Demystifying GitOps

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SRE Paris

Hello!

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D2SI

History & Definition

- Invented in August 2017

- Weaveworks's teams works

- Called Operation by pull request

- Git is only the source of truth
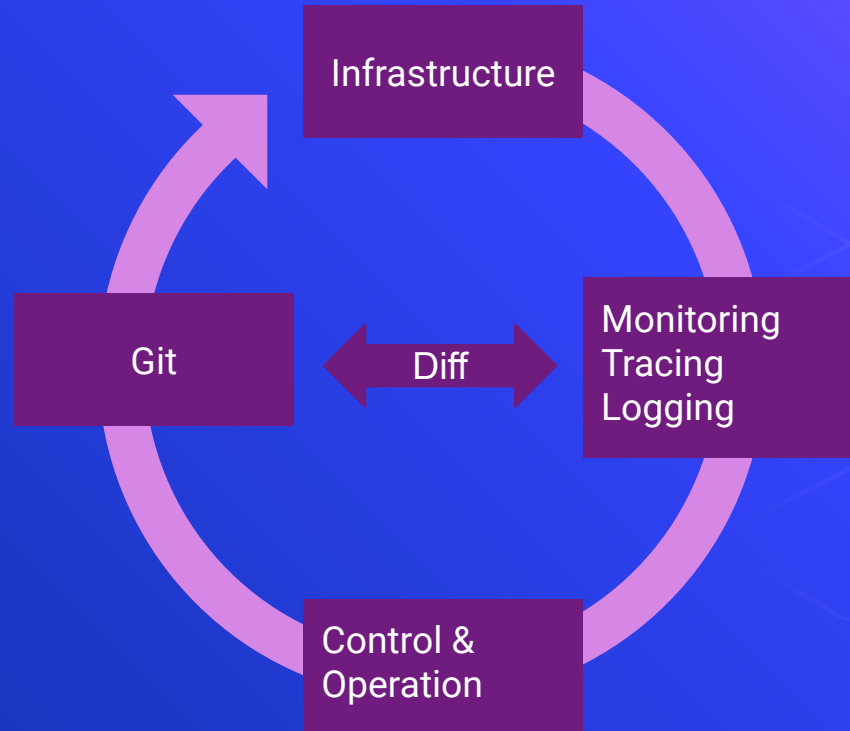
How GitOps works

Desired state   Synchronisation   Real state

Three pillars of GitOps

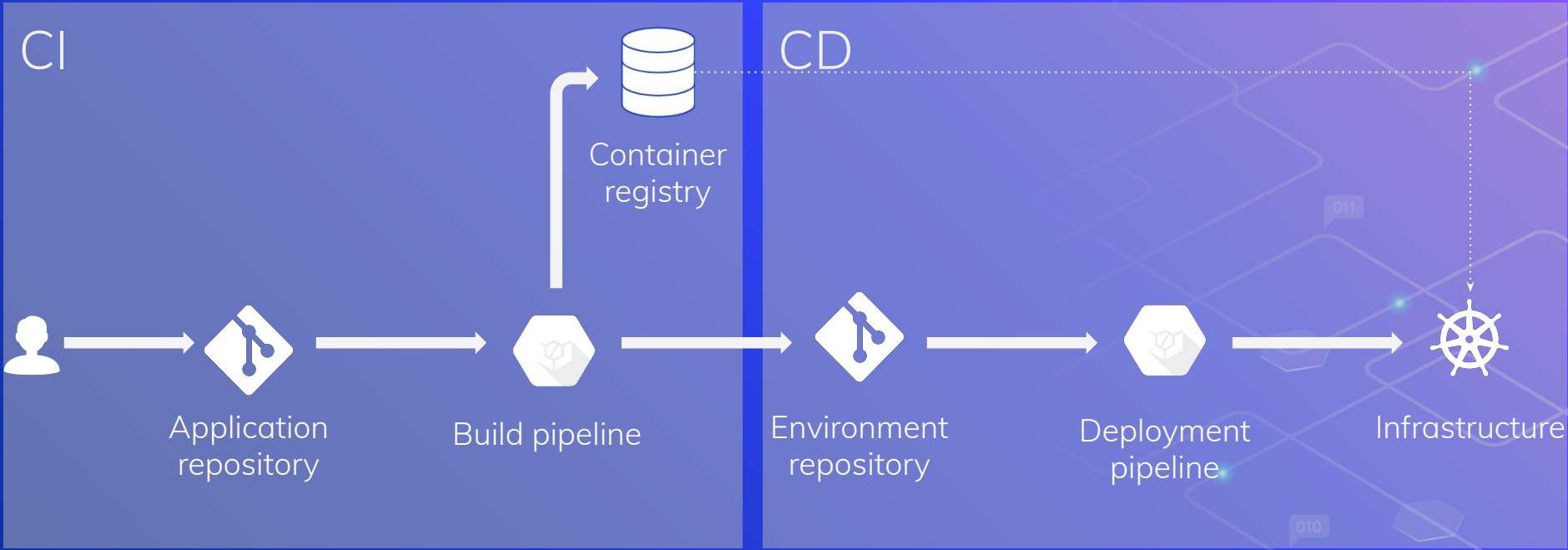- Pipelines

- Observability

- Control

GitOps Lifecycle

Infrastructure

Git ←→ Diff ←→ Monitoring Tracing Logging

Control & Operation

How GitOps works

- Push model

- Pull model

GitOps push model

CI

Container registry

CD

Application repository

Build pipeline

Environment repository

Deployment pipeline

Infrastructure

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GitOps pull model

CI

Container registry

Application repository

Build pipeline

CD

Environment repository

Operator

Infrastructure

Demo

GitHub

argo
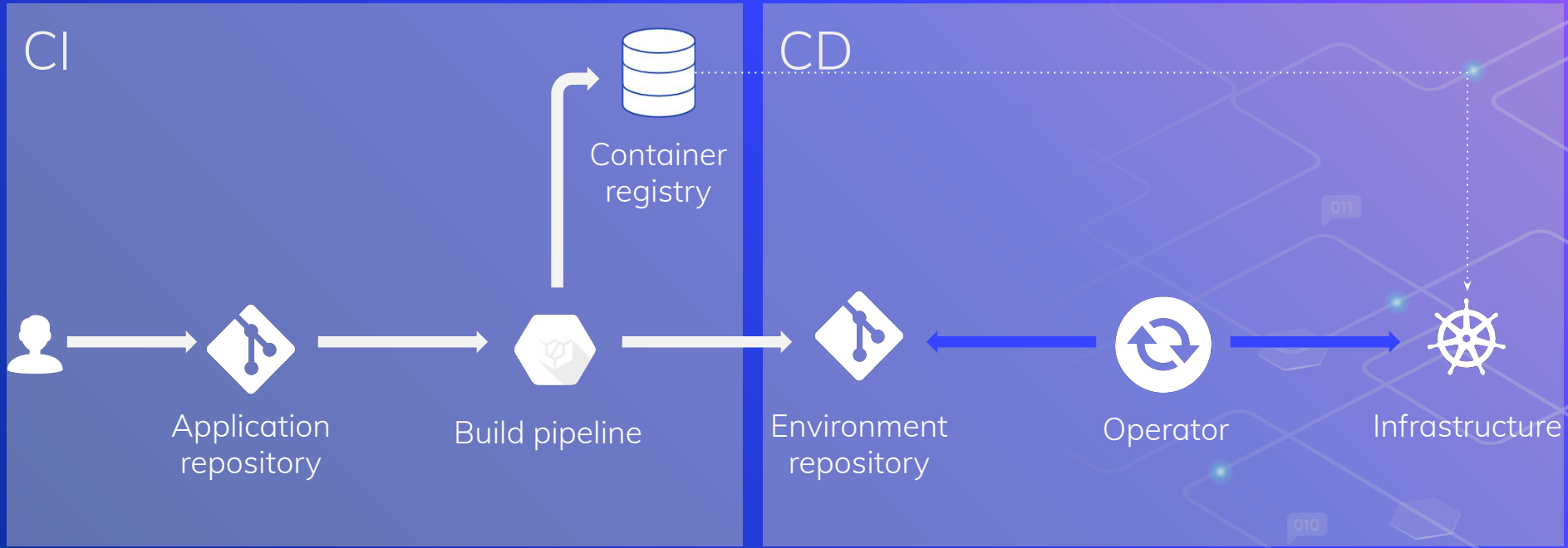
kubernetes

Demo: BookInfo

Requests

ProductPage → Reviews → Rating

ProductPage → Details
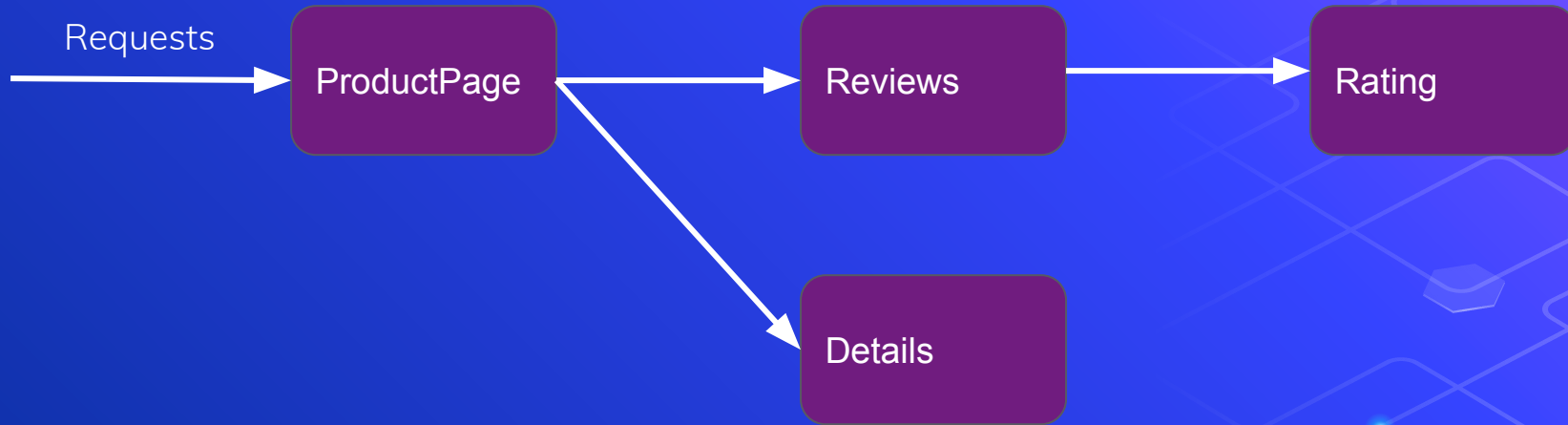
Why you should use GitOps?

- Modification history

- Infrastructure documentation

- Knowledge sharing

- No need for long validation process

- Rollback as simple as git revert

Why you should use GitOps?

- Reduce blast radius

- Modular architecture
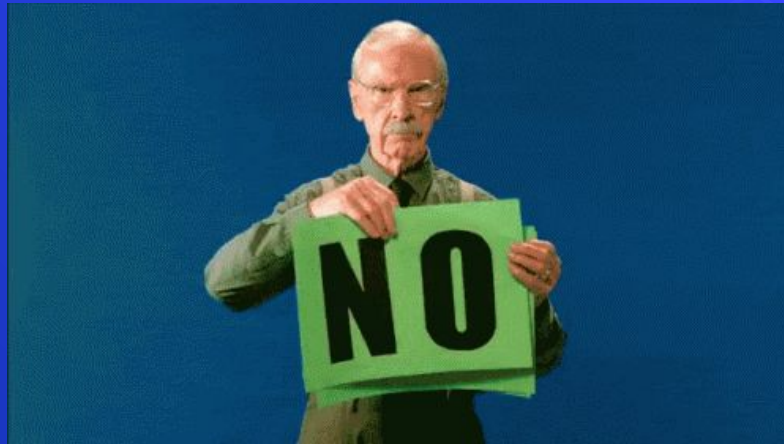
- Easy changement

- Alerting

- Environment comparison

Drawbacks

- Commit messages

- Two tasks in the same time

- Api and Database compatibility

What about secrets ?

- Never commit plained secret
- Bitnami sealed secret or godaddy kubernetes External secrets

Take away

- Name doesn't matter

- Your VCS(git,svn...) is the only source of truth

- GitOps is an evolution of IaC

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"GitOps is 90% best practices and 10% cool new stuff"

ALEXIS RICHARDSON

Thanks!

Any questions?

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