




# 8 Steps to Build an Open Source GitOps Cloud Native Platform on the Civo Cloud



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*he's just sick,  
don't worry*

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# Kubernetes Wins





# CNCF Cloud Native Interactive Landscape

# The Cloud Native Community is THRIVING!

App Definition and Development

Database: KV, V, etc.

Streaming & Messaging: cloudevents, NATS, etc.

Application Definition & Image Build: HELM, Backstage, KubeVirt, etc.

Continuous Integration & Delivery: argo, flux, etc.

Automation & Configuration: Kubescape, Arthrop, etc.

Container Registry: Harbor, Docker Registry, etc.

Security & Compliance: Falco, in-toto, Kyverno, etc.

Key Management: spiffe, SPIFFE, etc.

CLOUD NATIVE Landscape

This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well traveled path.

[l.cncf.io](https://l.cncf.io)

Scheduling & Orchestration: kubernetes, OpenShift, Volcano, etc.

Coordination & Service Discovery: Consul, etcd, etc.

Remote Procedure Call: gRPC, etc.

Service Proxy: envoy, Nginx, etc.

API Gateway: Kong, etc.

Service Mesh: Linkerd, Istio, etc.

Members

Serverless

Observability and Analysis

Monitoring: Prometheus, Grafana, etc.

Logging: fluentd, etc.

Tracing: Jaeger, etc.

Chaos Engineering: Litmus, etc.

Continuous Optimization: etc.

Platform

Certified Kubernetes - Distribution: etc.

Certified Kubernetes - Hosted: etc.

Certified Kubernetes - Installer: etc.

PaaS/Container Service: etc.

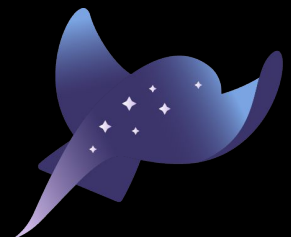
Cloud Native Storage: MinIO, etc.

Container Runtime: containerd, cri-o, etc.

Cloud Native Network: Cilium, etc.

CD Foundation Landscape

just pick the purple ones?

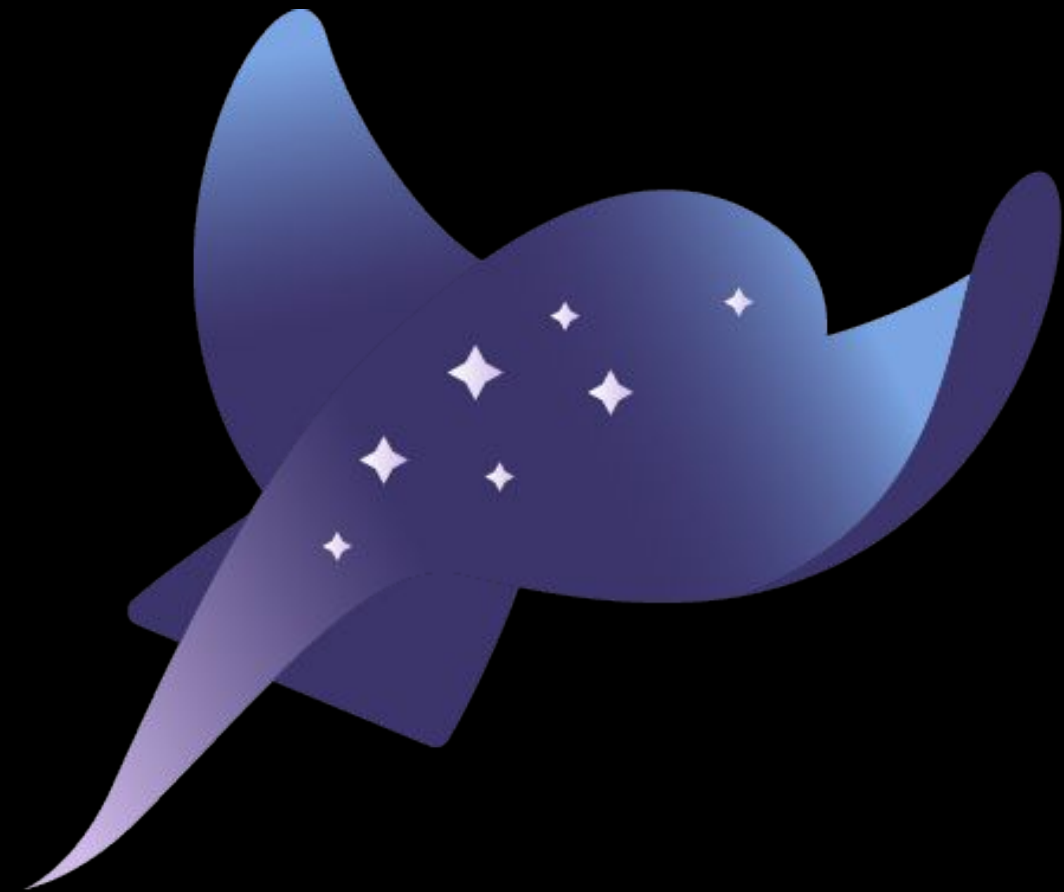




# Your first 8 cloud-native platform needs (in order)

- ❖ git provider
- ❖ infrastructure as code
- ❖ gitops driver
- ❖ secrets manager
- ❖ artifact repository
- ❖ continuous integration
- ❖ authentication & authorization
- ❖ observability

how fun!  
let's see it!





# 1. Git Provider

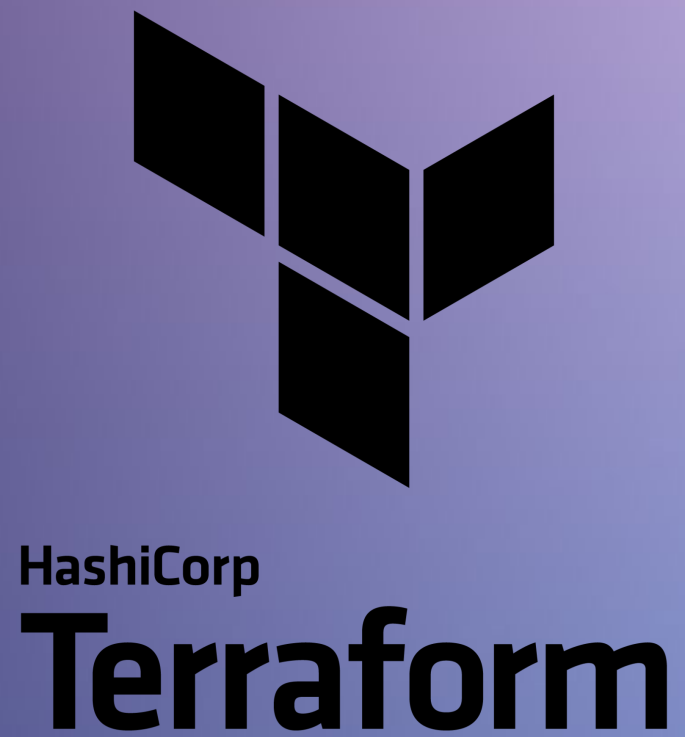
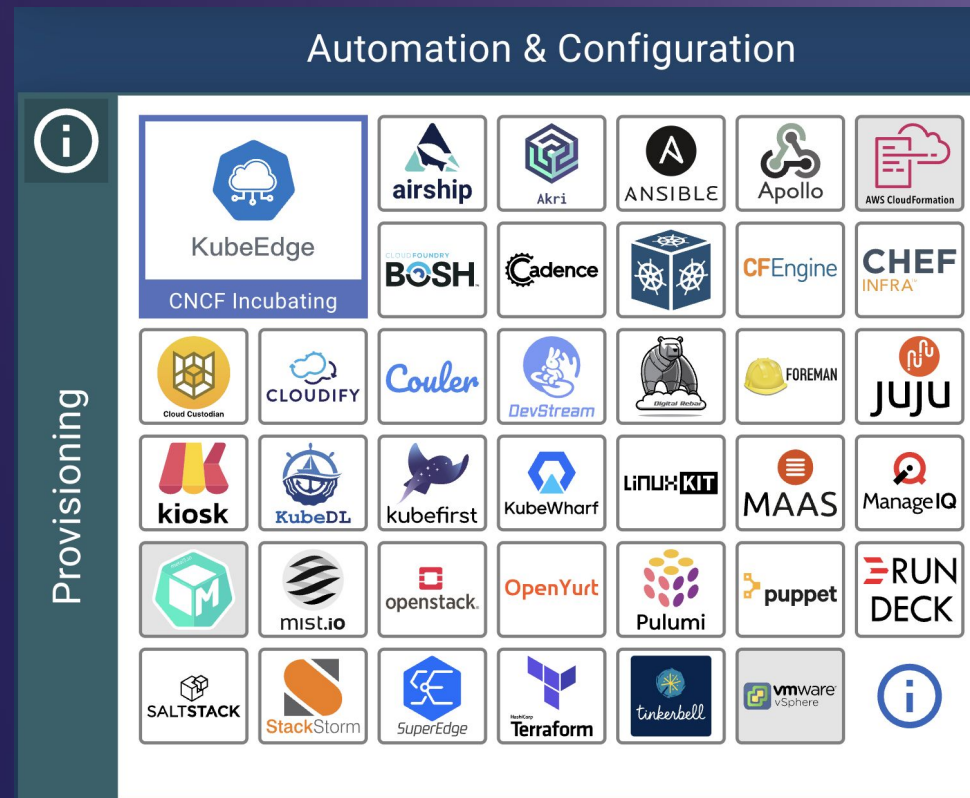


GitHub



GitLab

# 2. Infrastructure as Code



[kubefirst.io](https://kubefirst.io)

# 3. GitOps Driver



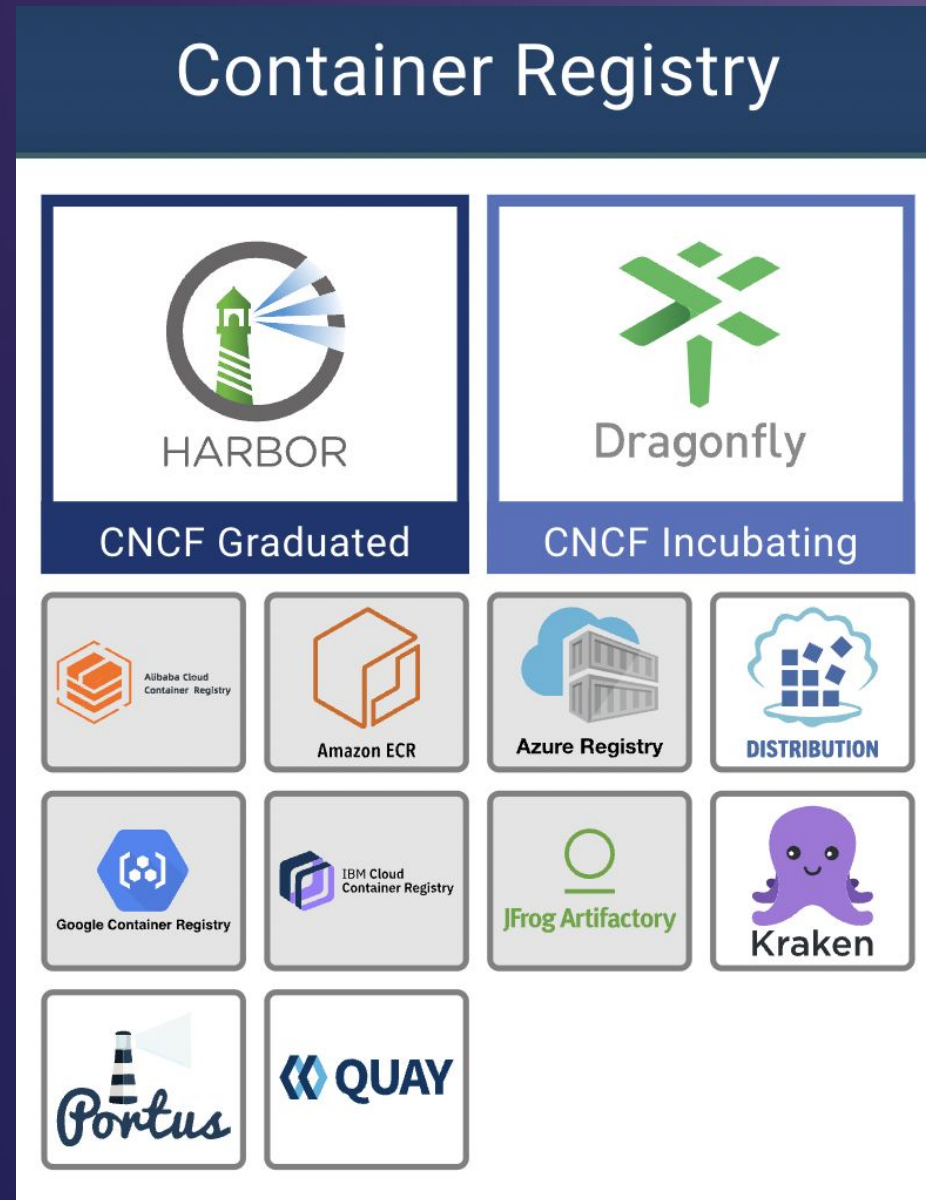


## 4. Secrets Manager

- ❖ secrets storage
- ❖ ephemeral credentials
- ❖ pki infrastructure
- ❖ identity provider
- ❖ oidc provider
- ❖ cloud access leasing
- ❖ single sign on
- ❖ secure and open source
- ❖ scalable and recoverable



# 5. Artifact Repository



## 6. Continuous Integration



GitHub Actions



argo





# 7. Authentication and Authorization

- ❖ establish roles
- ❖ establish access controls and iam
- ❖ bind roles to cloud access
- ❖ bind roles to kubernetes access
- ❖ bind roles to platform tools access
- ❖ automate engineering onboarding and offboarding
- ❖ enforce two factor authentication

least  
privilege!

## 8. Observability



- ❖ logging
- ❖ application performance monitoring
- ❖ resource utilization
- ❖ monitoring
- ❖ dashboarding
- ❖ anomaly detection
- ❖ incident management

# Recap

- ❖ establish git
- ❖ put your iac in git and automate it
- ❖ establish the gitops driver
- ❖ establish your secrets manager
- ❖ establish your artifact repository
- ❖ establish your continuous integration
- ❖ add auth to the platform infra and tools
- ❖ wire in your observability





# Scenarios To Avoid

- ❖ Don't establish CI without a secrets manager
- ❖ Don't start scripting: leverage gitops
- ❖ Don't run local terraform: automate it
- ❖ Don't delay single sign on



don't start  
with tech debt



# kubefirst open source platform





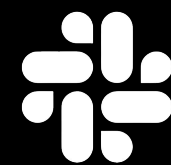
Thank You  
Tampa!!!



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