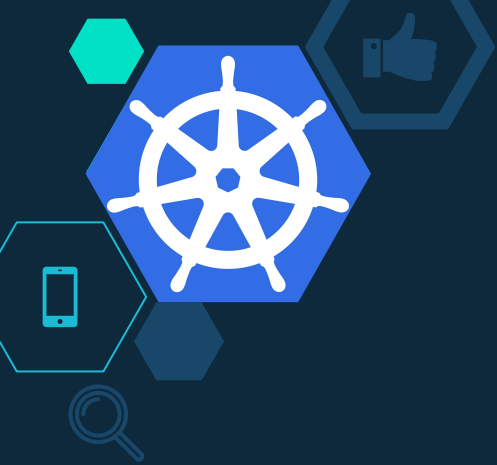




Kubernetes Konekt

THE GOODFELLAS

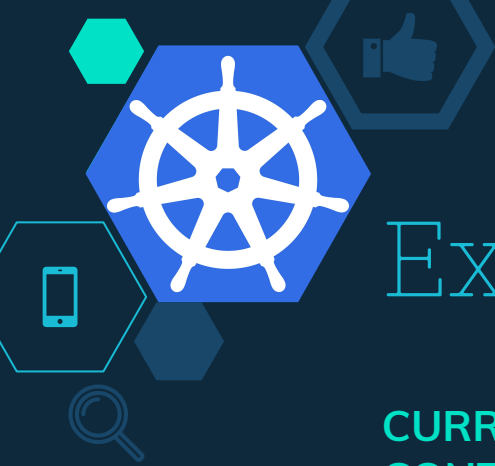




Background

KUBERNETES

- open-source system for management of containerized applications
- groups containers that make up an application for easy management



Existing Technologies

CURRENT TECHNOLOGIES ON CONTAINER MANAGEMENT

- GCP (Google Cloud Platform)
- AWS (Amazon Web Services)

HOWEVER...

- No services for cluster management between individuals
- Complicated process to run a single deployment



```
# expose a port through with a service
$ kubectl expose deployment nginx-app --port=80 --name=nginx-http
service "nginx-http" exposed
```

Problem

```
kubectl run [-i] [--tty] --attach <name> --image=<image>
```

- Multiple commands to upload containers.

```
$ docker ps
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS
55c103fa1296     nginx     "nginx -g 'daemon of..."  5 minutes ago  Up 5 minutes

$ docker attach 55c103fa1296
...
```

```
# start the pod running nginx
$ kubectl run --image=nginx nginx-app --port=80 --env="DOMAIN=cluster"
deployment "nginx-app" created
```

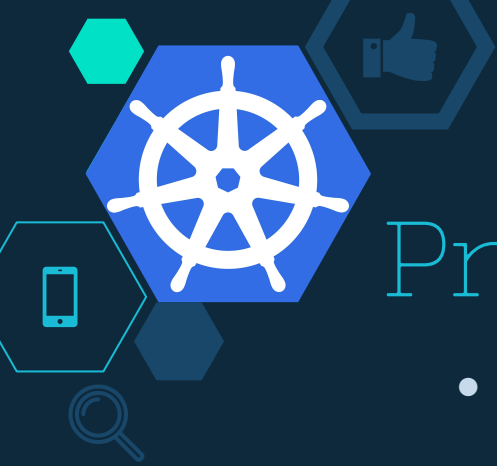
```
$ kubectl get pods
NAME              READY   STATUS    RESTARTS   AGE
nginx-app-5jyv    1/1     Running   0           10m
```

```
$ kubectl attach -it nginx-app-5jyv
...
Up 9 seconds
```

```
$ docker run -d --restart=always -e DOMAIN=cluster --name nginx-app -p 80
55c103fa129692154a7652490236fee9be47d70a8dd562281ae7d2f9a339a6db

$ docker ps
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS
55c103fa1296     nginx     "nginx -g 'daemon of..."  9 seconds ago  Up 9 seconds
```

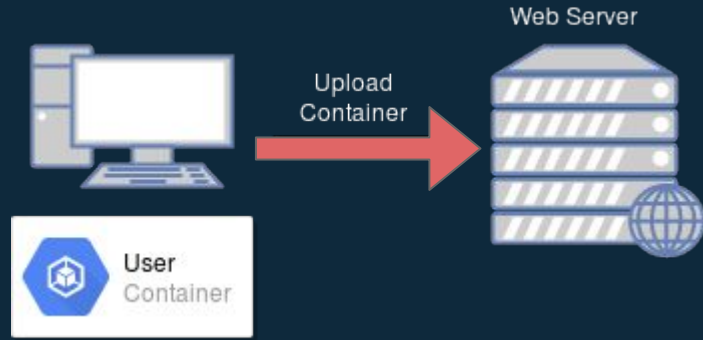
```
docker run -it
```



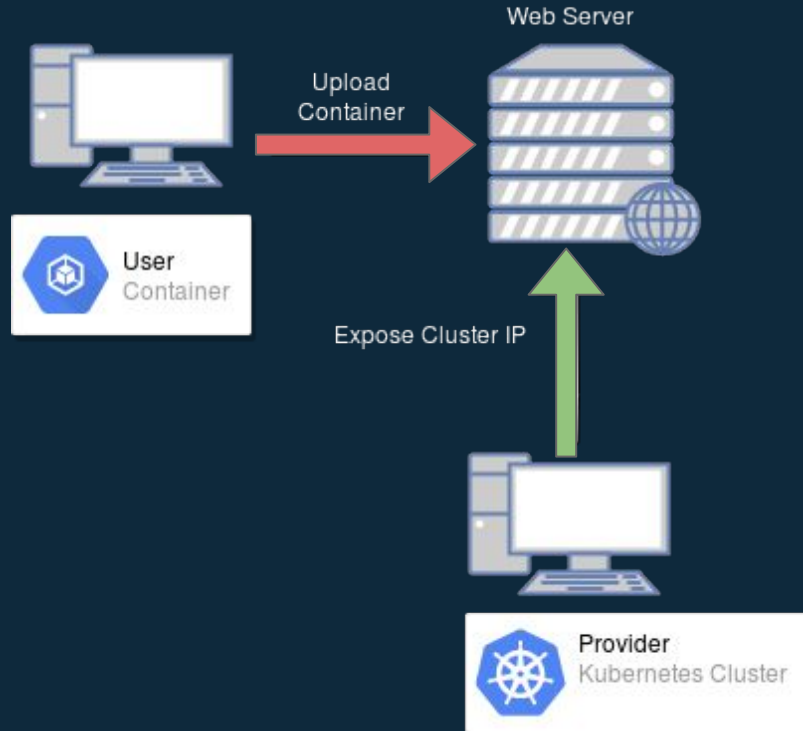
Project Overview

- **Problem:** lack of connectivity between users with containers and users with clusters as well as complicated process to run
- **Solution:** build a web app that connects users everywhere and allows them to run containers on remote clusters

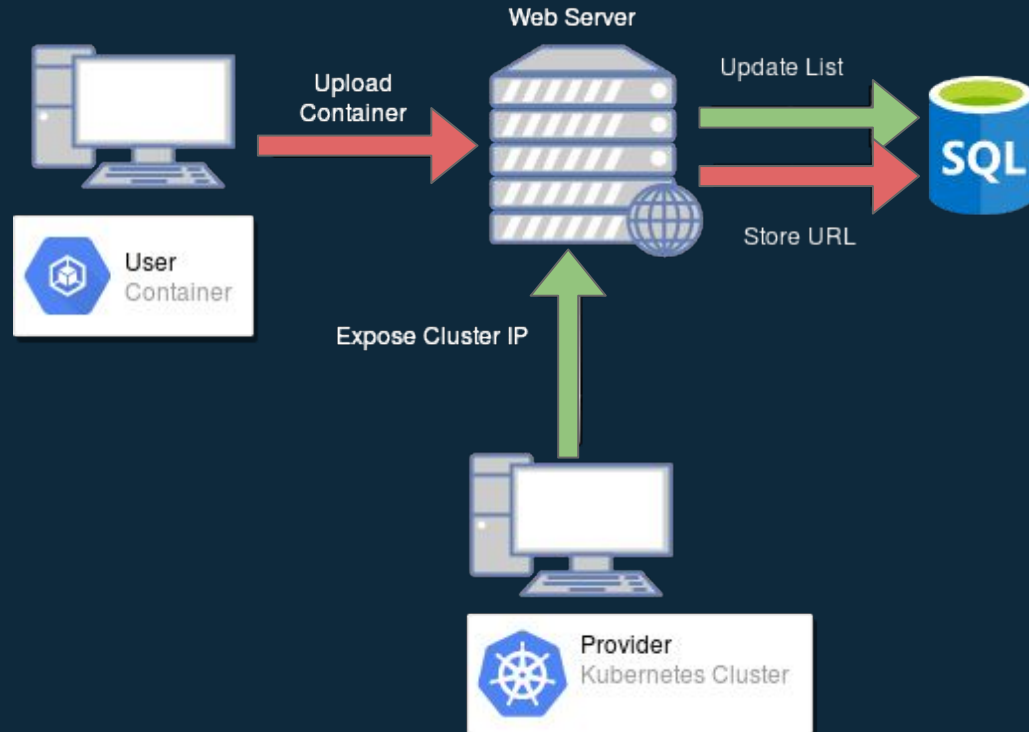
Visualization



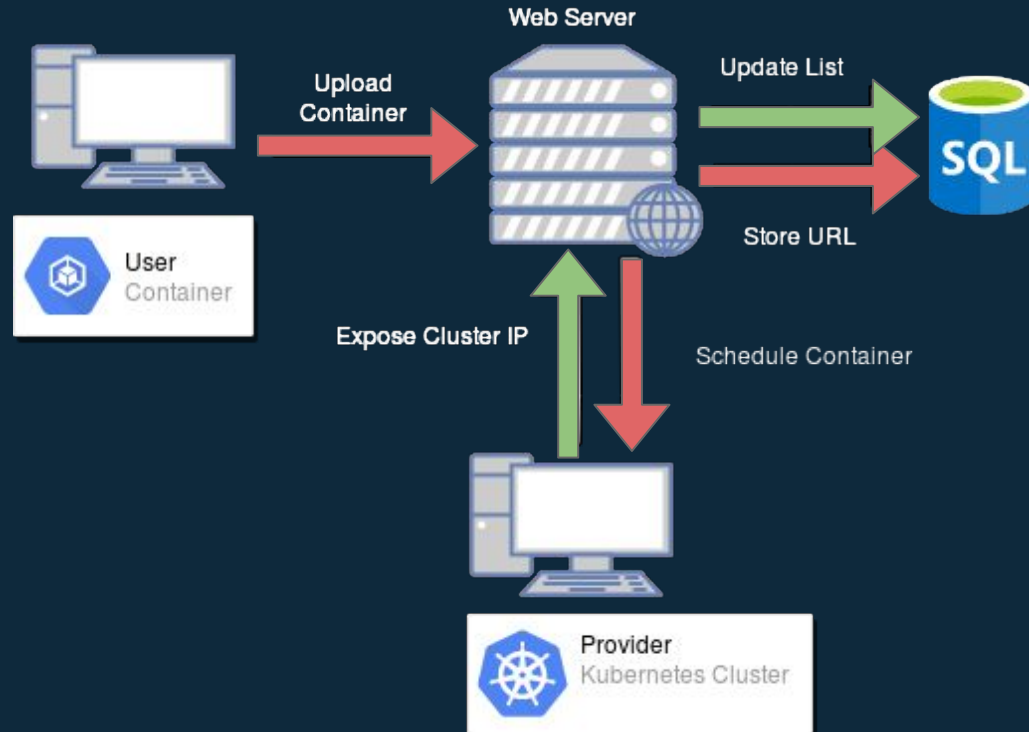
Visualization



Visualization

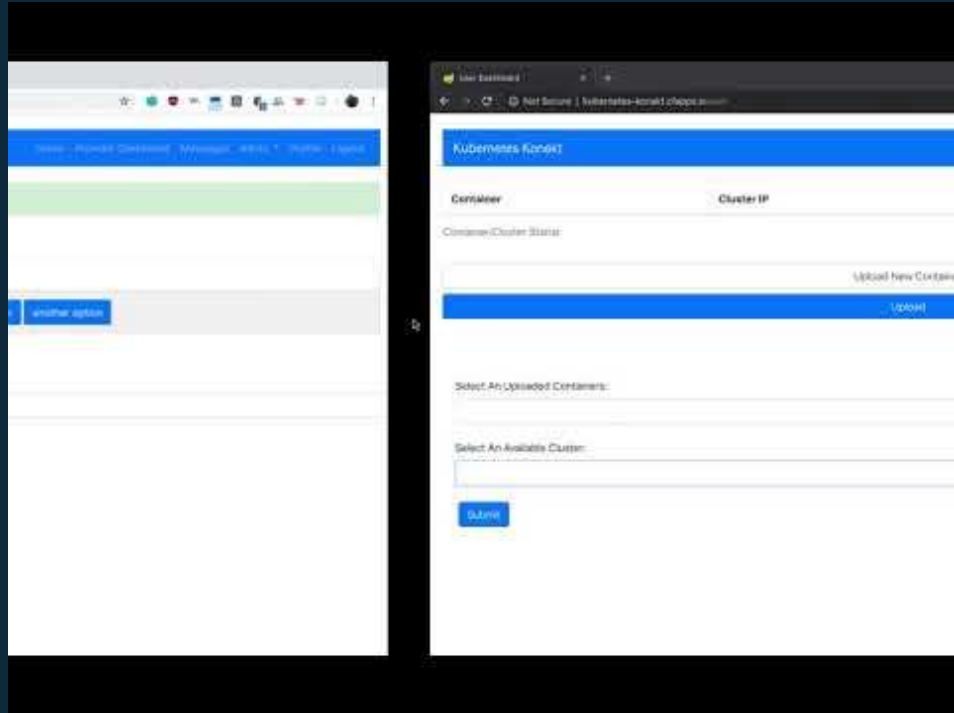


Visualization





Demo!





Backend

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx
          image: nginx:1.15.4
          ports:
            - containerPort: 80
```

```
Resnet-47-149:target marco$ kubectl get deployment
NAME                DESIRED   CURRENT   UP-TO-DATE   AVAILABLE   AGE
hello-server        1         1         1             1           3h24m
nginx-deployment    3         3         3             3           81m
nginx-deployment2   3         3         3             1           6s
```



Technologies Used

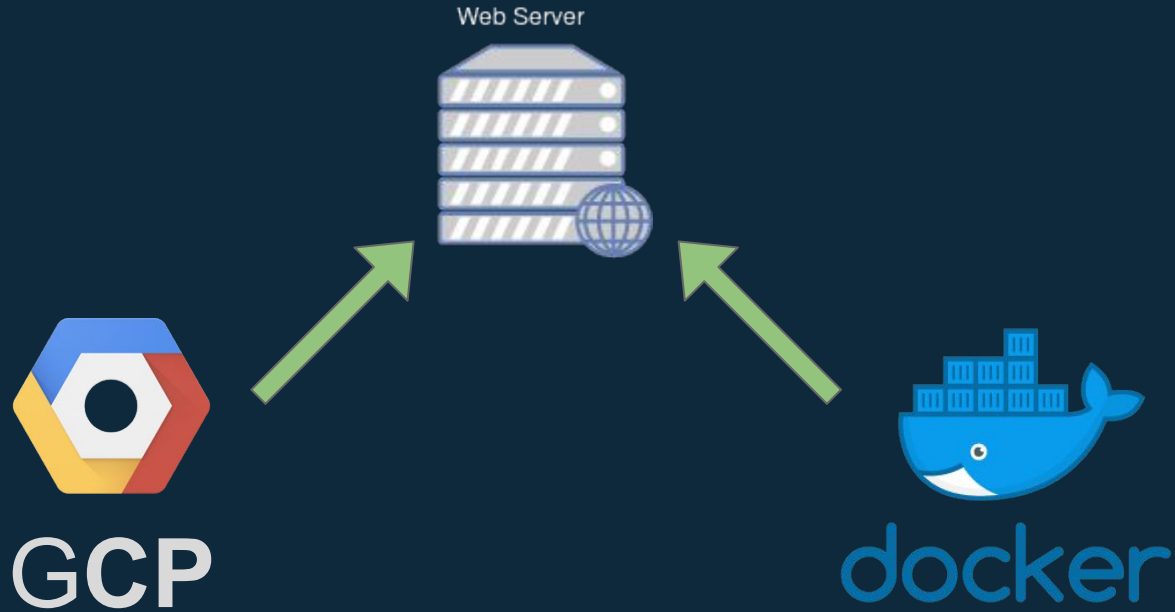


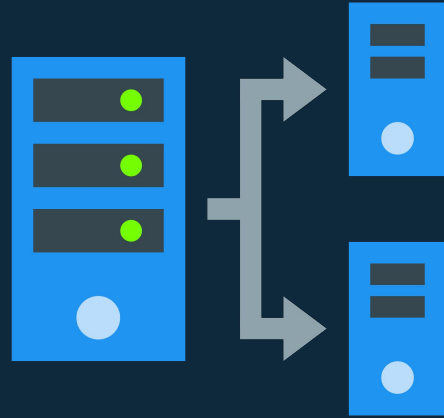
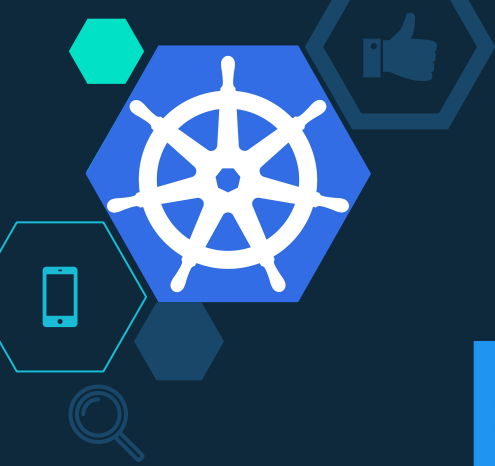
Google Cloud Platform



Pivotal Cloud
Foundry/Web Services

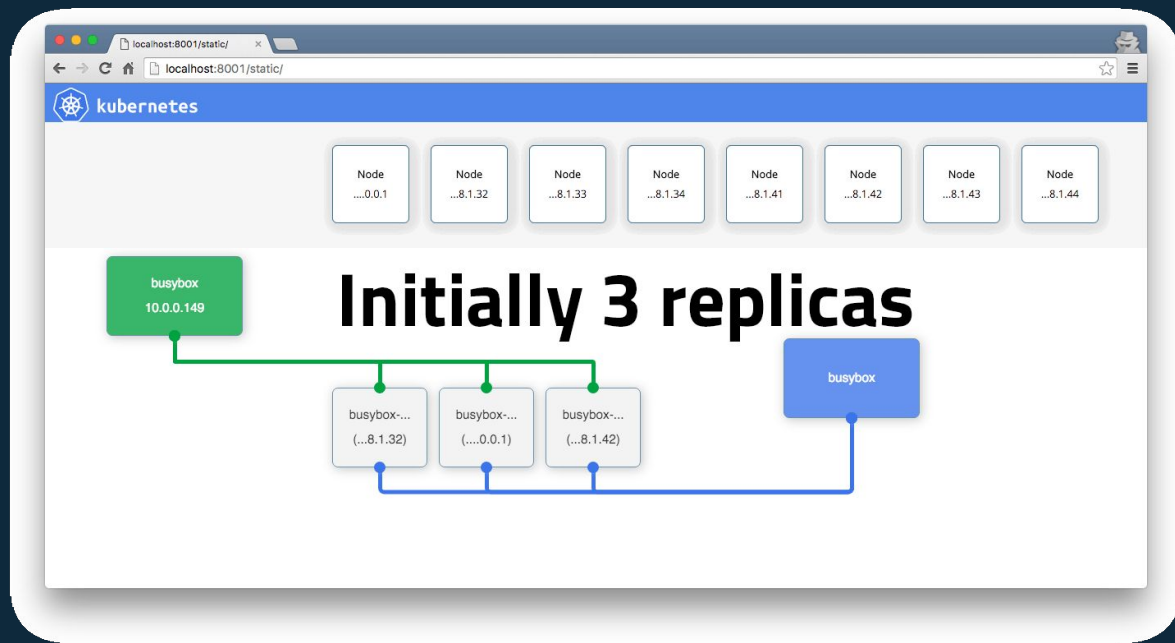
Where We Are Headed





Load Balancing Yaml Builder

Visualizations





Thanks!

Any questions?

