

Taking Anthos and AlloyDB for a Multicloud ride

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Next 15
minutes



Why Multicloud?

How does Google
Cloud differentiate?

A reference architecture
walkthrough

Some takeaways

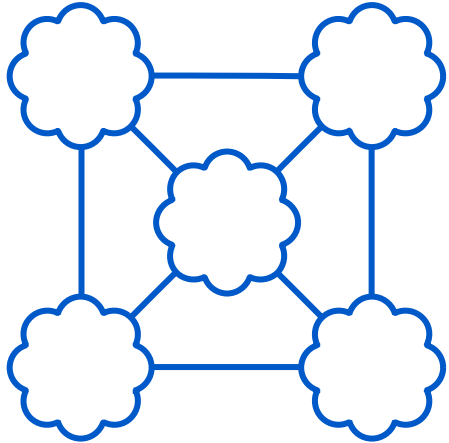
Why multicloud?

The cool kids are doing it 😊

Leverage different features,
commercial models and
regions

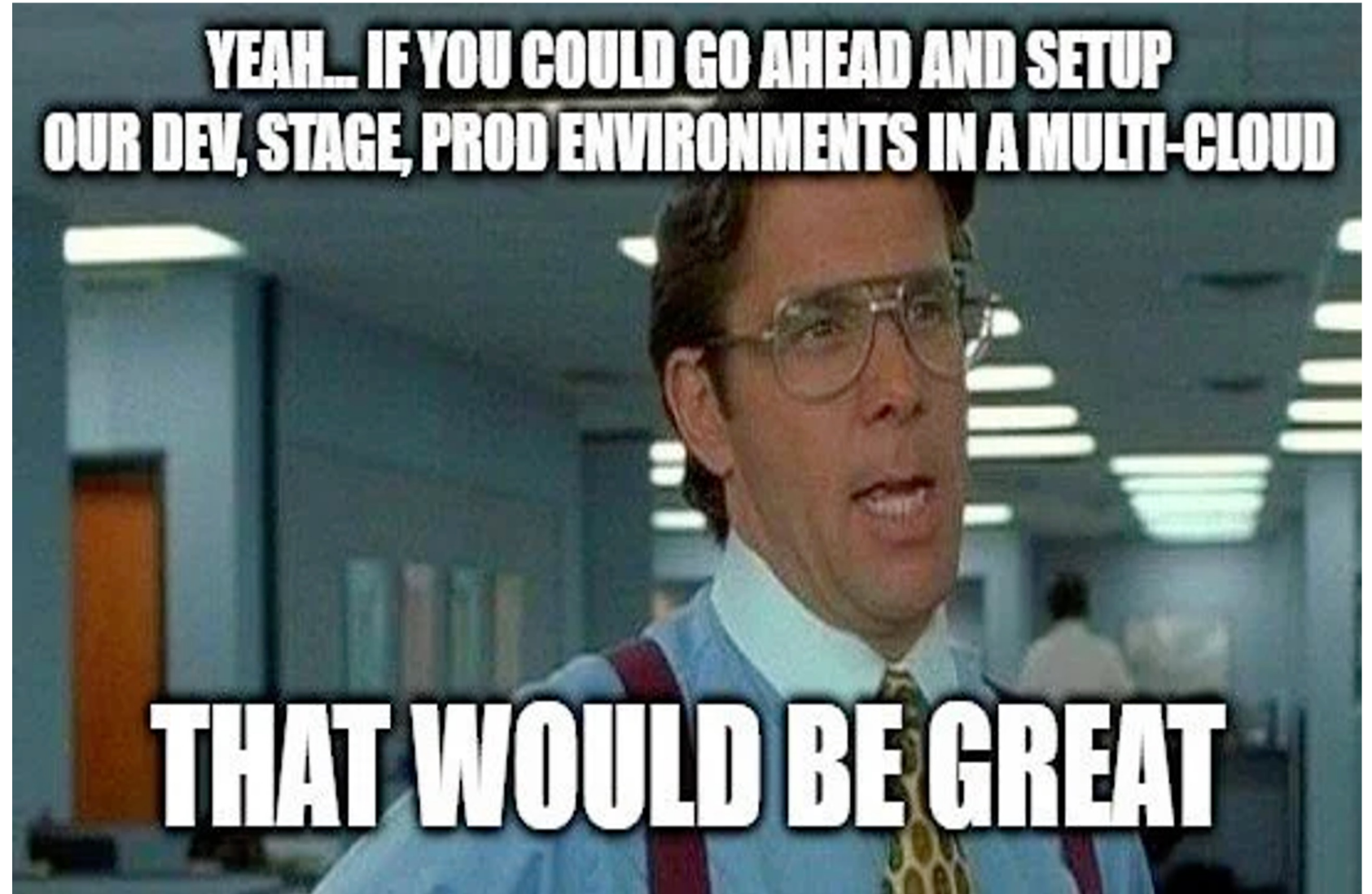
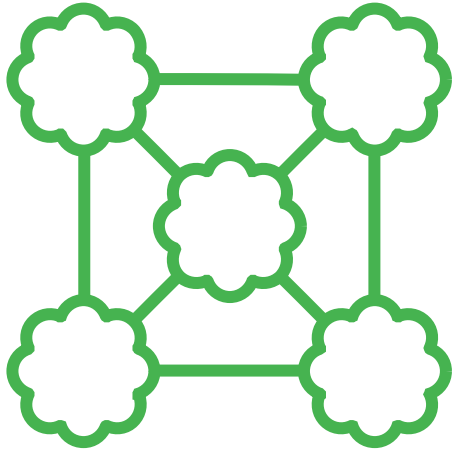
Disaster recovery

Go where your customers/
partners are



Insert image about
analyst claims about
Multicloud

But is it easy?



But **Google Cloud** is trying the best !!

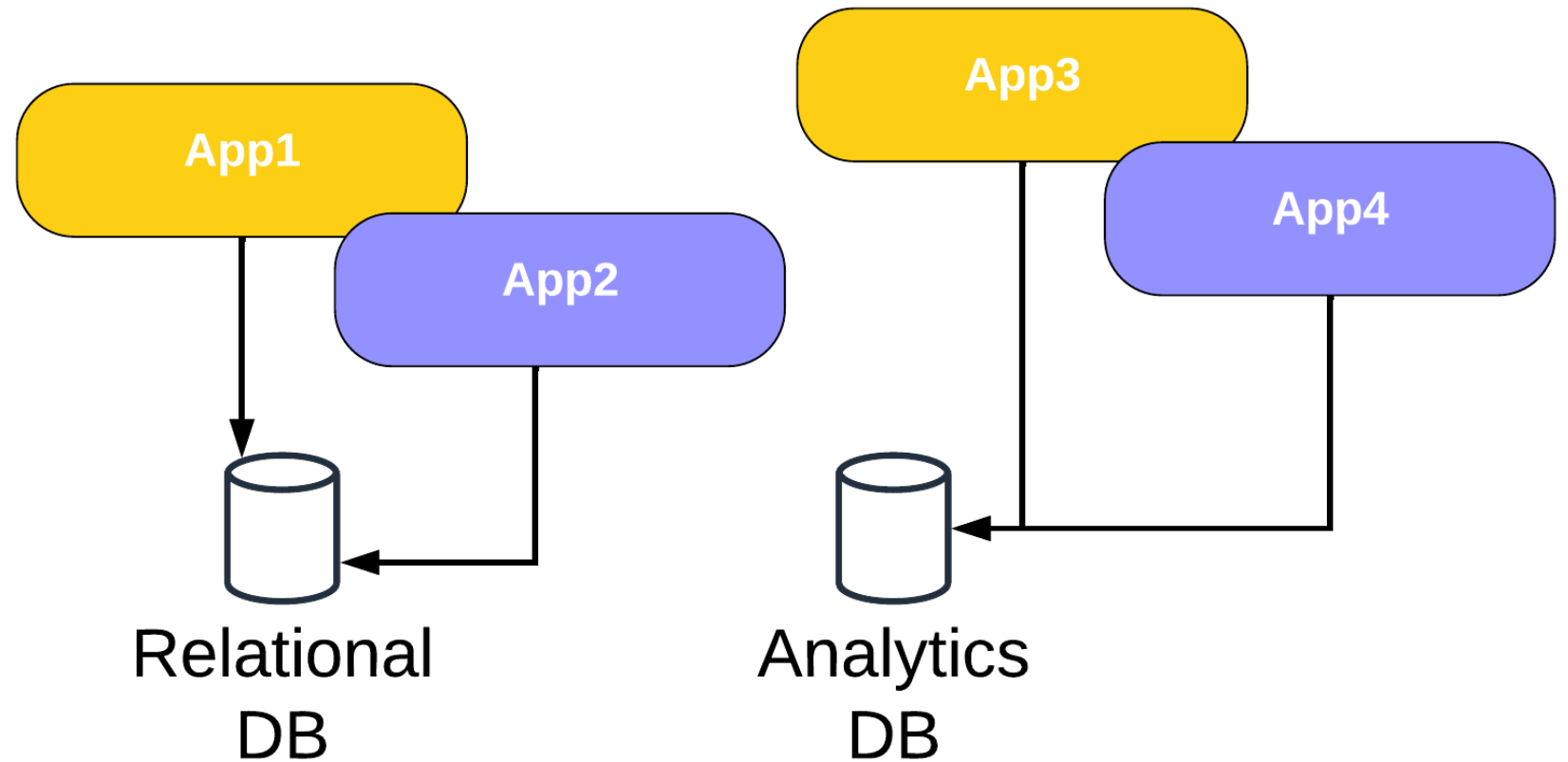
Lots of open
themed technologies

Some key product
and solutions in the
last 12-18 months

“For now, what is important is not finding
the answer, but looking for it.”

- Douglas R. Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid*

Let's begin the ride !



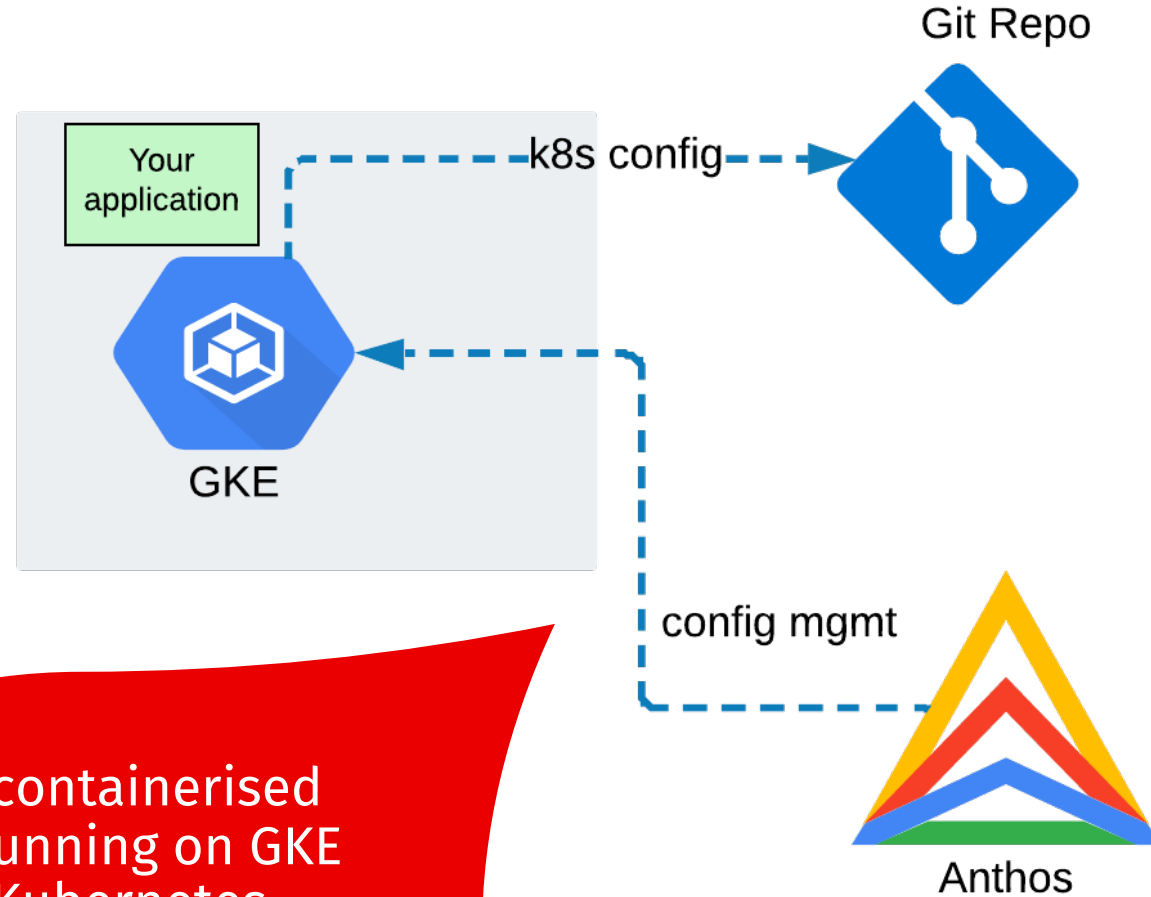
Building Block #1 - Anthos



- Multicloud Managed Kubernetes
 - Attach feature for EKS/AKS
- Excellent features
 - GitOps for app config management
 - Multi cluster fleet management
 - Operations
 - Security

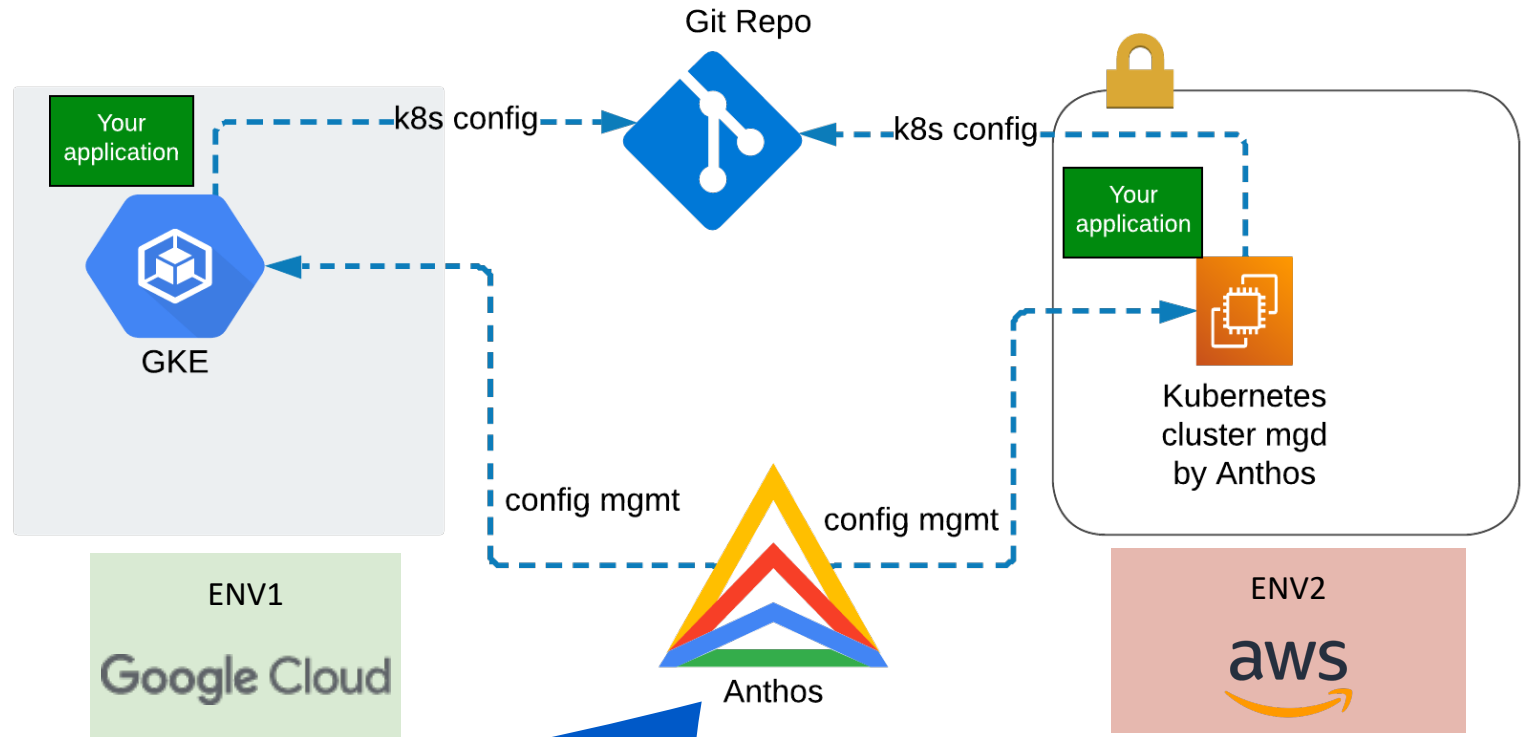


Building Block #1 - Anthos



- Your containerised app running on GKE
- Your Kubernetes configuration in Github with Anthos Config Management

Building Block #1 - Anthos

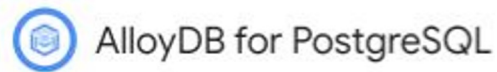


- Easy mirrored setup on AWS
- Consistent Kubernetes management with Anthos

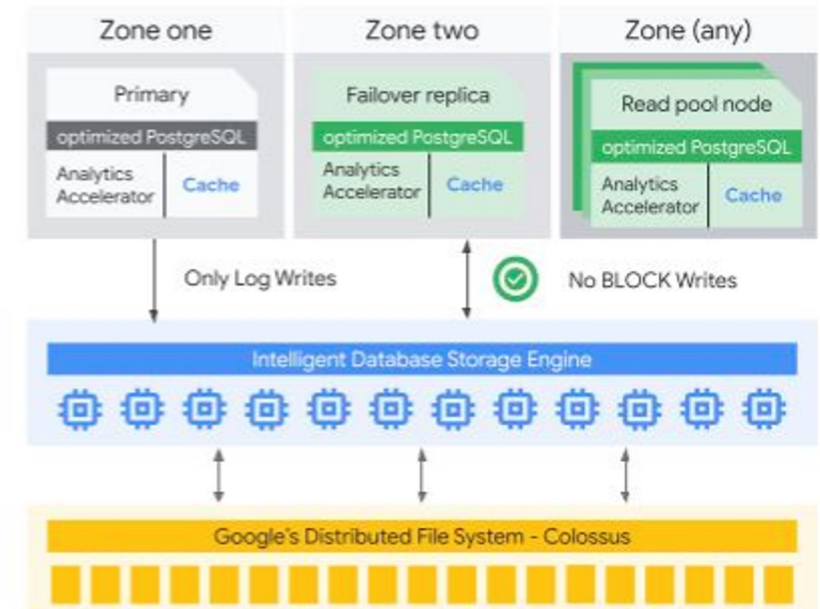
Building Block #2 - AlloyDB



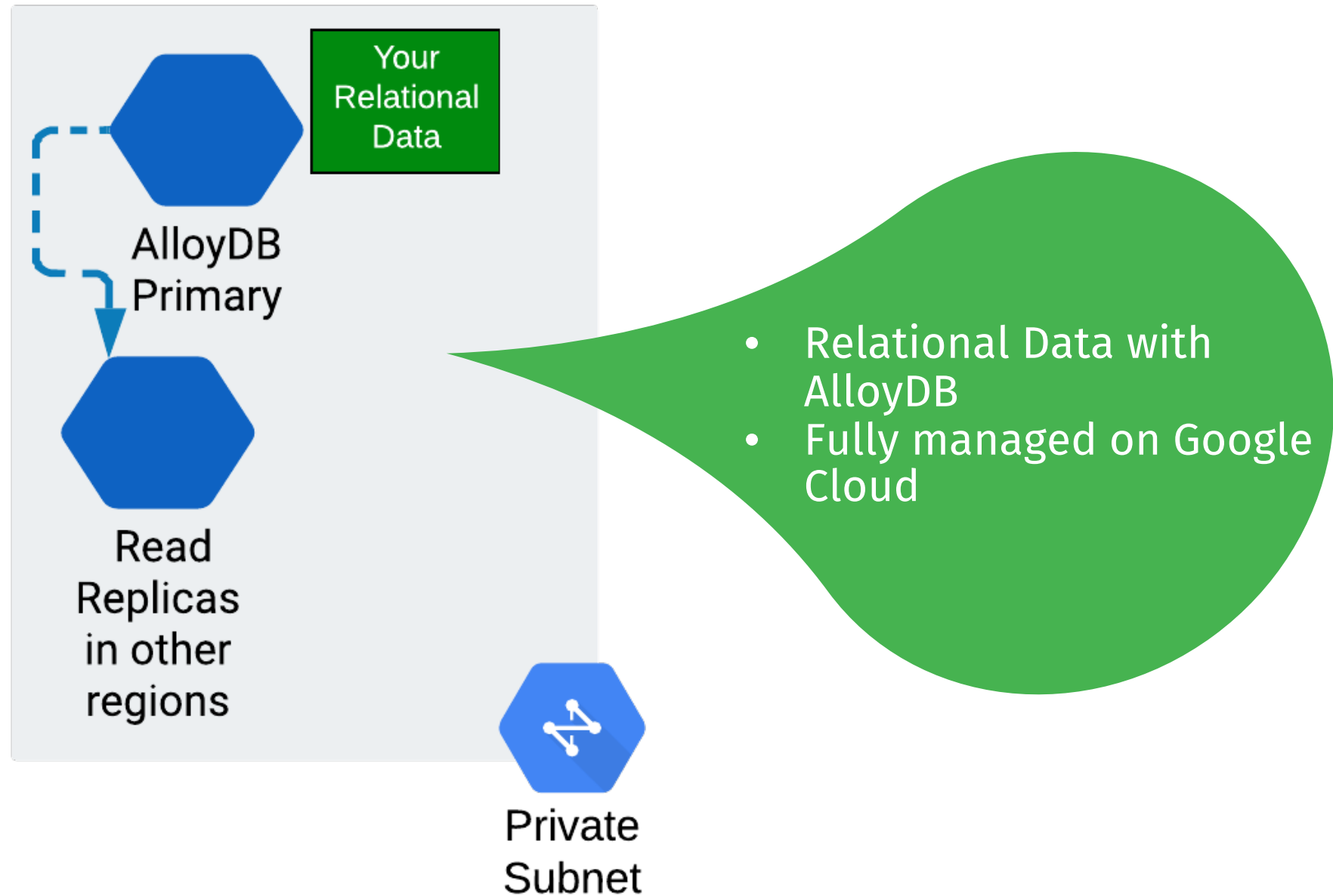
- Postgres compatible relational database
- New entry to Google Cloud
- Omni version for other clouds and on-premise



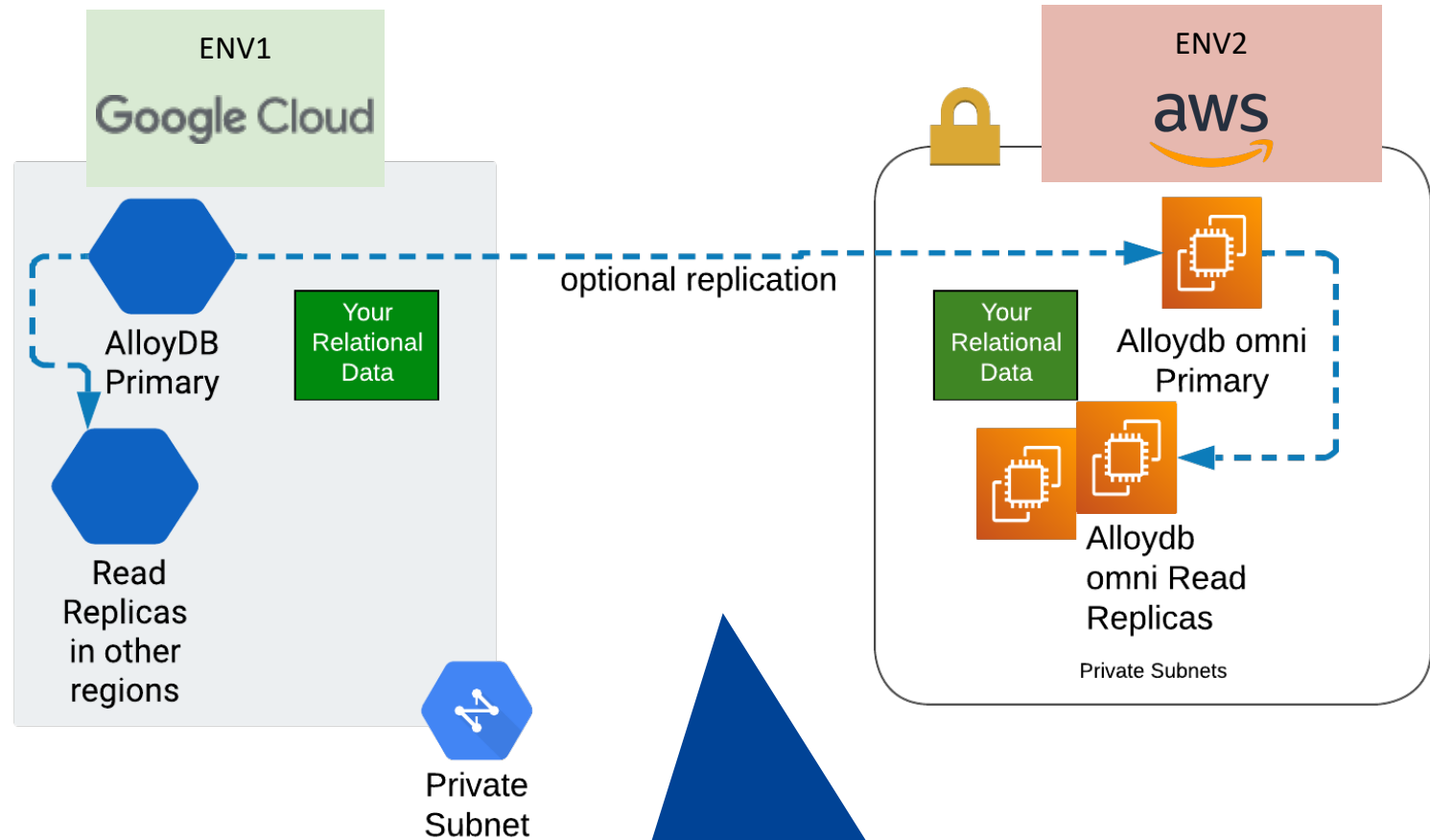
**Intelligent database
storage designed
and optimized for
PostgreSQL**



Building Block #2 - AlloyDB



Building Block #2 - AlloyDB

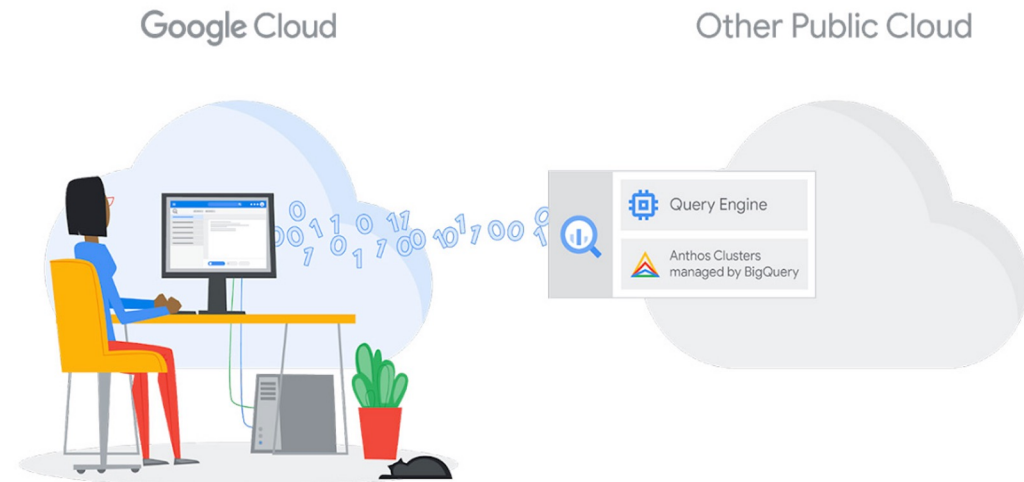


- AlloyDB x 2
- Omni on AWS (in Preview)
- Partially managed
- Replication

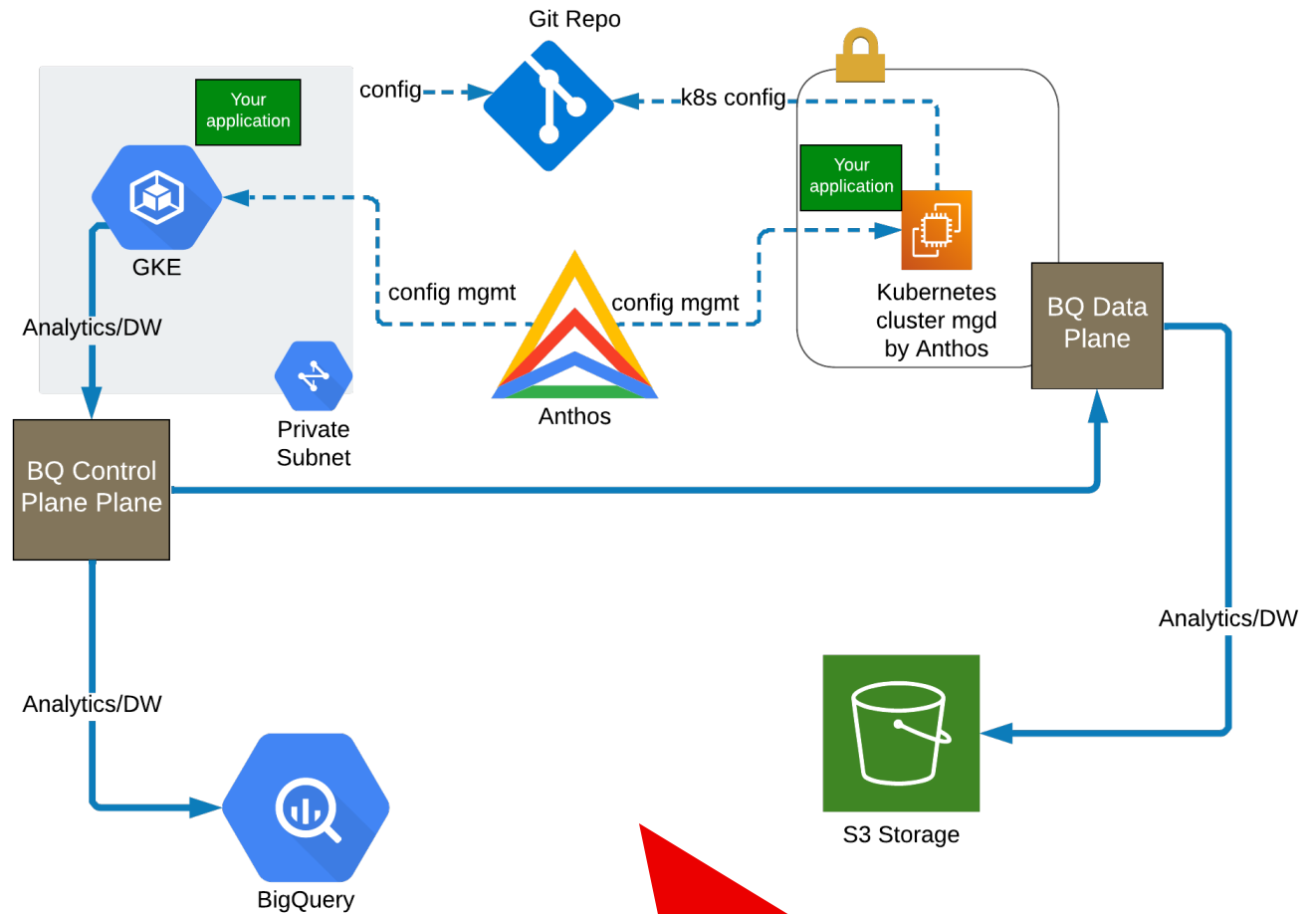
Building Block #3 - Big Query



- Powerful petabyte-scale analytics with inbuilt ML
- BQ Omni
 - Stateless compute
 - Data in AWS S3 or Azure Blob
- Looker Integration



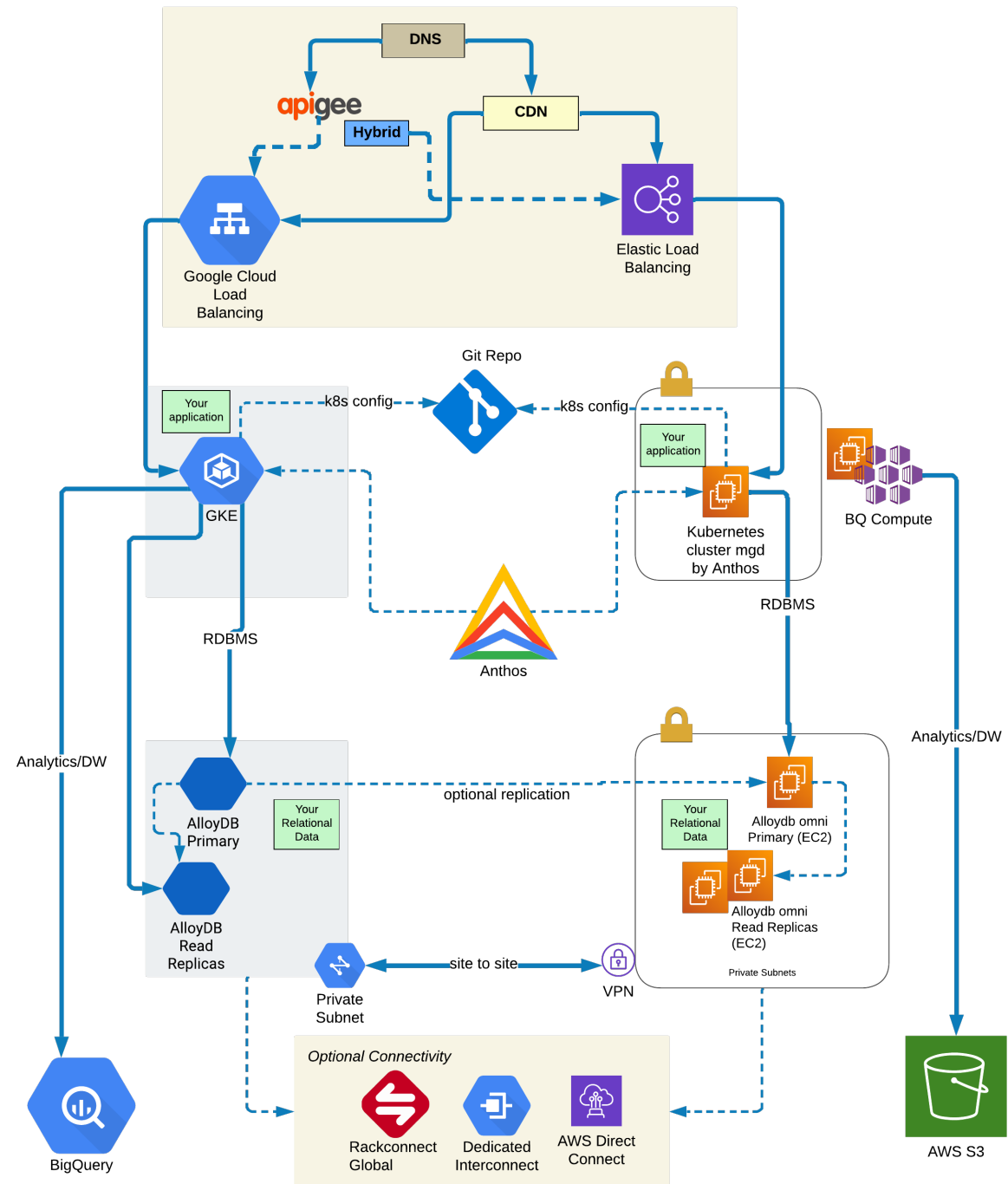
Building Block #3 - Big Query



- Multicloud analytics with local storage and BigQuery Omni

The full design

- Applications deployed across Google Cloud and AWS using GitOps delivered by Anthos Config Management.
- An consistent database layer using Postgres compatible AlloyDB.
- An storage model using Google Cloud Storage and Amazon S3 but served by Big Query
- Necessary cloud-vendor-native constructs like VPC and Load balancers.



Beyond pictures

Apply complete! Resources: 131 added, 0 changed, 0 destroyed.

Outputs:

```
bigquery_omni_role = "arn:aws:iam::844054940671:role/bq-omni-connection"
env1_alloydb_helper_ip = "35.221.42.171"
env1_bastion_ip = "34.150.138.160"
env1_cluster_location = "us-east4"
env1_cluster_name = "env1-clu01"
env1_db_prim_id = "projects/gcp-mc-demo01/locations/us-east4/clusters/env1-clu01/instance"
env1_db_prim_ip = "10.212.0.2"
env1_db_read_id = "projects/gcp-mc-demo01/locations/us-east4/clusters/env1-clu01/instance"
env1_db_read_ip = "10.212.0.5"
env2_anthos_api_role_arn = "arn:aws:iam::844054940671:role/anthos-api-role"
env2_anthos_cp_role_arn = "arn:aws:iam::844054940671:role/anthos-cp-role"
env2_anthos_np_role_arn = "arn:aws:iam::844054940671:role/anthos-np-role"
env2_bastion_ip = "54.234.189.146"
env2_db_prim_ip = "10.1.77.87"
env2_db_prim_public_ip = "44.198.93.169"
myapp_repo_id = "projects/gcp-mc-demo01/locations/us-east4/repositories/myapp"
util_repo_id = "projects/gcp-mc-demo01/locations/us-east4/repositories/util"
```

- > apps
- ▼ infra/tf
 - aws_anthos.tf
 - aws_anthos_acm.tf
 - aws_anthos_iam.tf
 - aws_bastion.tf
 - aws_kms.tf
 - gcp_alloydb.tf
 - gcp_api.tf
 - gcp_artifacts.tf
 - gcp_bastion.tf
 - gcp_firewall_rules.tf
 - gcp_gke.tf
 - gcp_gke_acm.tf
 - gcp_vpc.tf
 - main.tf
 - outputs.tf
 - state.tf
 - variables.tf
 - .gitignore
 - README.md

- Deployment using Terraform
- Some glue using kubectl



Example App

← → ↻ ⚠ Not Secure | a0c1b014db14a4c2eadf237b3a042226-419817784.us-east-1.elb.amazonaws.com/run

Environment:env2-aws

Title	Start Year
A Thin Life	2018
Holy Hollywood	2021
Bachelor Trip	2012
Take Out	2022
Party Crashers	2012
Stan	2011
Bamboo Shark	2011
Persona Au Gratin	2012
Monkey Man	2011
Have You Seen Me?	2016
The Incredible Burt Wonderstone	2013
Jack and Jill	2011
The Do-Deca-Pentathlon	2012

← → ↻ ⚠ Not Secure | 34.86.43.162/run

Environment:env1-gcp

Title	Start Year
A Thin Life	2018
Holy Hollywood	2021
Bachelor Trip	2012
Take Out	2022
Party Crashers	2012
Stan	2011
Bamboo Shark	2011
Persona Au Gratin	2012
Monkey Man	2011
Have You Seen Me?	2016
The Incredible Burt Wonderstone	2013
Jack and Jill	2011
The Do-Deca-Pentathlon	2012
The Babymakers	2012
Naked Run	2011
6 Month Rule	2011
The Nightclub Days	2012
The Wedding Ringer	2015



Configuration Sync

DASHBOARD

PACKAGES PREVIEW

SETTINGS

Reconciliation status ?



- 2 current
- 0 in progress
- 0 failed
- 0 unknown

Synchronisation status ?



- 2 synced
- 0 pending
- 0 reconciling
- 0 stalled
- 0 error
- 0 unknown

Top package issues

Name	Reconcile issues	Sync issues
No issues to display		

[VIEW STATUS BY PACKAGE →](#)

Top cluster issues

Name	Reconcile issues	Sync issues
No issues to display		

[VIEW STATUS BY CLUSTER →](#)

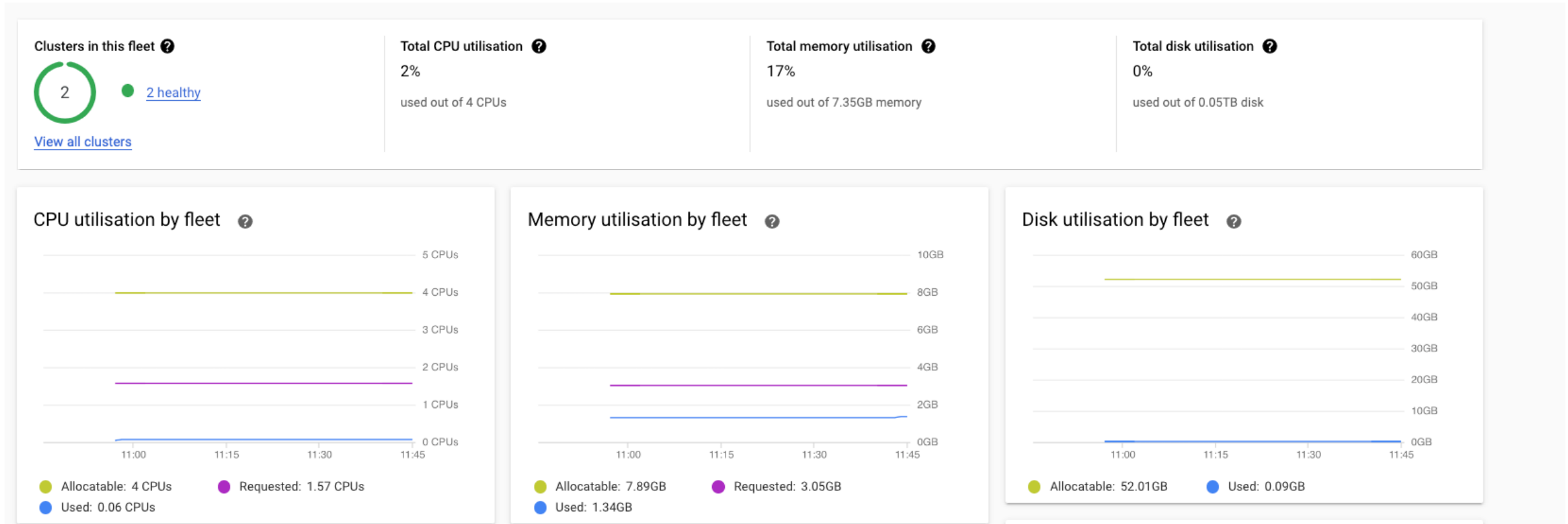


Package view

DASHBOARD PACKAGES PREVIEW SETTINGS						
I> View by <input checked="" type="radio"/> Package <input type="radio"/> Cluster						
Filter Namespace : myapp x Enter property name or value						
Name	Type	Sync status ?	Reconcile status ?	Resource type	Resources synced	Namespace
▼ root-sync	RootSync	✓ Synced	✓ Current		16 of 16	
▼ env1-clu01		✓ Synced	✓ Current		16 of 16	
myapp-hpa		✓ Synced	✓ Current	HorizontalPodAutoscaler		myapp
myapp		✓ Synced	✓ Current	Service		myapp
myapp		✓ Synced	✓ Current	Deployment		myapp
▼ root-sync	RootSync	✓ Synced	✓ Current		12 of 12	
▼ env2-cluster		✓ Synced	✓ Current		12 of 12	
myapp-hpa		✓ Synced	✓ Current	HorizontalPodAutoscaler		myapp
myapp		✓ Synced	✓ Current	Service		myapp
myapp		✓ Synced	✓ Current	Deployment		myapp



Fleet Management



Some Takeaways

Multicloud is very much feasible with some design choices

Don't go for the lowest common denominator

Region selection is a tricky if you want to use Anthos and BQ Omni together

Cost of experimenting is roughly 400 USD per week for this reference design



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rackspace
technology

FAIR

Let's start designing your sticker! Enter an image prompt in the field below to begin

Try to be descriptive for your image with details like: **art style, moods, backgrounds, & time of day**

Send

0/1000

Not feeling creative? Select one of our images or prompts below




Image Prompt:
A butterfly with rainbow wings landing on a flower




Image Prompt:
A wall in a royal castle. There are two paintings on the wall. The one on the left a detailed oil painting of the royal raccoon king. The one on the right a detailed oil painting of the royal raccoon queen




Image Prompt:
Watercolor art hot air balloons floating around the eiffel tower at sunrise

