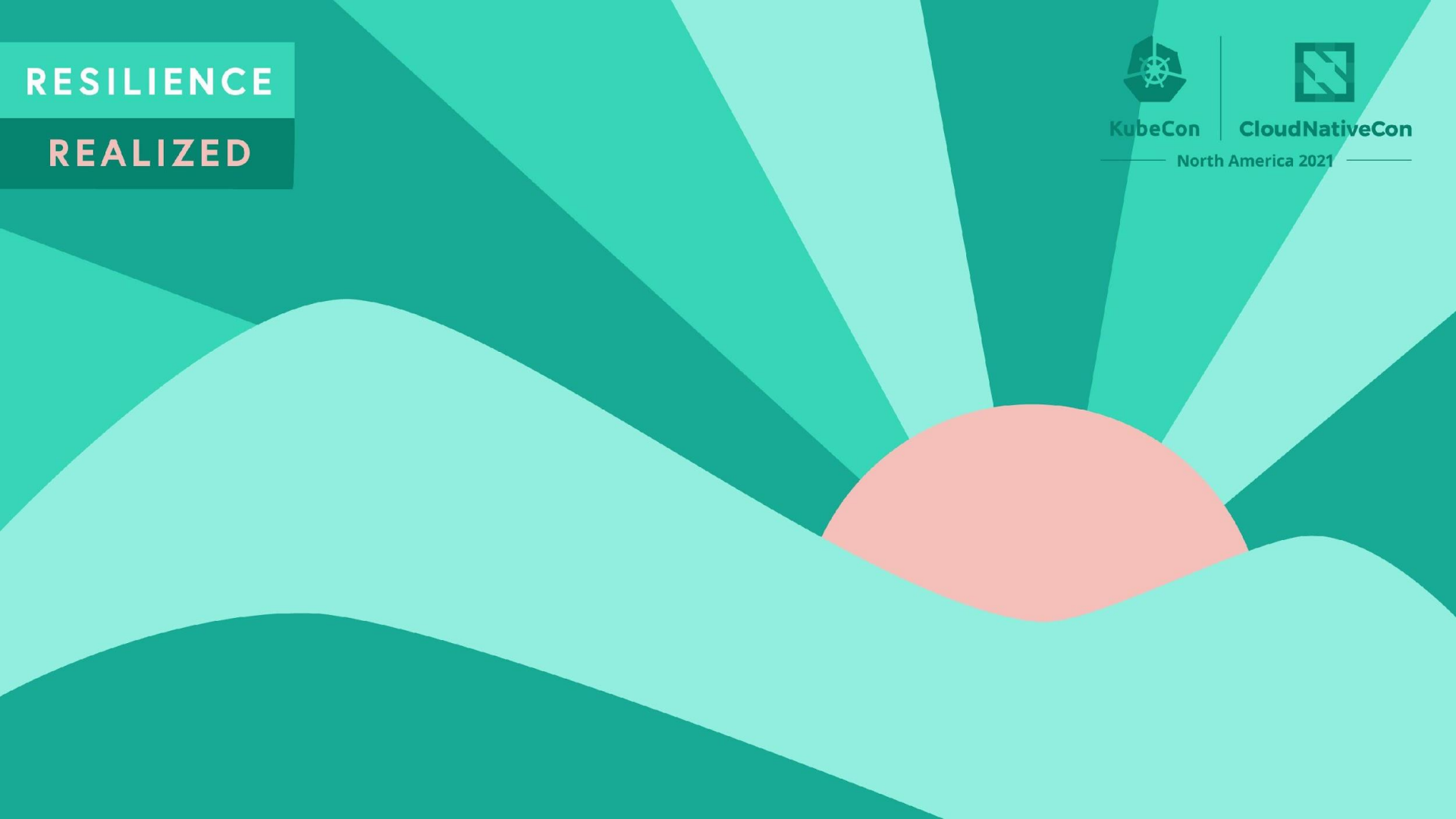

RESILIENCE
REALIZED
KubeCon
CloudNativeCon
North America 2021

KubeCon | CloudNativeCon

North America 2021

RESILIENCE
REALIZED

How We Built a Cloud On K3s: The Learnings Of Growing Up Fast

Anaïs Urlichs
Alex Jones

Who are we?

Alex Jones
Principal Engineer, Civo
CNCF TAG App Delivery Lead
@AlexJonesax

Anaïs Urlichs
Site Reliability Engineer, Civo
CNCF Ambassador
@urlichsanais

Who are we?

- ★ Managed Kubernetes provider
- ★ Community focused
- ★ K3s in production at scale

Why build a cloud?

- ★ Large market segment with a desire for simplicity & affordability
- ★ No managed K3s service that provides fast launch times
- ★ There is a need for a cloud native first provider

Why K3s?

What is K3s?

K3S

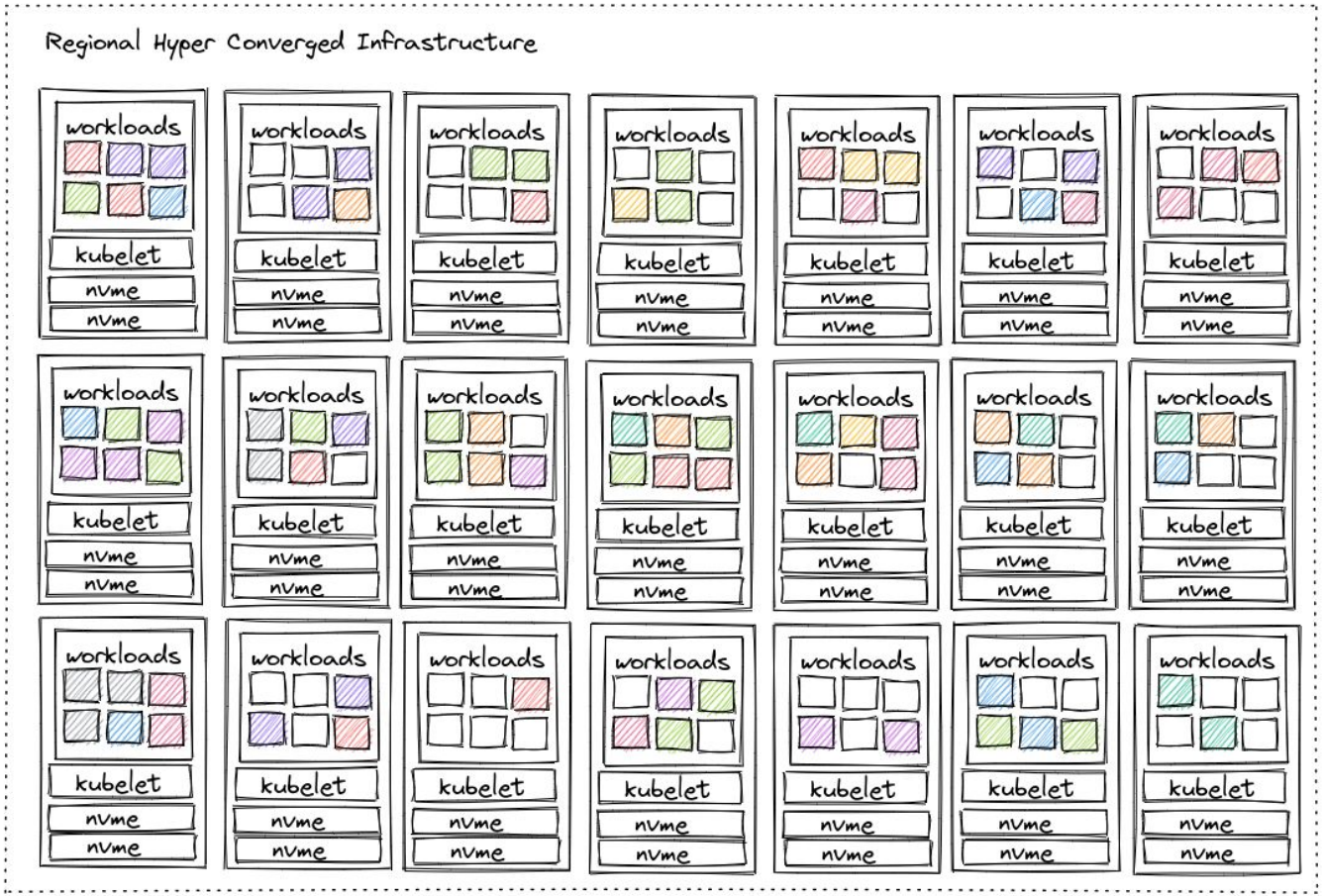
A lightweight Kubernetes distribution
512mb of RAM to run a server
Single binary
<40MB in size
Bundled with technologies

Why K3s?

- ★ Reduced installation complexity
- ★ Higher cluster density per compute node
- ★ Simplified backup/recovery system
- ★ Faster launches
- ★ Less preallocated resources required
- ★ Reduction in operational knowledge to support

Supercluster overview

Supercluster design: compute

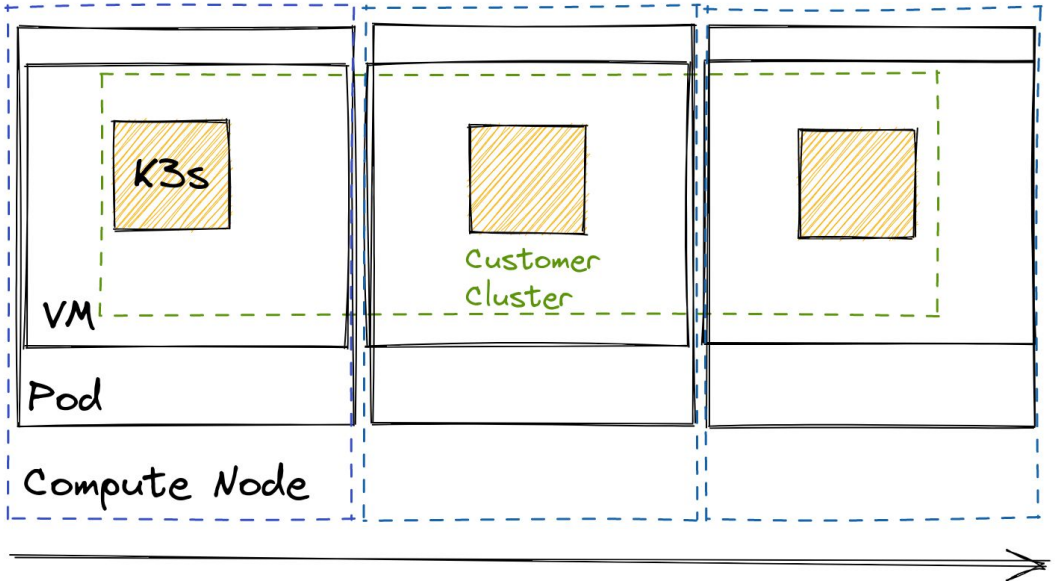


2xIntel Gold Xeon 20 core CPU
384GB 2666Mhz DRAM
100 Gb Networking

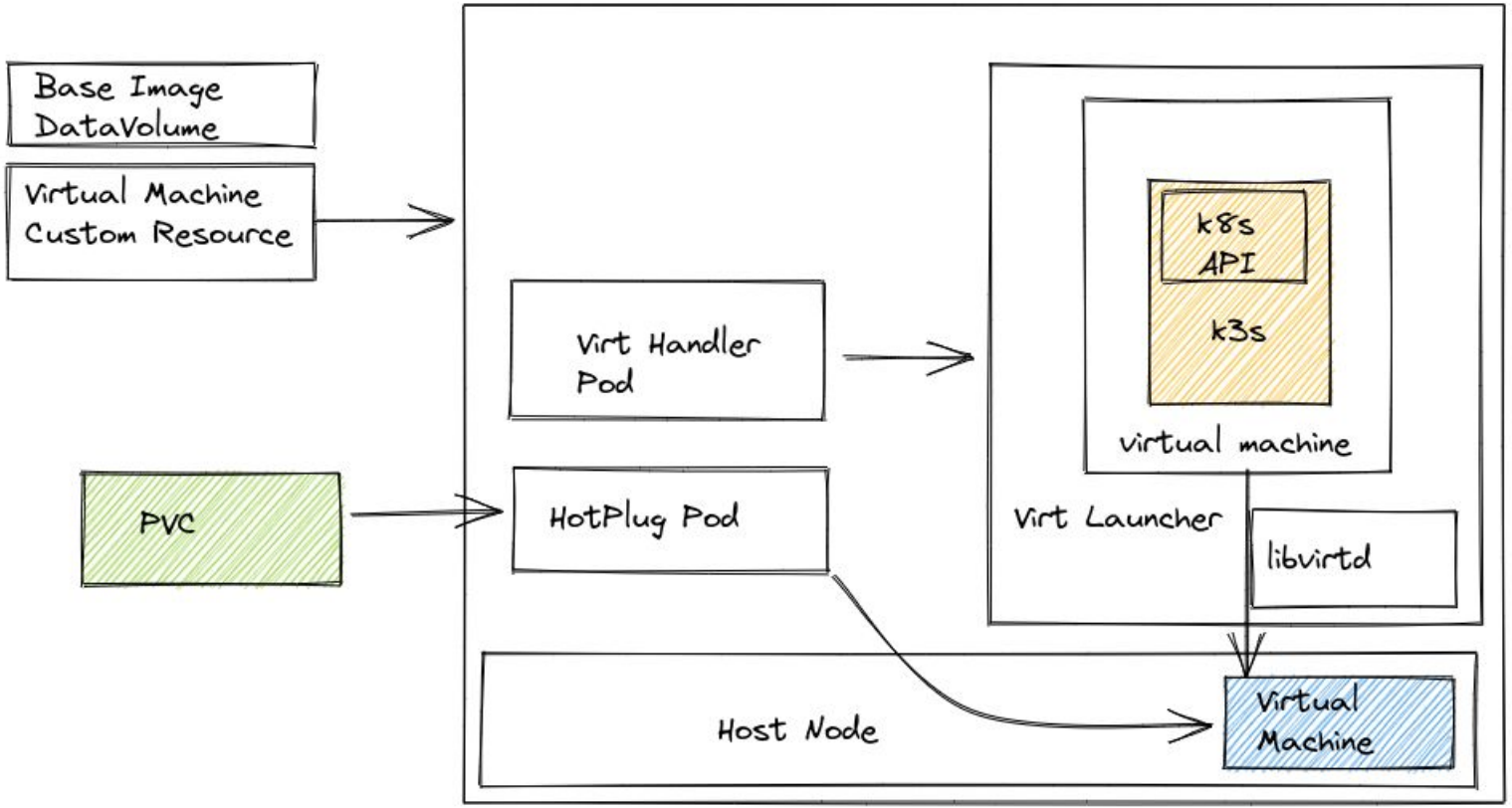
OPEN Compute Project®

Tenant cluster overview

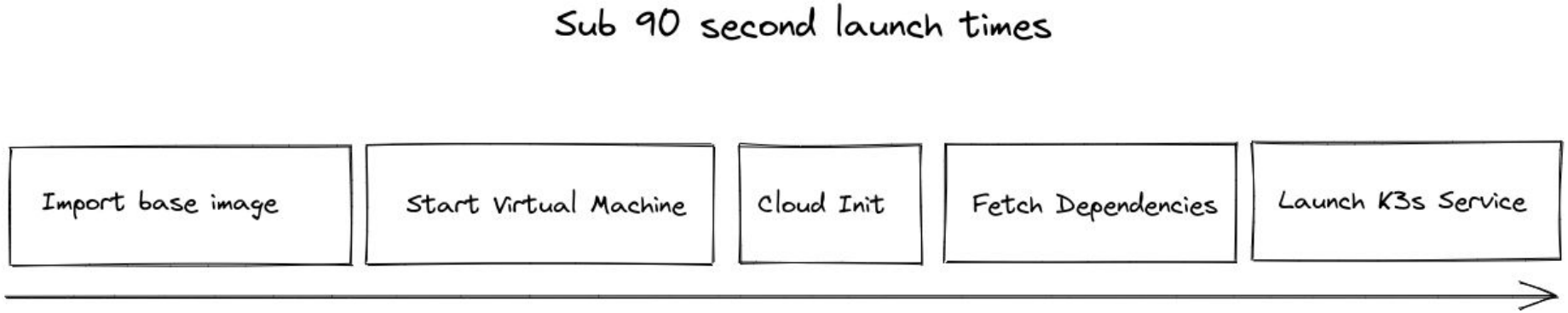
Tenant cluster design: clustering



Tenant cluster design: virtualisation

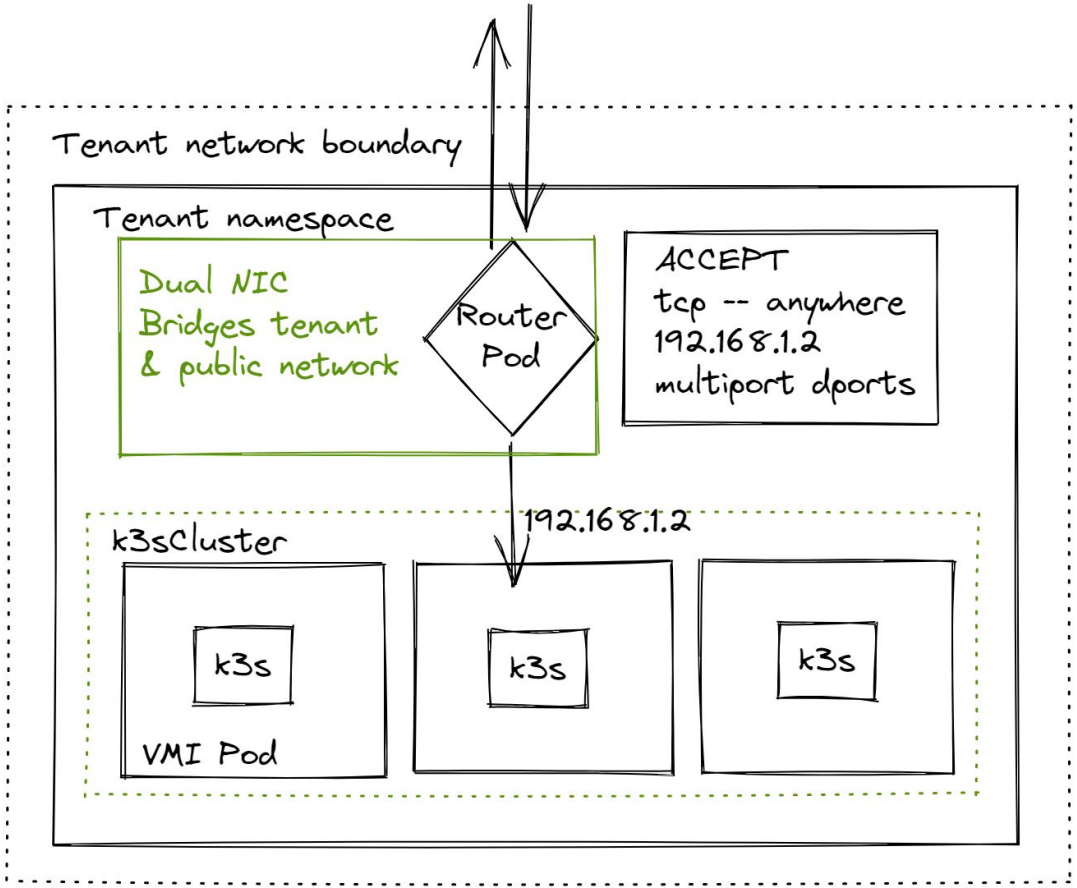


Tenant cluster design: virtualisation

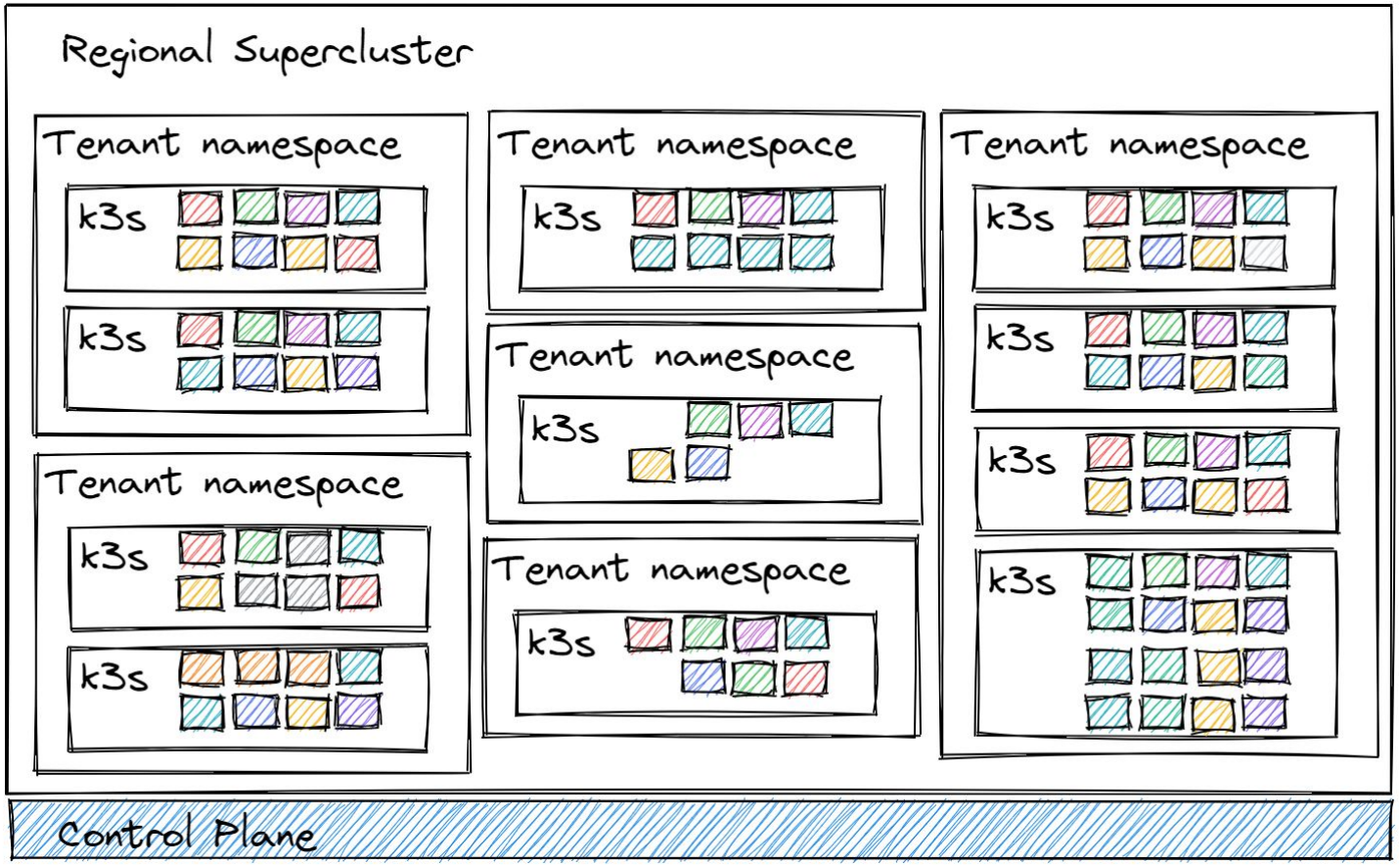


Tenant cluster design: networking

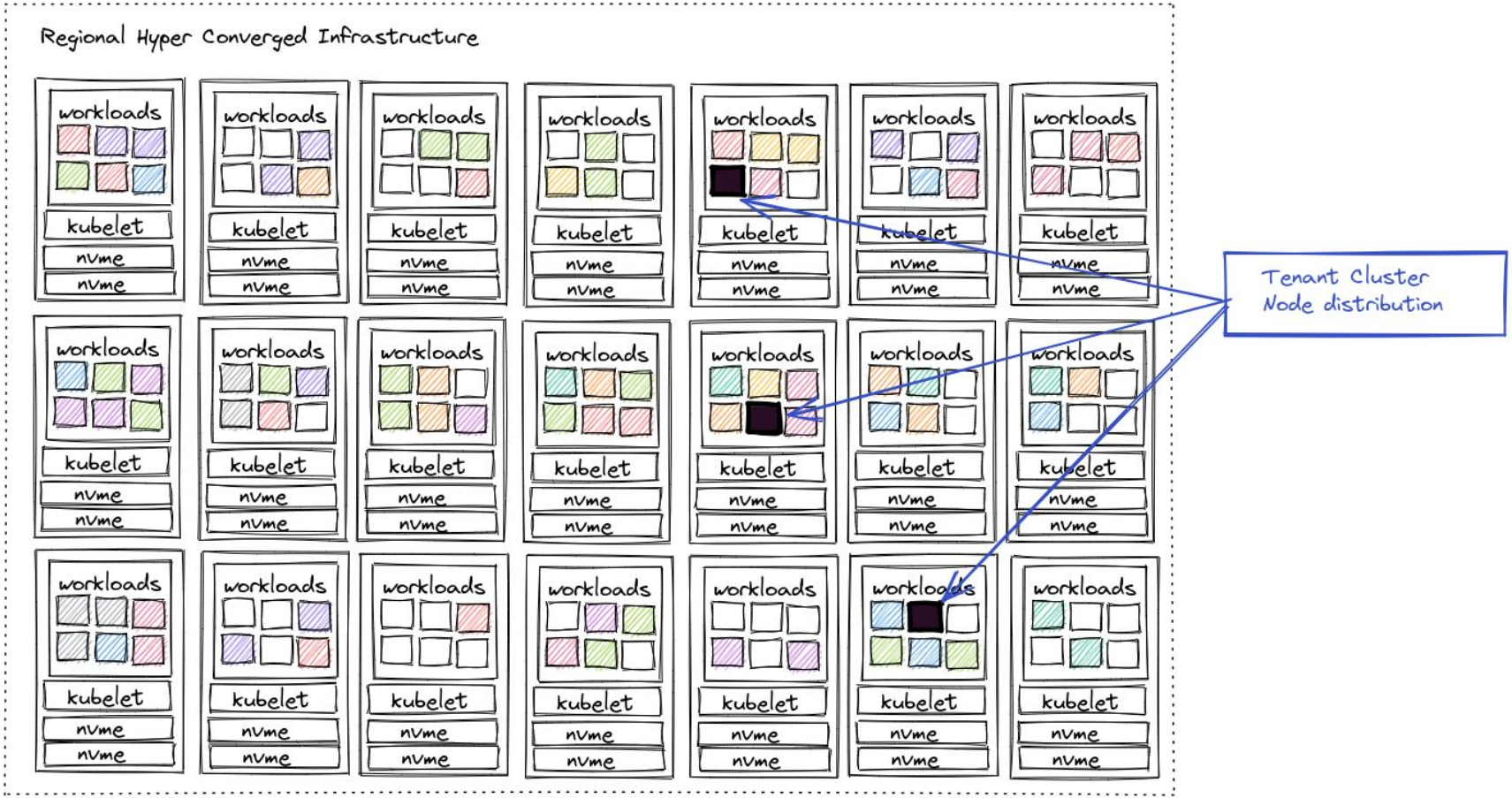
Dedicated tenant L2 network



Tenant cluster design: compute density



Tenant cluster design: compute density



KubeCon | CloudNativeCon

North America 2021

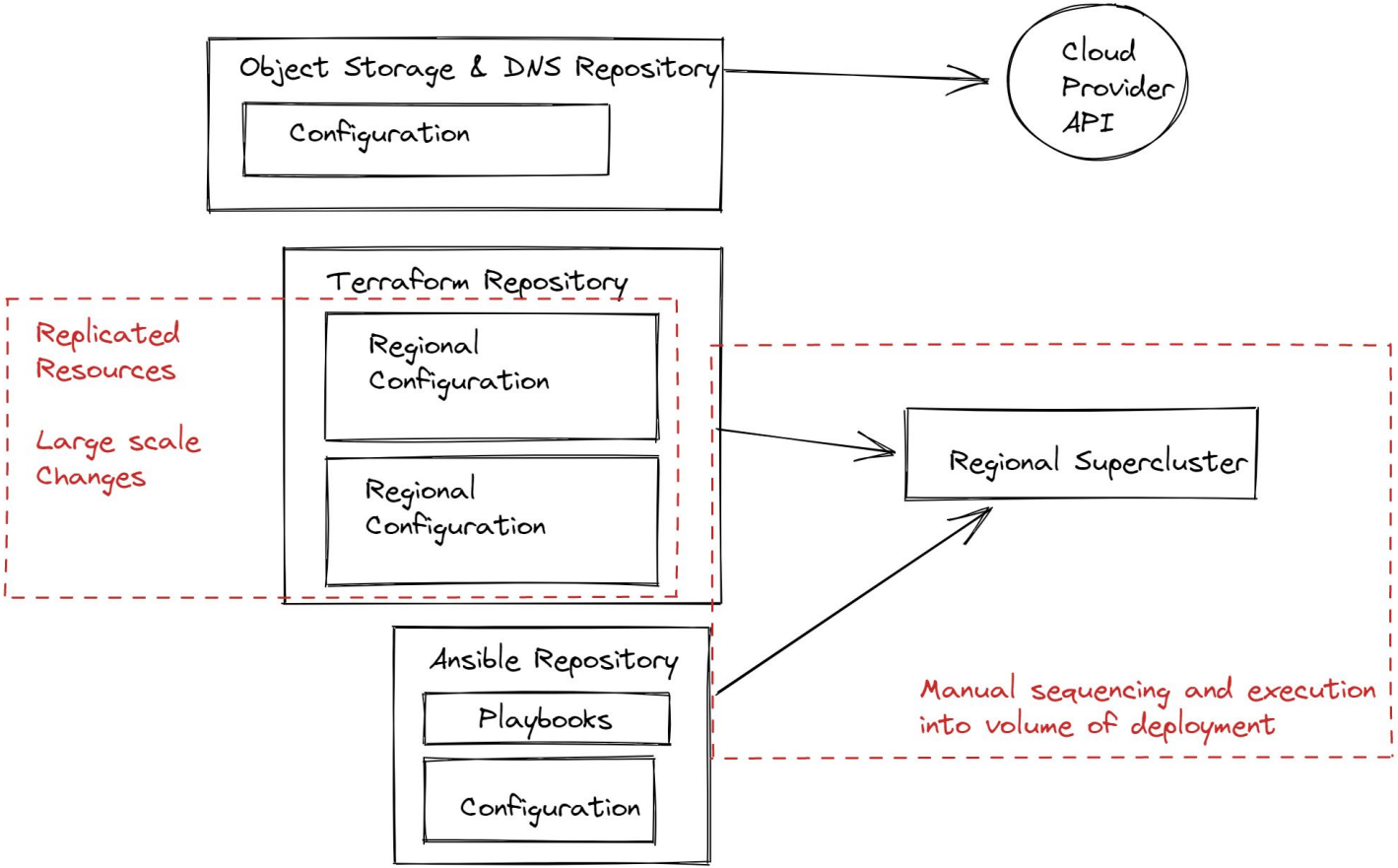
RESILIENCE

REALIZED

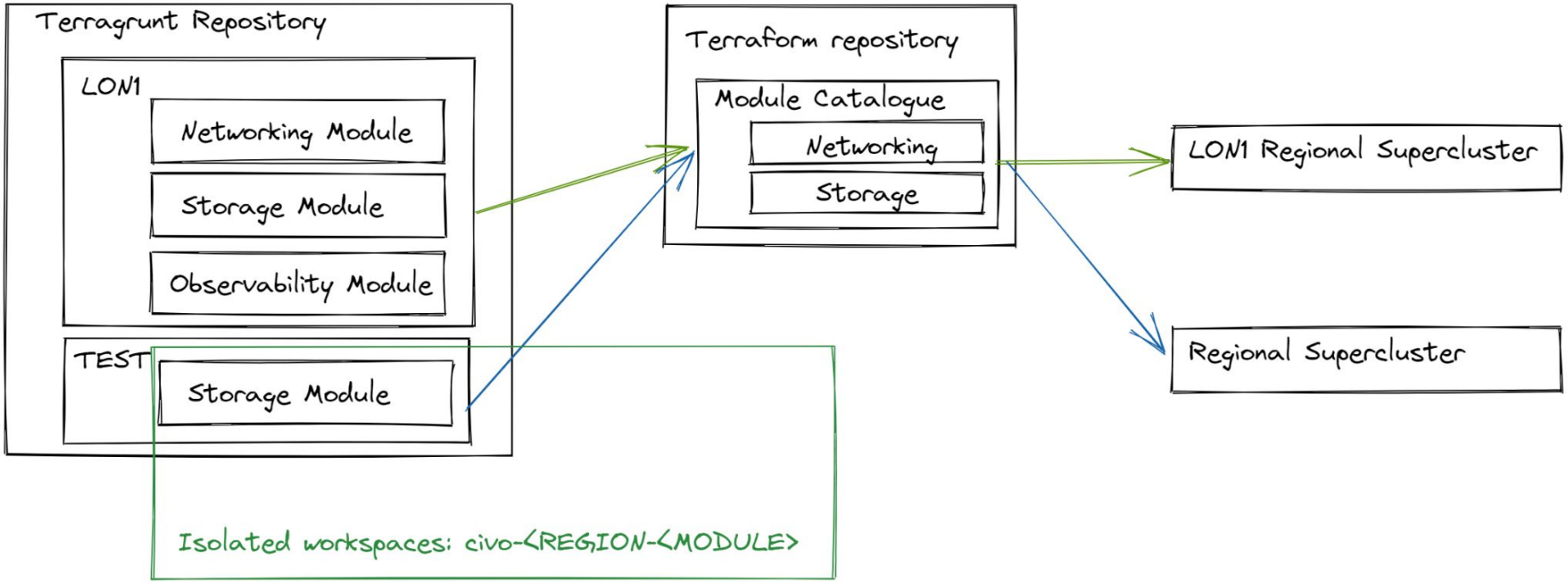
Lessons learnt in Beta

1. Deployment maturity

Problem: Deployment sequence,size and execution

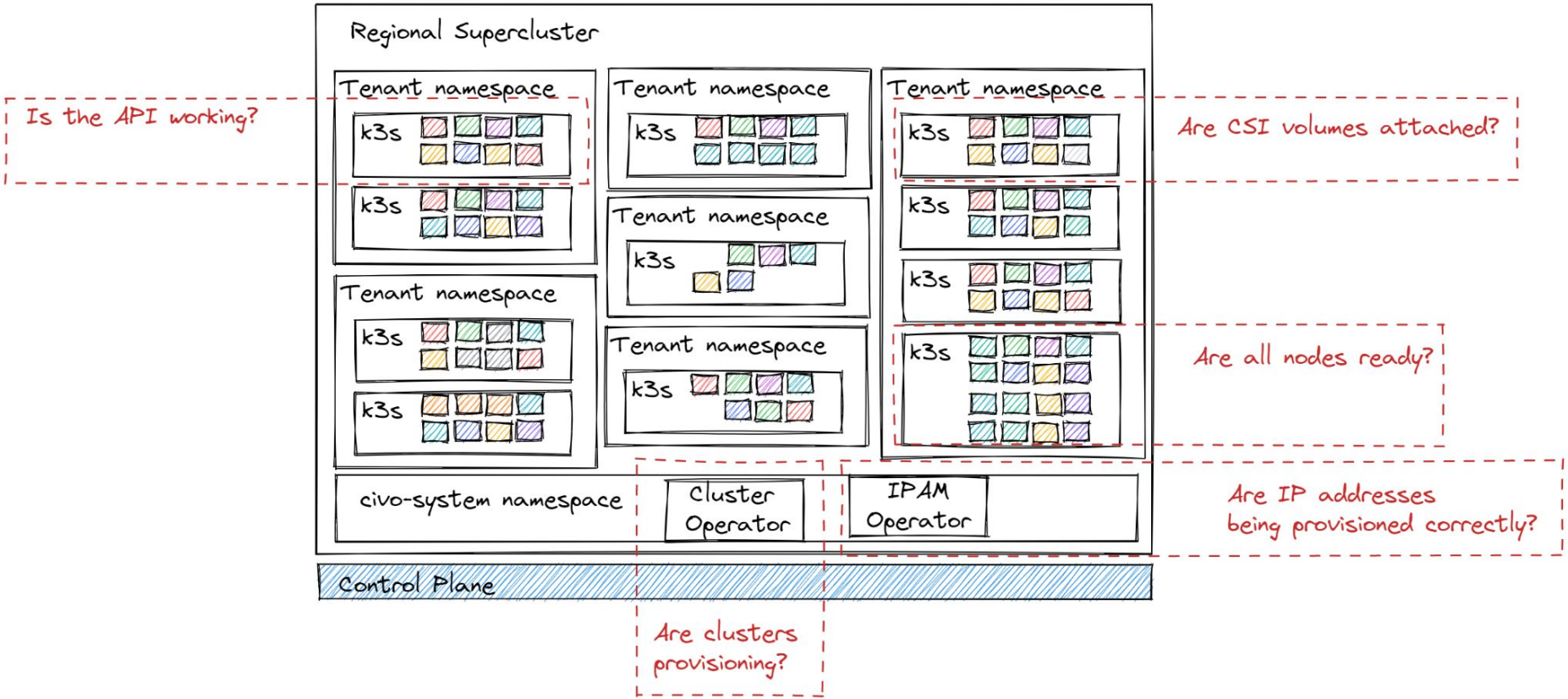


Solution: Pipelined DRY infrastructure

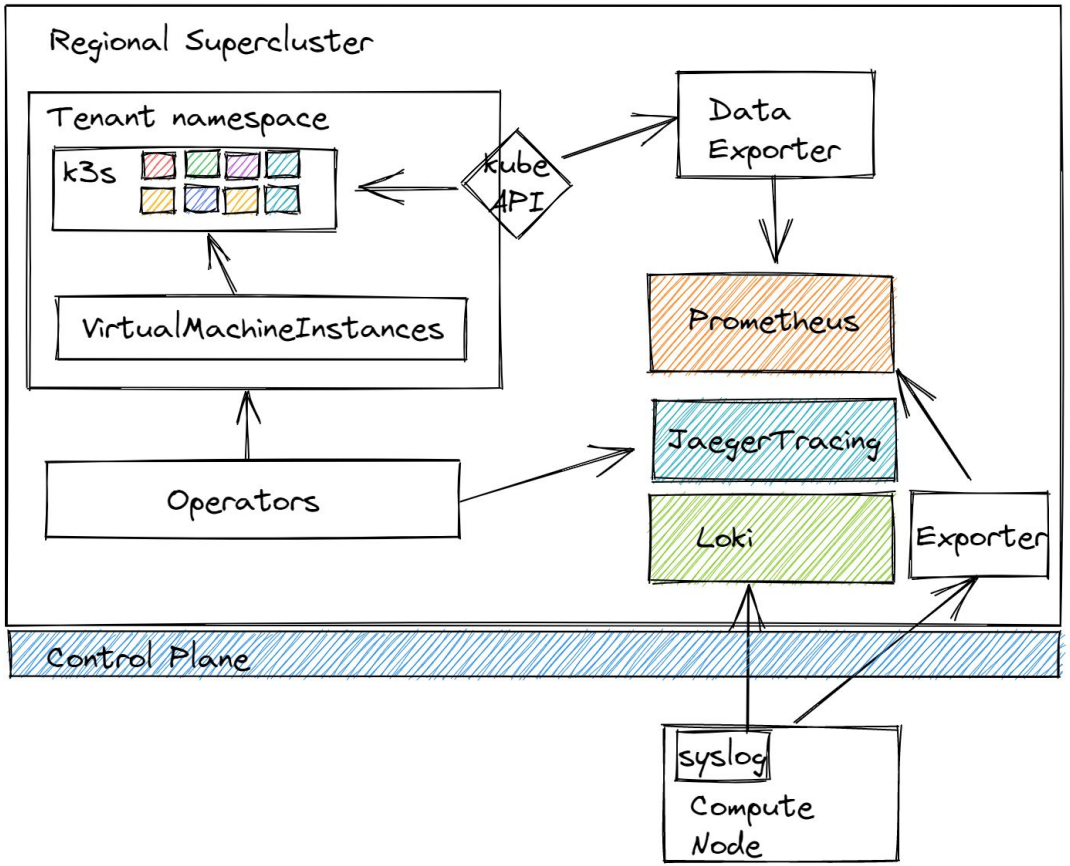


2. Observability maturity

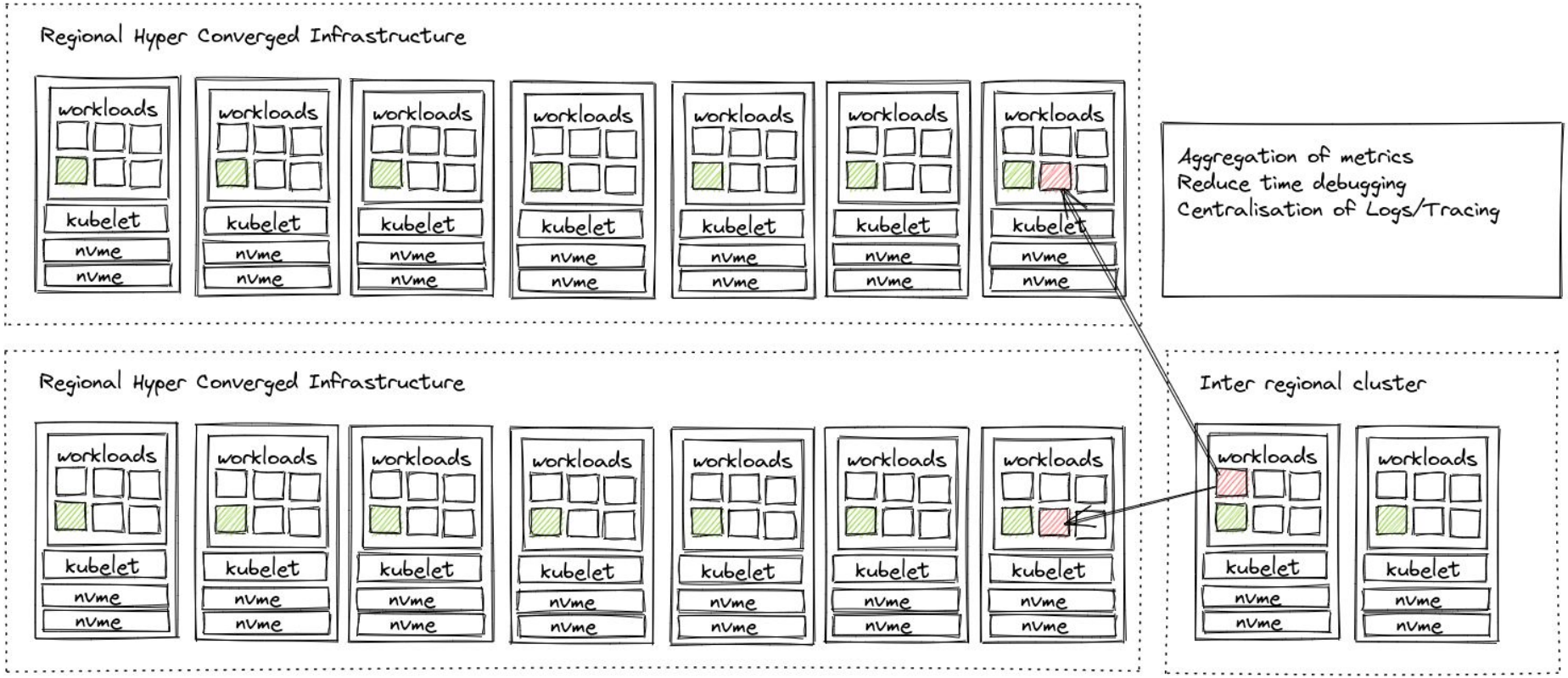
Problem: Black box inside tenant clusters



Solution (p1): tenant cluster observability

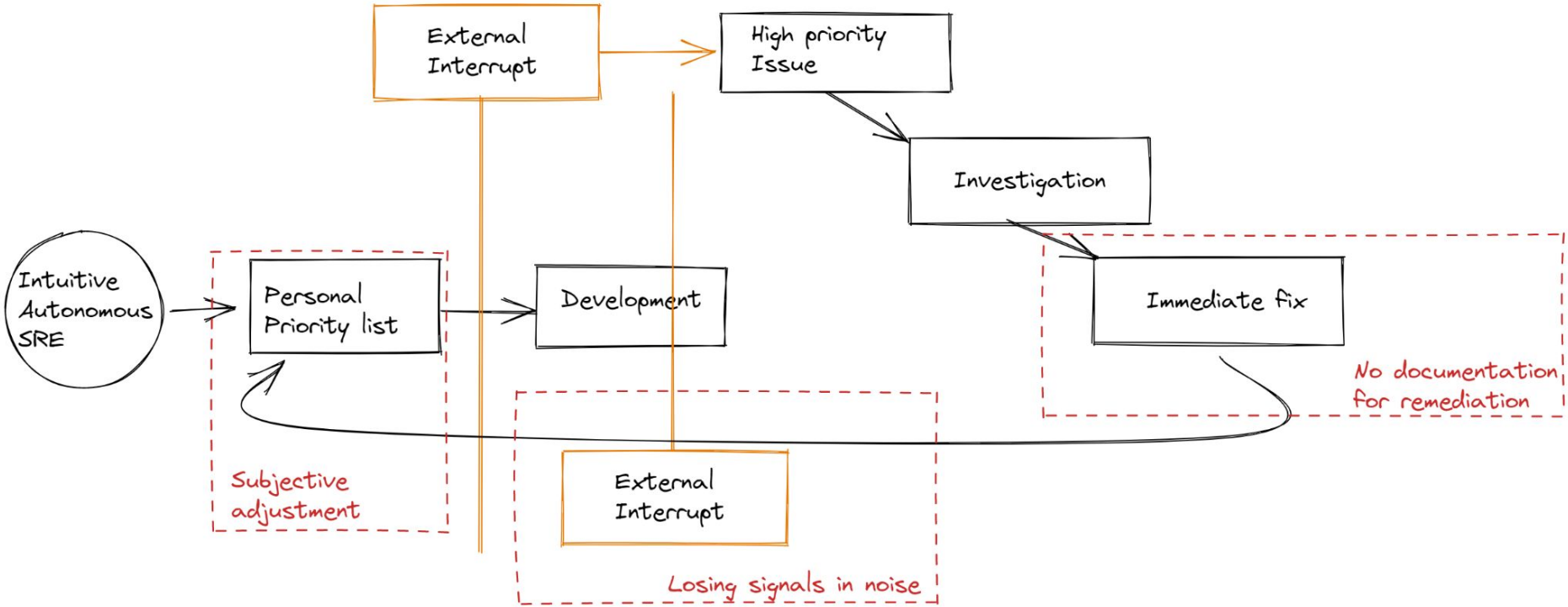


Solution (p2): supercluster observability

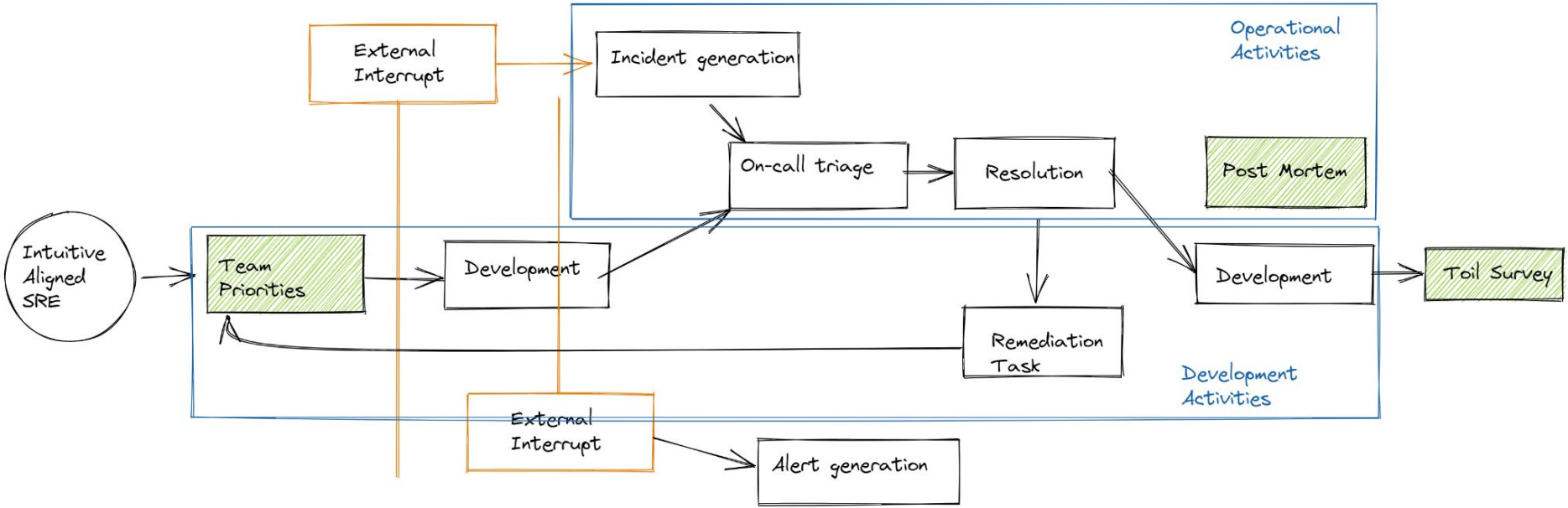


3. SRE Culture

Problem: Intuitive autonomy



Solution: Intuitive alignment



KubeCon | CloudNativeCon

North America 2021

RESILIENCE

REALIZED

In summary

KubeCon | CloudNativeCon

North America 2021

RESILIENCE
REALIZED

Thank you!

Feel free to reach out on Twitter
@urlichsanais @alexjonesax
@CivoCloud

CIVO