



# Build a Multi-cloud



▲:STACK LABS

# Présentation de Stack Labs



## Pure player Cloud

Conseil, implémentation et formation



## Partenaire Cloud certifié

Google Cloud et AWS Partner



## Formations et certifications

sur les technologies  
Cloud

+ 40

experts passionnés  
France | Canada

+ 22%

d'investissements en R&D  
et veille technologique

+ 60

projets techniques au sein  
de grands comptes et PME



# Les convictions qui nous animent



PASSION



TECHNOLOGIE



EXCELLENCE

“

*Convaincus que l'ère du Cloud exige des ingénieurs de talent et un apprentissage continu, nous investissons en R&D et veille pour accompagner nos clients dans l'adoption des rapides changements technologiques et à la réalisation de projets à enjeux de production exigeants.”*





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🐙 @Chabane

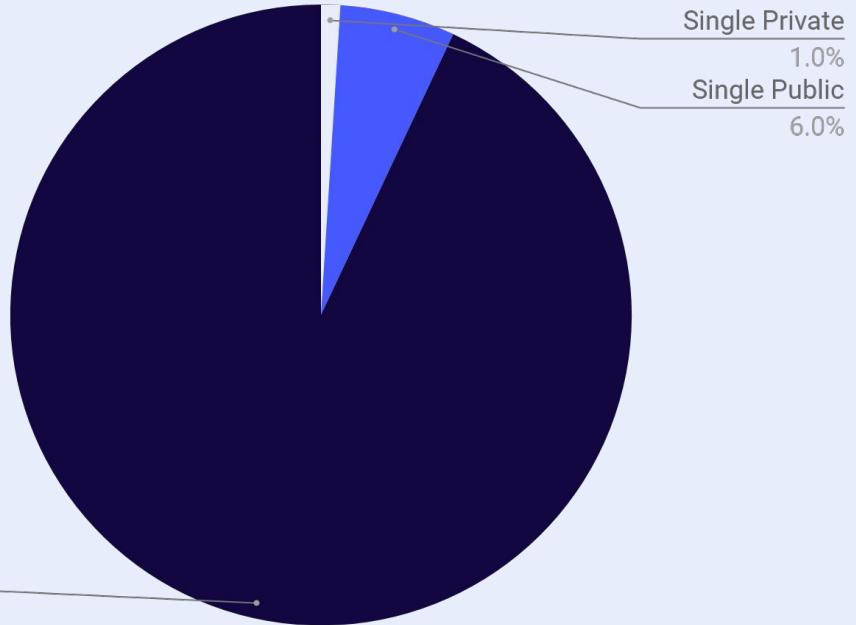
## Chabane Refes

### Cloud Adoption Enabler

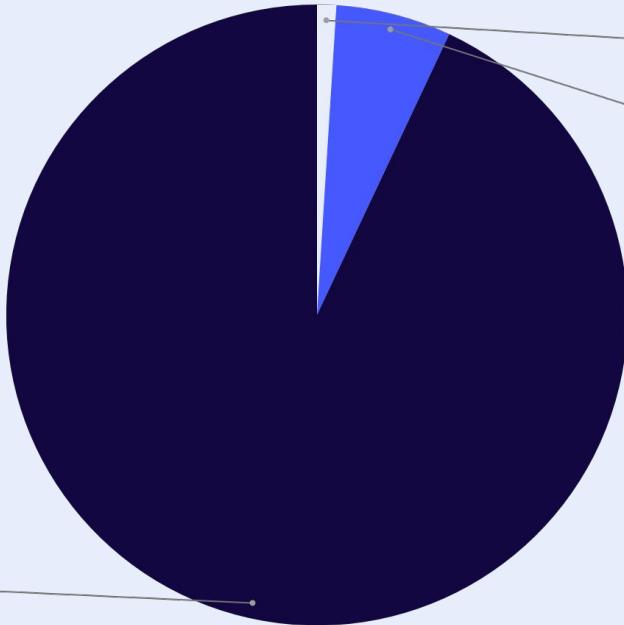
- ★ 8+ years in software development (2+ years at Stack-Labs)
- ★ Architecture, devops, security, networking, leading teams, etc.
- ★ Big fan of Serverless, but open to all approaches
- ★ Professional-level certified on both AWS and GCP



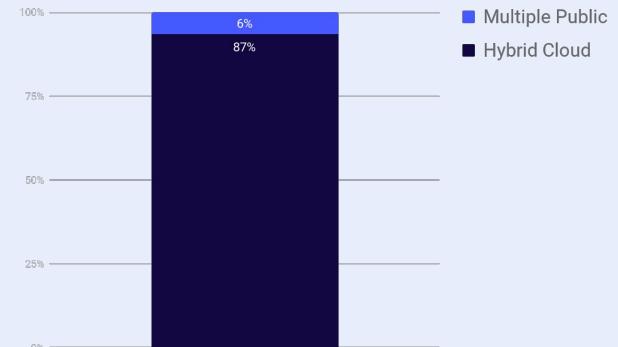
# Enterprise Cloud Strategy



# Enterprise Cloud Strategy



Single Private  
1.0%  
Single Public  
6.0%



# Multi-cloud vs Hybrid Cloud



*“Hybrid is a Reality. Multi-cloud is an option.”*

**Gregor Hohpe**  
Enterprise Strategist  
(AWS, ex GCP)

# Hybrid Cloud



**Gregor Hohpe**  
Enterprise Strategist  
(AWS, ex GCP)

*"Splitting workload(s) across the cloud and on-premise. Generally, these workloads pertain to a single application, meaning the piece in the cloud and the piece on-premise interact to do something useful."*

# Multi Cloud

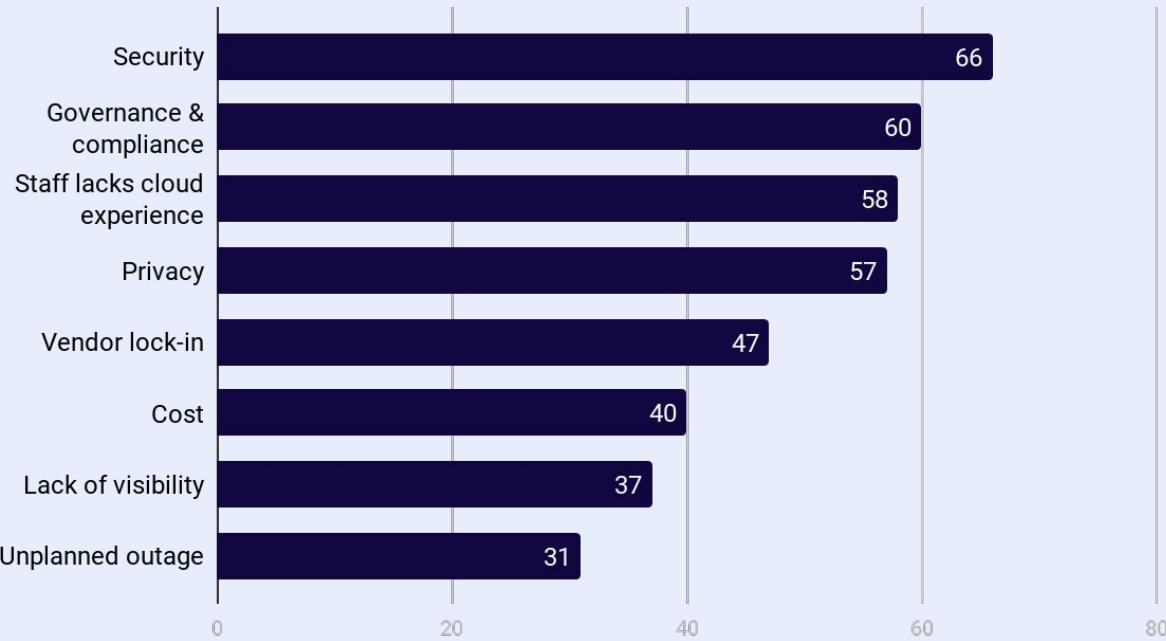


**Gregor Hohpe**  
Enterprise Strategist  
(AWS, ex GCP)

*"Running workloads with more than one cloud provider. If we get more precise than that, opinions diverge."*

# Public Cloud Challenges

Biggest challenges for organizations engaged with Public Cloud today



Source: Logic Monitor Survey

# Motivations

- Risk reduction (e.g: Vendor lock-in)
- Architectural similarity
- Feature availability
- Privacy regulations and security (e.g: Sovereignty, Data localisation)
- High availability
- Disaster recovery

But also

- Excessive vendor influence
- Huge credits...

# Goal

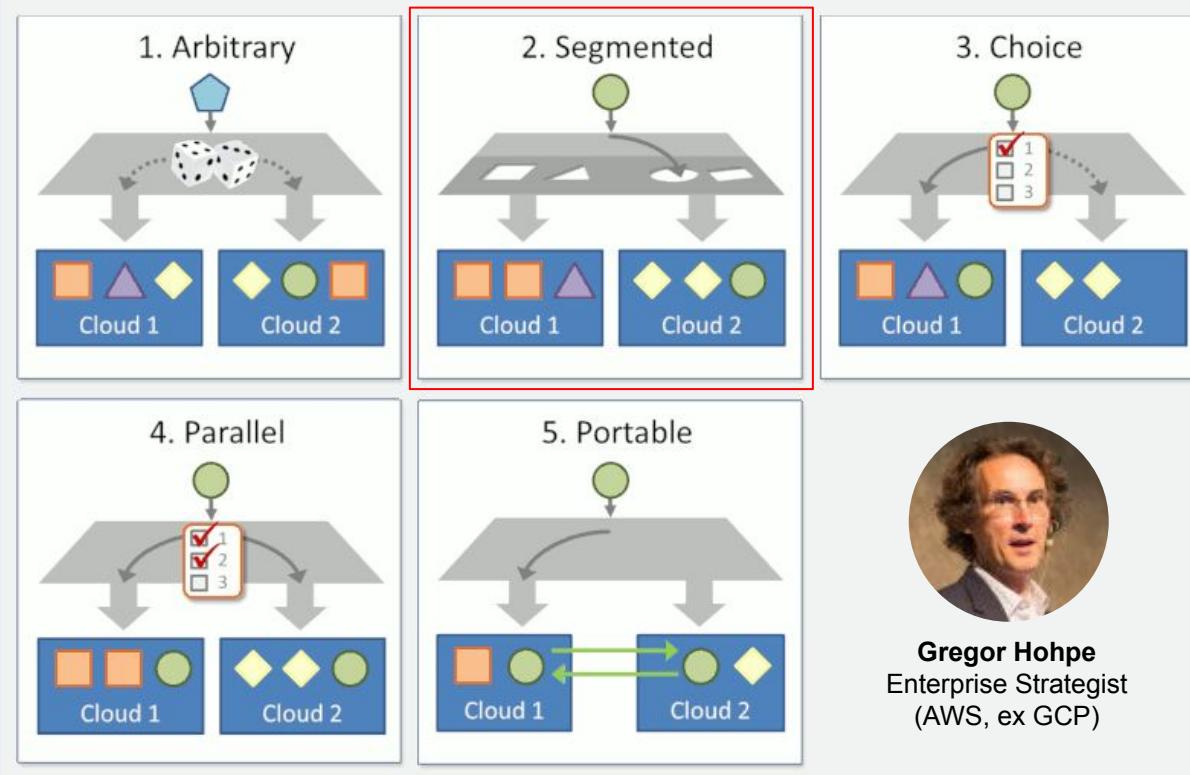
Which workloads should be run in to each cloud.

Which patterns to apply across multiple workloads.

Which technology and network topology to use.

# Architecture

# Multi-cloud Architecture Options



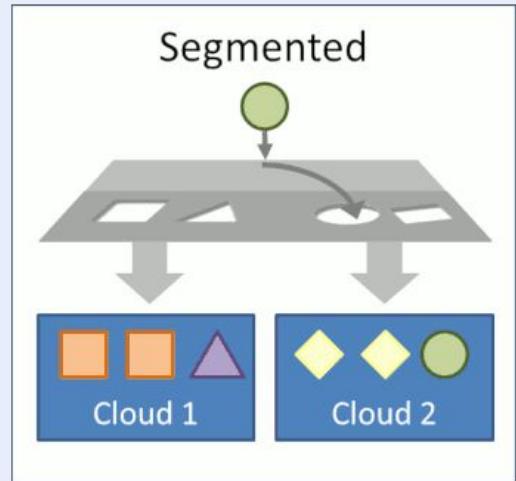
**Gregor Hohpe**  
Enterprise Strategist  
(AWS, ex GCP)

# Segmented

Deploy specific types of workload to specific clouds

Vendor preferences for different kind of workloads

Understand the seams between the applications to not incur excessive egress charges because half the application ends up left and the other half on the right.



# Segmented



## Private workload

Compute  
Database  
Storage  
Encryption  
...

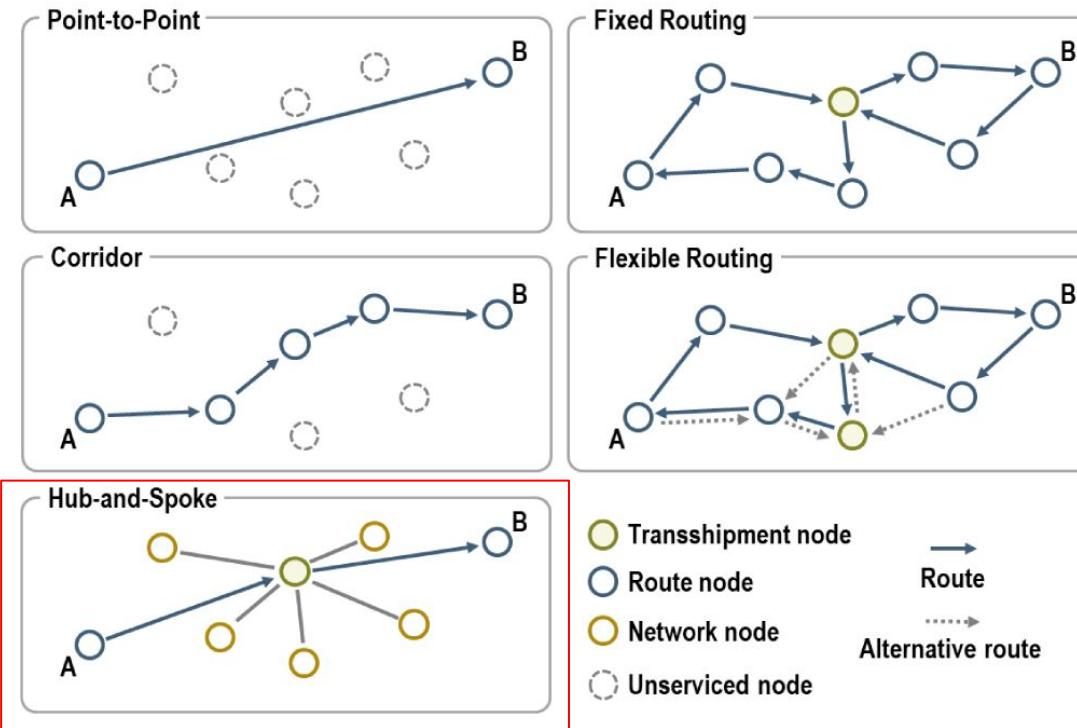


## Internet Facing

DevOps Platform  
CDN  
Load Balancer  
External IP Address  
DNS  
DDoS  
Disaster Recovery  
Firewall  
...

# Network

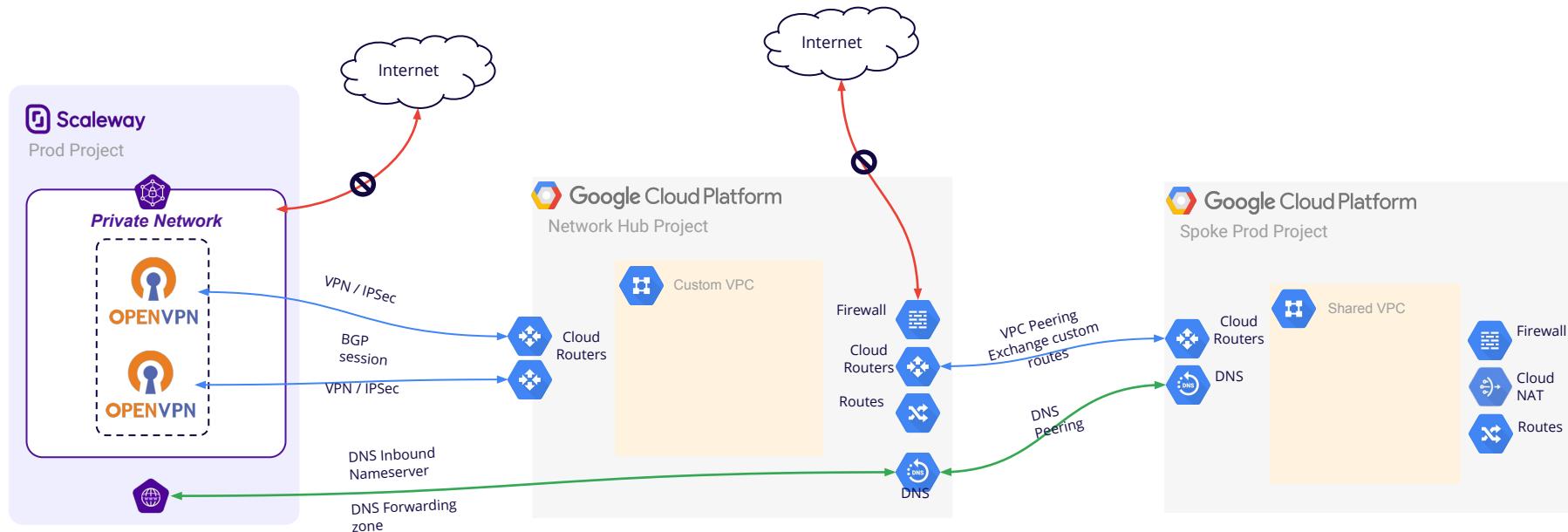
# Network Topology Types



# Network connectivity

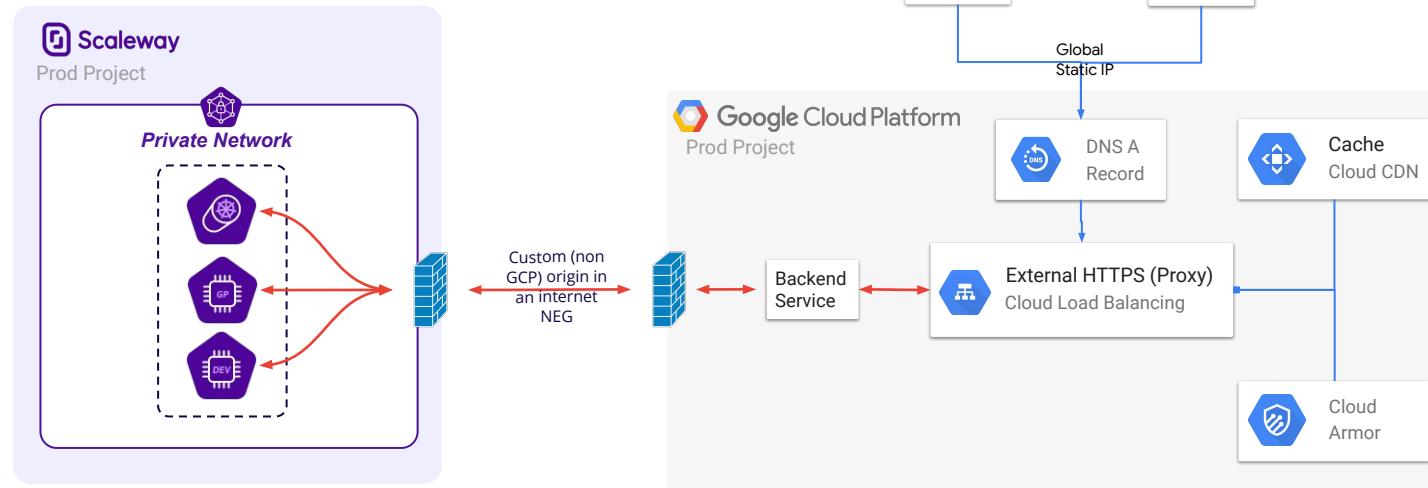


compute.restrictVpnPeerIPs

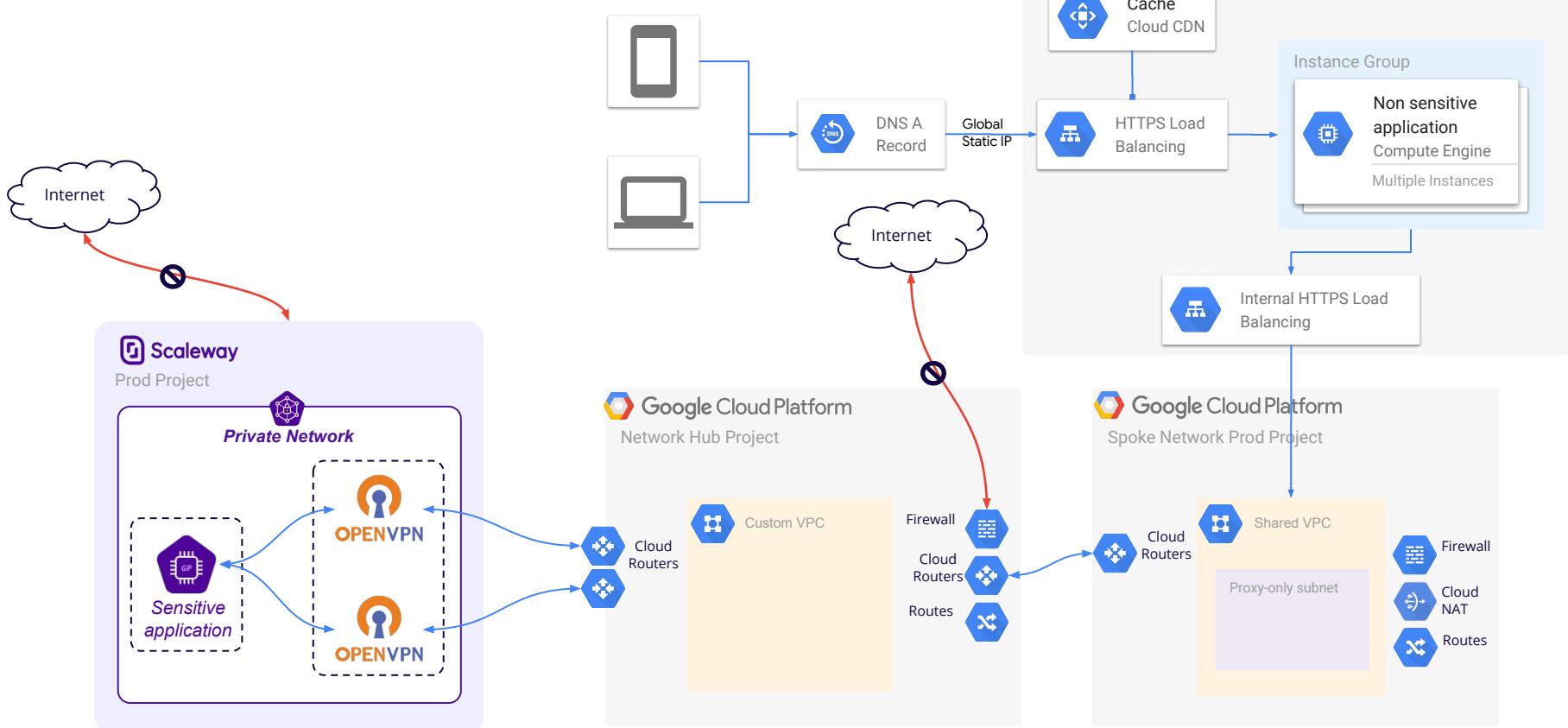


# Internet facing

Terminate user requests in front of a custom origin

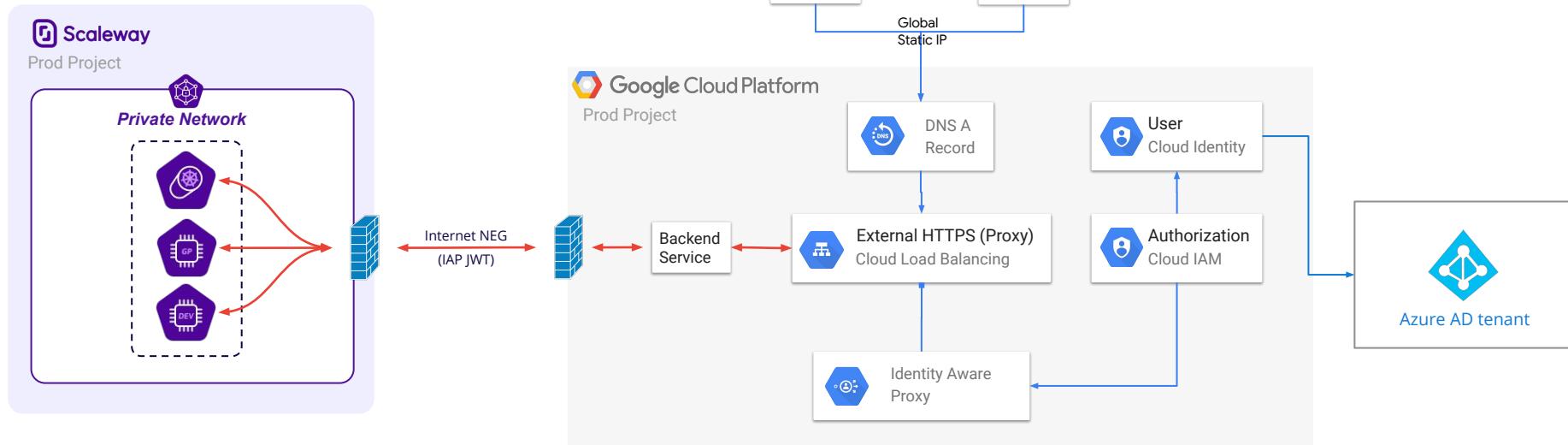


# Workloads communications

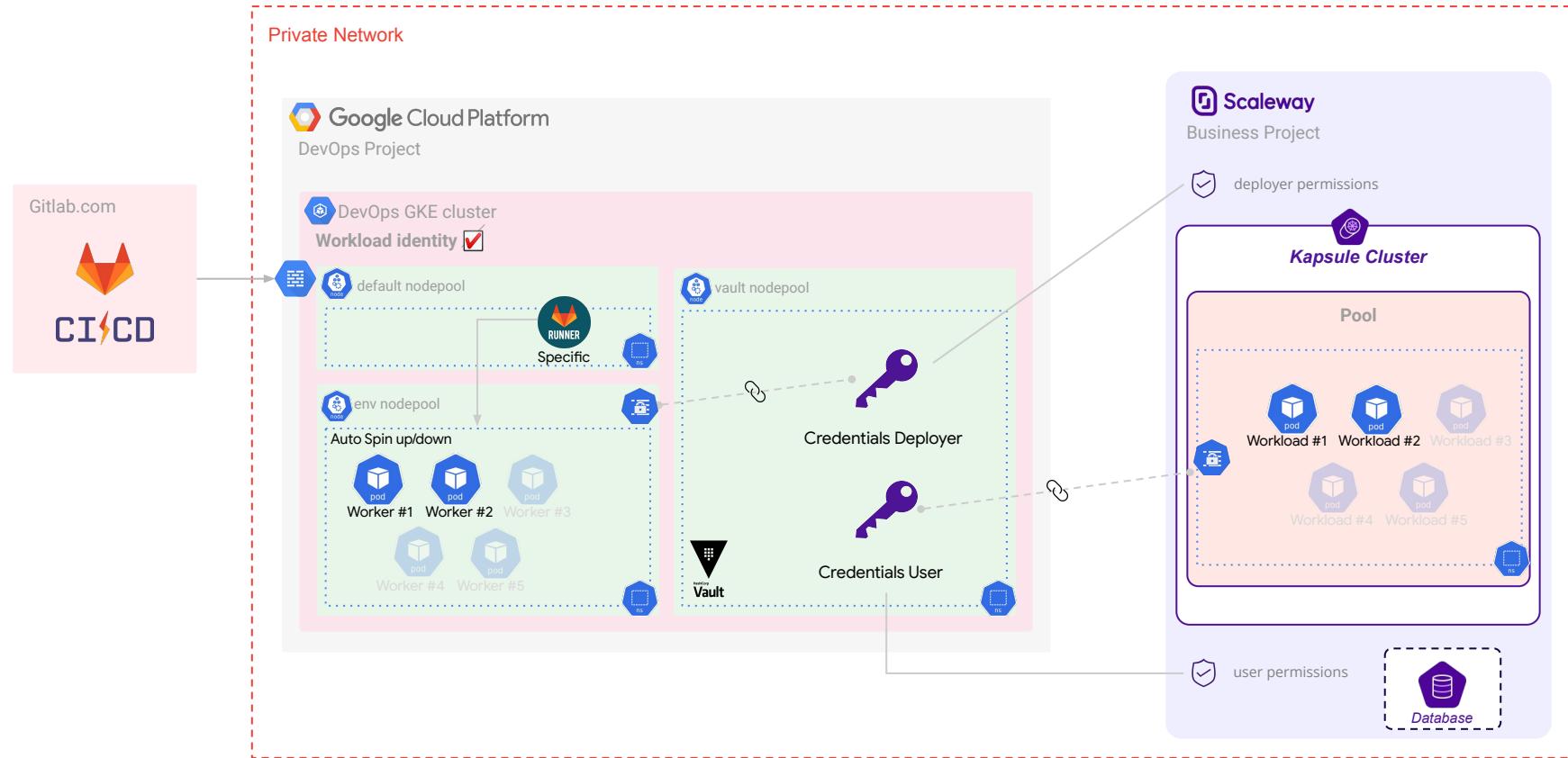


# SecOps

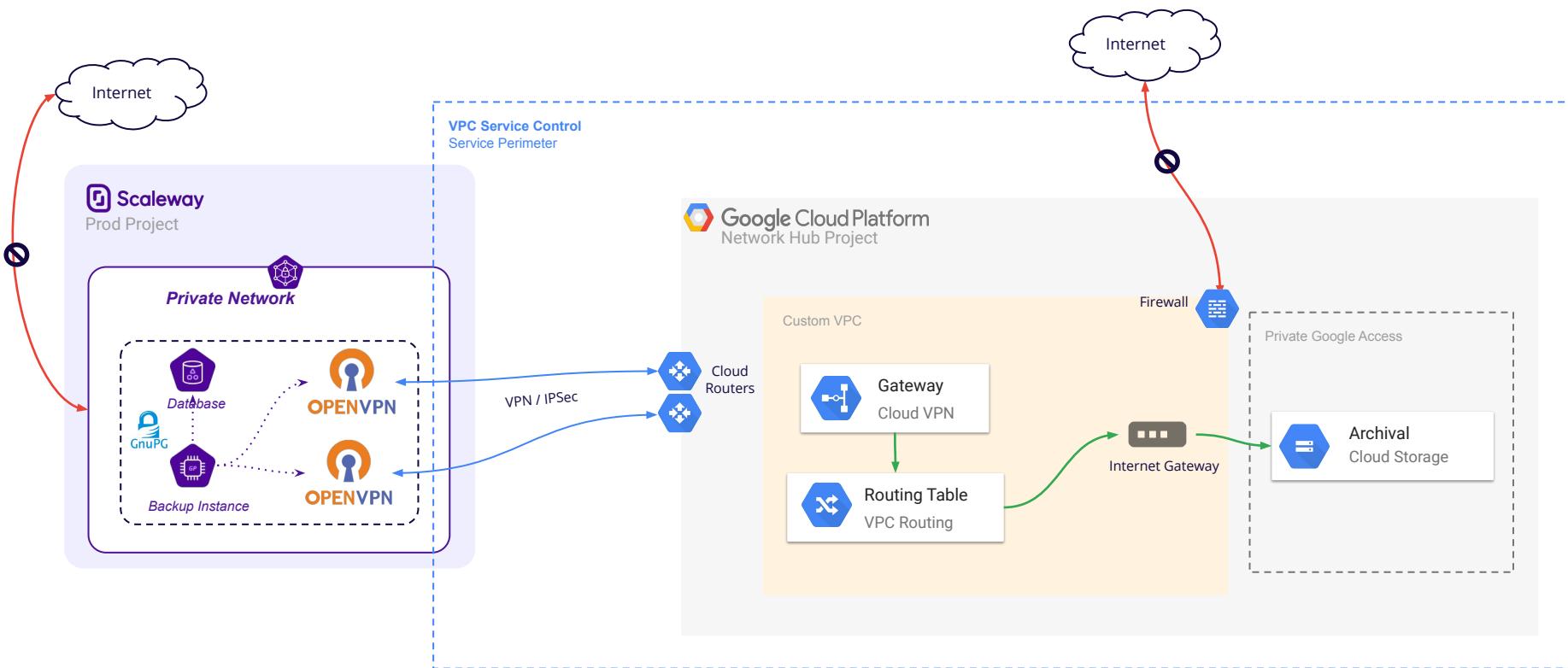
# Zero Trust



# Access Keys Management



# Disaster Recovery

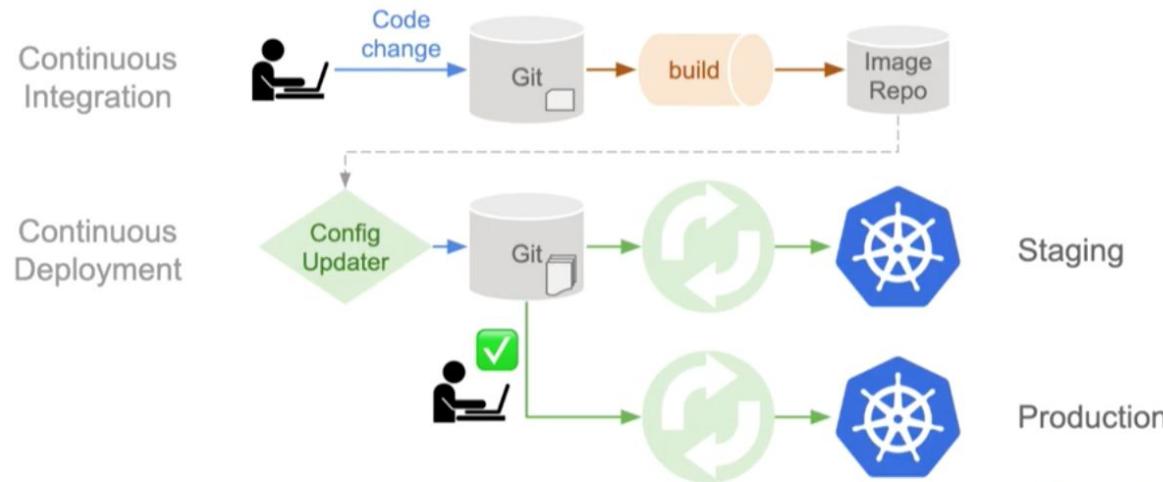


# DevOps / GitOps

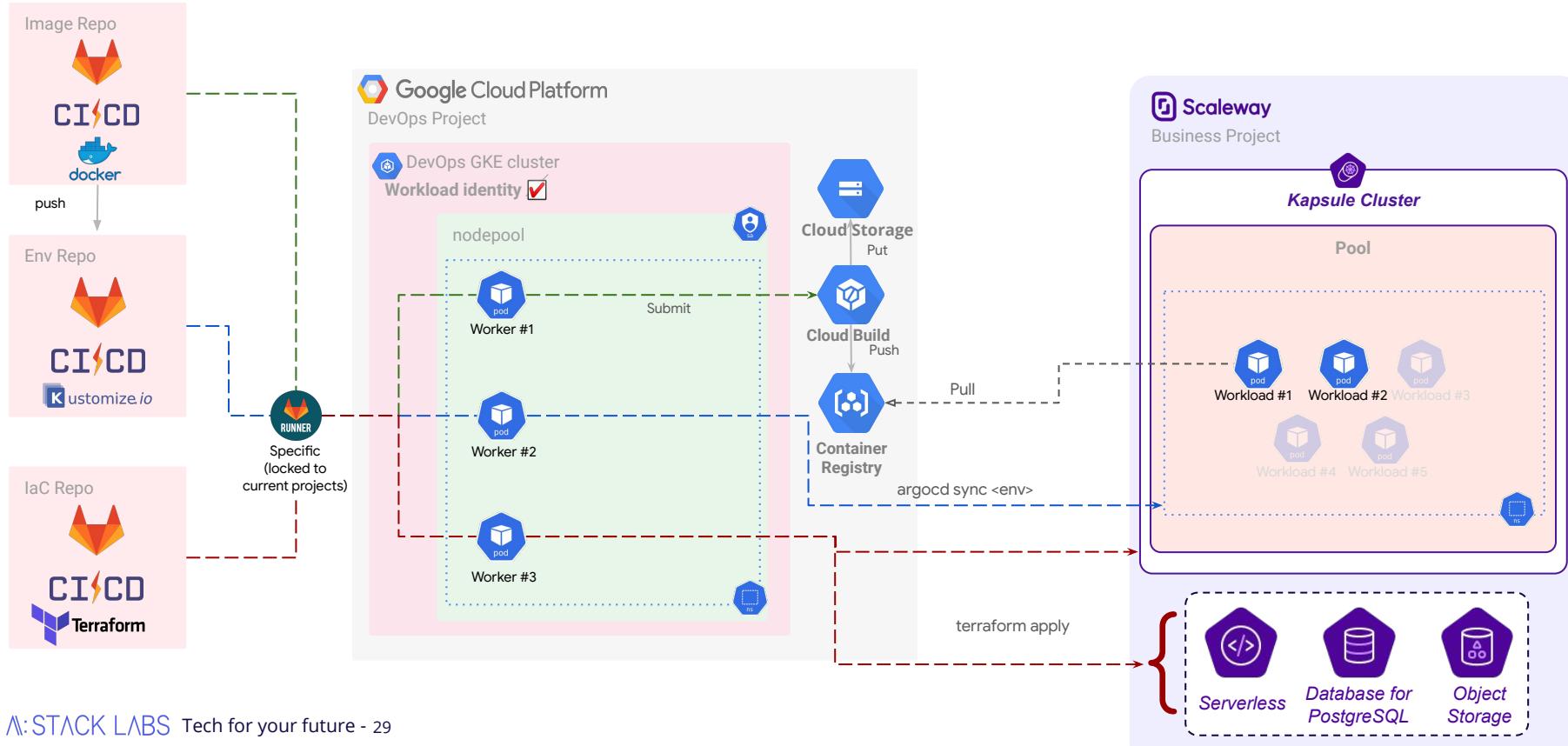
# CI/CD Tools



# GitOps - Concept



# GitOps Integration



# GitLab Runners on Google Kubernetes Engine

Deployed using Helm Chart

Specific Runners only

Accessibles by Tags per environment

Locked to current project(s)

Run only on protected branches (Production)

Authentication with least privilege

Kubernetes Service Account bound with a Google Service Account

Vault using a Kubernetes Service Account Token

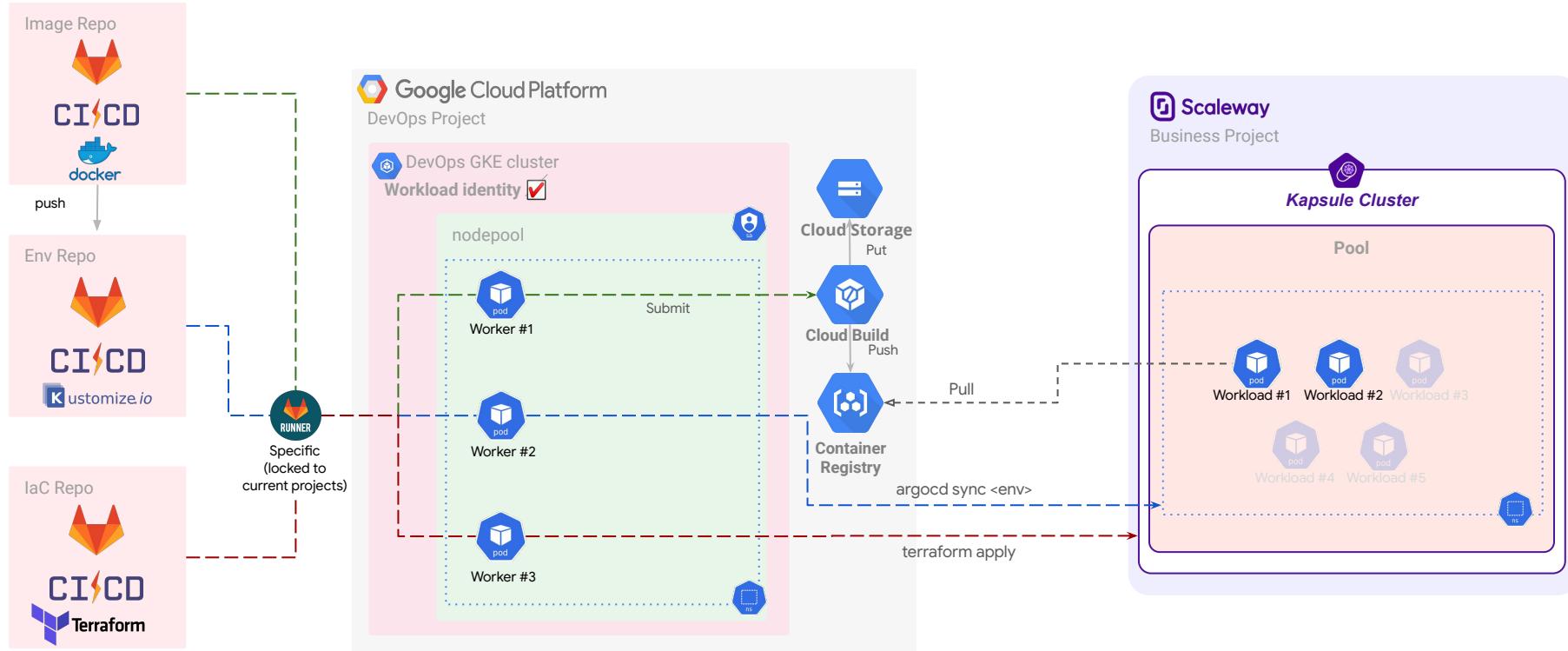
Argo CD Automation Token

Jobs run in separate node pools per environment

# Demo

[rebrand.ly/demo-gcp-sw](https://rebrand.ly/demo-gcp-sw)

# DevOps Demo



# ALL STACK LABS

😊 Merci d'avoir suivi cette conférence

❓ Si vous avez des questions, c'est le moment de les poser

👉 Sinon n'hésitez pas à revenir vers nous ultérieurement



Google Cloud



Scaleway



Kubernetes



GitLab



Terraform



ArgoCD



Vault

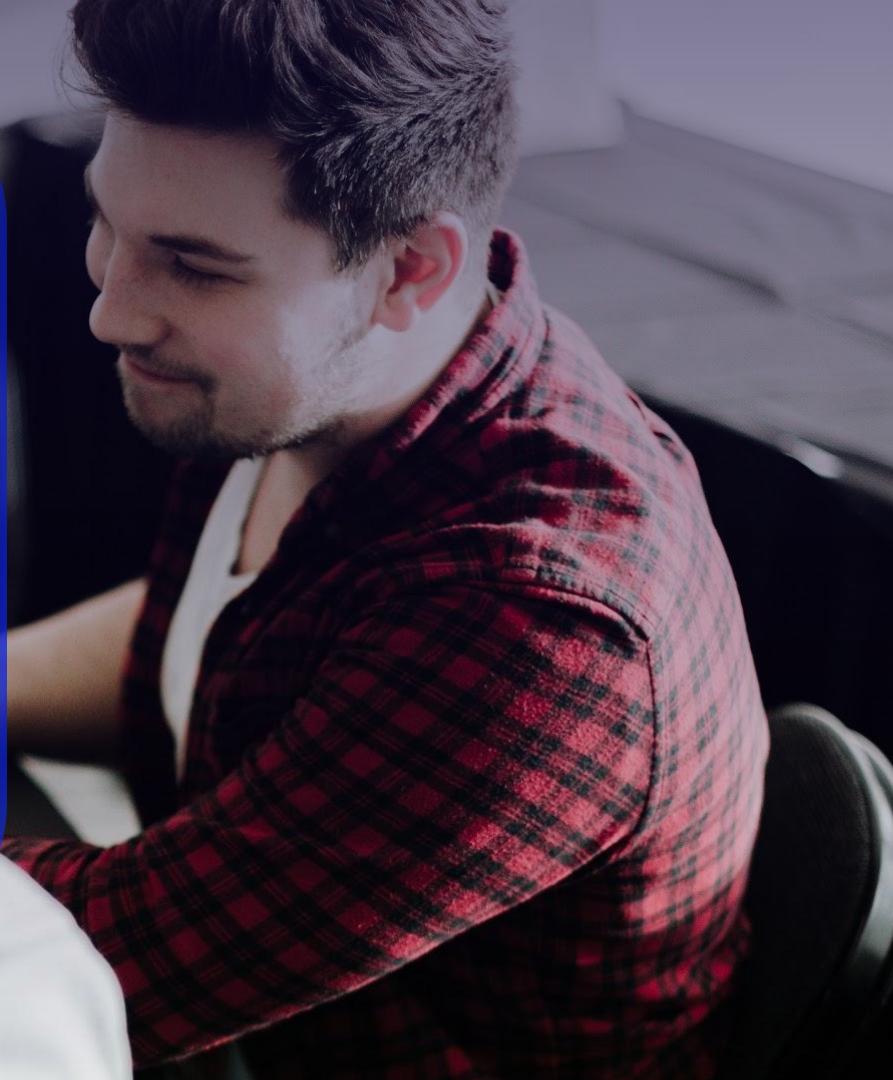
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your future

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 dev.to/stack-labs



# Documentation

[Hybrid and multi-cloud patterns and practices](#)

[Multi Cloud Architecture: Decisions and Options](#)

[Hybrid Cloud vs. Multi-cloud: What's the Difference, and Why Does It Matter?](#)