

// CODE ➡ CLUSTER: BOOSTING DEVELOPMENT WITH A LOCAL KUBERNETES OPS PLATFORM

Johannes Schnatterer, Clouddogu GmbH

Slides



 @schnatterer@floss.social

 in/jschnatterer

Version: 202405311646-d83310d



What is your profession?



Software Engineer / Developer



What is your profession?



Platform Engineer / Ops person



Who uses Kubernetes for local development?

k3d Minkube Microk8s k3s



Kelsey Hightower ✓

@kelseyhightower

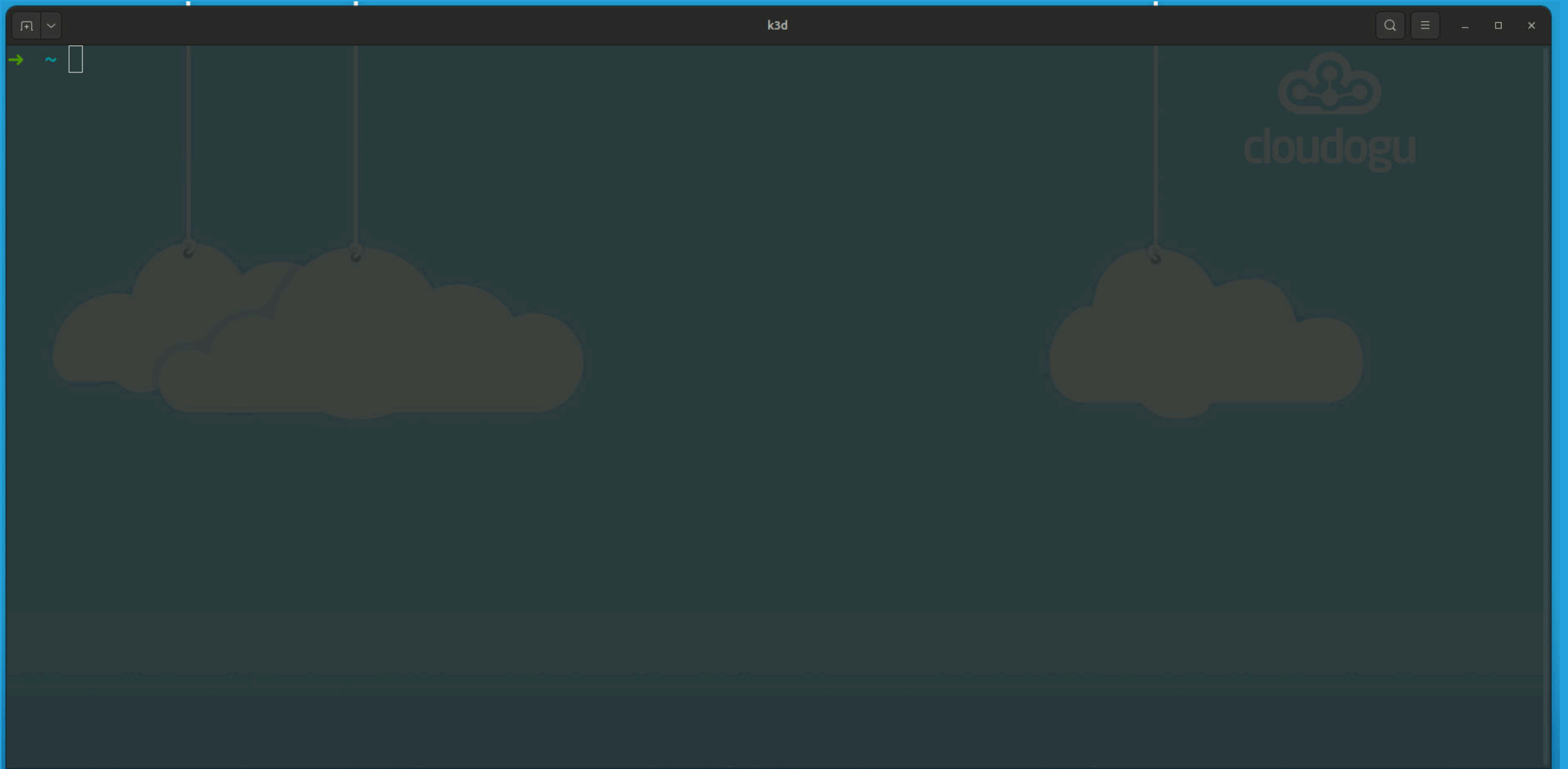
Kubernetes is a platform for building platforms. It's a better place to start; not the endgame.

10:04 PM · Nov 27, 2017

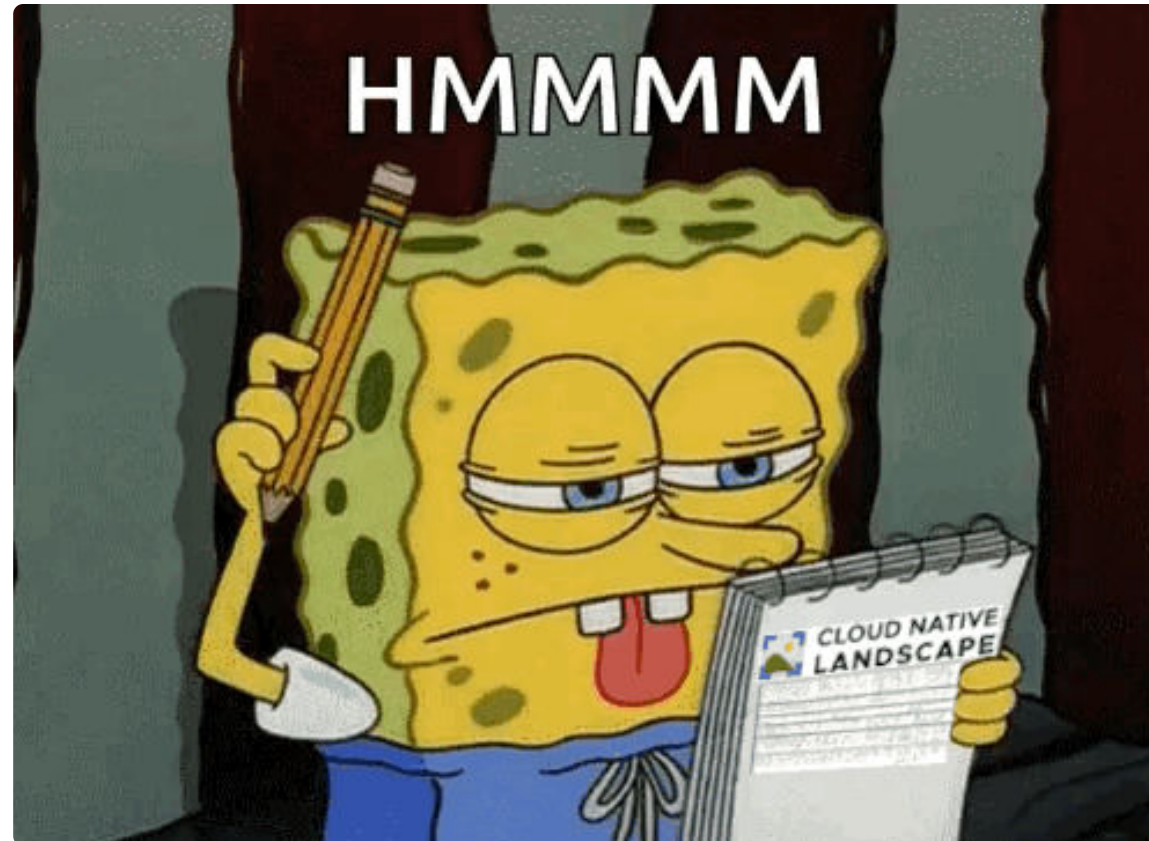
237 Reposts **44** Quotes **748** Likes **22** Bookmarks

 twitter.com/kelseyhightower/status/935252923721793536

Start a local k8s cluster with one command



Next, start the platform



So, let's write a *little* script...



a98089f



/ scripts / apply.sh

↑ Top

Code

Blame

Raw



```
669 --metrics | --monitoring ) shift;; # Ignore, used in groovy only
670 --mailhog-url           ) shift 2;; # Ignore, used in groovy only
671 --vault                 ) shift 2;; # Ignore, used in groovy only
672 --petclinic-base-domain ) shift 2;; # Ignore, used in groovy on
673 --nginx-base-domain    ) shift 2;; # Ignore, used in groovy on
674 --destroy              ) DESTROY=true; shift;;
675 --config-file          ) shift;; # Ignore, used in groovy only
676 --config-map           ) shift;; # Ignore, used in groovy only
677 --output-config-file   ) OUTPUT_CONFIG_FILE=true; shift;;
678 --                     ) shift; break ;;
679 *) break ;;
680 esac
681 done
682 }
683
684 main "$@"
```



Why not start the platform with one command?

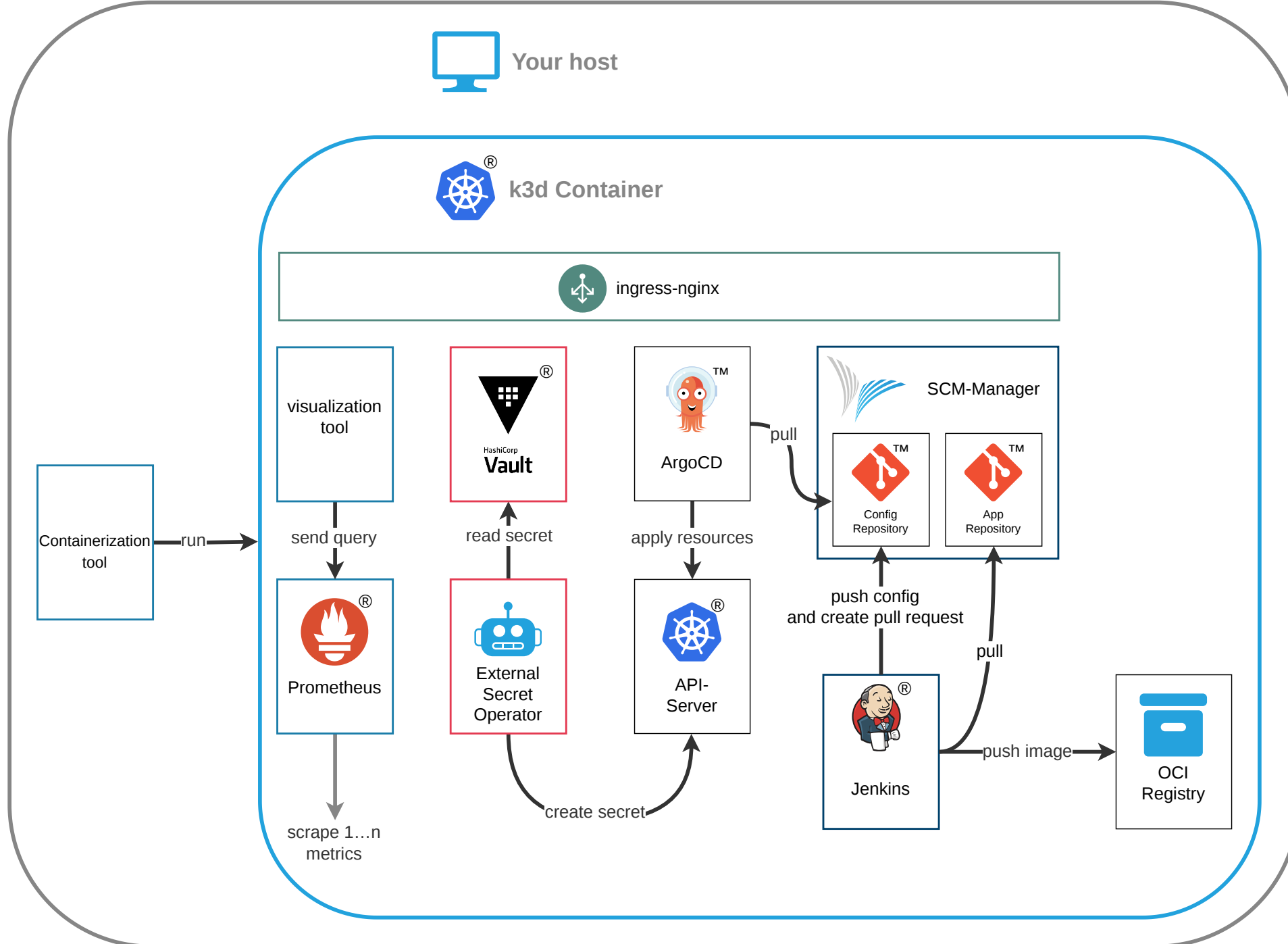
Meet GOP

a GitOps-based operational stack (platform)

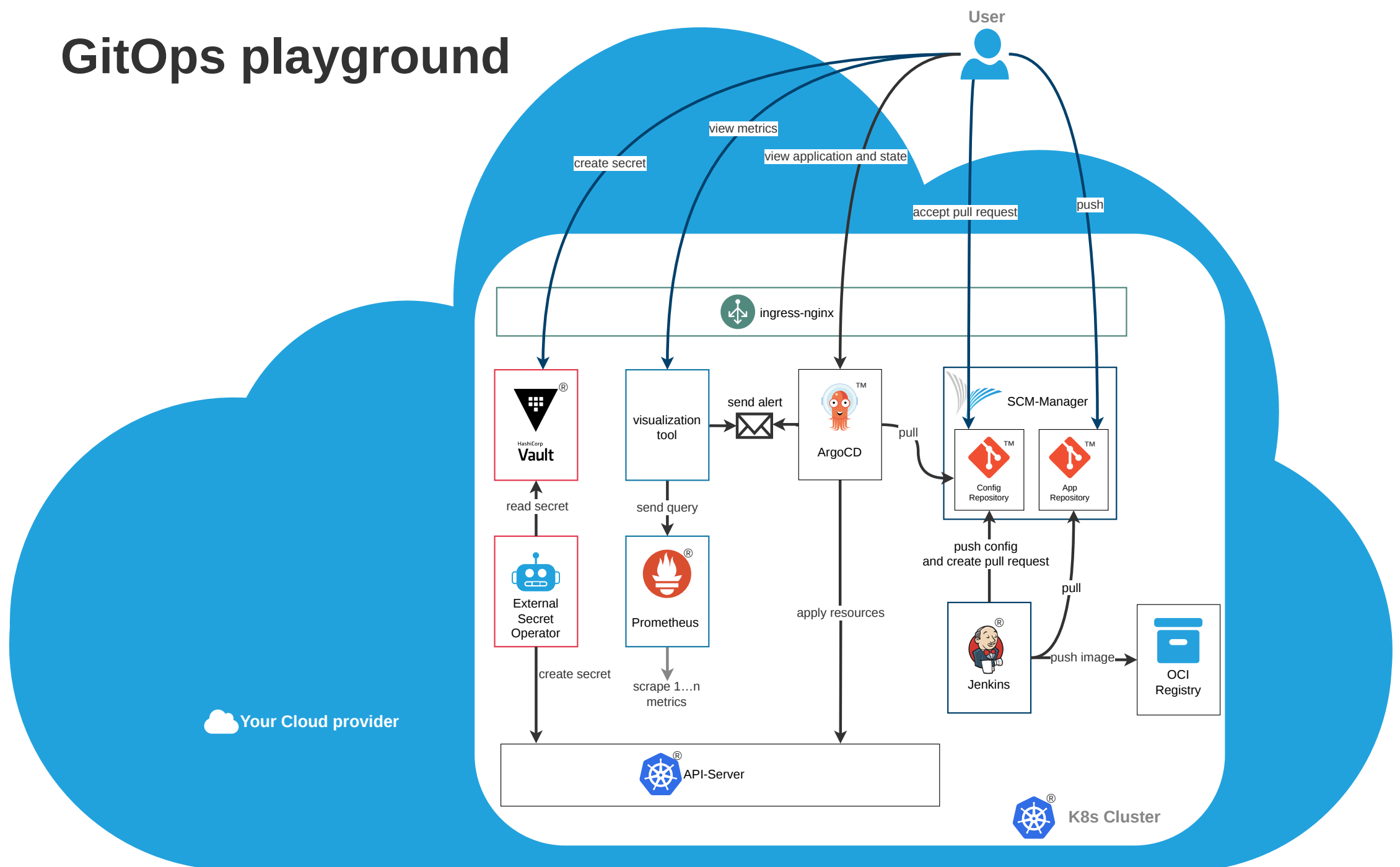


```
COMMIT='42e5f80'
bash <(curl -s \
  "https://raw.githubusercontent.com/cloudogu/gitops-playground/$COMMIT/scripts/init-cluster.sh") \
  --bind-ingress-port=80 \
  && docker run --rm -t -u $(id -u) \
    -v ~/.config/k3d/kubeconfig-gitops-playground.yaml:/home/.kube/config \
    --net=host \
    ghcr.io/cloudogu/gitops-playground:$COMMIT --yes --base-url=http://localhost --ingress-nginx \
    --argocd --monitoring --vault=dev --mailhog
```

 [cloudogu/gitops-playground](https://github.com/cloudogu/gitops-playground)



GitOps playground



scripts/init-cluster.sh

```
k3d cluster create gitops-playground \  
  # Mount port for ingress  
  -p 80:80@server:0:direct \  
  # Pin image for reproducibility  
  --image=rancher/k3s:v1.29.1-k3s2 \  
  # Disable built-in ingress controller, because we want to use the same one locally and in prod  
  --k3s-arg=--disable=traefik@server:0 \  
  # Allow node ports < 30000  
  --k3s-arg=--kube-apiserver-arg=service-node-port-range=8010-65535@server:0 \  
  # Hacks to make Docker available in Jenkins  
  -v /var/run/docker.sock:/var/run/docker.sock@server:0 \  
  -v /etc/group:/etc/group@server:0 -v /tmp:/tmp@server:0 \  
  -p 30000:30000@server:0:direct  
  
# Write kubeconfig to ~/.config/k3d/kubeconfig-gitops-playground.yaml  
k3d kubeconfig write gitops-playground
```

docker run

```
docker run
# Remove container after running, keeping your device clean
# (remove in case of error to preserve logs)
--rm
# Colorful output, please
-t
# Run as current user, so files written to /tmp are accessible for you
-u $(id -u) \
# Mount kubeconfig for k3d
-v ~/.config/k3d/kubeconfig-gitops-playground.yaml:/home/.kube/config \
# Make k3d cluster available
--net=host \
ghcr.io/cloudogu/gitops-playground:$COMMIT #Params for image go here
```

ghcr.io/cloudogu/gitops-playground

- OCI image
- Contains logic to install and configure the tools
- App written in Groovy (and bash 🥵)
- Additional resources to run e.g. in air-gapped envs



Your turn



© giphy.com/gifs/JX9t2j0ZTN9S