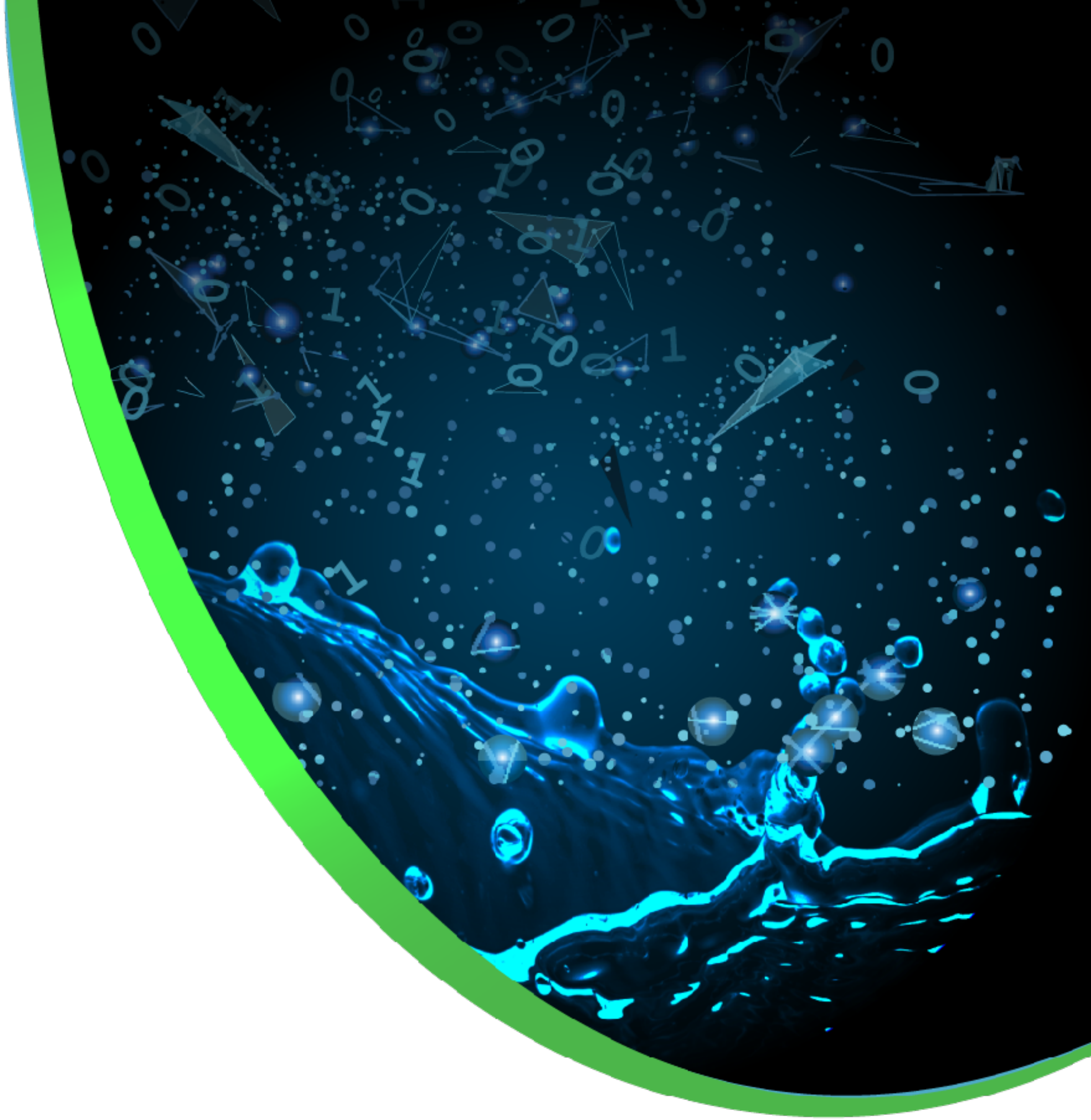
JFrog swampUP 2018

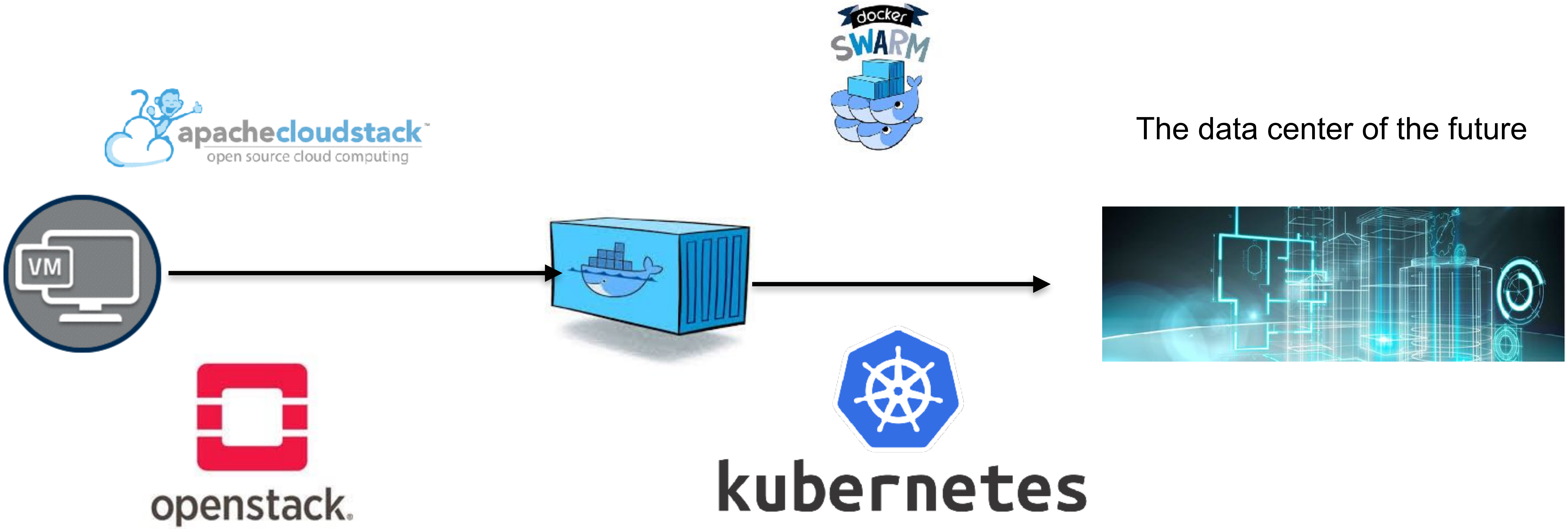
Managing artifacts cross multiple Kubernetes clusters with JFrog Artifactory and Rancher



Alena Prokharchyk, Principal Software
Engineer @ Rancher Labs

What was your favorite subject at school? Mine was history

Data Center infrastructure evolution timeline



The data center of the future

Containers started shaping infrastructure space back in 2013

Containers are

- Lightweight and portable
- An easy way to pack, ship, and run software
- Provide secure isolation for user applications

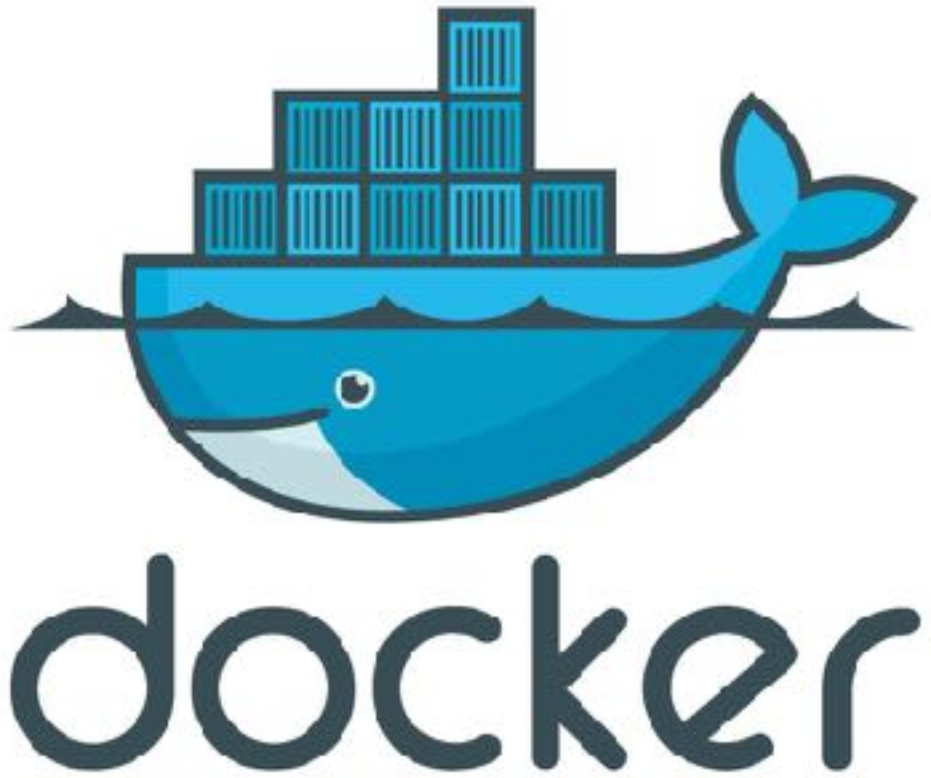


Image = Artifact = Essential piece of a docker container

Managing artifacts - easy with JFrog

- Secure private registry with fine-grained access control
- Multiple docker registries support
- Images caching helps to reduce network overhead
- Advanced search
- Promoting Images to production

JFrog Artifactory

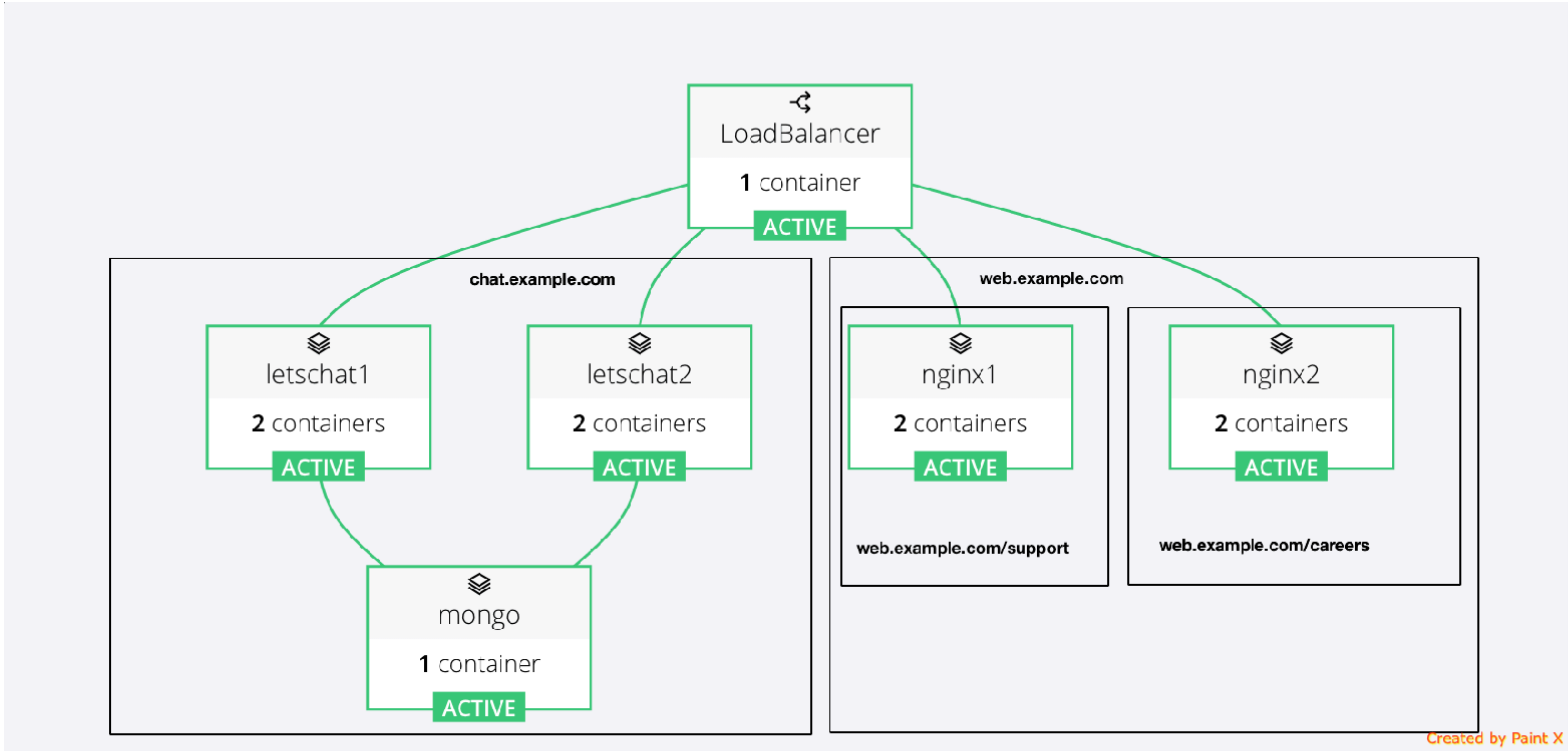
Deploying artifacts…not so easy

You start with deploying an image on a single host

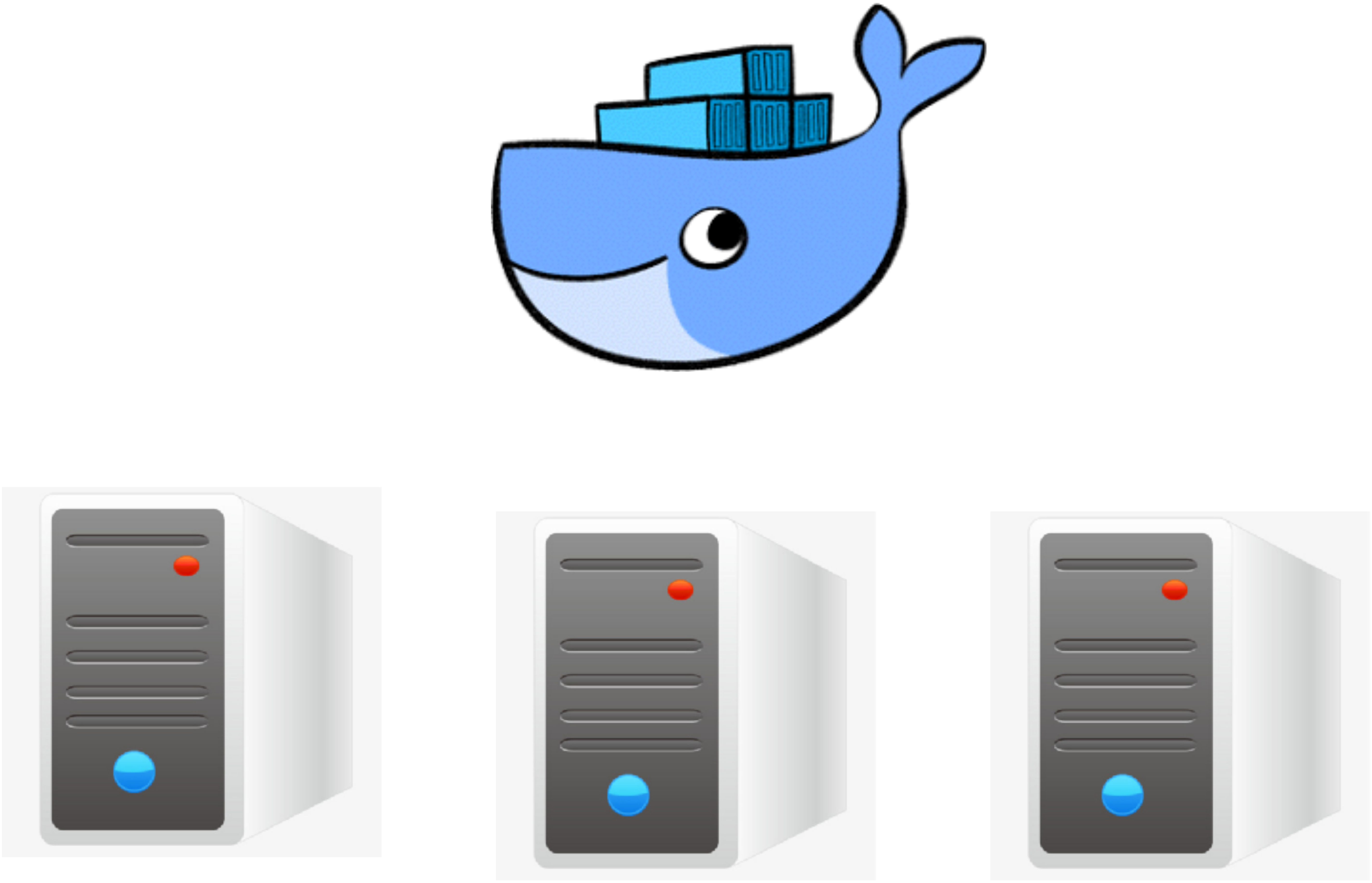
can be a developer laptop

or VM

But then realize your application is more complex



Also the app has to be scheduled on multiple hosts



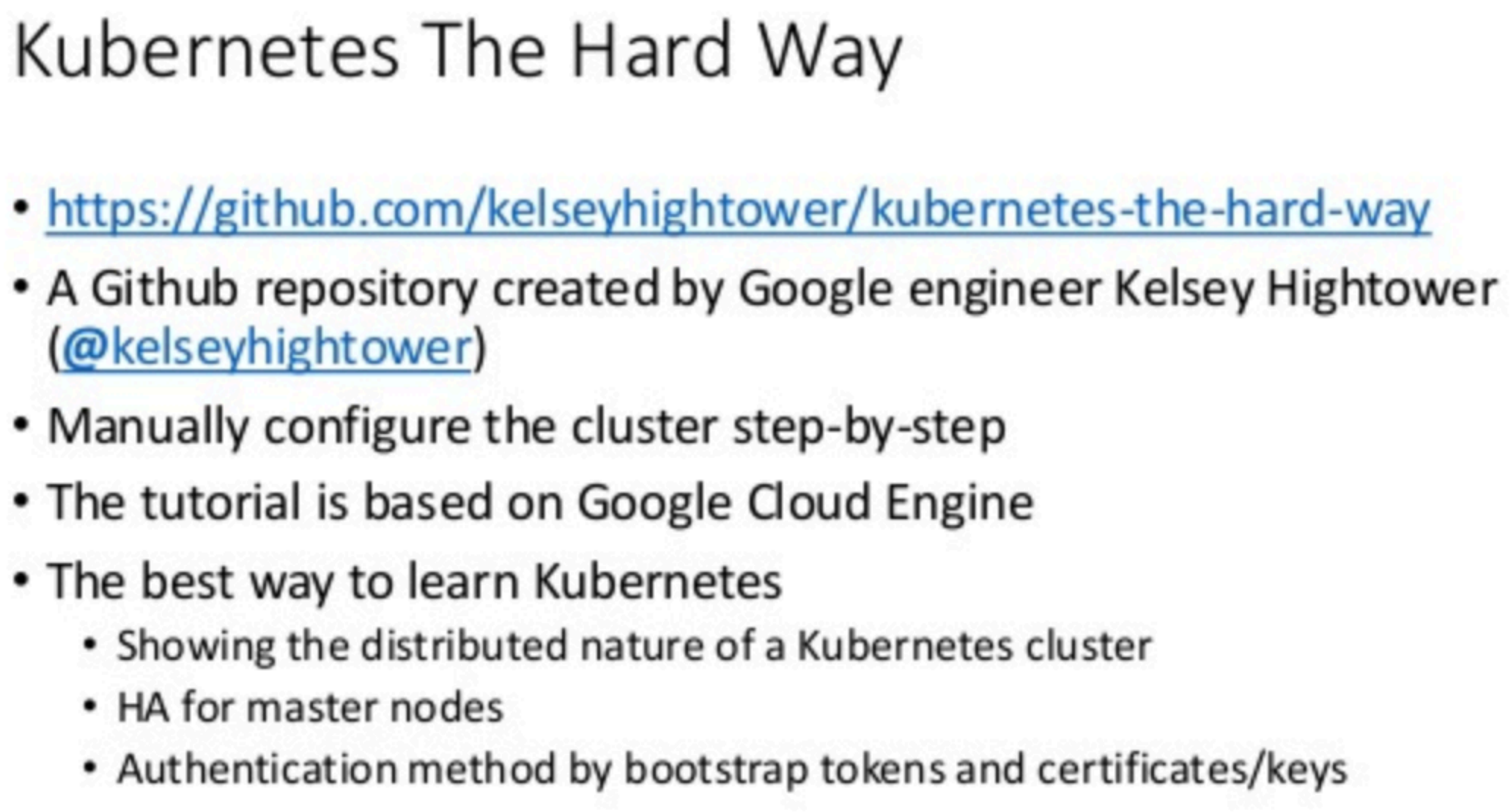
You need an orchestrator

- To manage application scheduling
- To configure and monitor application health
- To make application upgrades simple

kubernetes

proved to be the most popular orchestrator

But nobody said Kubernetes is easy



Kubernetes The Hard Way

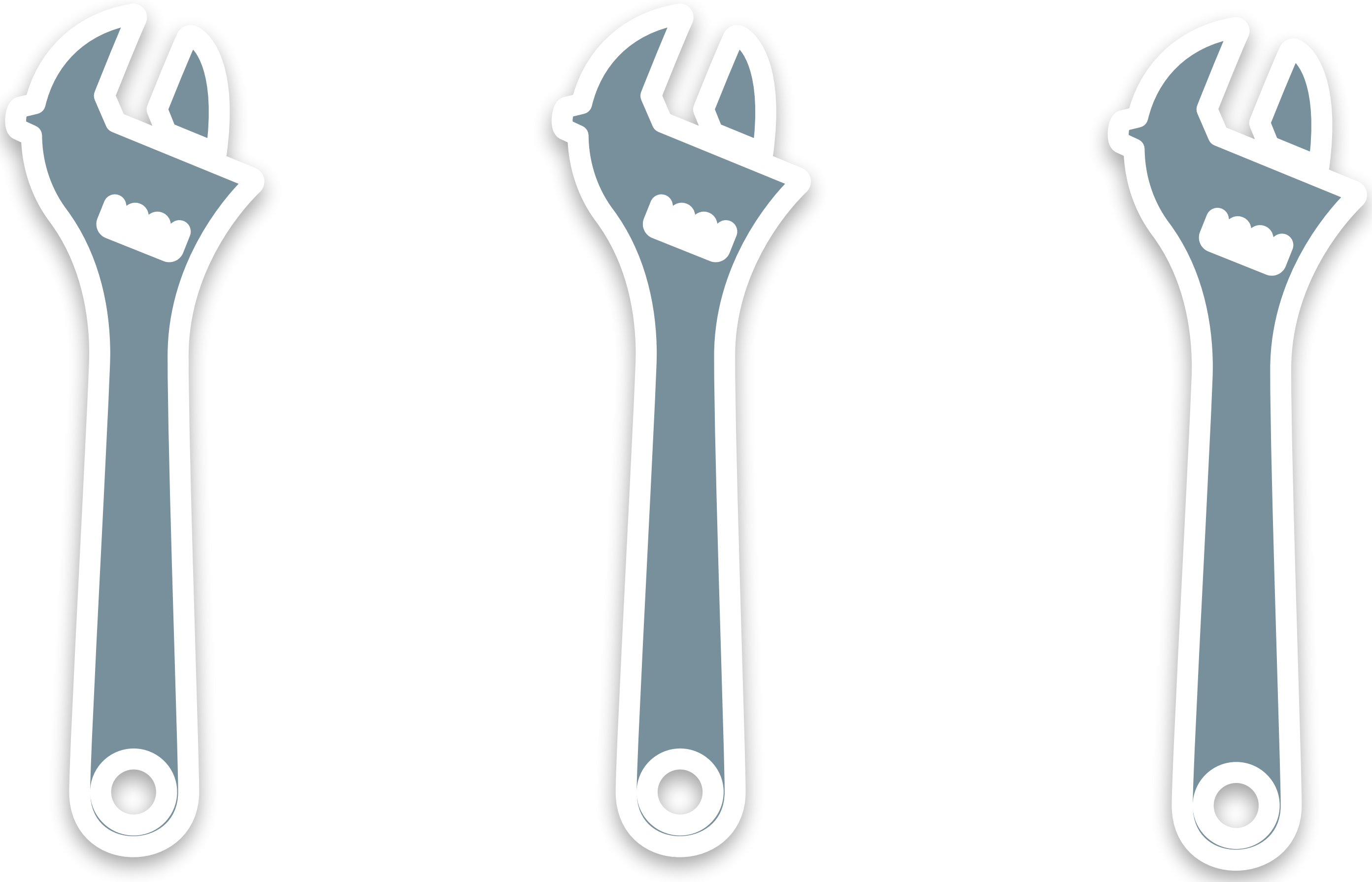
- https://github.com/kelseyhightower/kubernetes-the-hard-way
- A Github repository created by Google engineer Kelsey Hightower (@kelseyhightower)
- Manually configure the cluster step-by-step
- The tutorial is based on Google Cloud Engine
- The best way to learn Kubernetes
  - Showing the distributed nature of a Kubernetes cluster
  - HA for master nodes
  - Authentication method by bootstrap tokens and certificates/keys

Orchestrating orchestrator was challenging

- Installation was hard
- Upgrade was even harder
- Setup requirements varied depending on a cloud

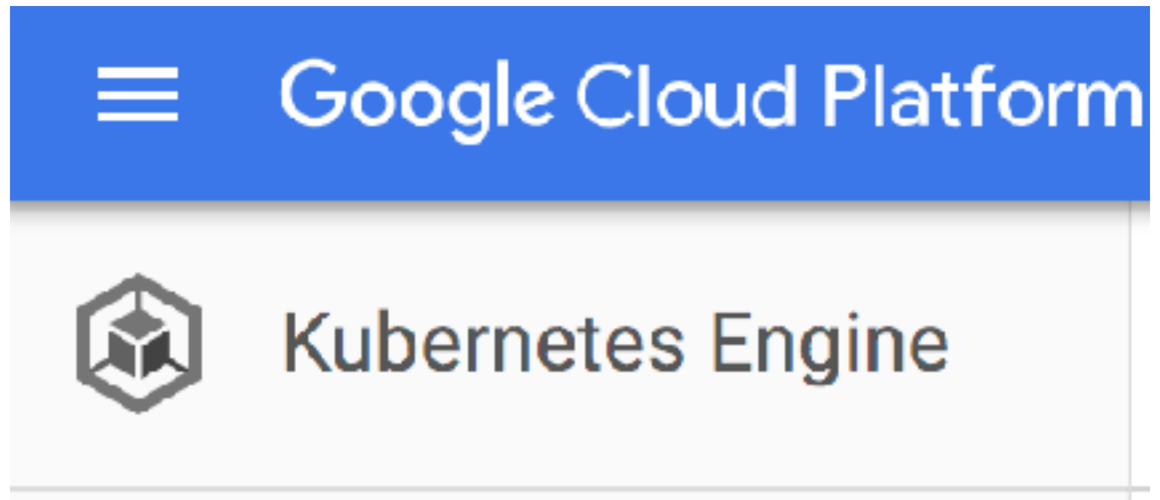
But it got better

A lot of Kubernetes installation tools emerged to address the challenge



kops **kubespray** **kubeadm**

Kubernetes as a public offering was made available on several clouds

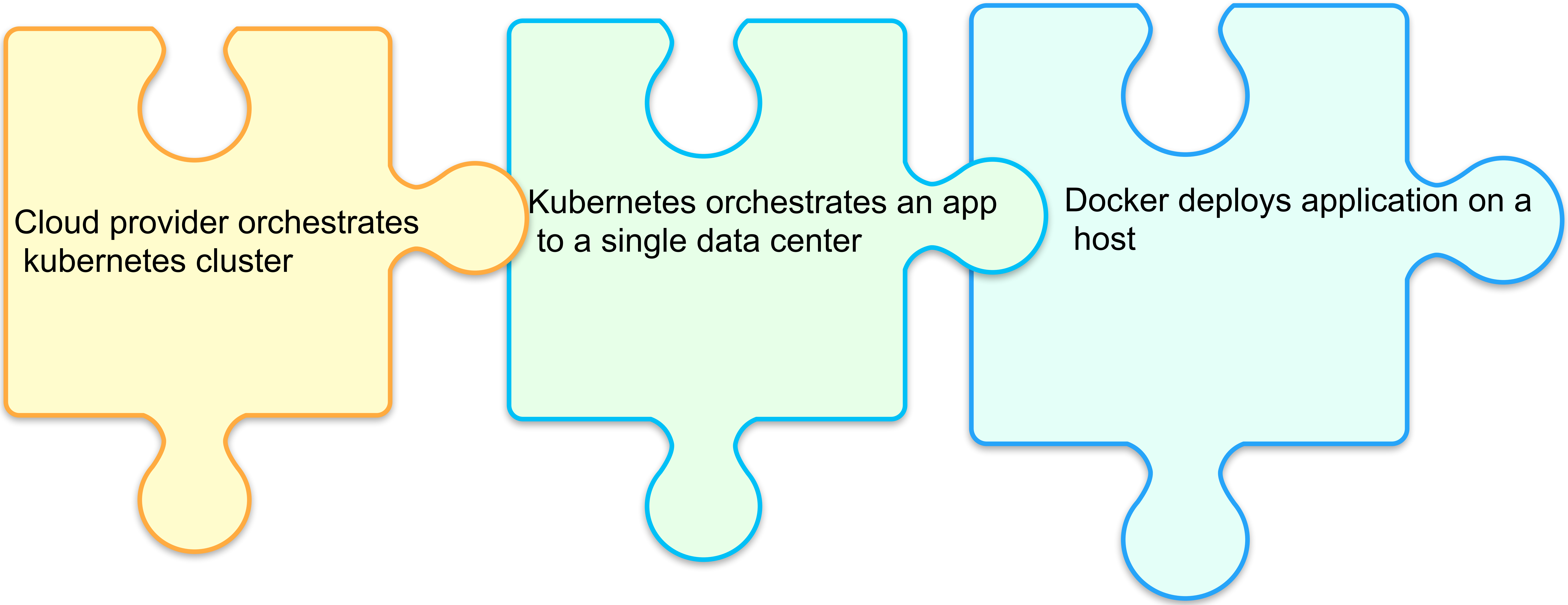


Google Cloud Platform

Kubernetes Engine

Amazon EKS

Is the puzzle complete?

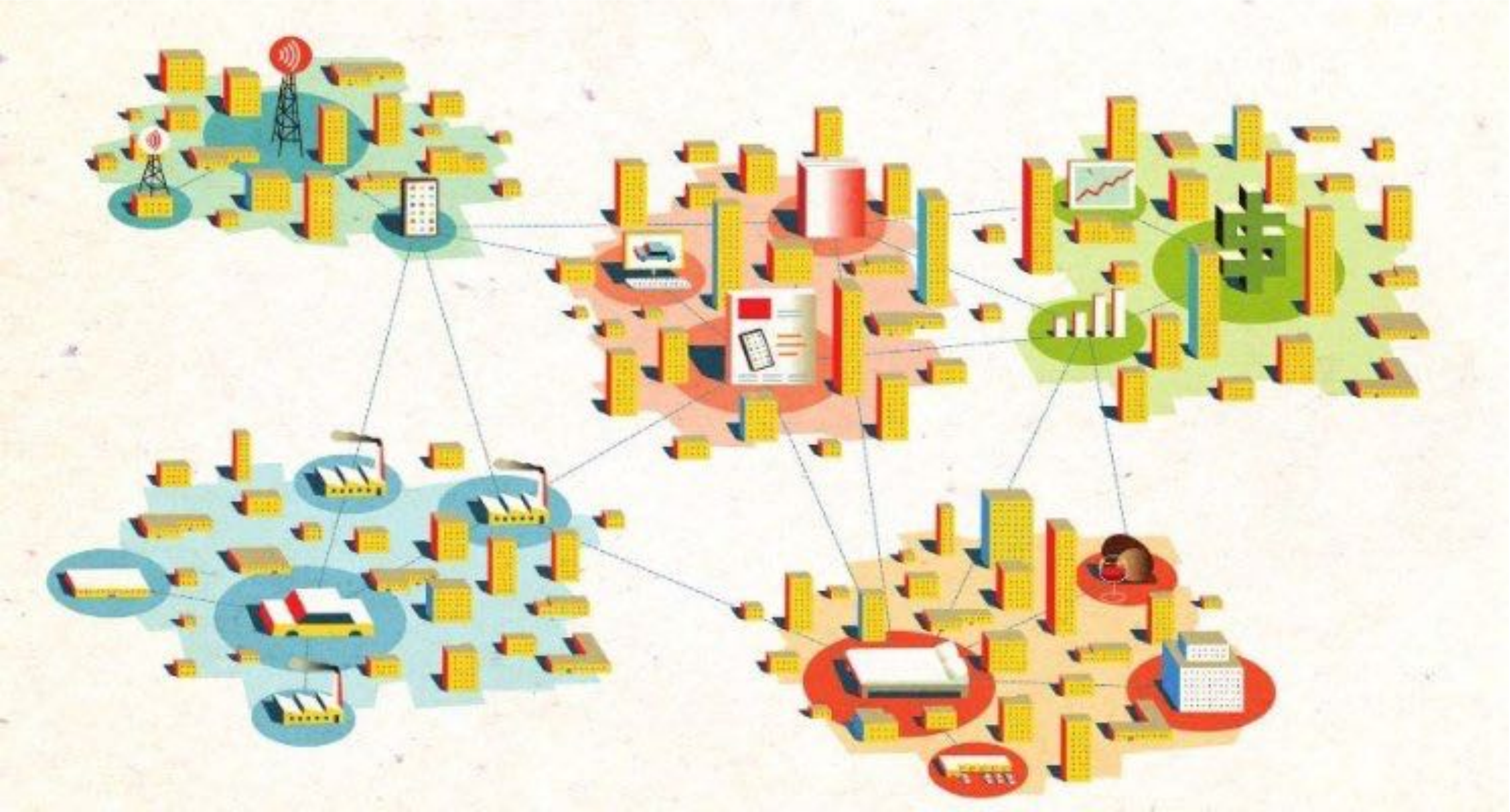


Cloud provider orchestrates kubernetes cluster

Kubernetes orchestrates an app to a single data center

Docker deploys application on a host

You might need more than 1 Kubernetes cluster to deploy your app

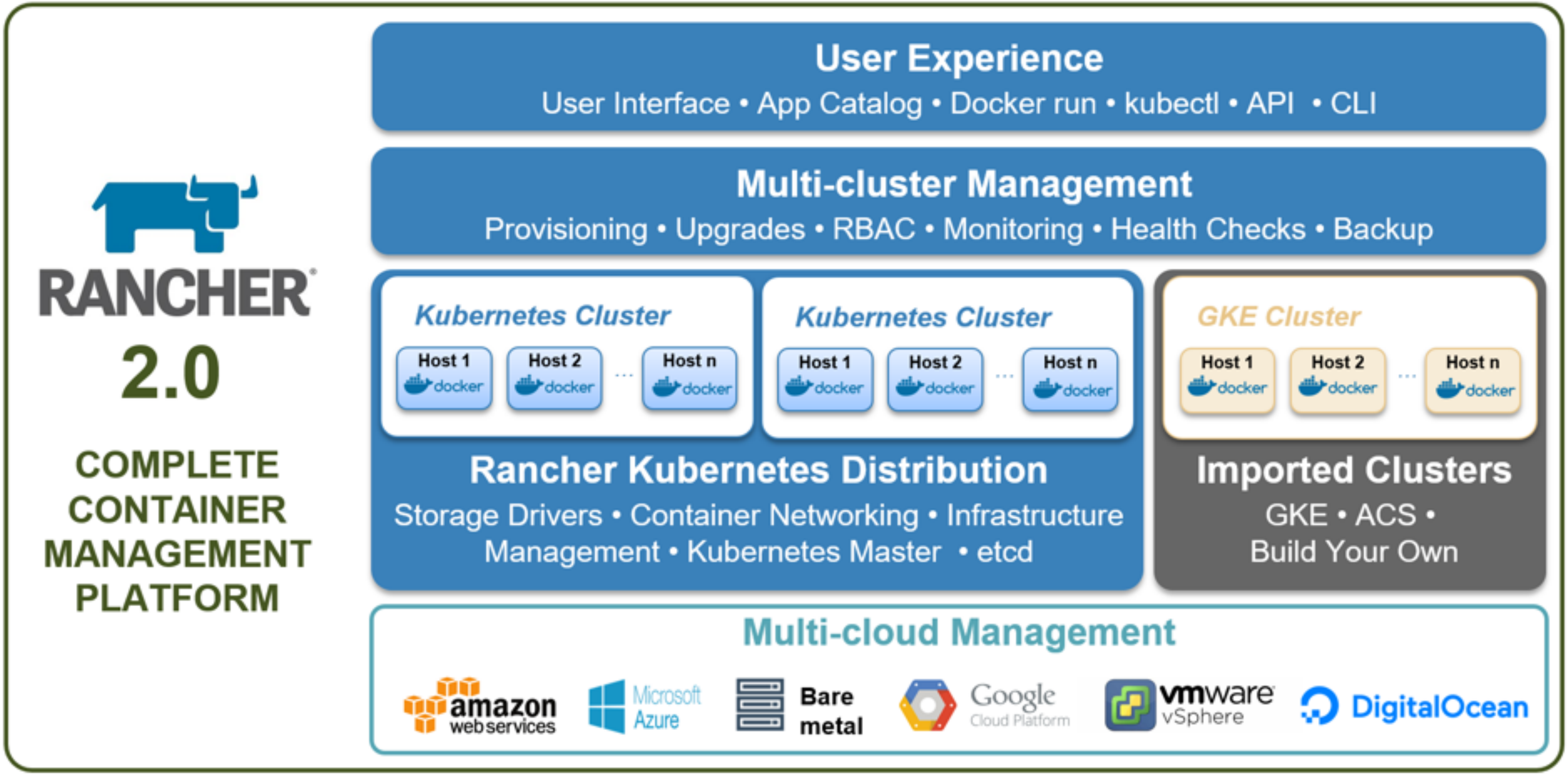


Use cases

- You have multiple data centers, multiple clouds or multiple regions
- Your team might spread across Kubernetes clusters
- You want to maintain different environments - developer, QA - each in its own dedicated cluster

- You need multi K8s installer/operator/manager
- Centralized auth and security policies is a requirement
- Secure built-in solution for artifactory cross clusters is highly desired
- And it should all look easy

KEEP
CALM
AND
ACCEPT
THE CHALLENGE



RANCHER 2.0

COMPLETE CONTAINER MANAGEMENT PLATFORM

User Experience

User Interface • App Catalog • Docker run • kubectl • API • CLI

Multi-cluster Management

Provisioning • Upgrades • RBAC • Monitoring • Health Checks • Backup

Rancher Kubernetes Distribution

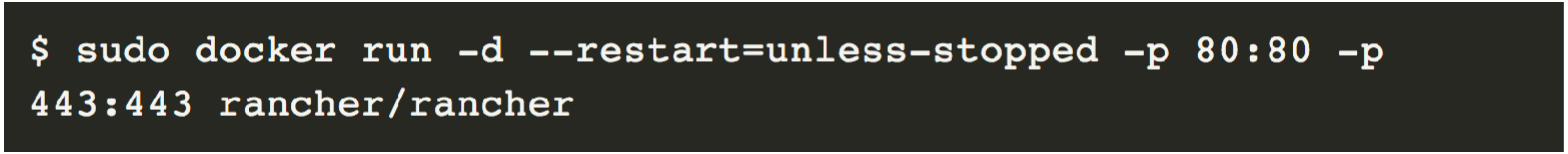
Storage Drivers • Container Networking • Infrastructure Management • Kubernetes Master • etcd

Imported Clusters

GKE • ACS • Build Your Own

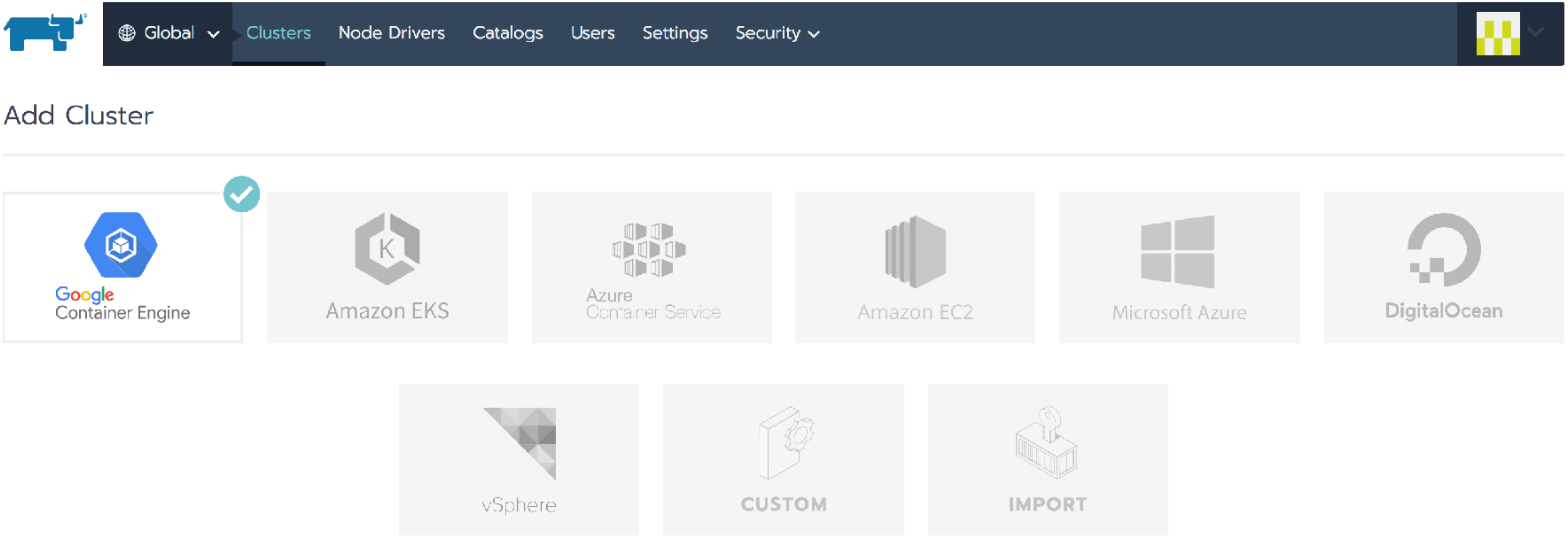
Multi-cloud Management

Install Rancher with just one click



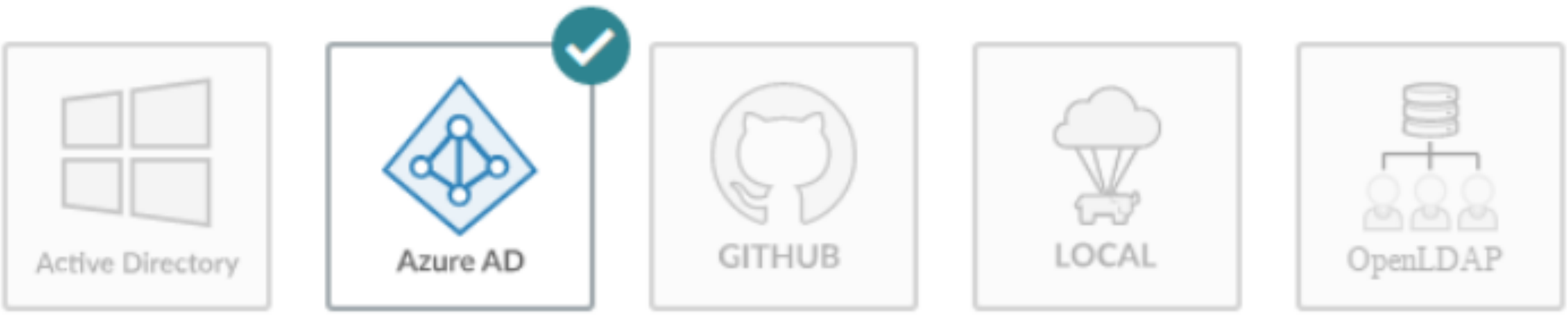
```
$ sudo docker run -d --restart=unless-stopped -p 80:80 -p
443:443 rancher/rancher
```

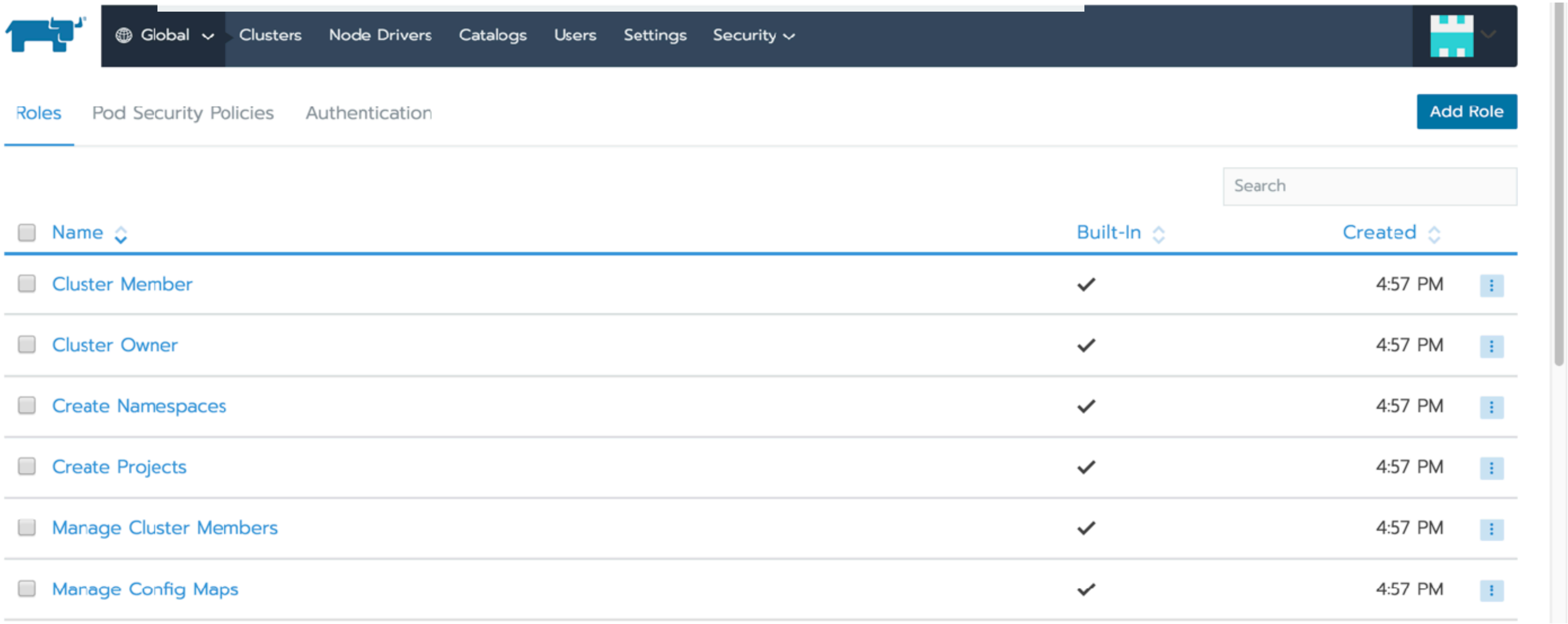
Start with Kubernetes cluster provisioning



Add Cluster

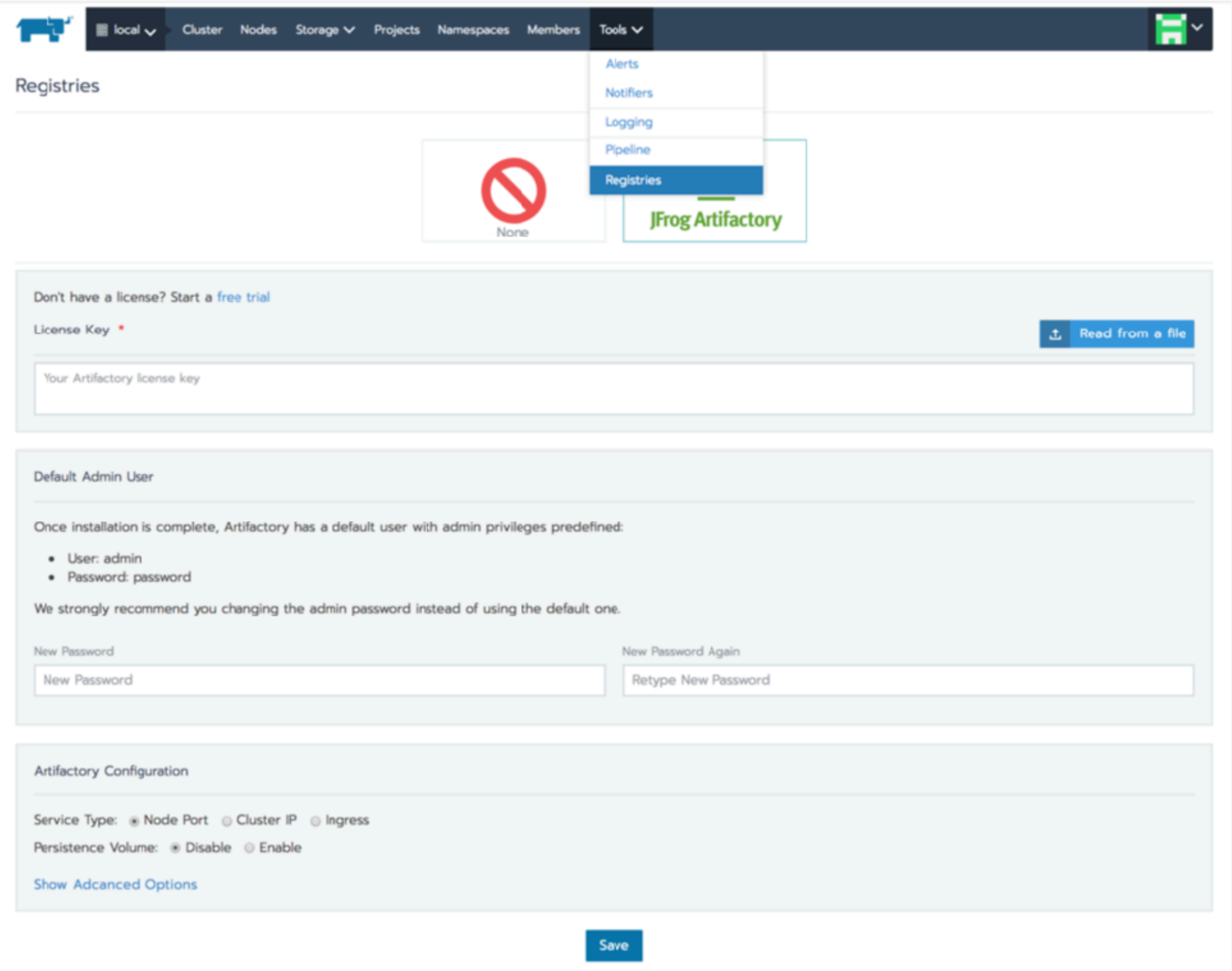
Provide cross clusters proxy auth and RBAC





□ Name	Built-In	Created
□ Cluster Member	✓	4:57 PM
□ Cluster Owner	✓	4:57 PM
□ Create Namespaces	✓	4:57 PM
□ Create Projects	✓	4:57 PM
□ Manage Cluster Members	✓	4:57 PM
□ Manage Config Maps	✓	4:57 PM

Enable JFrog artifactory cross clusters



Registries

Don't have a license? Start a free trial

License Key *

Read from a file

Your Artifactory license key

Default Admin User

Once installation is complete, Artifactory has a default user with admin privileges predefined:

- User: admin
- Password: password

We strongly recommend you changing the admin password instead of using the default one.

New Password: New Password

New Password Again: Retype New Password

Artifactory Configuration

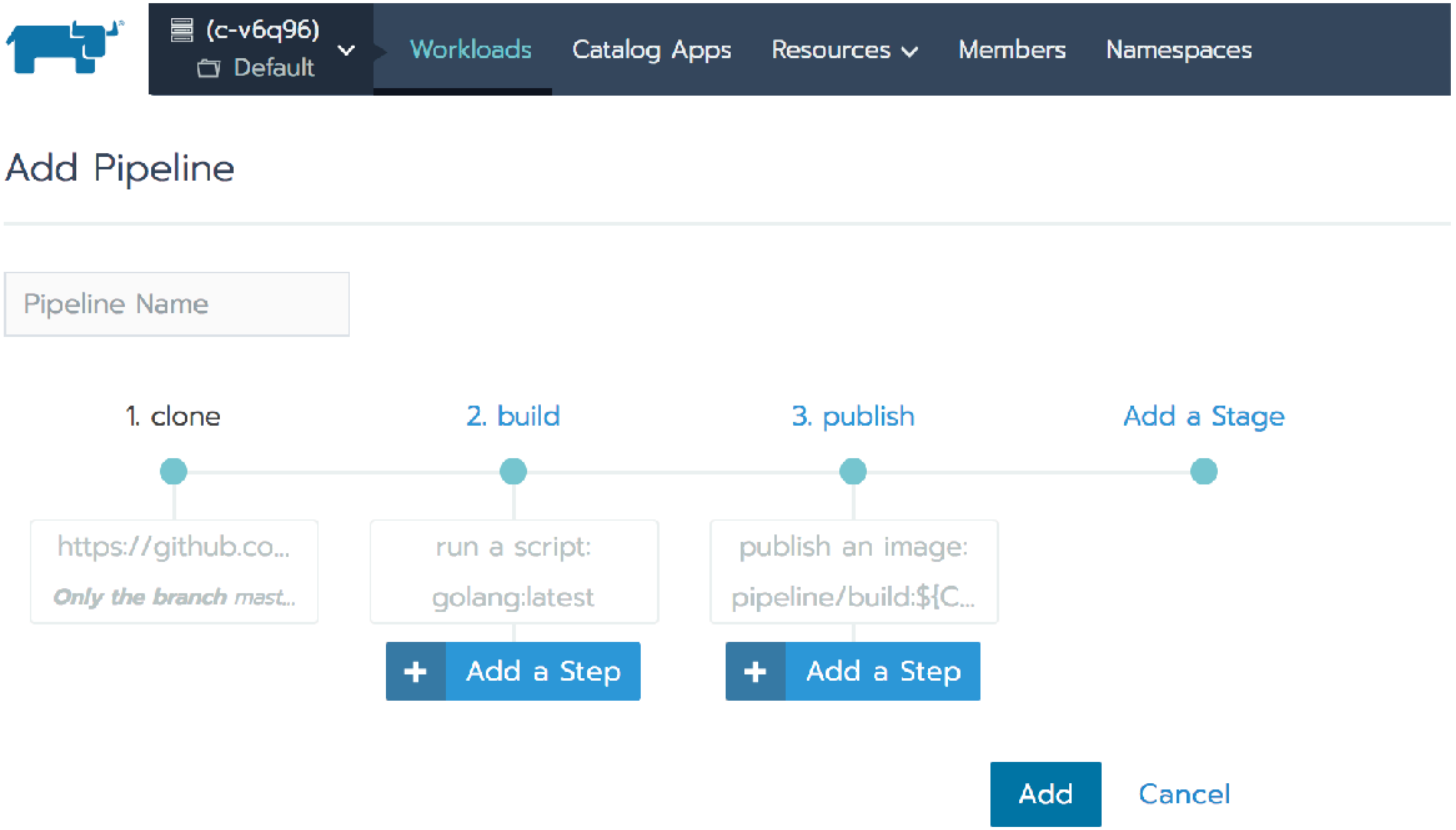
Service Type: ● Node Port ○ Cluster IP ○ Ingress

Persistence Volume: ● Disable ○ Enable

Show Adcanced Options

Save

Configure CI/CD to push artifact and deploy



Add Pipeline

Pipeline Name

1. clone
https://github.co...
Only the branch mast...

2. build
run a script:
golang:latest
+ Add a Step

3. publish
publish an image:
pipeline/build:${C...
+ Add a Step

Add a Stage

Ribbit with us: #swampUP

RANCHER + JFrog Artifactory = ❤

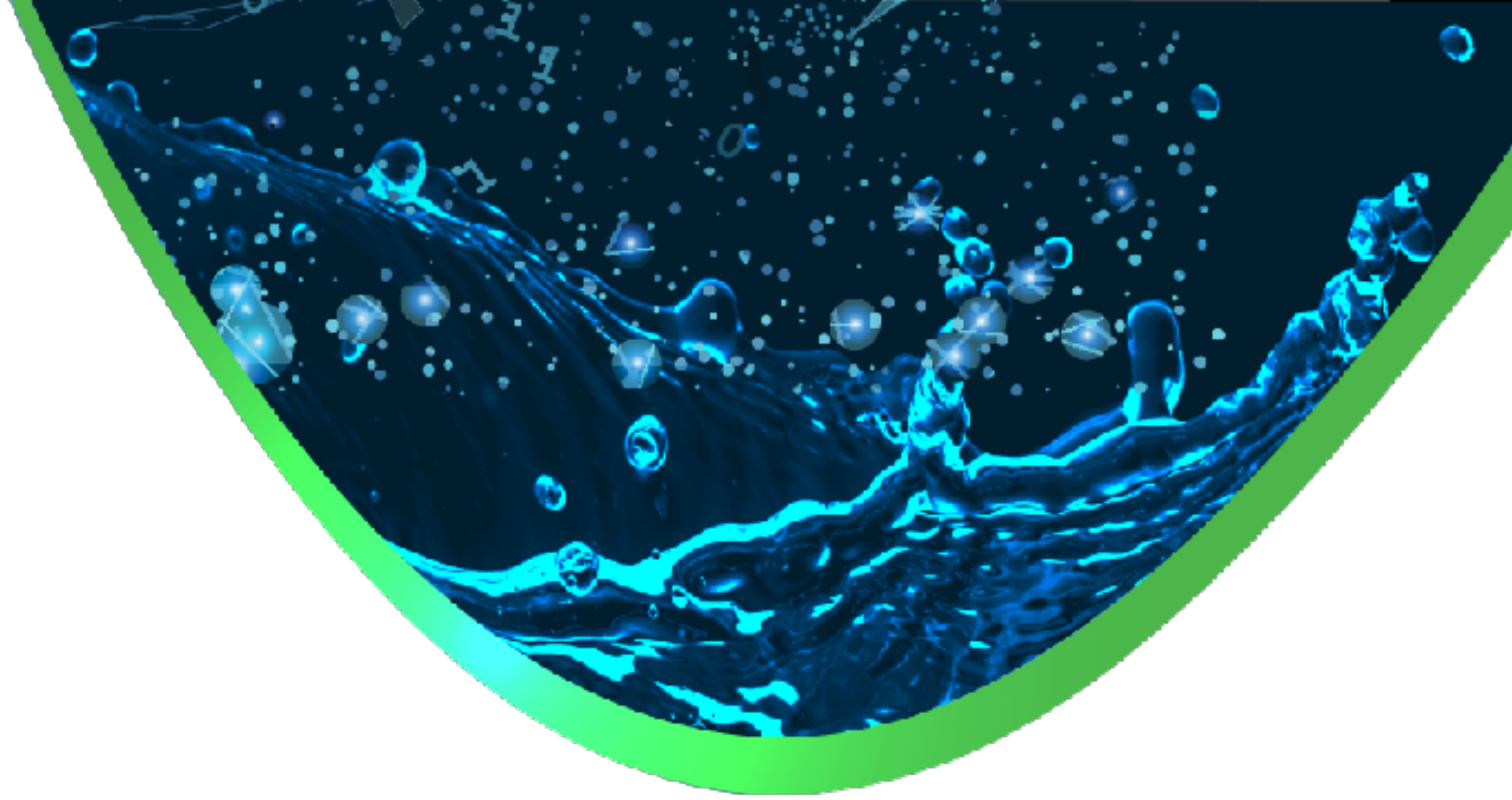
- JFrog Artifactory installation on demand as a service with just a couple of clicks
- Artifactory service health monitoring and recovery
- CI/CD pipeline integration
- User intuitive workload deployment interface using jFrog registry

KEEP
CALM
ITS
DEMO
TIME

Feel free to reach out if you have questions

@lemonjet

alena1108



THANK YOU!