

CLOUD NATIVE TEAM
PRESENTS

GITOPS

High Velocity CI/CD
for Cloud Native

Safe harbor statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.

Program agenda

- 1 State of DevOps
- 2 DevOps 101
- 3 GitOps – A Fast Track Approach
- 4 Flux CD – The GitOps Operator
- 5 GitOps on OCI

State of DevOps

Mature Adoption

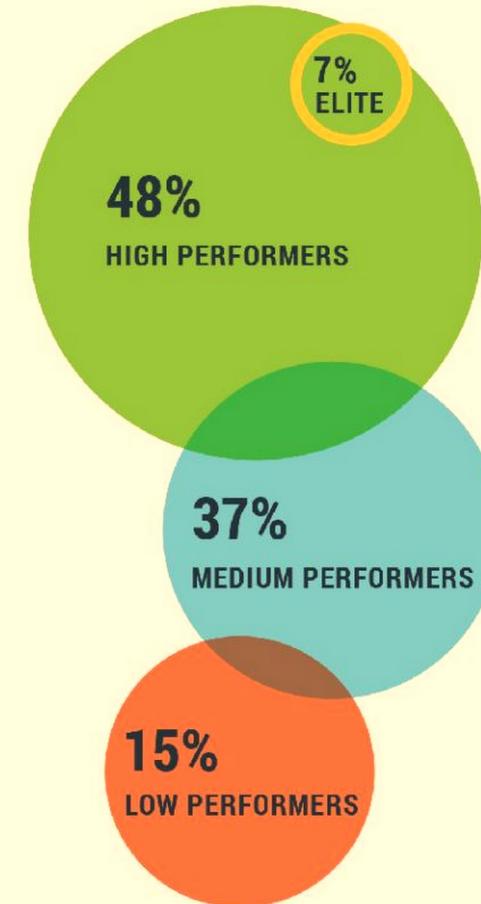
DevOps has “crossed the chasm”

300%

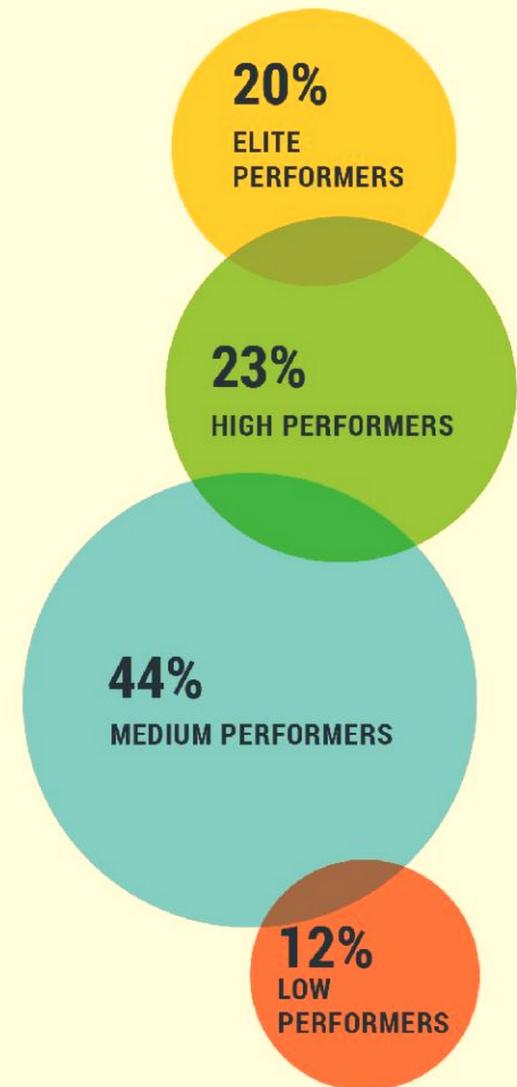
The proportion of elite performers has almost tripled from 2018 to 2019. Now at 20% of all organizations.

Source: The Accelerate State of DevOps Report 2019

2018



2019*



2,604 Faster

Low Time to Recover from Incidenes (MTTR).
Increasing Customer Satisfaction

ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have...



208
TIMES MORE

frequent code deployments

106
TIMES FASTER

lead time from commit to deploy



2,604
TIMES FASTER

time to recover from incidents

Throughput Stability

7
TIMES LOWER

change failure rate
(changes are $\frac{1}{r}$ as likely to fail)

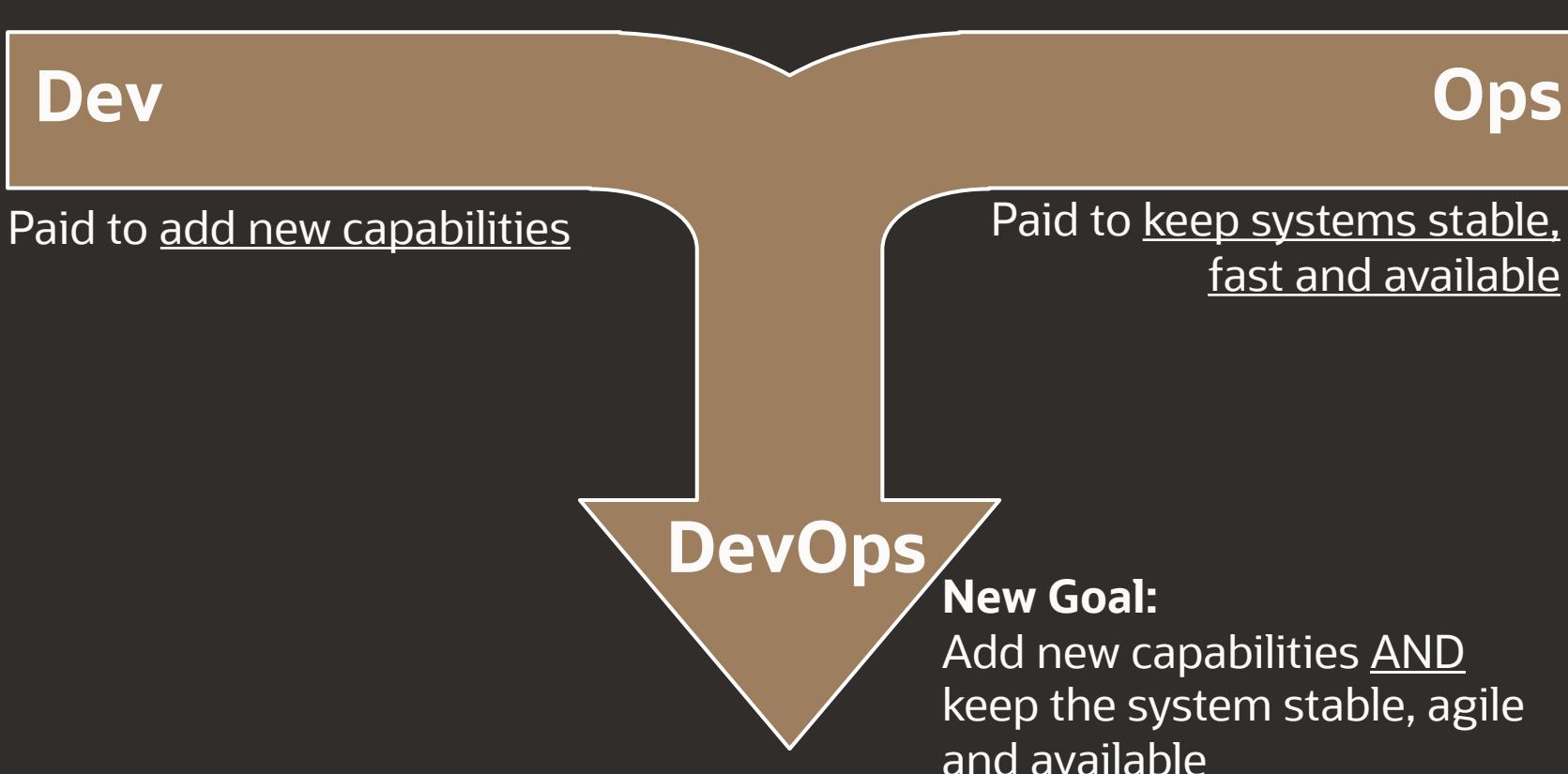


DevOps 101

DevOps is a Journey

DevOps Principles

Cultural Movement made possible by technology

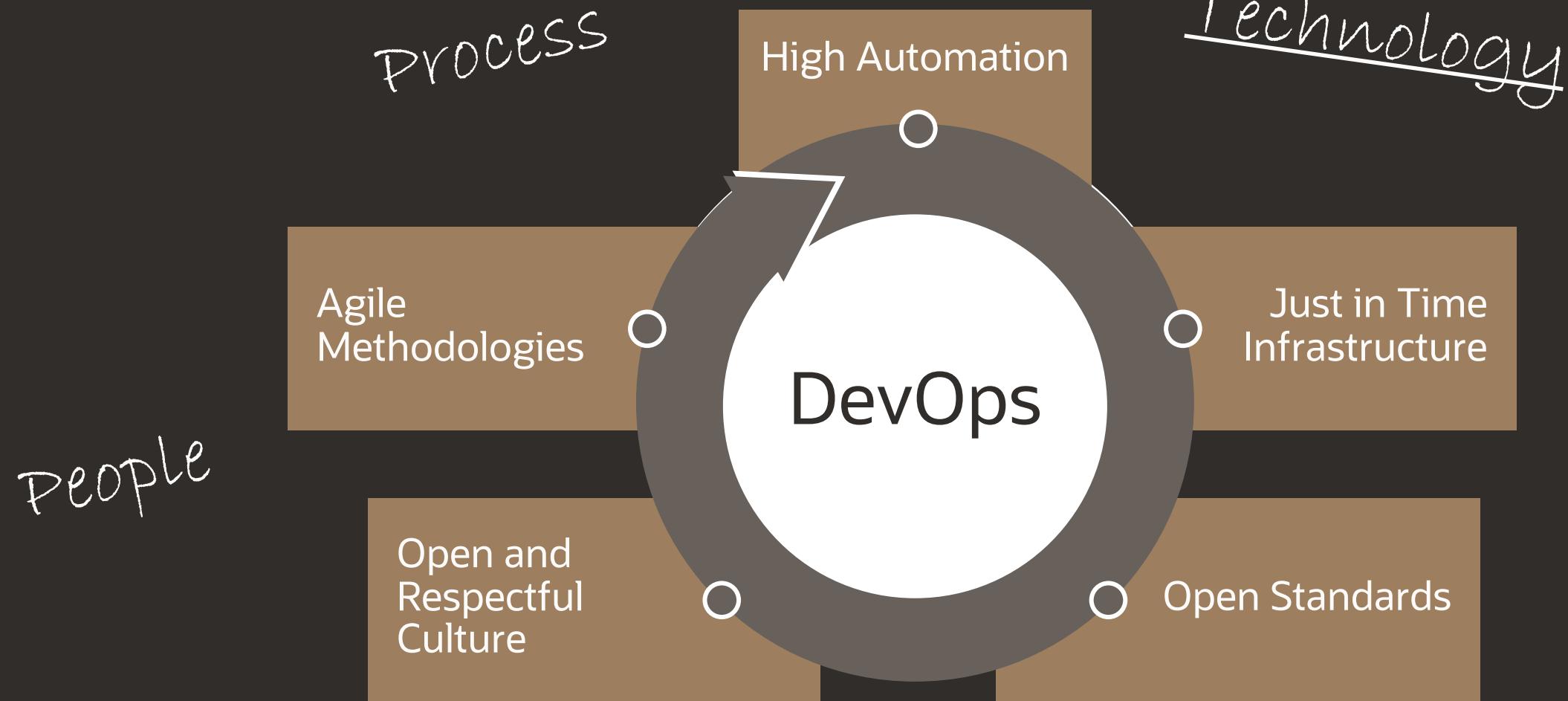


DevOps Methodology



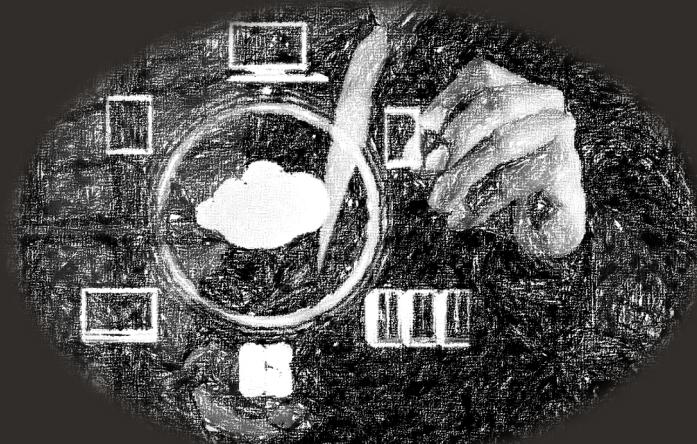
Features of the DevOps Movement

Principles known for decades

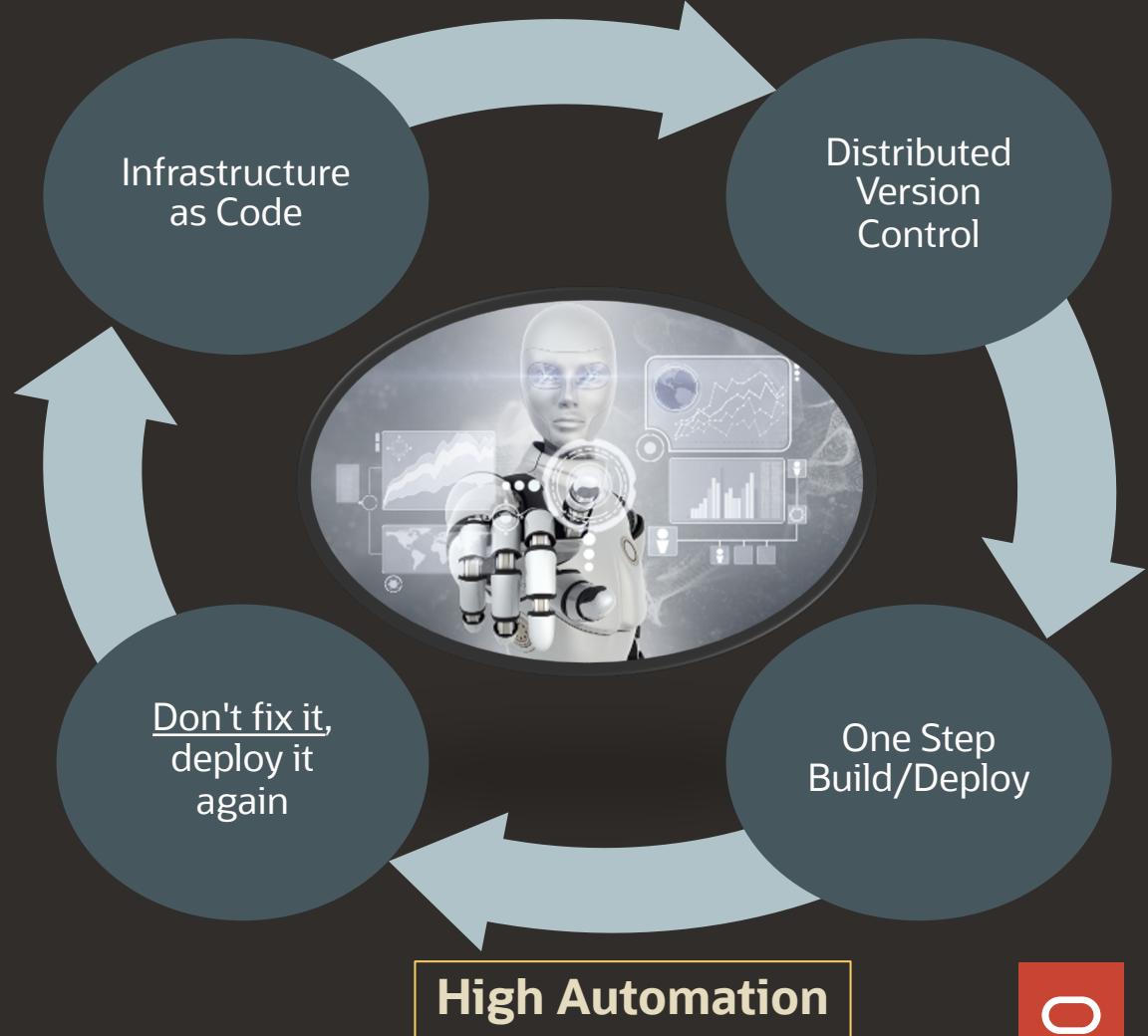


Technology Pillar

How to use Technology to Enable DevOps. Technology as a Foundation for Execution



Just in Time
Infrastructure





DevOps

=?

Lean Manufacturing

GitOps 101

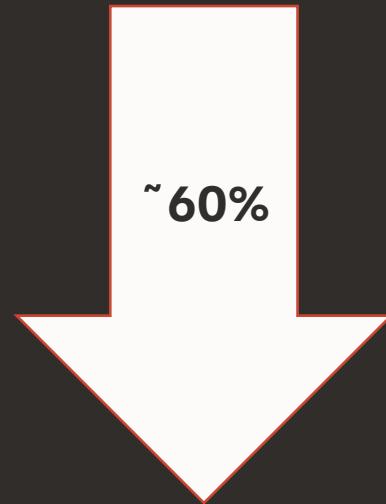
A Fast Track Approach focused on Cloud Native Architecture



Observed Results

MTTR

~ 60%



LEAD TIME

~ 40%



SATISFACTION



What is GitOps?

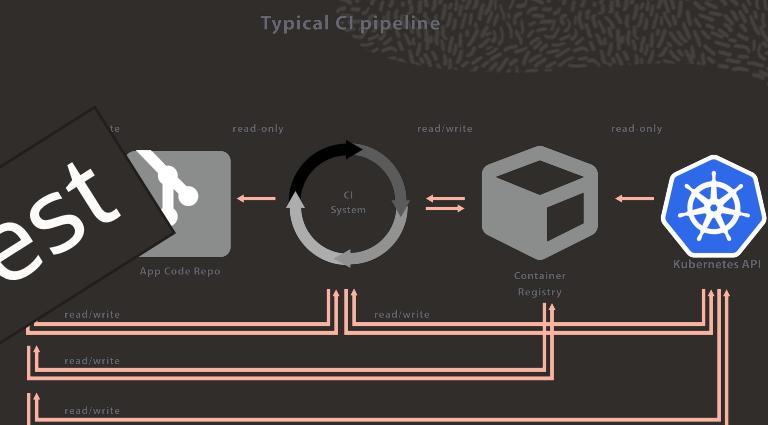
DevOps

Based on

*The Truth
Recoverable*



Git

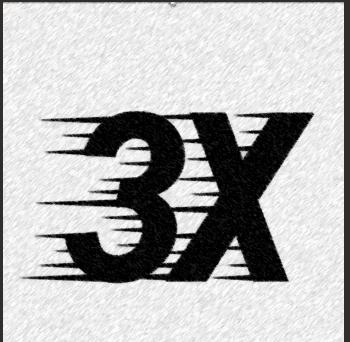


Automate

Observe



The benefits of applying GitOps best practices



Increase Productivity

Continuous deployment automation with an integrated feedback control loop speeds up Mean Time to Deployment.



Higher Reliability

Having a single source of truth from which to recover after a meltdown, reduce your meantime to recovery (MTTR) from hours to minutes.



Enhanced Experience

Push code and not containers. Developers can use familiar tools like Git to manage updates and features to Kubernetes more rapidly without having to know the internal of Kubernetes



Consistency and Standardization

Because GitOps provides one model for making infrastructure, apps and Kubernetes add-on changes, you have consistent end-to-end workflows across your entire organization.

All Declarative....

Declare

```
---  
apiVersion: helm.fluxcd.io/v1  
kind: HelmRelease  
metadata:  
  name: mongodb  
  namespace: demo  
  annotations:  
    fluxcd.io/automated: "false"  
    fluxcd.io/tag.chart-image: semver:~4.0  
spec:  
  releaseName: mongodb  
  chart:  
    repository: https://kubernetes-charts.s...
```

Compare

```
✓ 2 █ █ releases/mongodb.yaml □  
  ↑   @@ -16,7 +16,7 @@ spec:  
16   16      values:  
17   17      image:  
18   18      repository: bitnami/mongodb  
19   -       tag: 4.0.14  
19   +       tag: 4.0.13  
20   20      usePassword: false  
21   21      persistence:  
22   22      enabled: false  
  ↓
```

Apply / Oper



GitOps Pillars

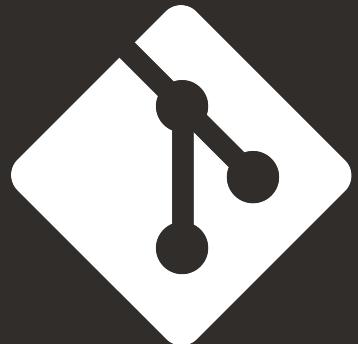
*Automation/
Pipelines*

Control

Observability



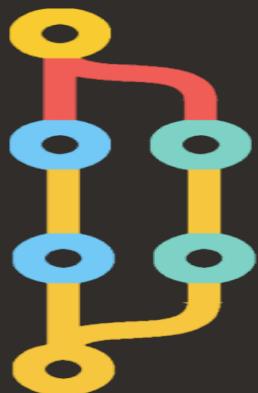
Repository Best Practices...



ONE repo per application/service



Use a separate **Branch** per environment

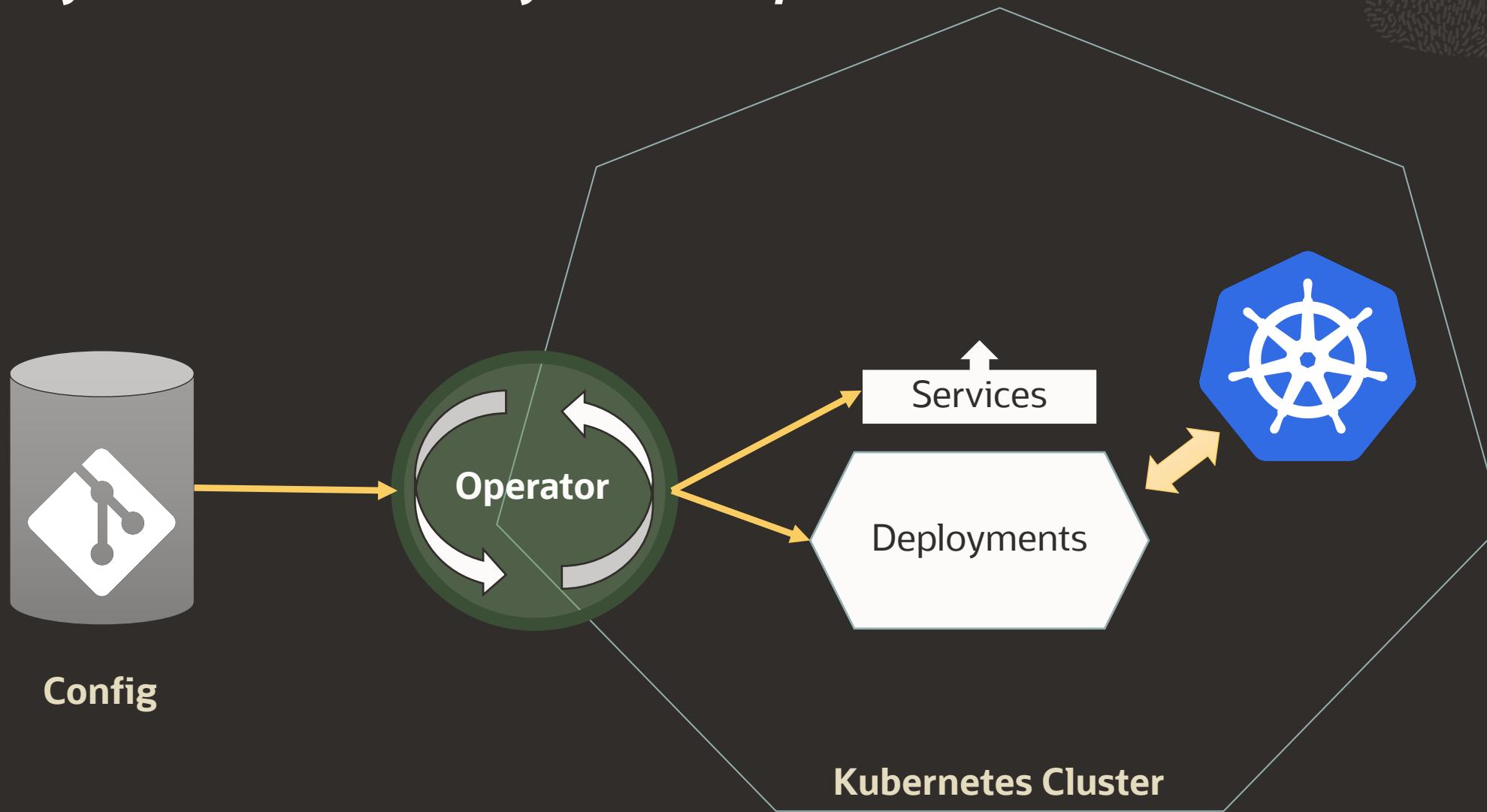


Rolling out to production involves a **MERGE**

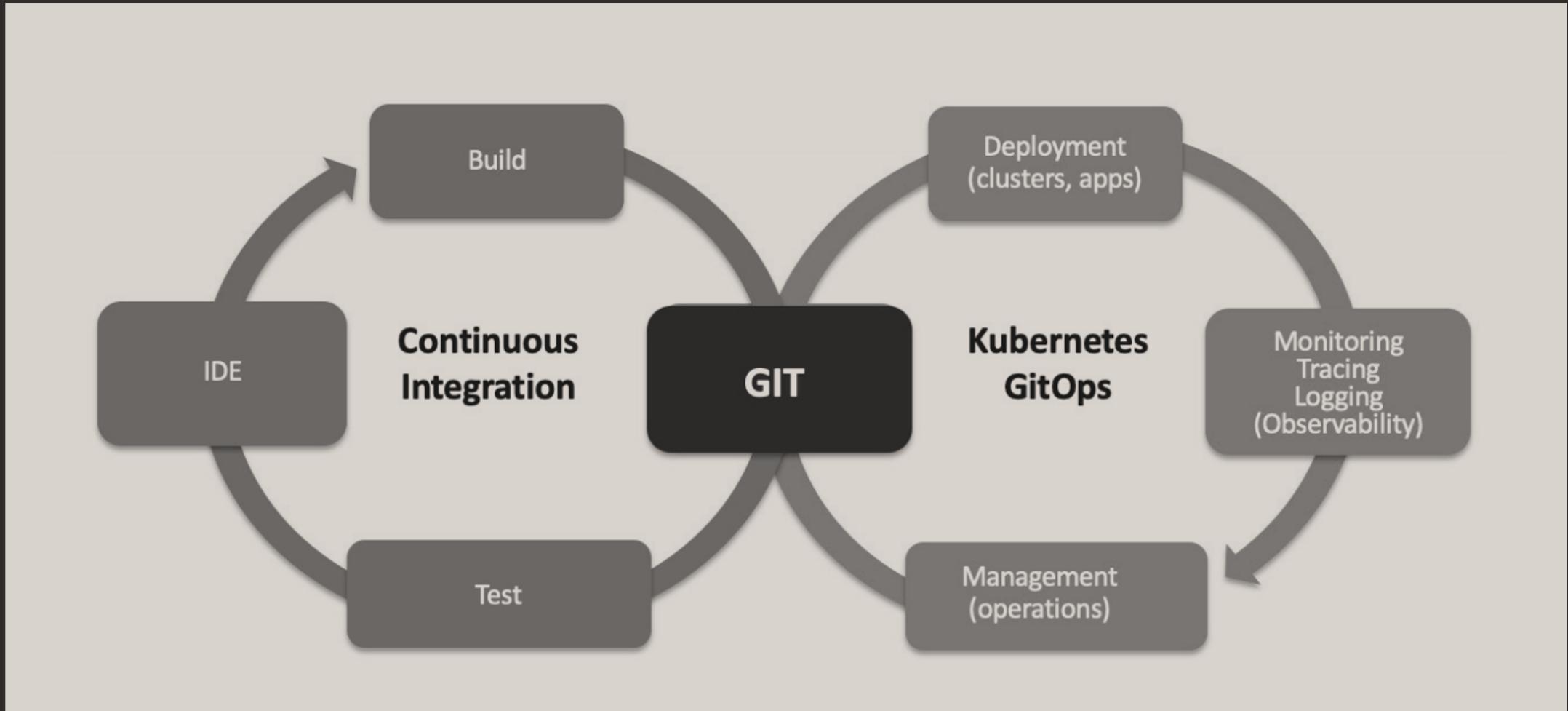


Use protected **Branches** to enforce reviews

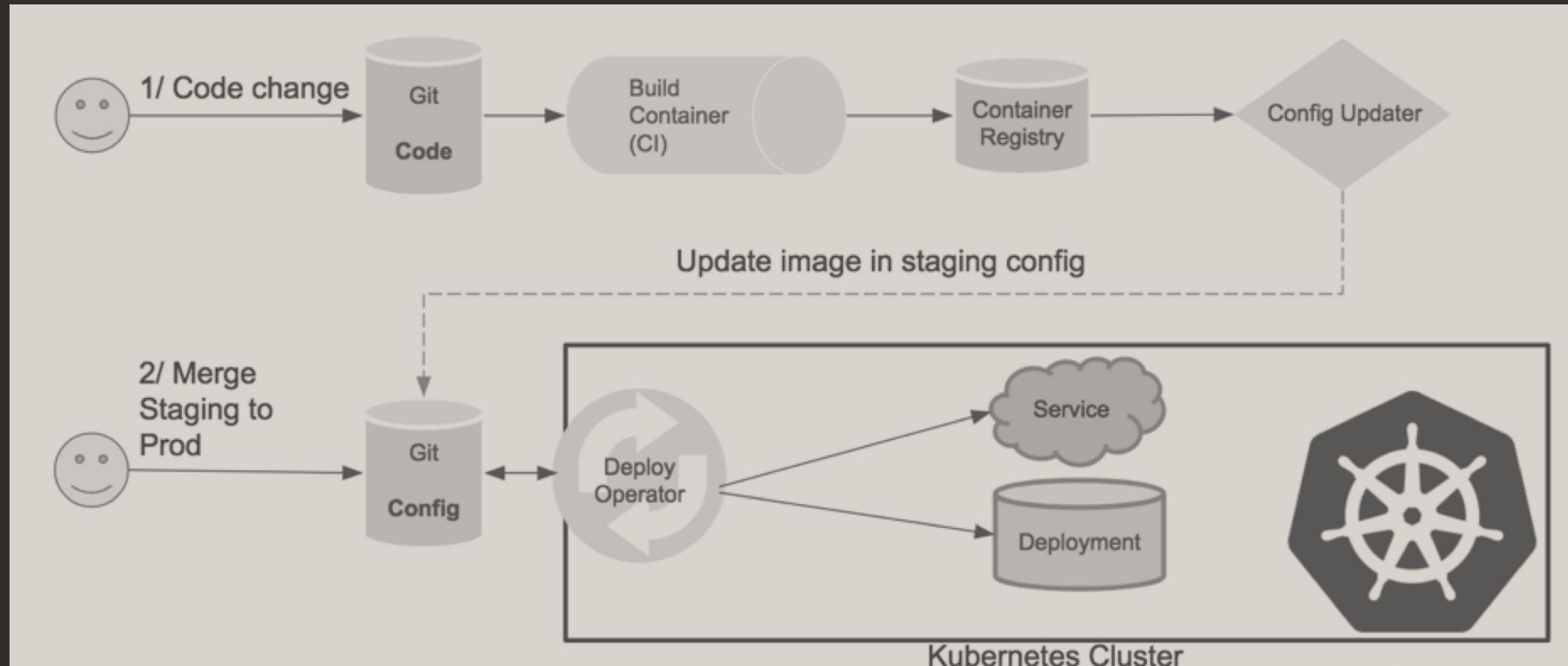
Deployments controlled by *Pattern Operator*



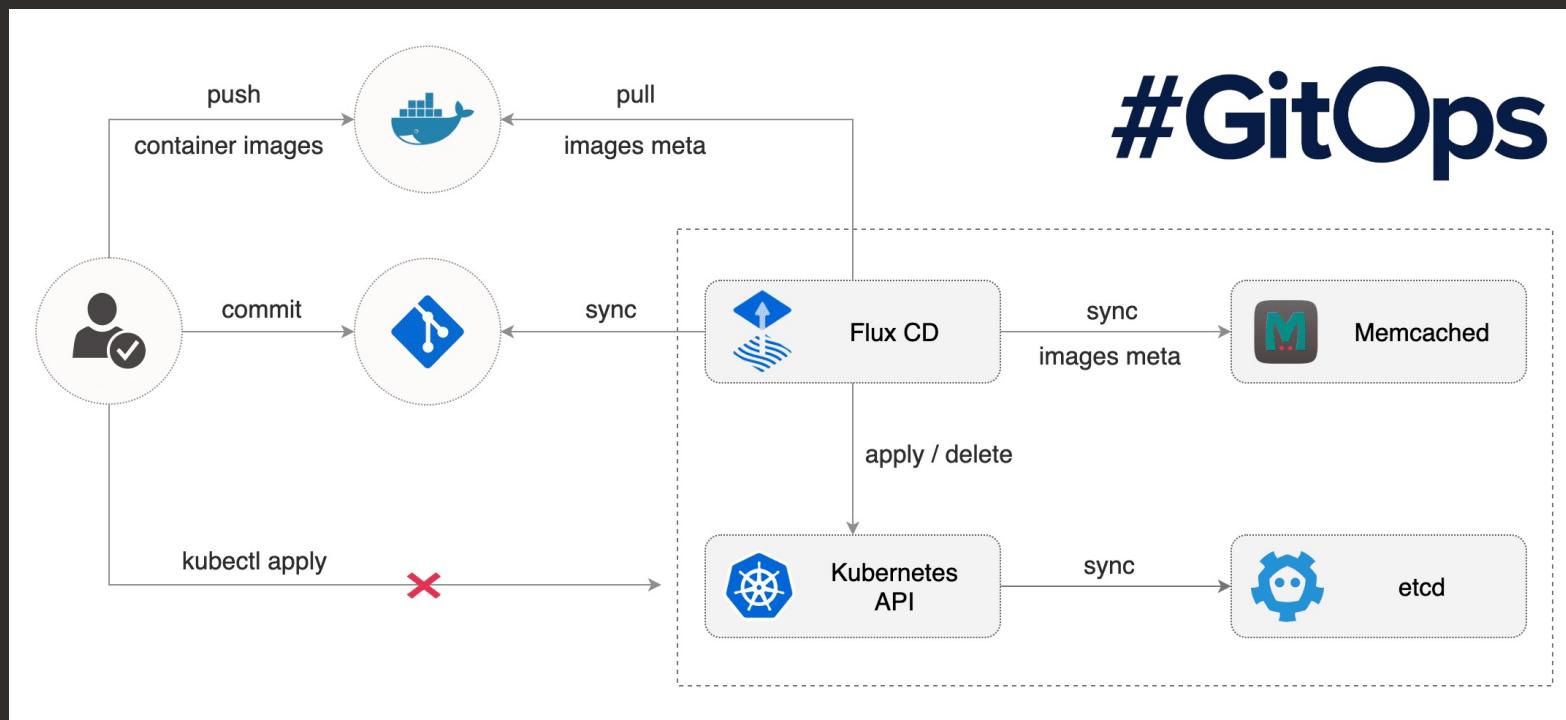
GitOps Approach to Pipeline



Example GitOps Pipeline



Flux – The GitOps Operator



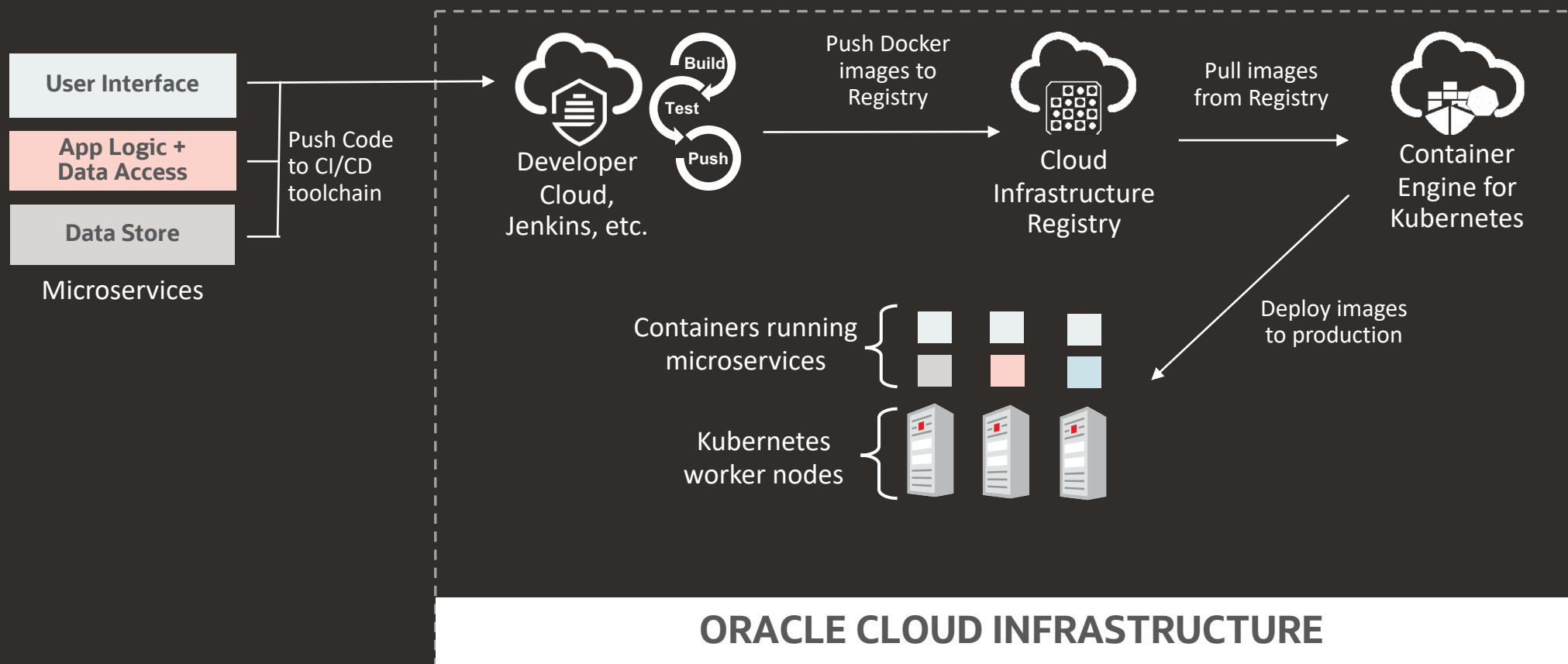
CLOUD NATIVE COMPUTING FOUNDATION
SandBox Project

“GitOps” with Oracle Cloud Infrastructure

Experience the Future Now



GitOps with Oracle Cloud Infrastructure



Thank you

Paulo Simoes @pasimoes
Developer Evangelist





ORACLE