS Producer Applications

App-centric Foundation

Cross Runtimes, cross clouds foundational **uniform** and **application-centric** infrastructure for Governance, Policies, Observability & Traffic Management



We provide an app-centric foundation

-  Open Pluggable DLP, bot management, API security ...
-  Zero Trust (mTLS) Application Security
-  Open Telemetry Application Observability

Services

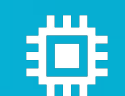
Workloads

Applications

Uniform workloads and services

 one network: Unified Service Networking Overlay

Runtimes



Compute Engine



GKE



Cloud Functions



Cloud Run



Cloud Spanner



Cloud SQL



AlloyDB



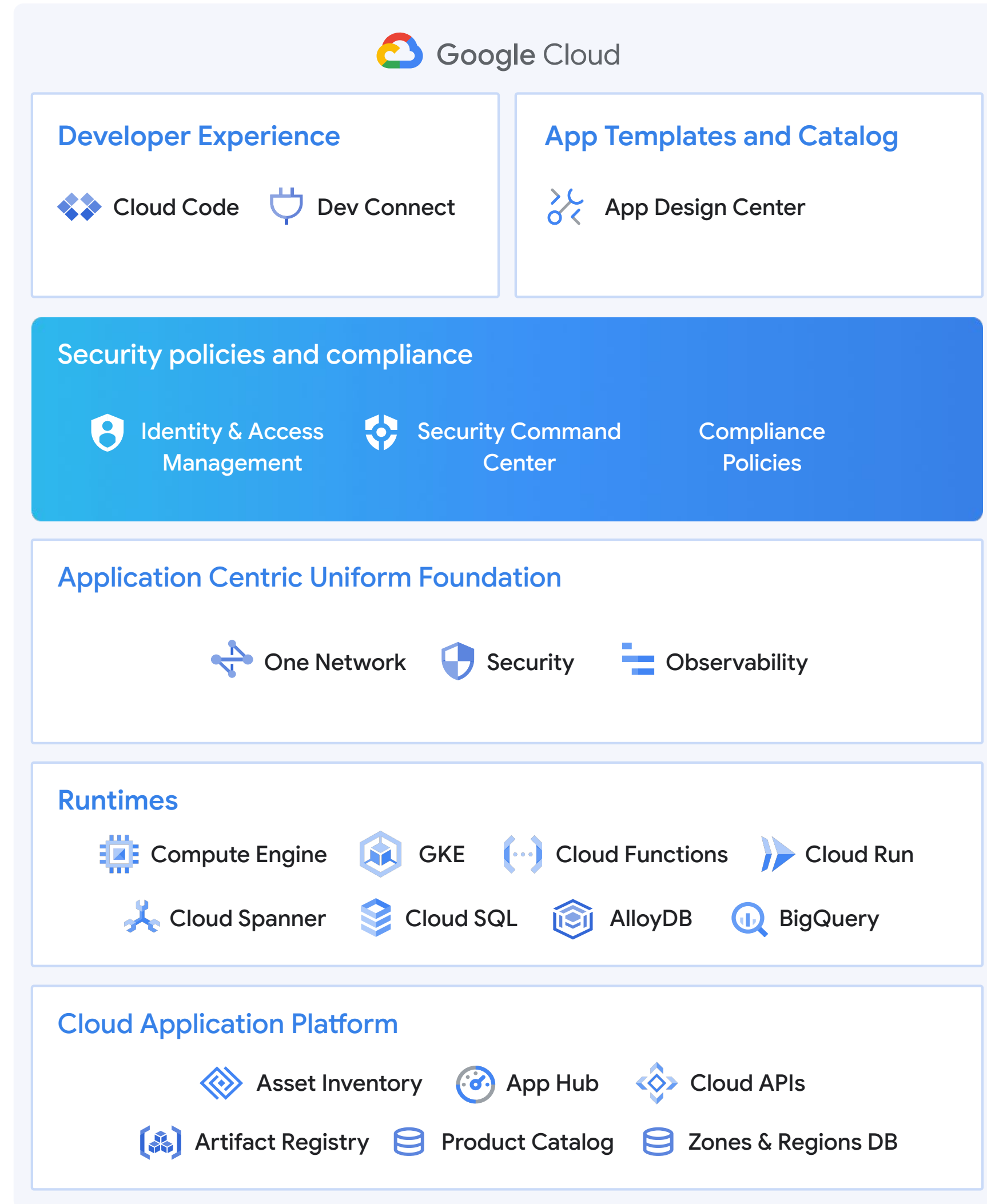
Cloud Bigtable



BigQuery

Policies & Compliance

Application perimeter is the security and compliance boundary that is a target of orchestrated policies



Google Cloud

Developer Experience

- Cloud Code
- Dev Connect

App Templates and Catalog

- App Design Center

Security policies and compliance

- Identity & Access Management
- Security Command Center
- Compliance Policies

Application Centric Uniform Foundation

- One Network
- Security
- Observability

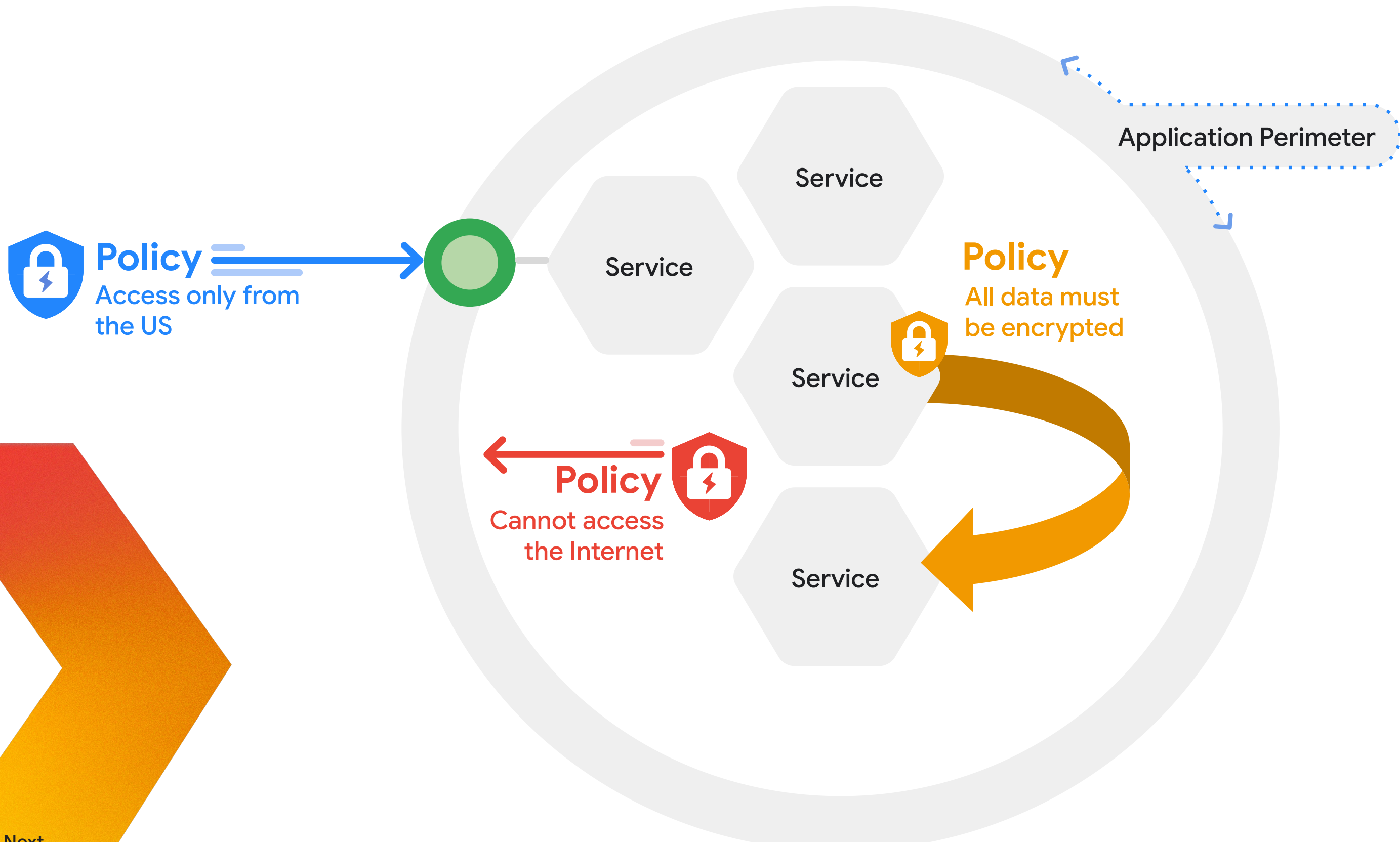
Runtimes

- Compute Engine
- GKE
- Cloud Functions
- Cloud Run
- Cloud Spanner
- Cloud SQL
- AlloyDB
- BigQuery

Cloud Application Platform

- Asset Inventory
- App Hub
- Cloud APIs
- Artifact Registry
- Product Catalog
- Zones & Regions DB

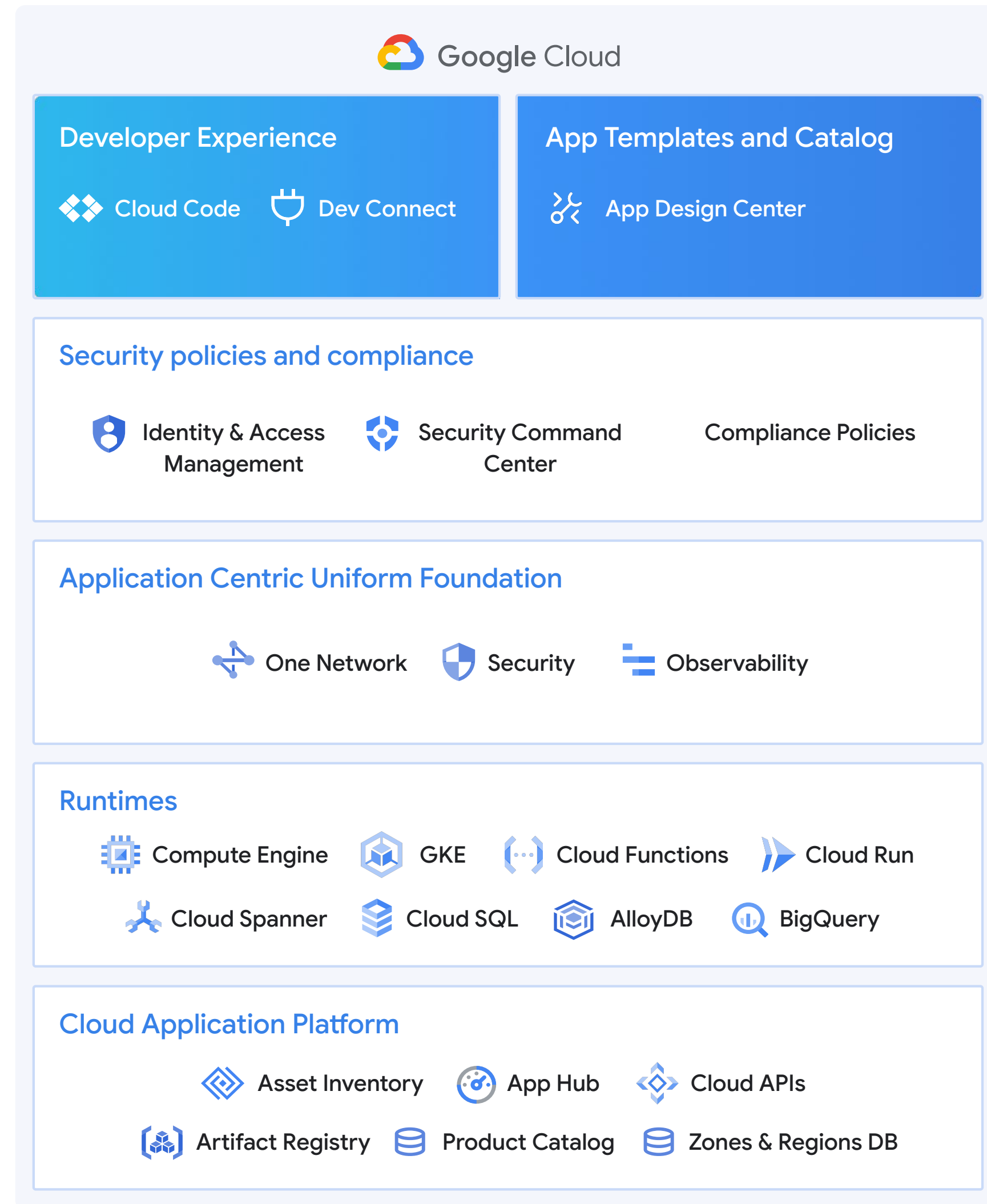
An application defines perimeter



Developer UX

Connect Developer tools to the Application Platform and get quality attributes by-design:

- Secure-by-design
- Reliable-by-design
- Compliant-by-design
- Observable-by-design



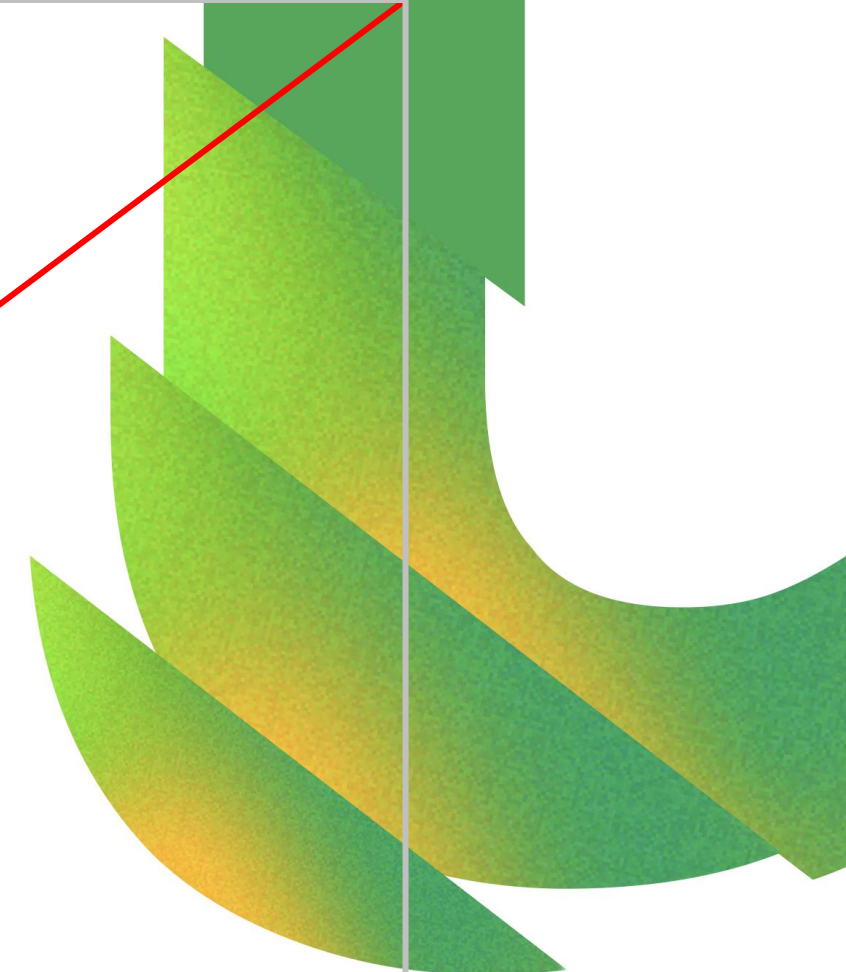


Demonstration



Google Cloud Next

Proprietary



The key takeaway

Shift down

Ask more of your platforms, and embed more capability into the underlying, integrated stack.

Build with Google

Reimagine what an IDP can be by adopting an application-centric platform approach with Google Cloud.



Your feedback is greatly appreciated!



Complete the session
survey in the mobile app



Thank you