SHARING IS CARING

Your Kubernetes Cluster, Namespaces, and You

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Namespaces vs. clusters

"Kubernetes supports multiple **virtual clusters** backed by the same **physical cluster**. These virtual clusters are called namespaces."

Namespaces in the "real world"

Nick Young @youngnick · Mar 13

Awesome, congrats!

Remind me to tell you a funny story sometime about the time we accidentally [created] 80,000 namespaces though.

💬 1   🔁   ❤️ 1   ✉️
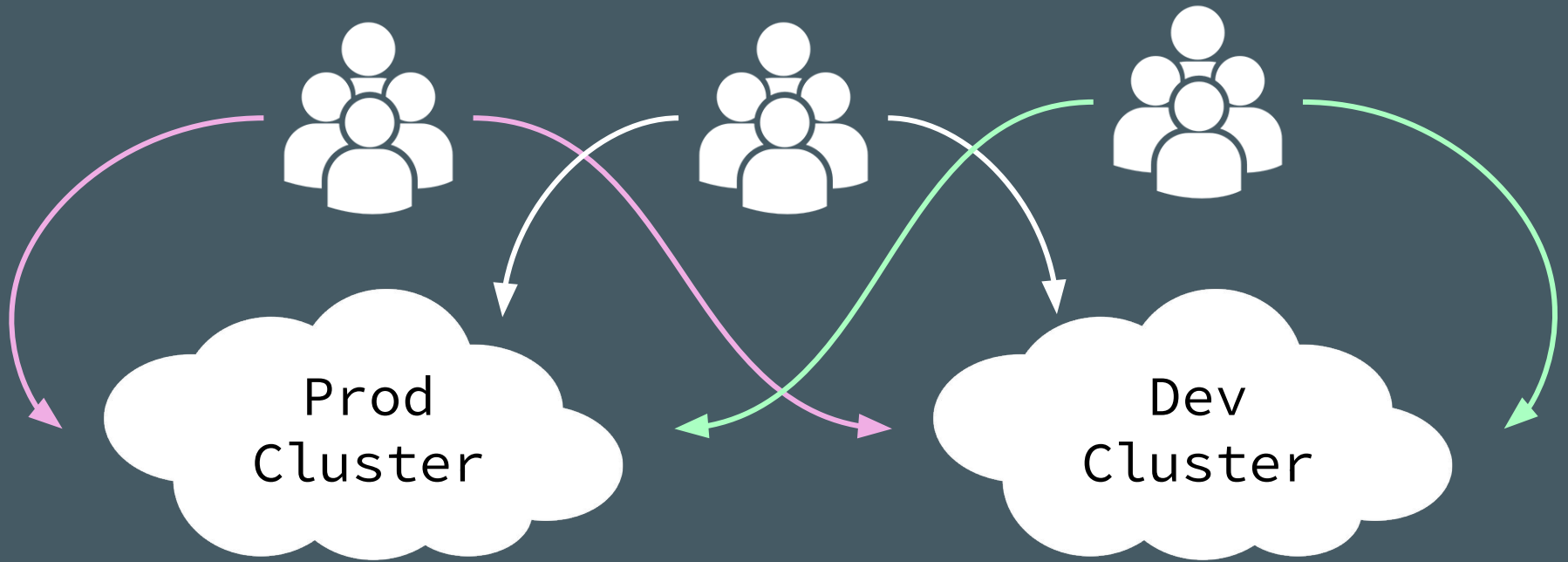
Use case 1: One team per cluster

Cluster 1

Cluster 2

Use case 2: shared clusters

What do you need to create "virtual clusters"?

Boundaries

Access policies

Resource Control

App Security

Namespaces in the "real world"

Per team?
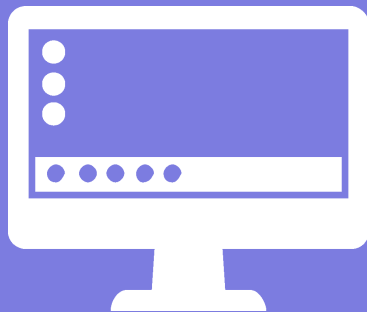
Per app?

¯_(ツ)_/¯

Per environment?

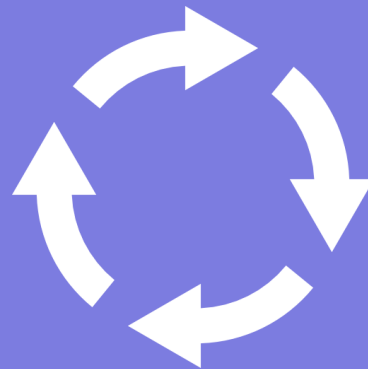Per business unit?

Per git branch?

Common approaches

Per team

Per app

Per env

Infrastructure (cluster) vs. app (namespace)

Cluster	Namespace

| Cluster access | — | Namespace access |
Infra security	—	App security
Cluster size	—	Namespace quota
Cluster config	—	Namespace config

Security boundaries

- ❏ RBAC
- ❏ Pod security policies
- ❏ Network policies
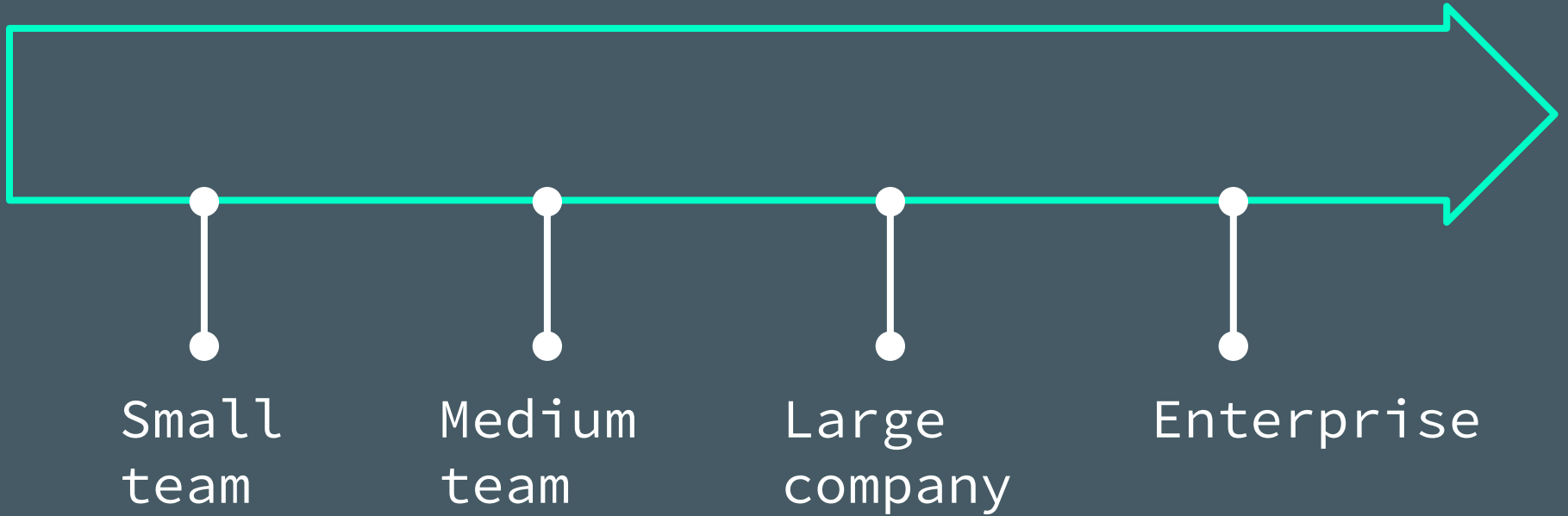- ❏ Image policies
- ❏ Label policies

Quota enforcement

- ❏ CPU
- ❏ Memory
- ❏ Storage
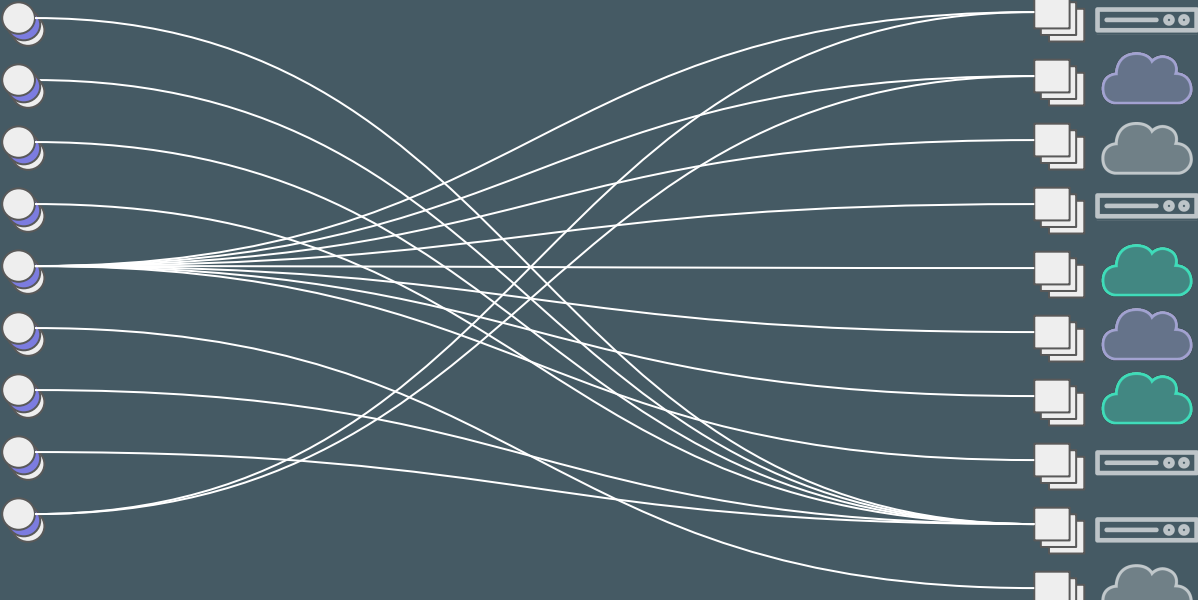- ❏ Objects

HOW? Admission controllers

How many namespaces?

Small
team

Medium
team

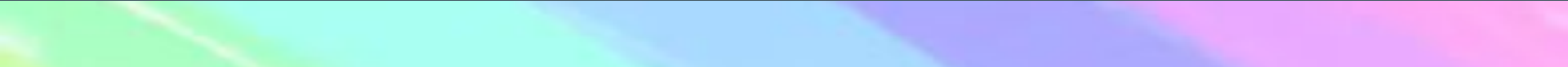Large
company

Enterprise
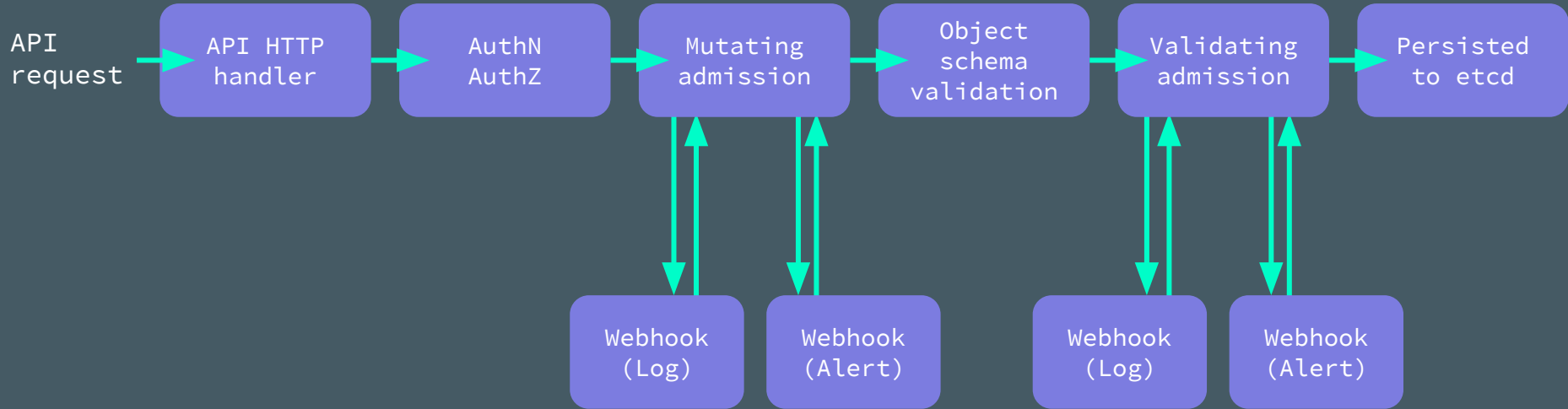
People are...messy

People structure

Infrastructure (clusters)

CIO   CSO   Ops   Dev

Conflicting needs
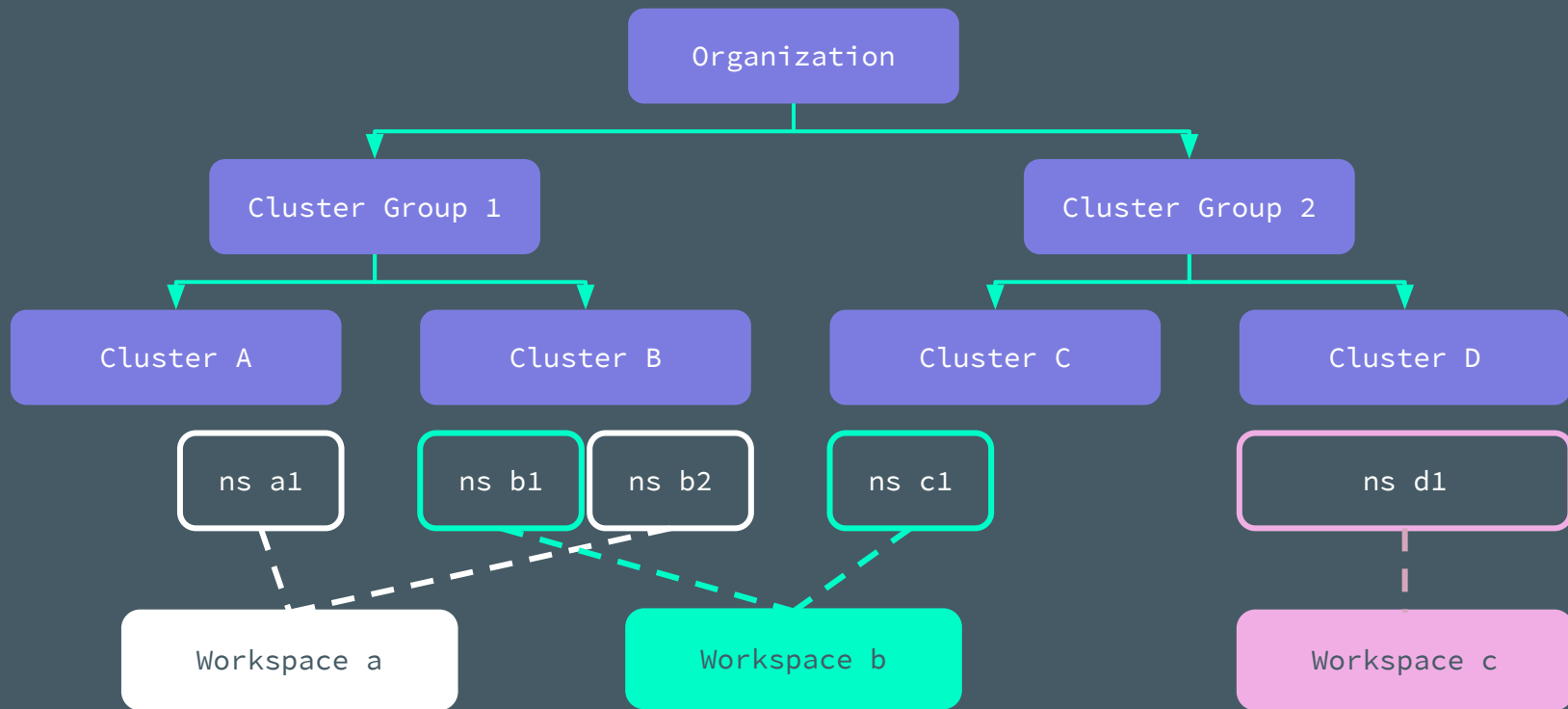
Developers want…

FREEDOM

Operators want…

CONTROL

VS

Scaling to many clusters
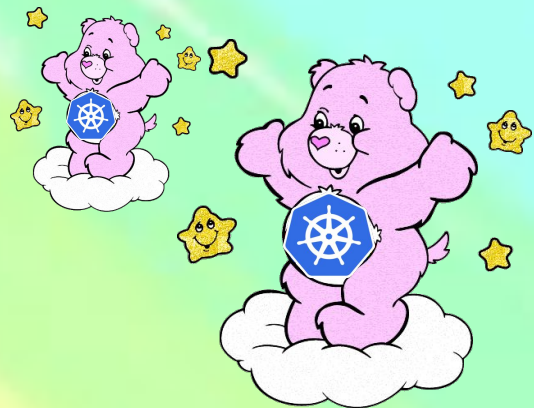
HOW? OPEN POLICY AGENT

General purpose
policy engine

CNCF hosted
incubating project

Declarative policy
language

Unified control
across stack

Use Namespaces!