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session ?





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and ask questions.**



A high-angle, black and white photograph of a massive concrete dam. The dam's surface is composed of large, rectangular concrete panels with visible vertical joints and some weathering. A narrow walkway with a metal railing runs along the top edge of the dam. Two small figures of people are standing on this walkway, providing a sense of scale to the enormous structure. The sky is a uniform, dark grey.

CONTINUOUS DELIVERY

IN THE MODERN ERA



Sheroy Marker

Head Of Technology - ThoughtWorks Products

@sheroymarker

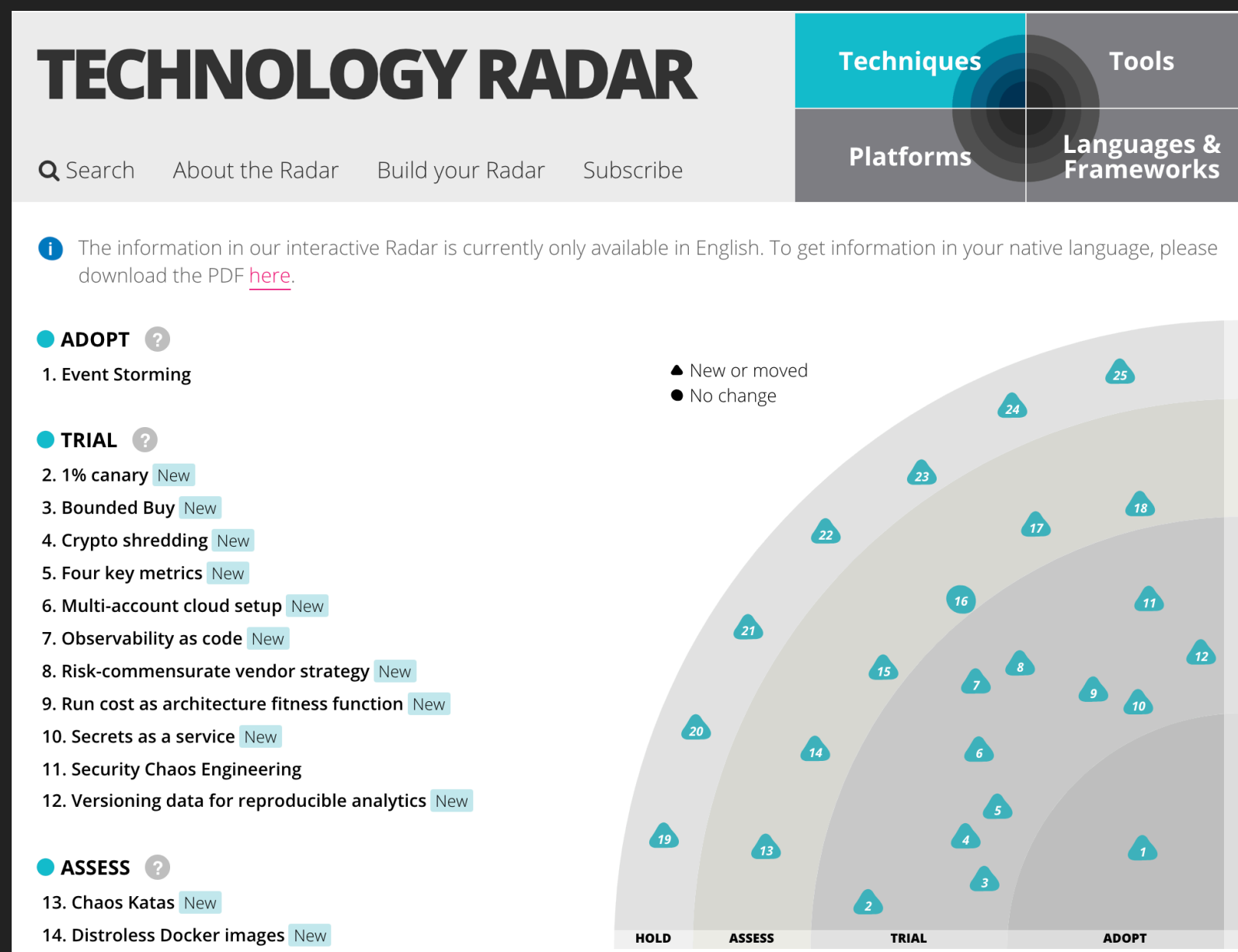
@goforcd

THOUGHTWORKS

25 years

40 offices

5000+ people



➤ go

↘ gauge

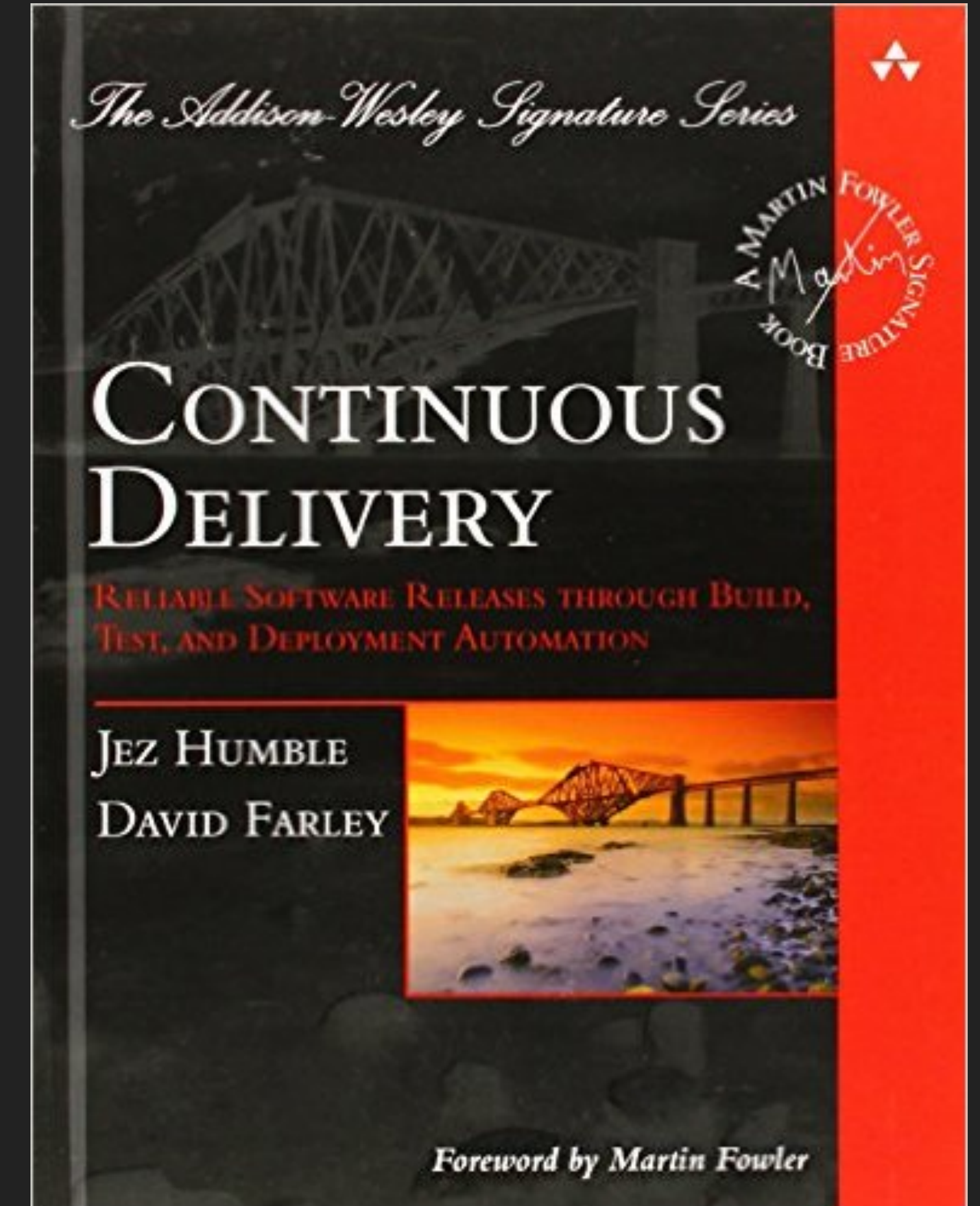


@goforcd

CONTINUOUS DELIVERY – A DEFINITION

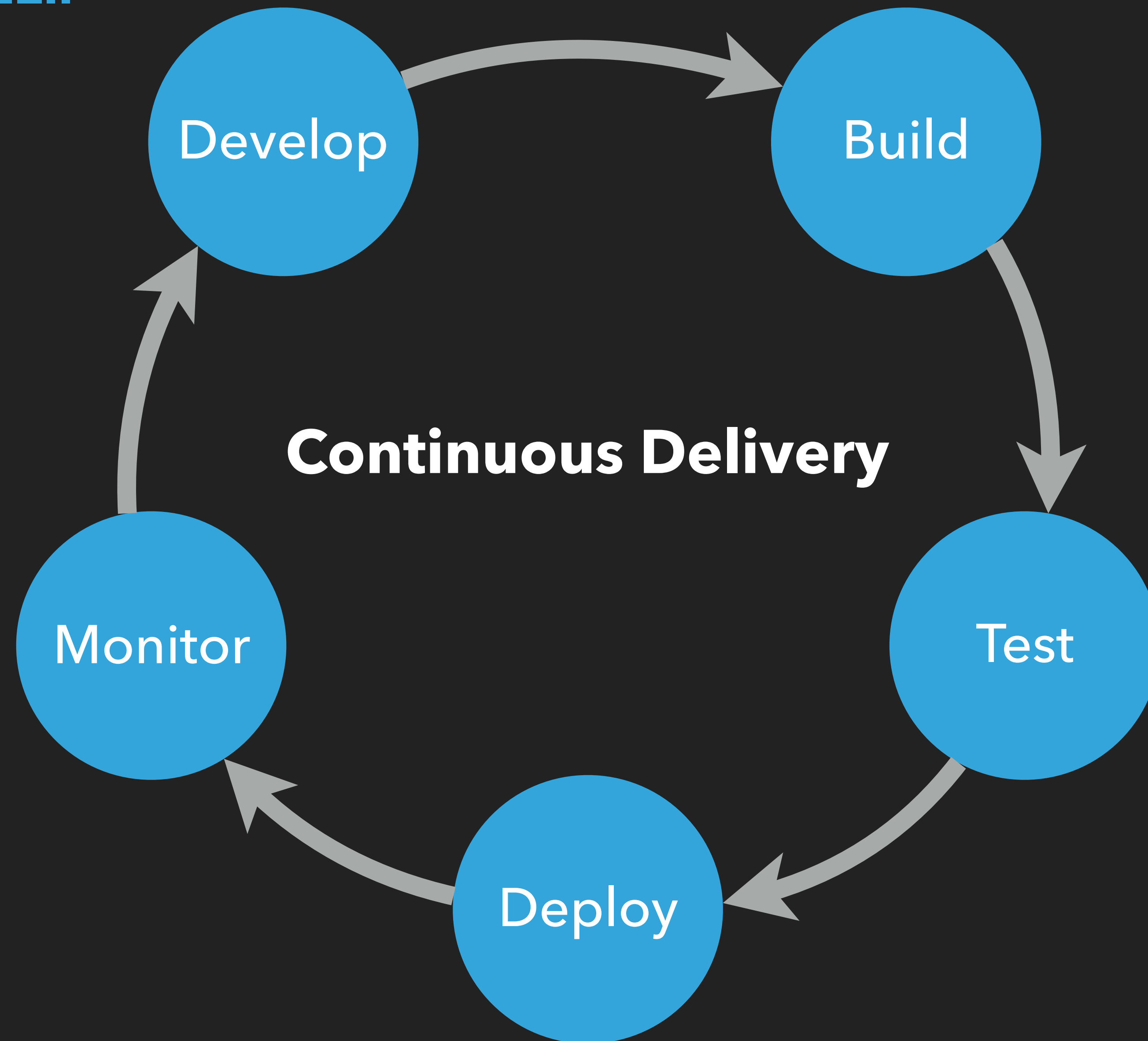
The ability to get changes of all types - including new features, configuration, bug fixes, and experiments - into production, **safely** and **quickly** in a **sustainable** way.

- Jez Humble

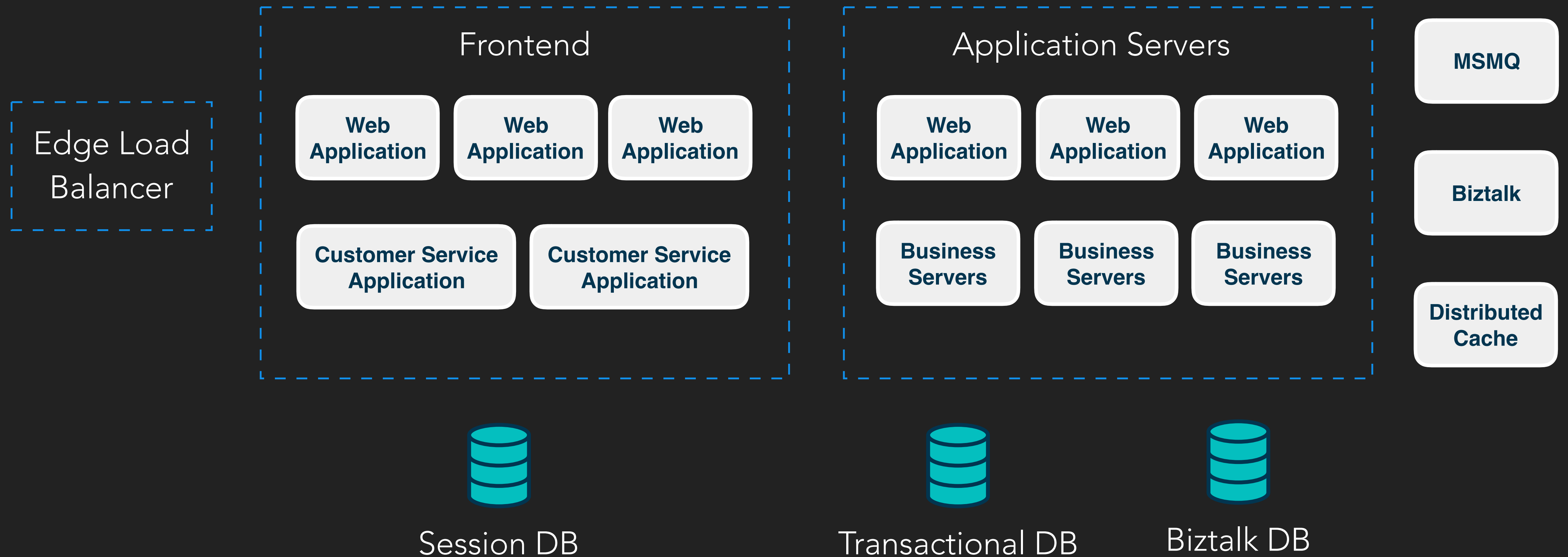


@goforcd

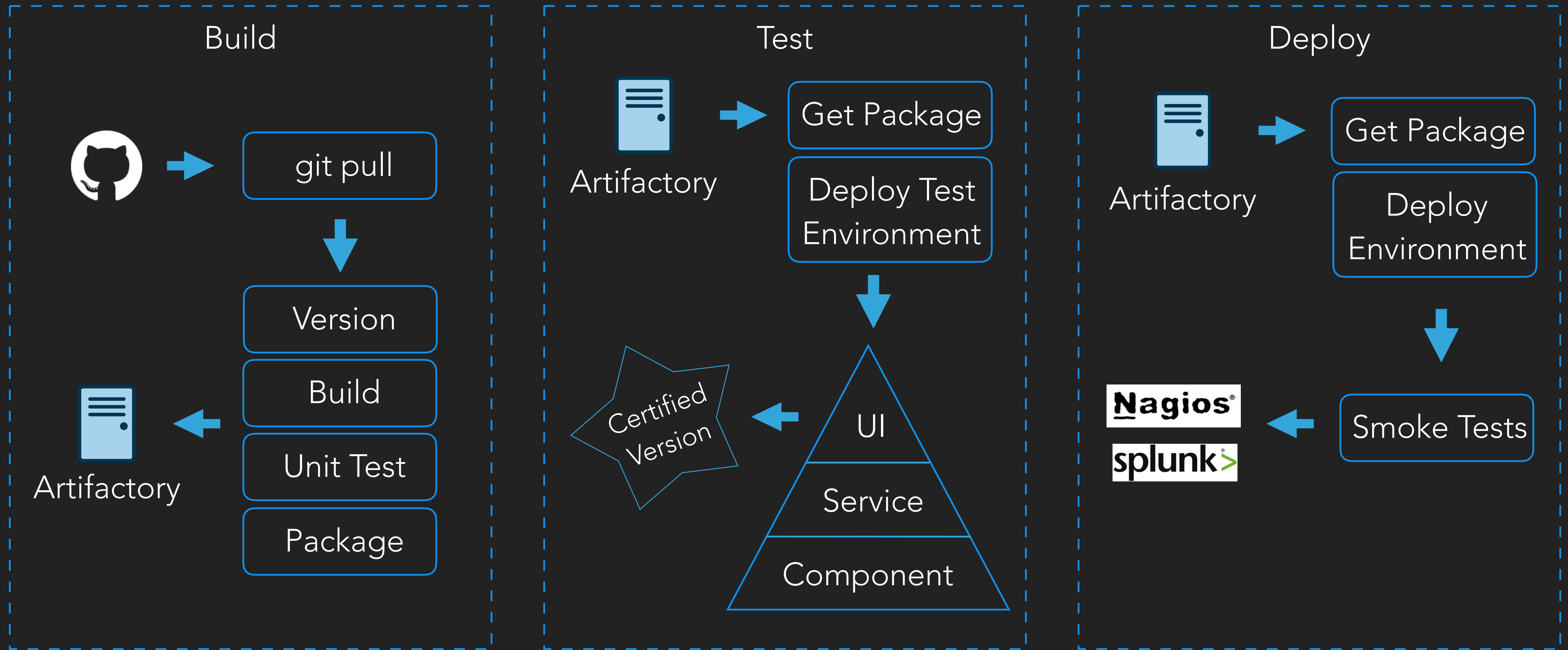
IN A NUTSHELL..



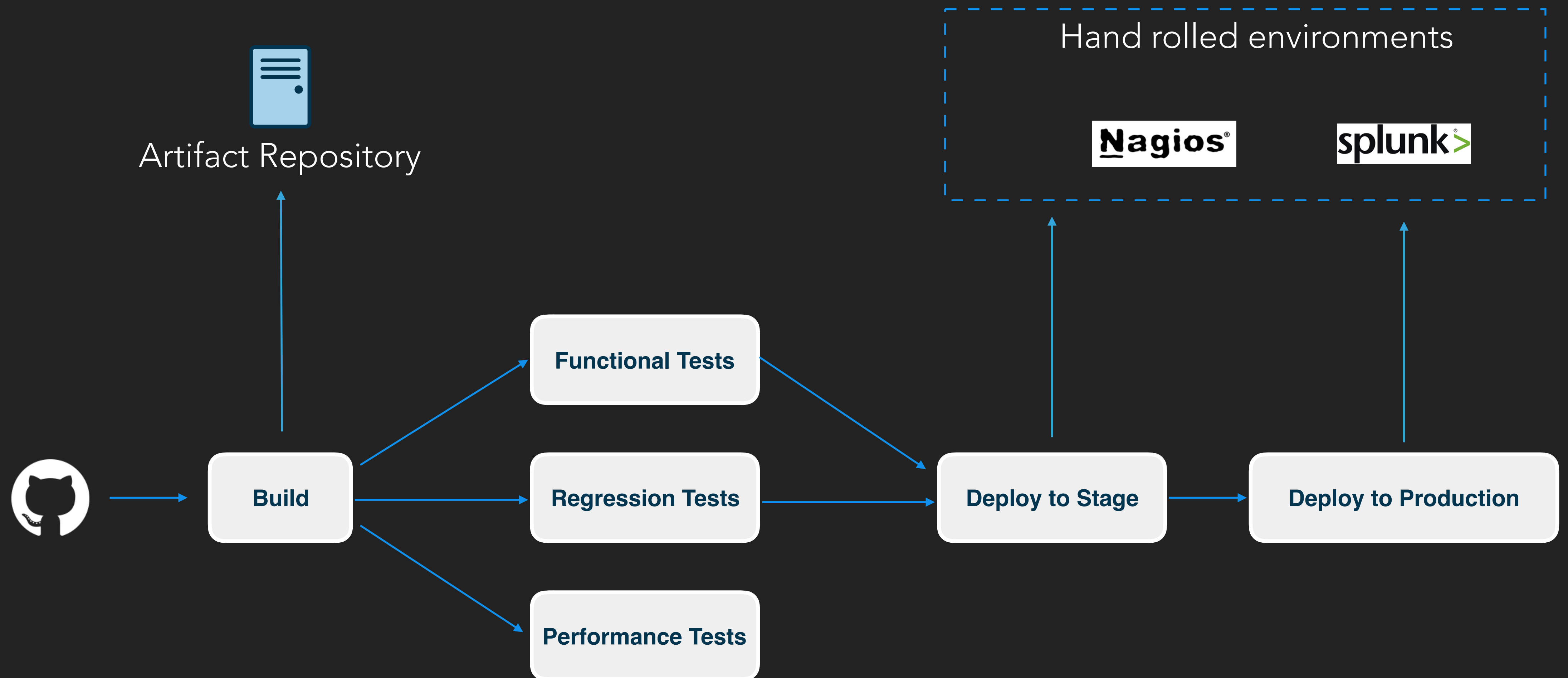
TRAIN TICKET BOOKING PLATFORM – 10 YEARS AGO



TRADITIONAL CONTINUOUS DELIVERY



TRADITIONAL CONTINUOUS DELIVERY PIPELINE



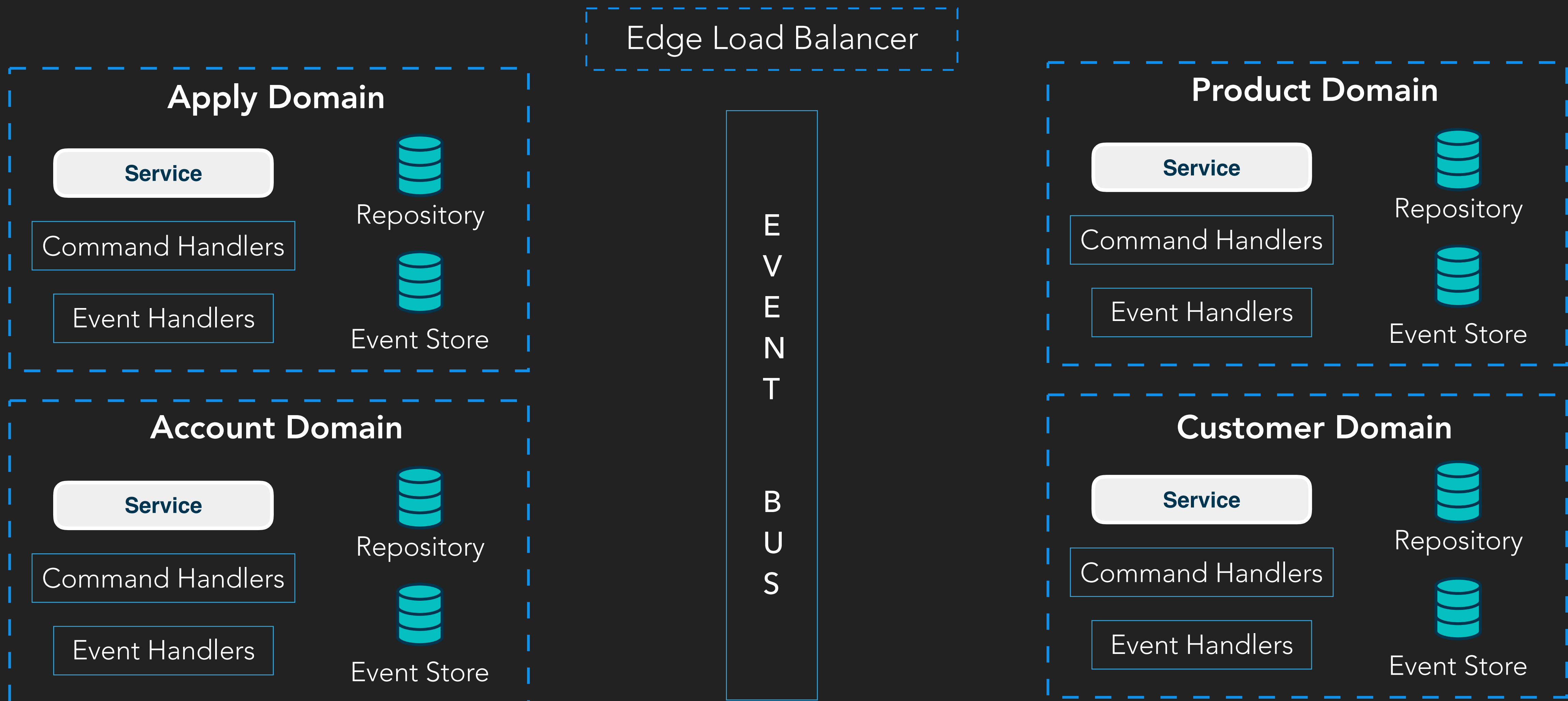
TRADEOFFS – THE GOOD

- ▶ Reproducible builds
- ▶ Generate package once
- ▶ High level of automation
- ▶ Safety net with automated test stages
- ▶ Monitoring was simple(r)

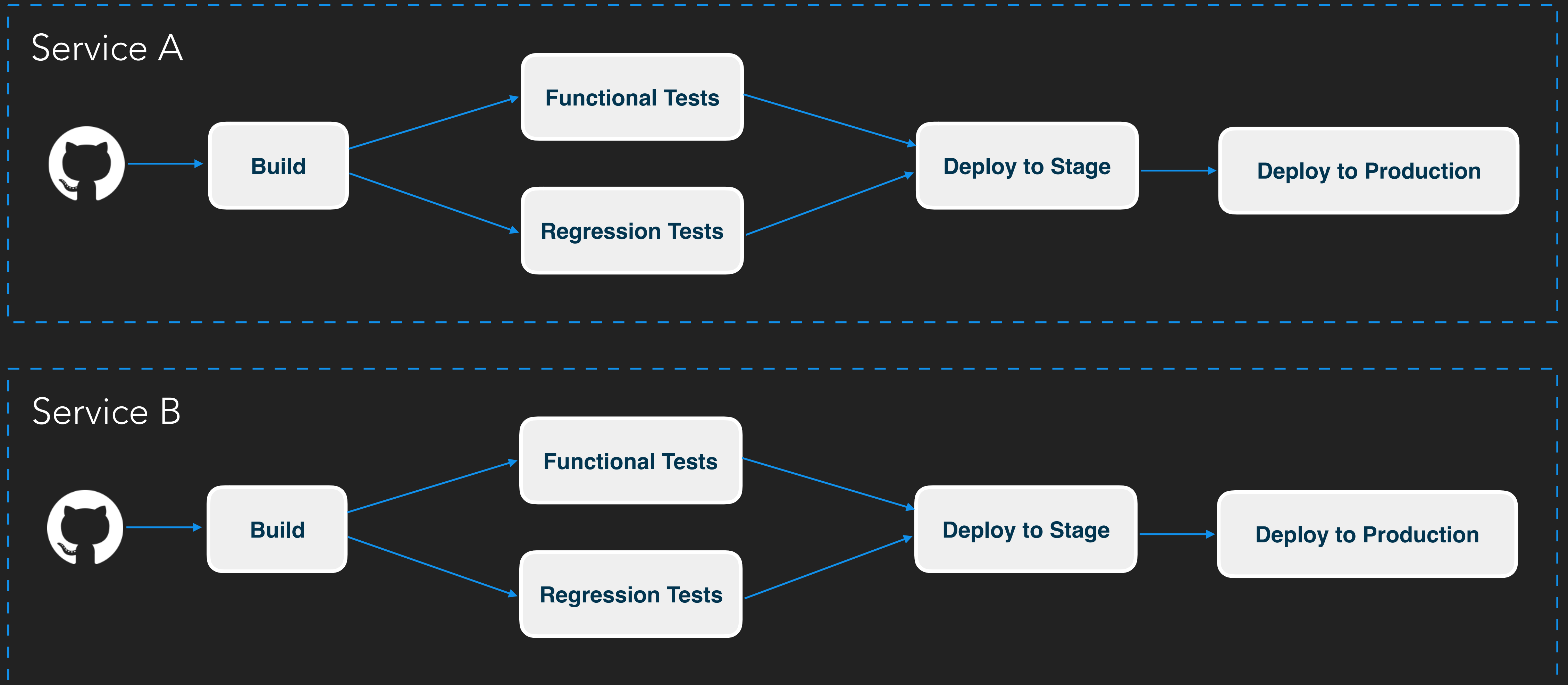
TRADEOFFS – DRAWBACKS

- ▶ Entire system deployed at once
- ▶ Releases were large
- ▶ No capability to turn features off in production
- ▶ Rollbacks were hard

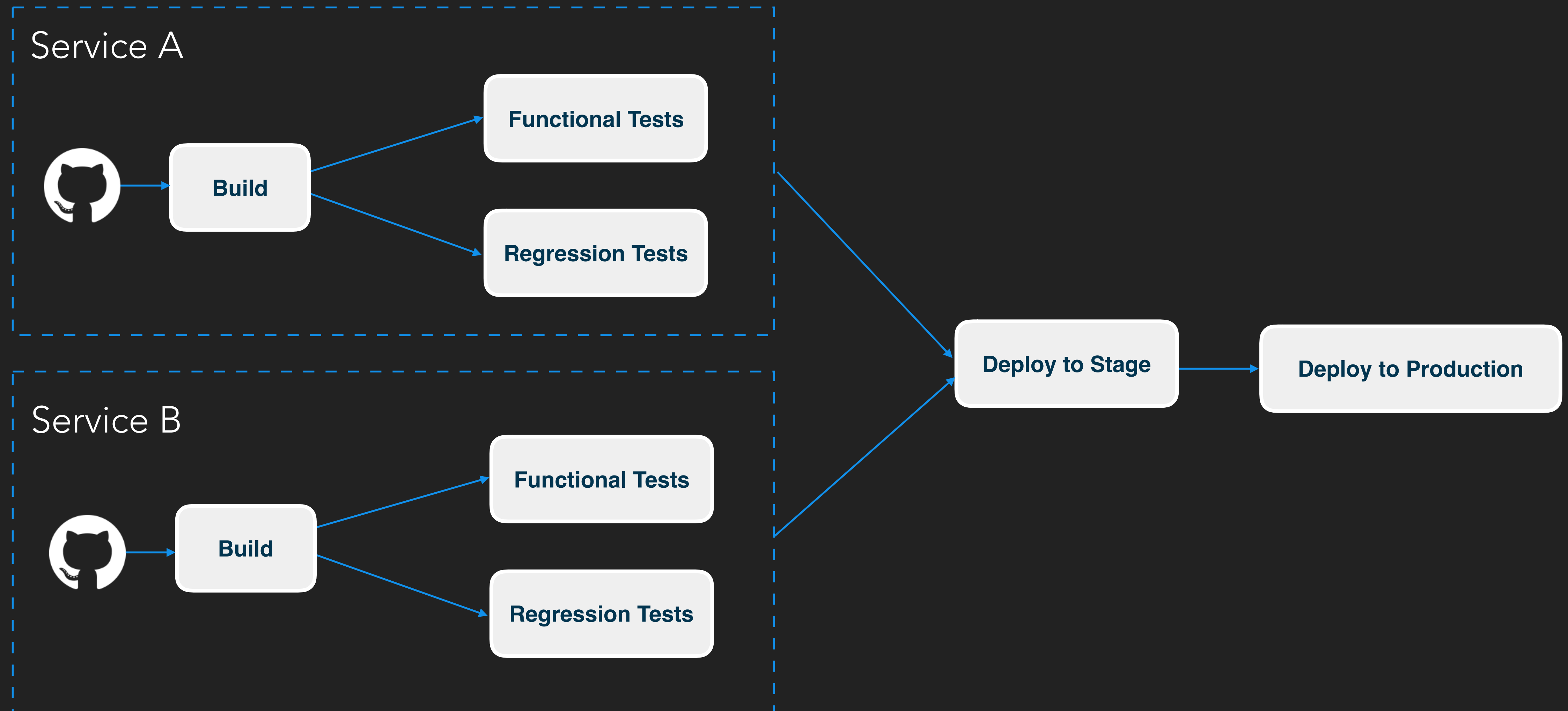
FINANCIAL SERVICES BUSINESS PLATFORM – CURRENT ERA



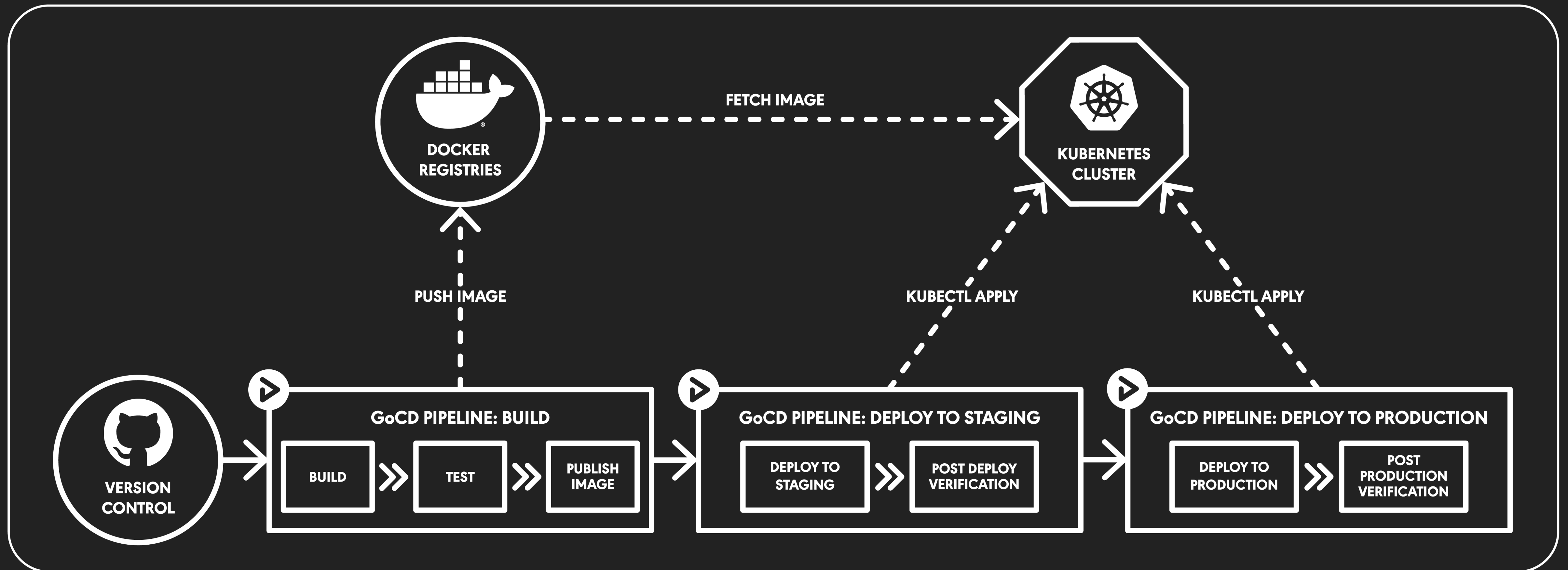
A MODERN CONTINUOUS DELIVERY PIPELINE

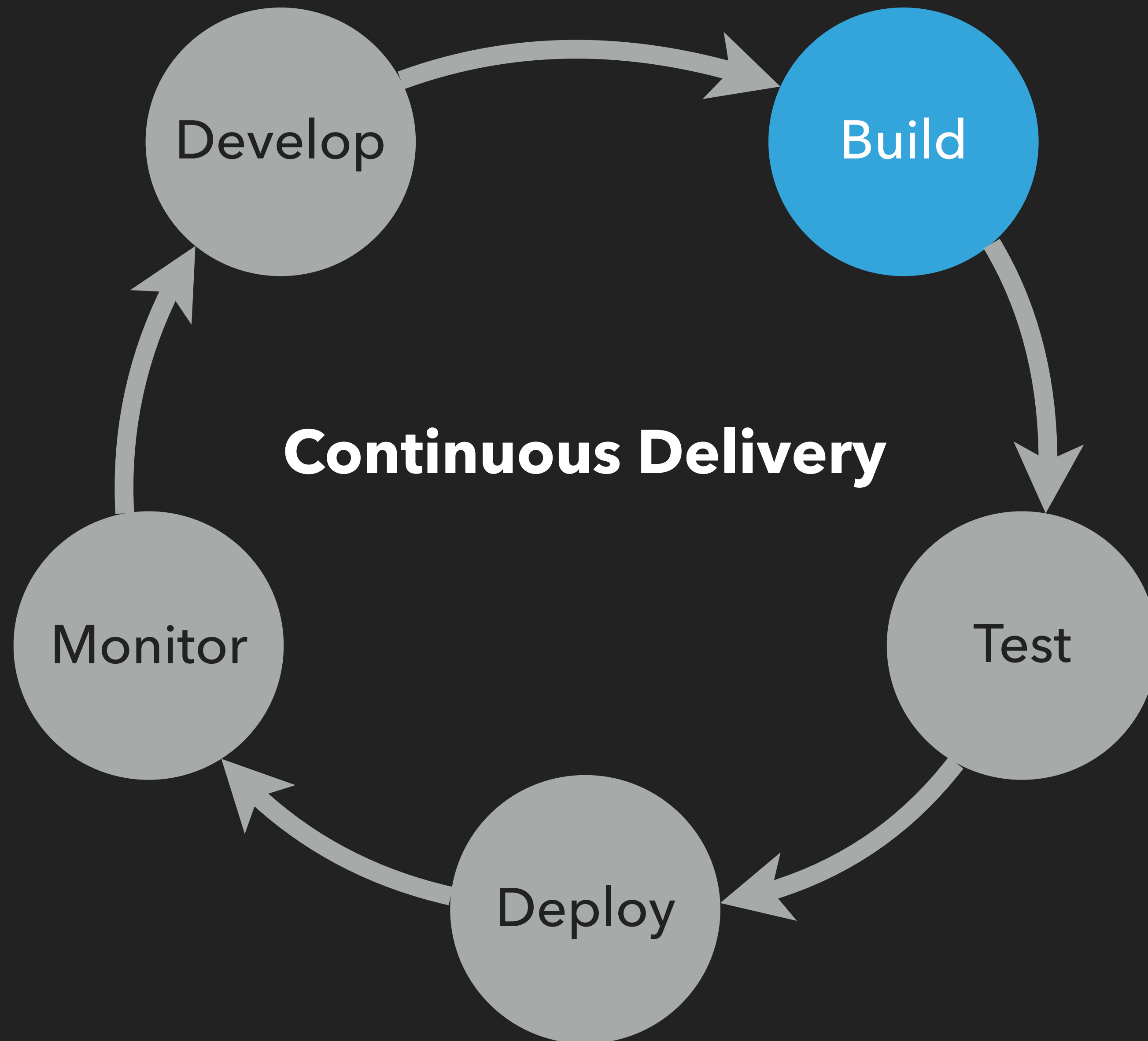


A MODERN CONTINUOUS DELIVERY PIPELINE

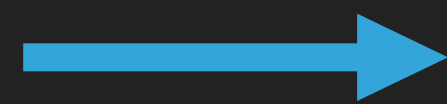
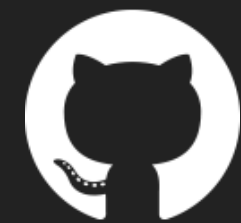


A MODERN CONTINUOUS DELIVERY PIPELINE

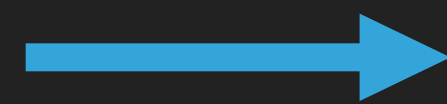




BUILD ENGINEERING – THE NEW BUILD ARTIFACT



git pull

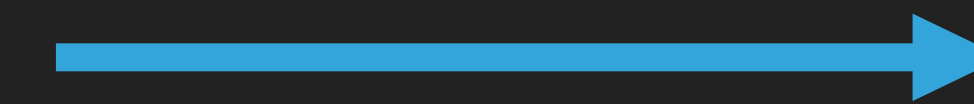


Build

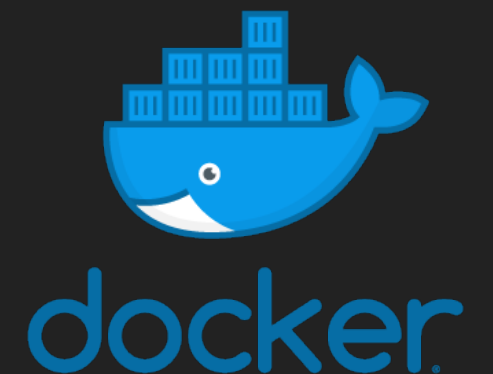
Unit Test

Package

Version



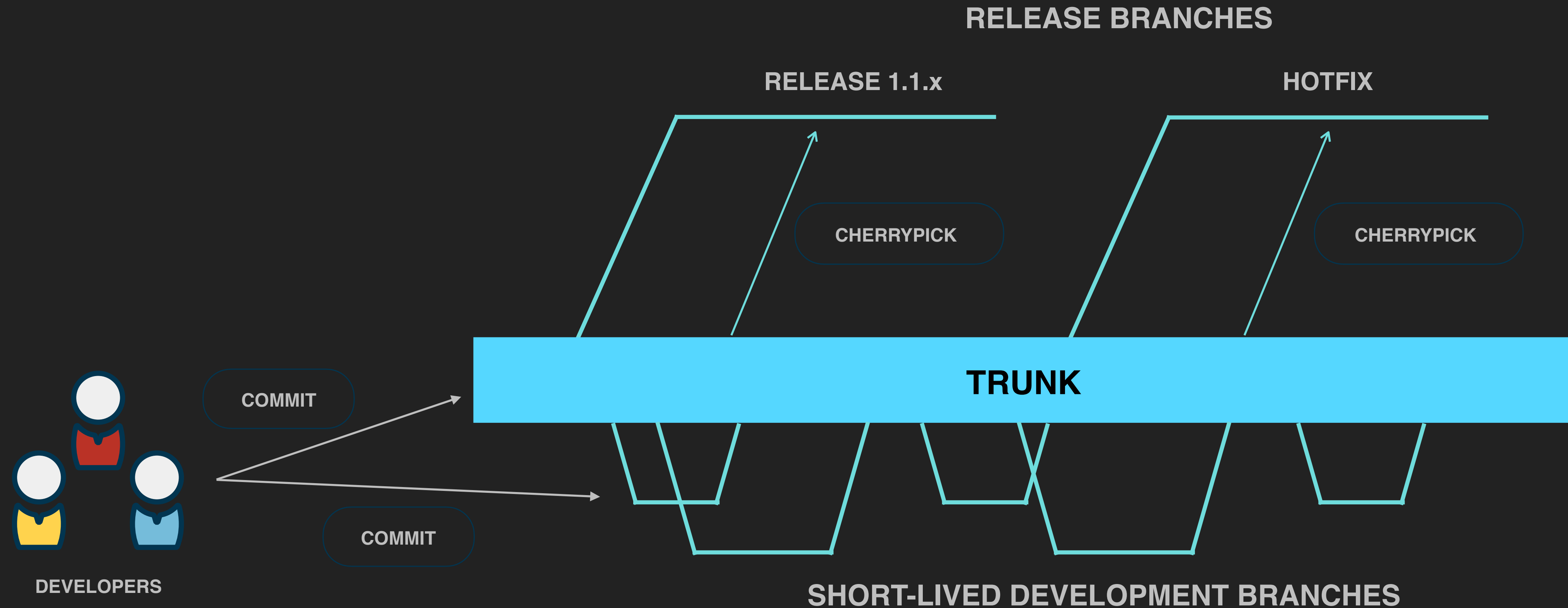
thoughtworks/gocd-server:latest
thoughtworks/gocd-server:v18.10

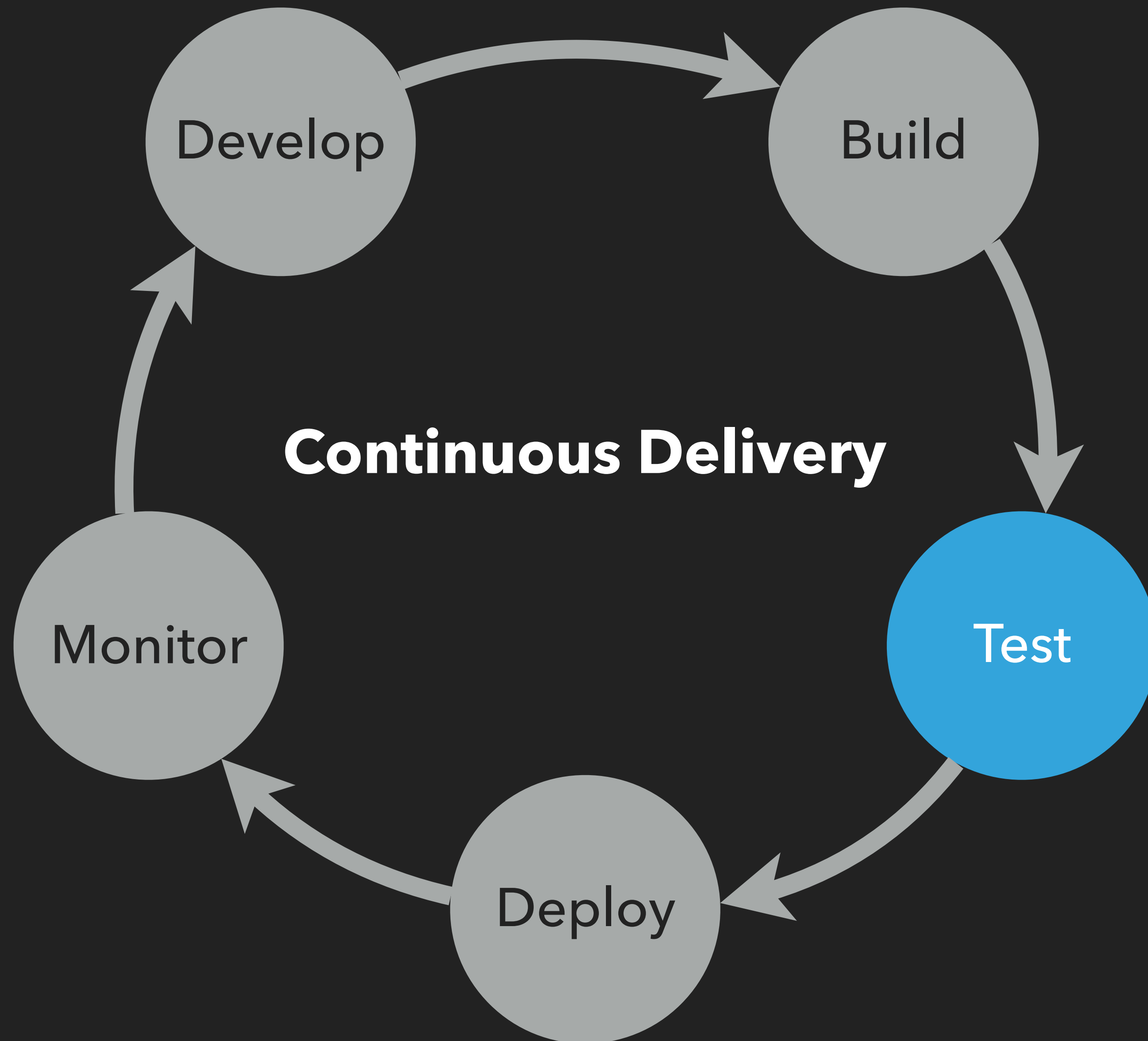


```
FROM alpine:3.7
MAINTAINER GoCD <go-cd-dev@googlegroups
ADD docker-entrypoint.sh /
ENTRYPOINT ["/docker-entrypoint.sh"]
```

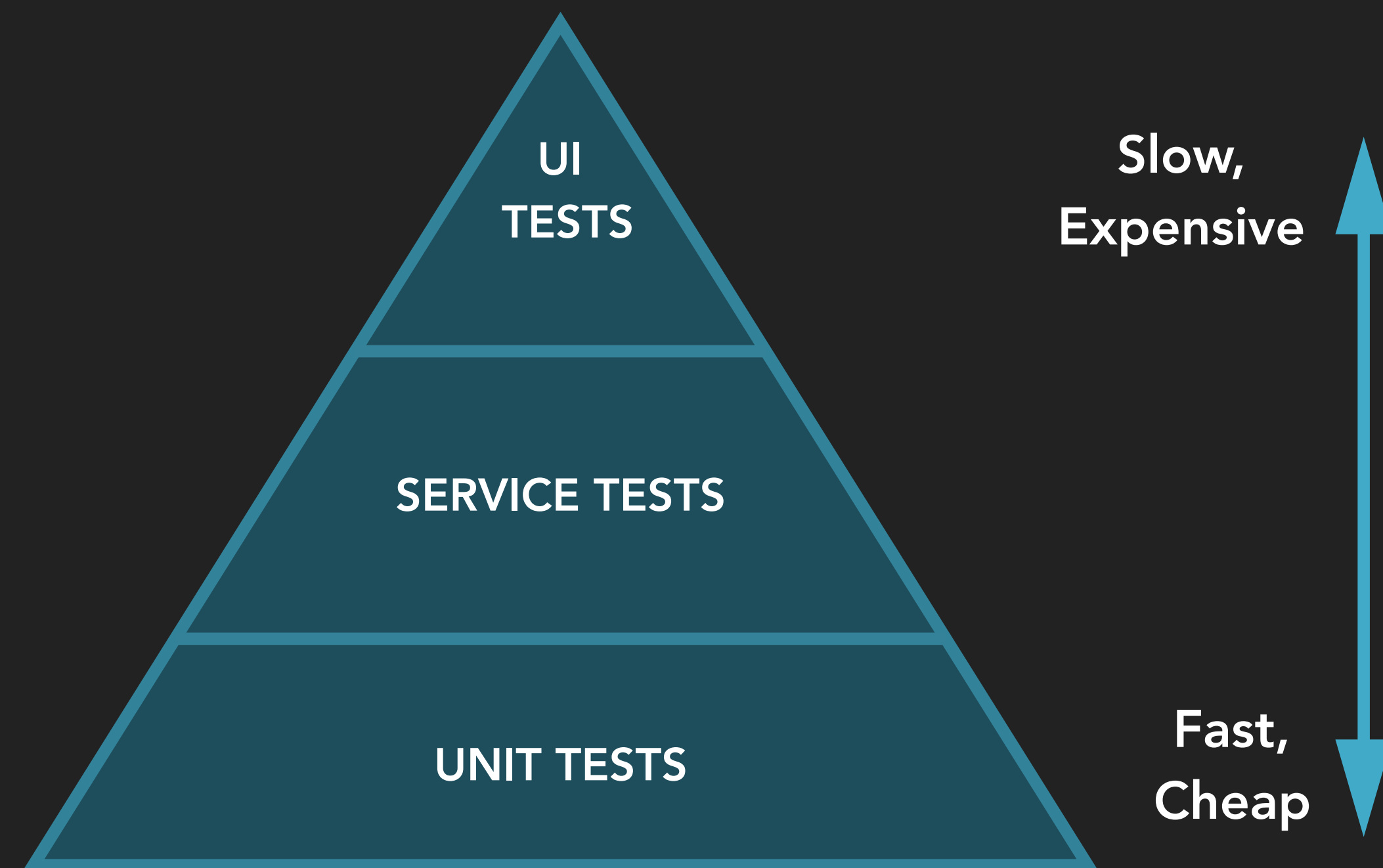
Docker File

BUILD ENGINEERING – TRUNK BASED DEVELOPMENT

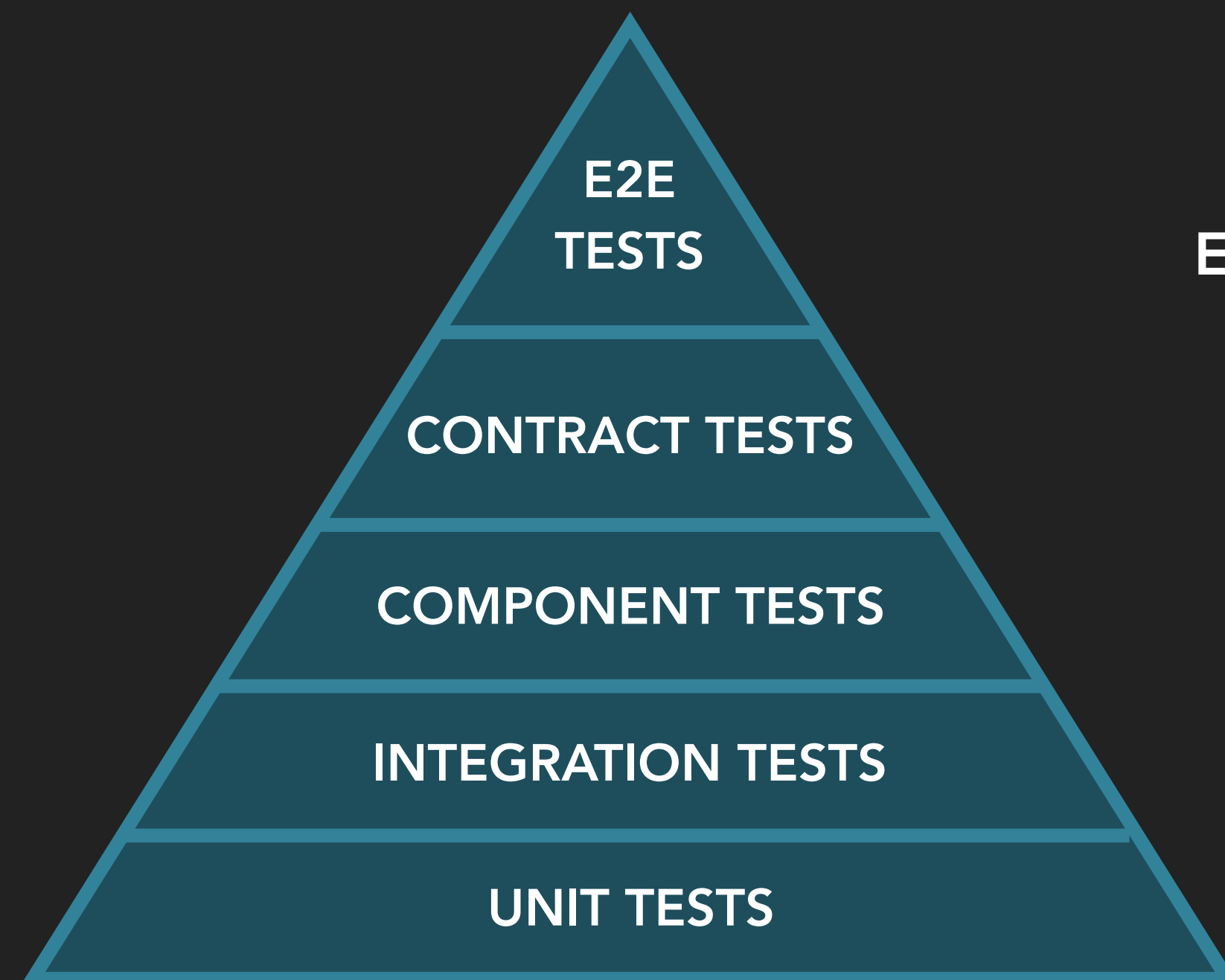
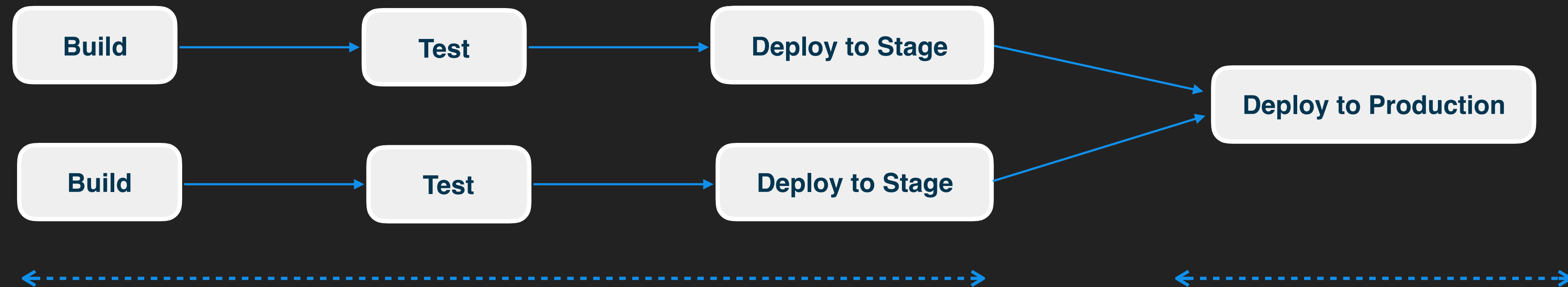




TEST ENGINEERING – THE TEST PYRAMID



TEST ENGINEERING – THE TEST PYRAMID IN CONTEXT

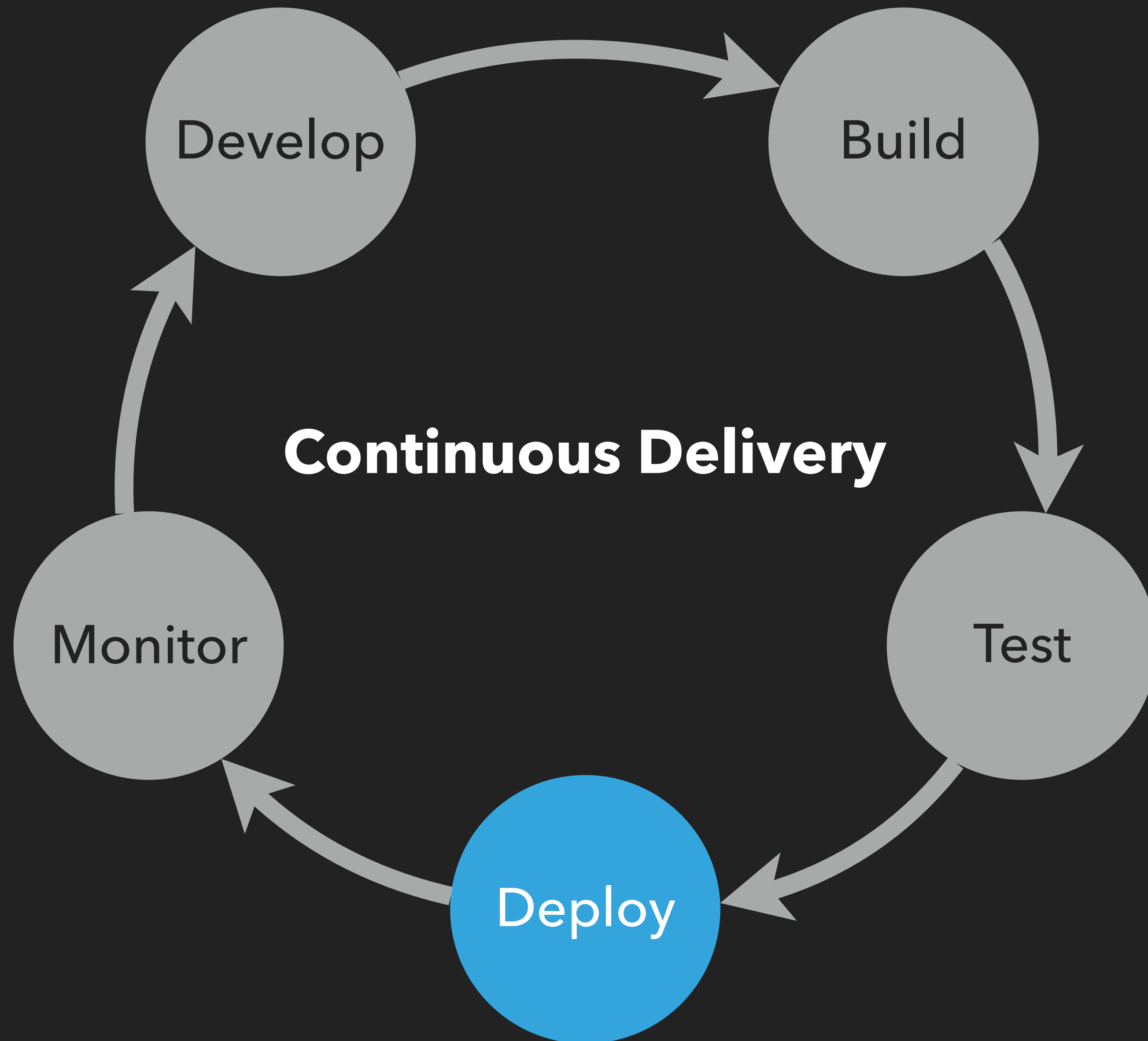


Slow,
Expensive

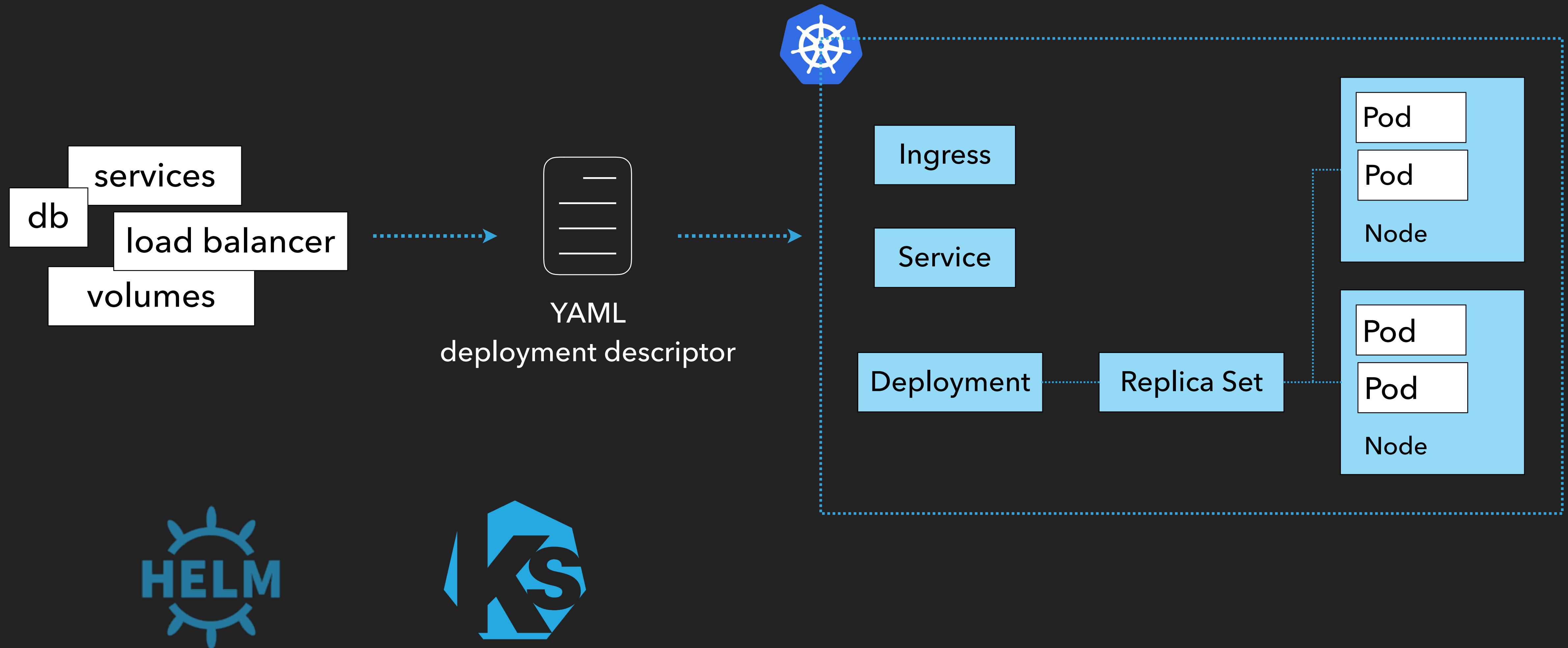
Fast,
Cheap

Monitoring
Distributed Tracing
Fault-injection Testing

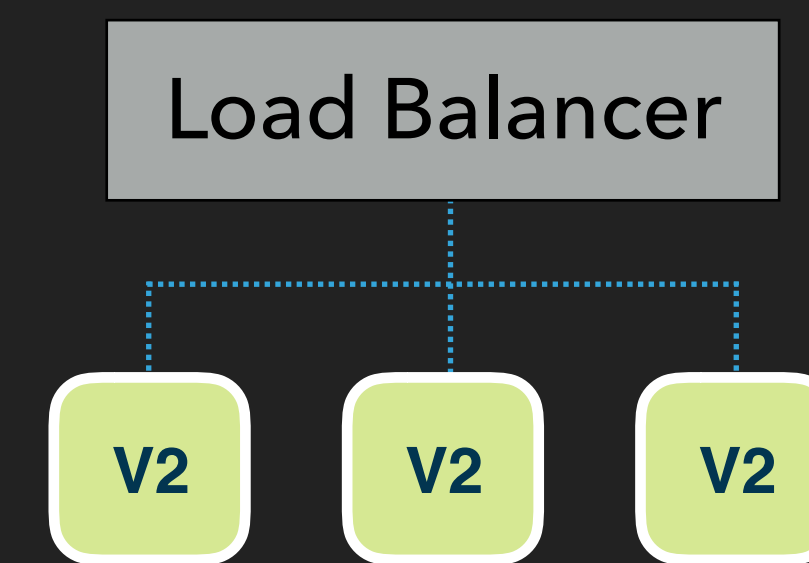
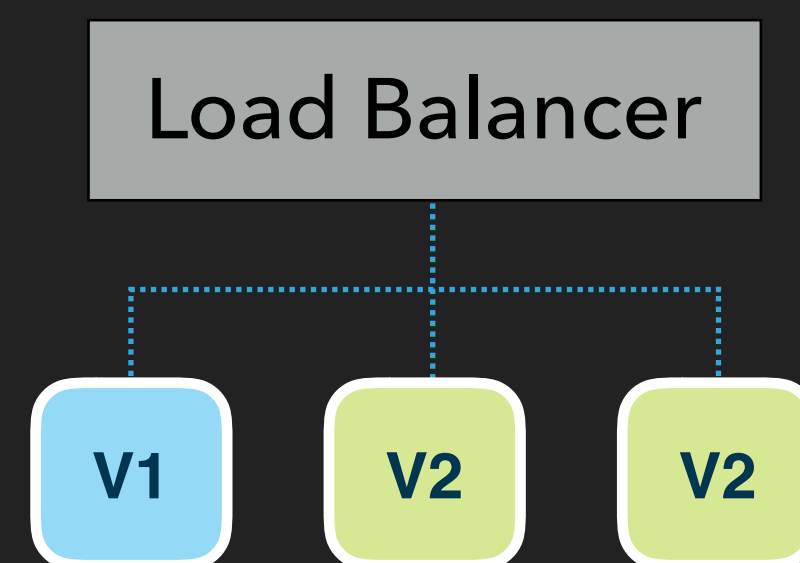
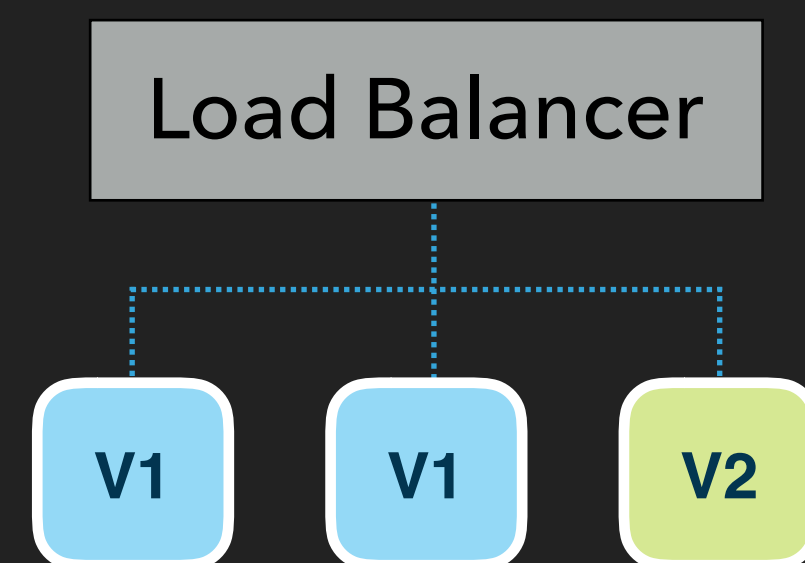
Canary Deployments
Blue-Green Deployments
A/B Testing



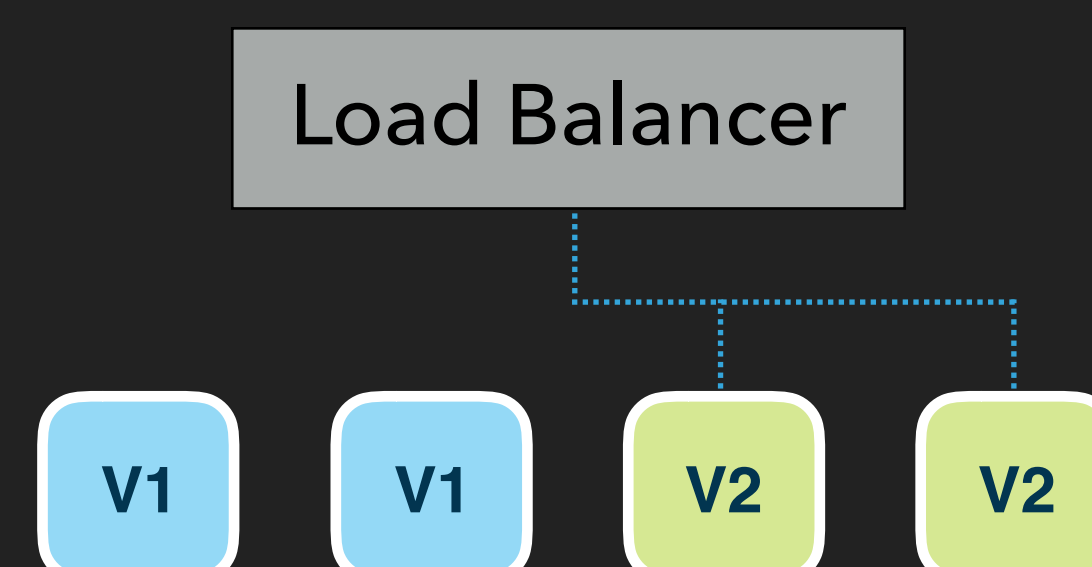
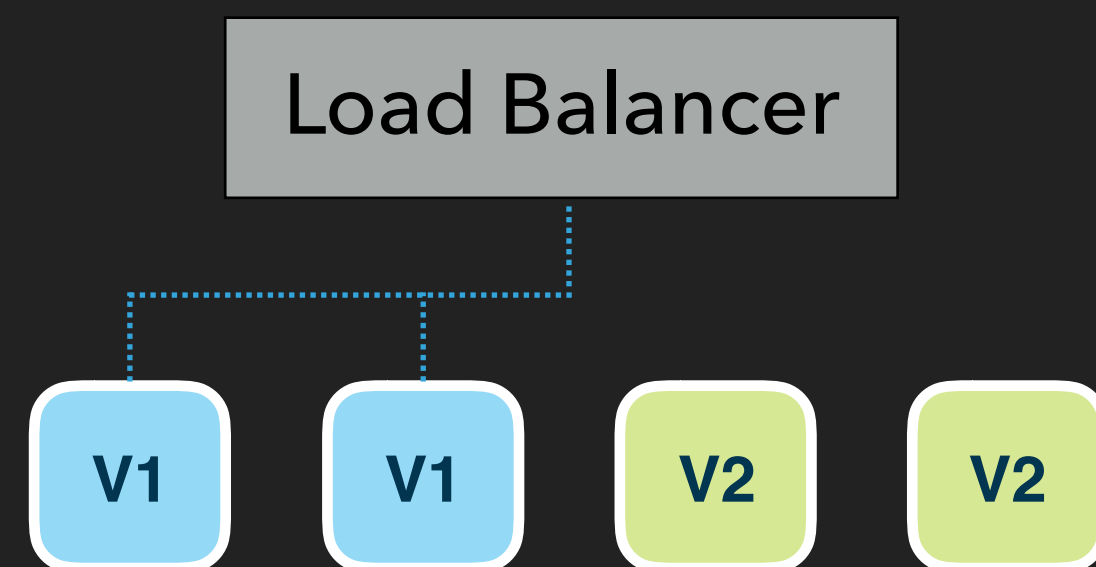
DECLARATIVE DEPLOYMENTS



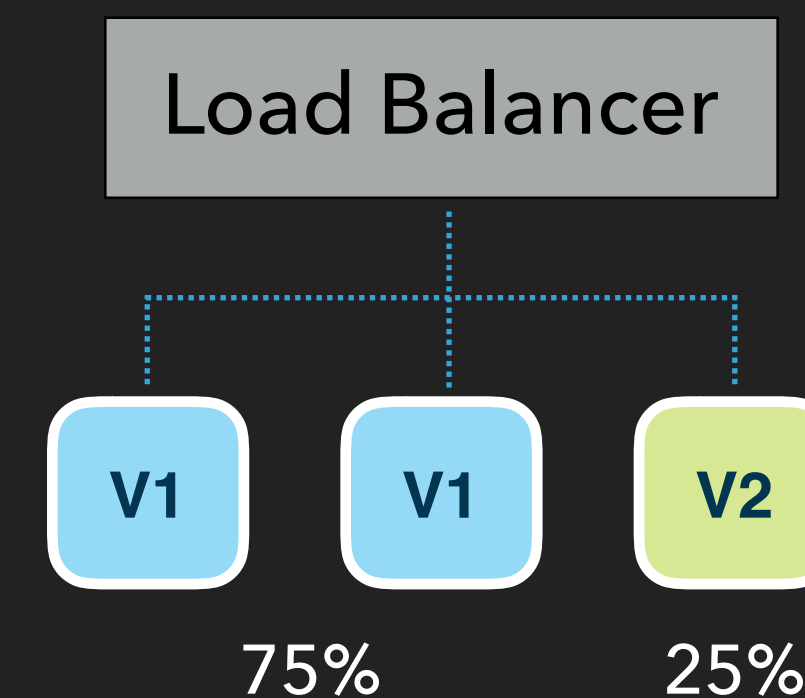
DEPLOYMENT STRATEGIES



Rolling Update

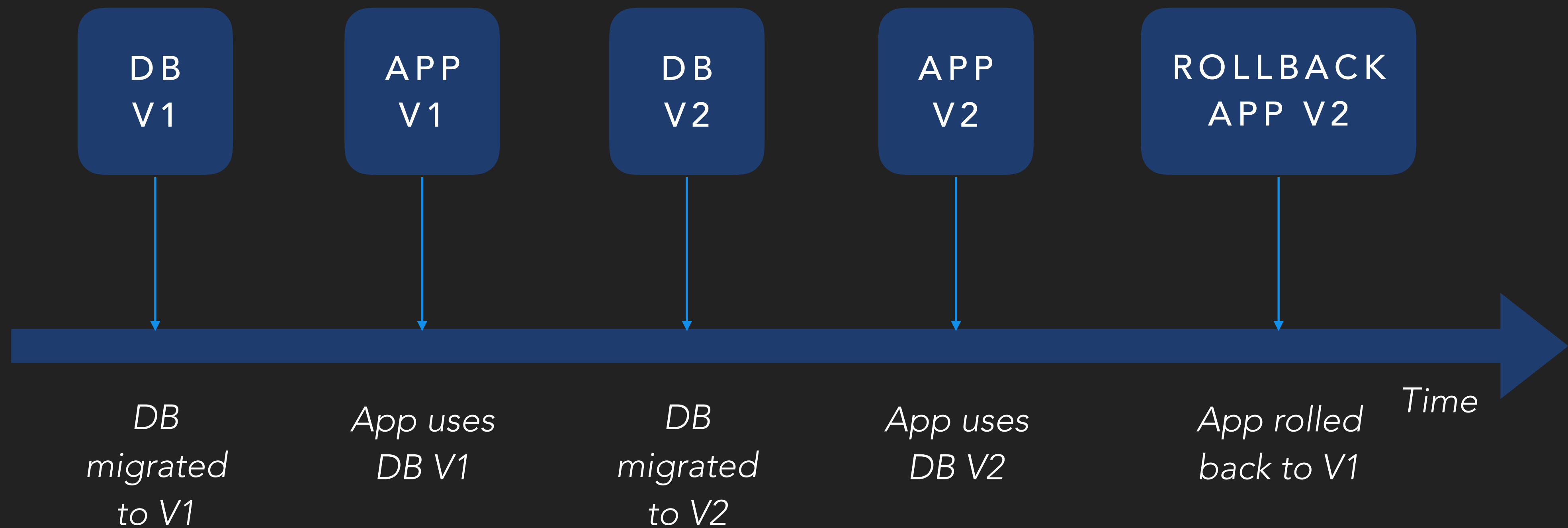


Blue Green Deployment

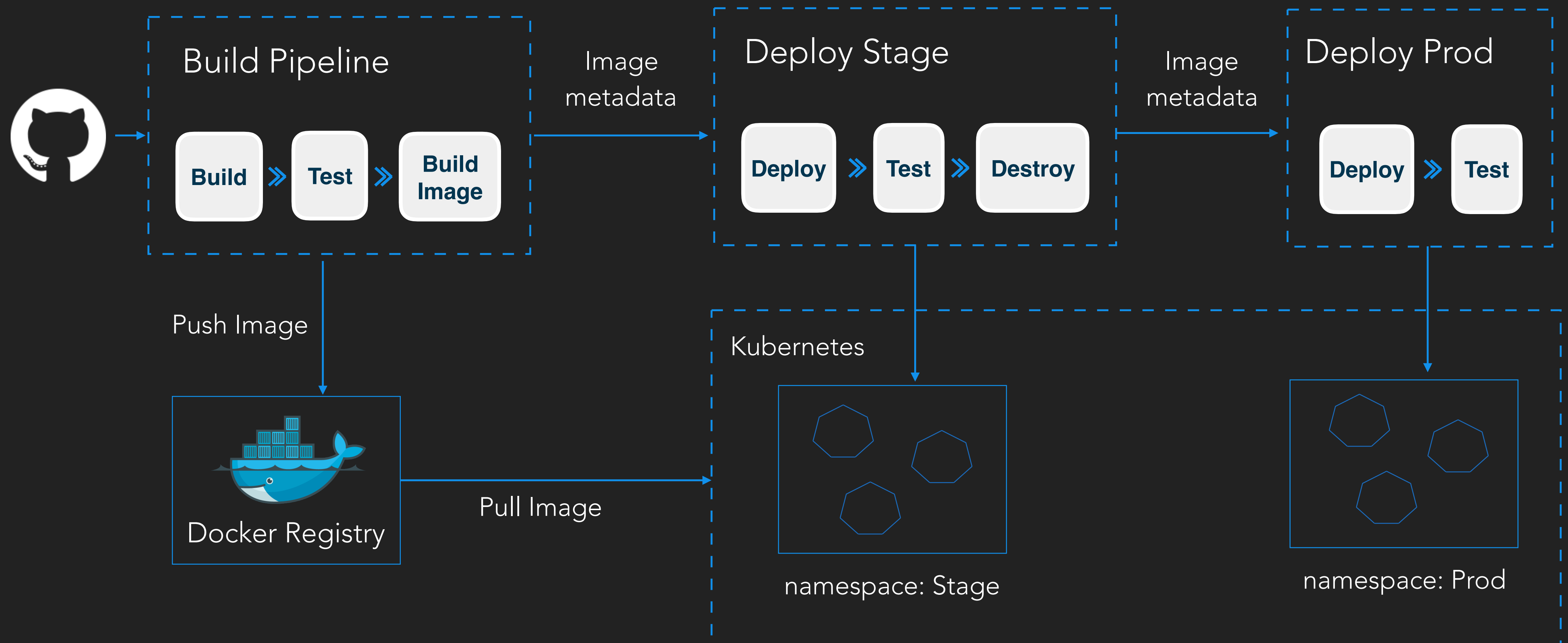


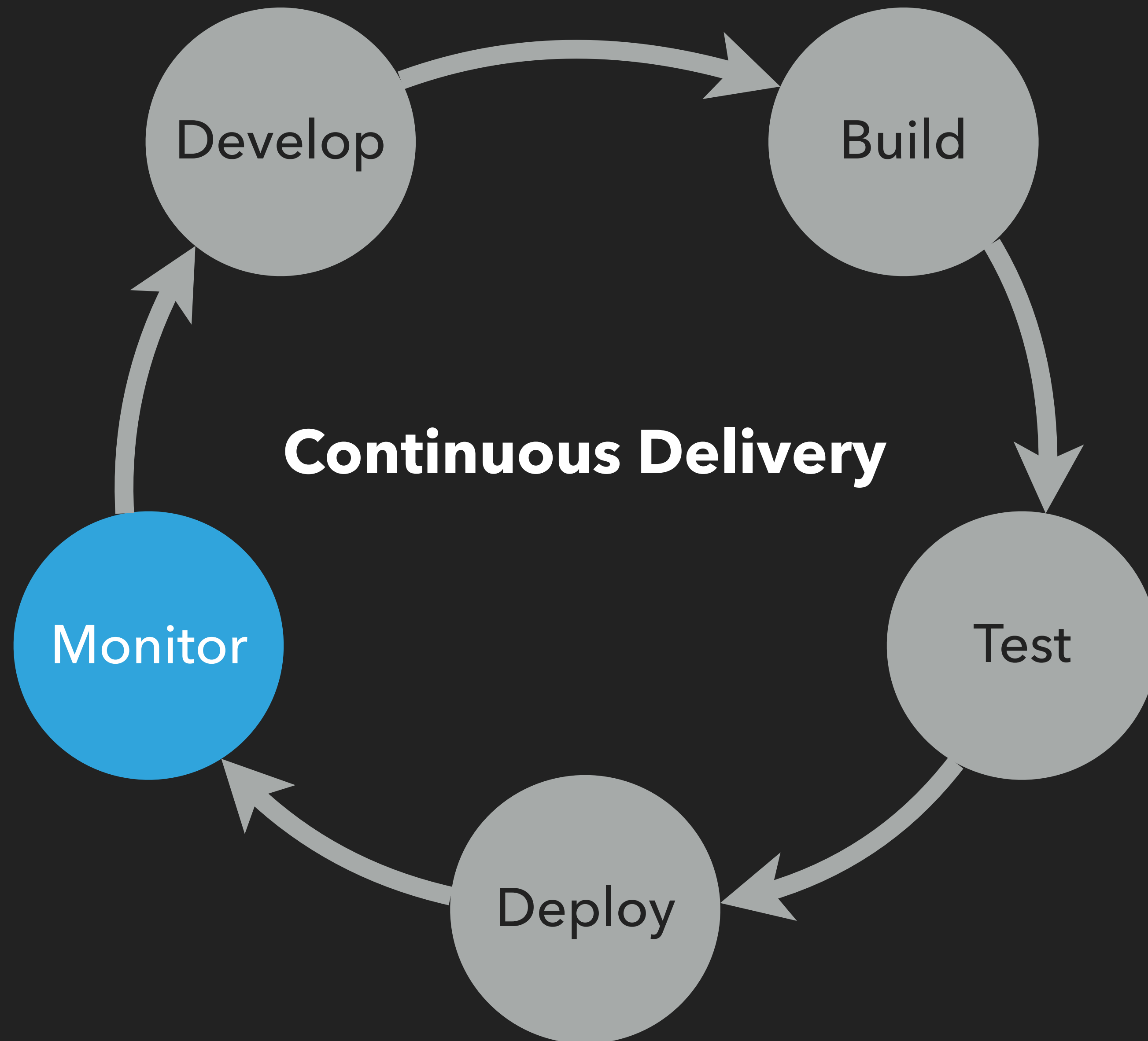
Canary Deployment

RELEASE DB CHANGES OUT OF BAND

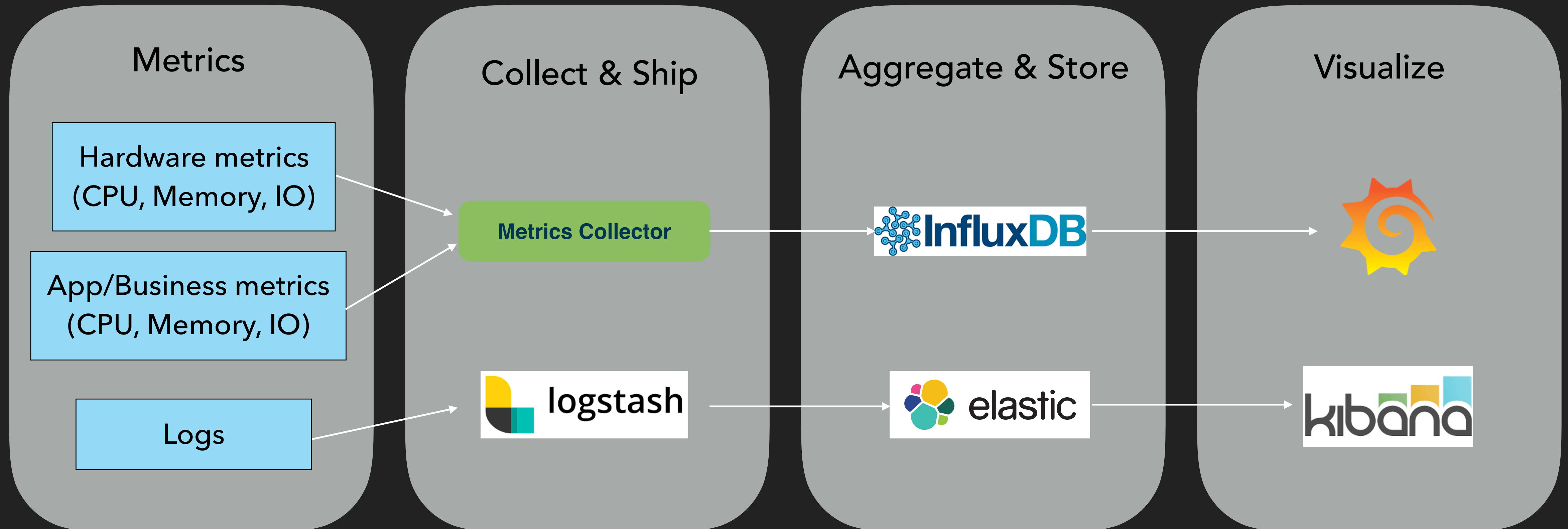


DEPLOYMENT – DYNAMIC ENVIRONMENTS





MONITORING AND OBSERVABILITY



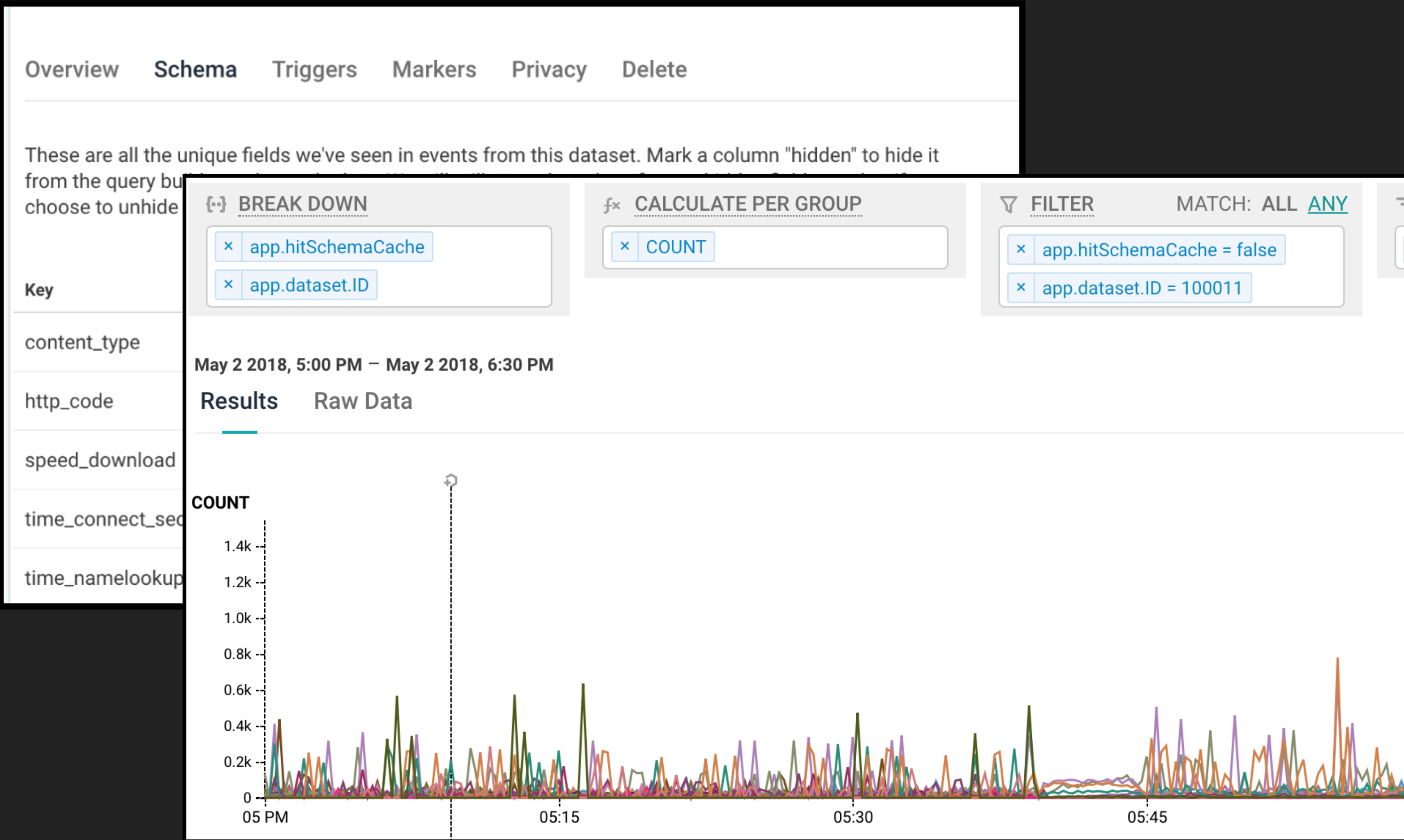
Typical Monitoring Setup

MONITORING AND OBSERVABILITY

```
"time_total_seconds": %{{time_total}},  
"time_namelookup_seconds": %{{time_name}},  
"time_connect_seconds": %{{time_connect}},  
"content_type": "%{{content_type}}",  
"http_code": %{{http_code}},  
"speed_download": %{{speed_download}},  
"url": "%{{url_effective}}"
```

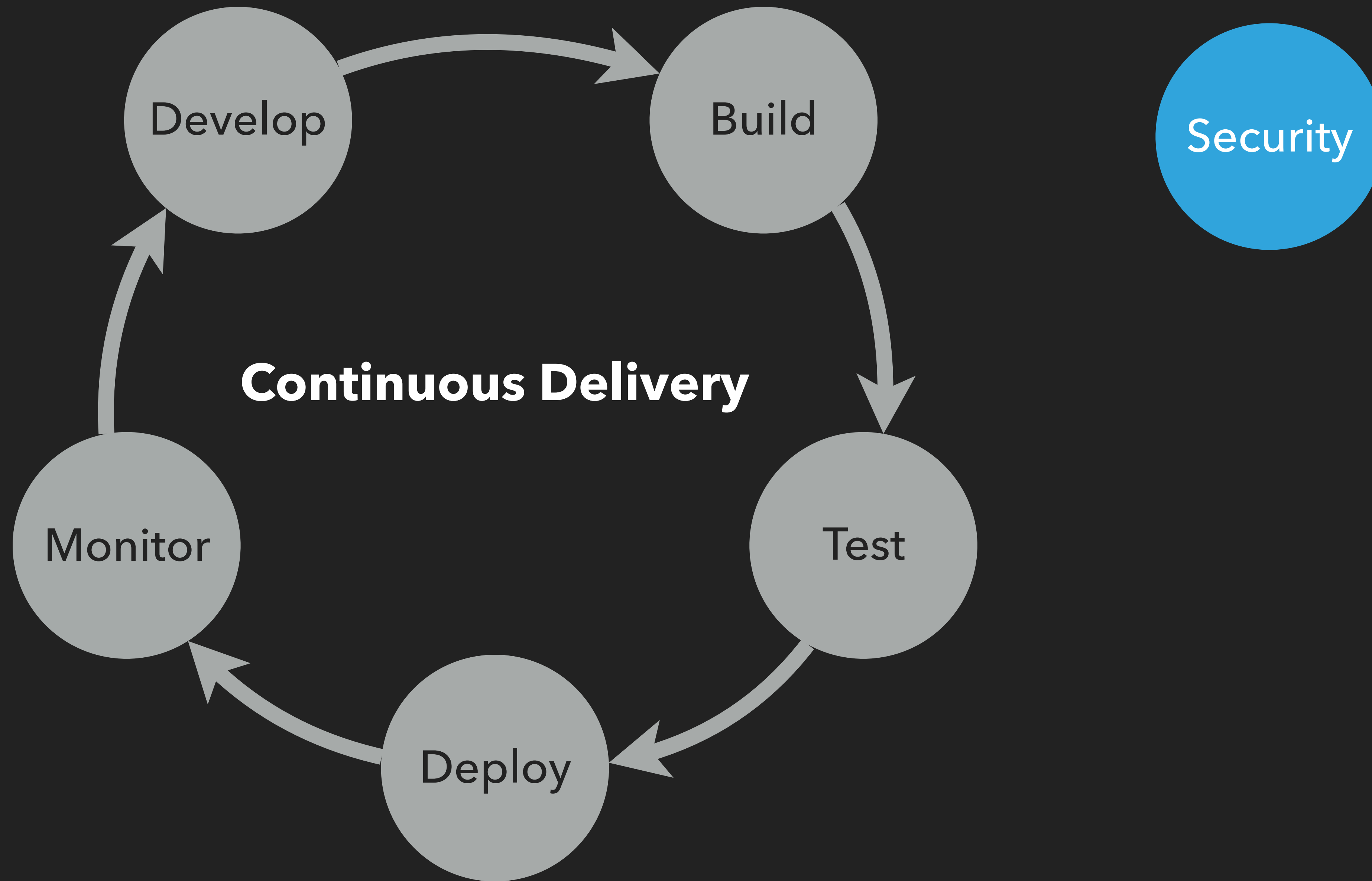
High cardinality events

honeycomb.io



Observability

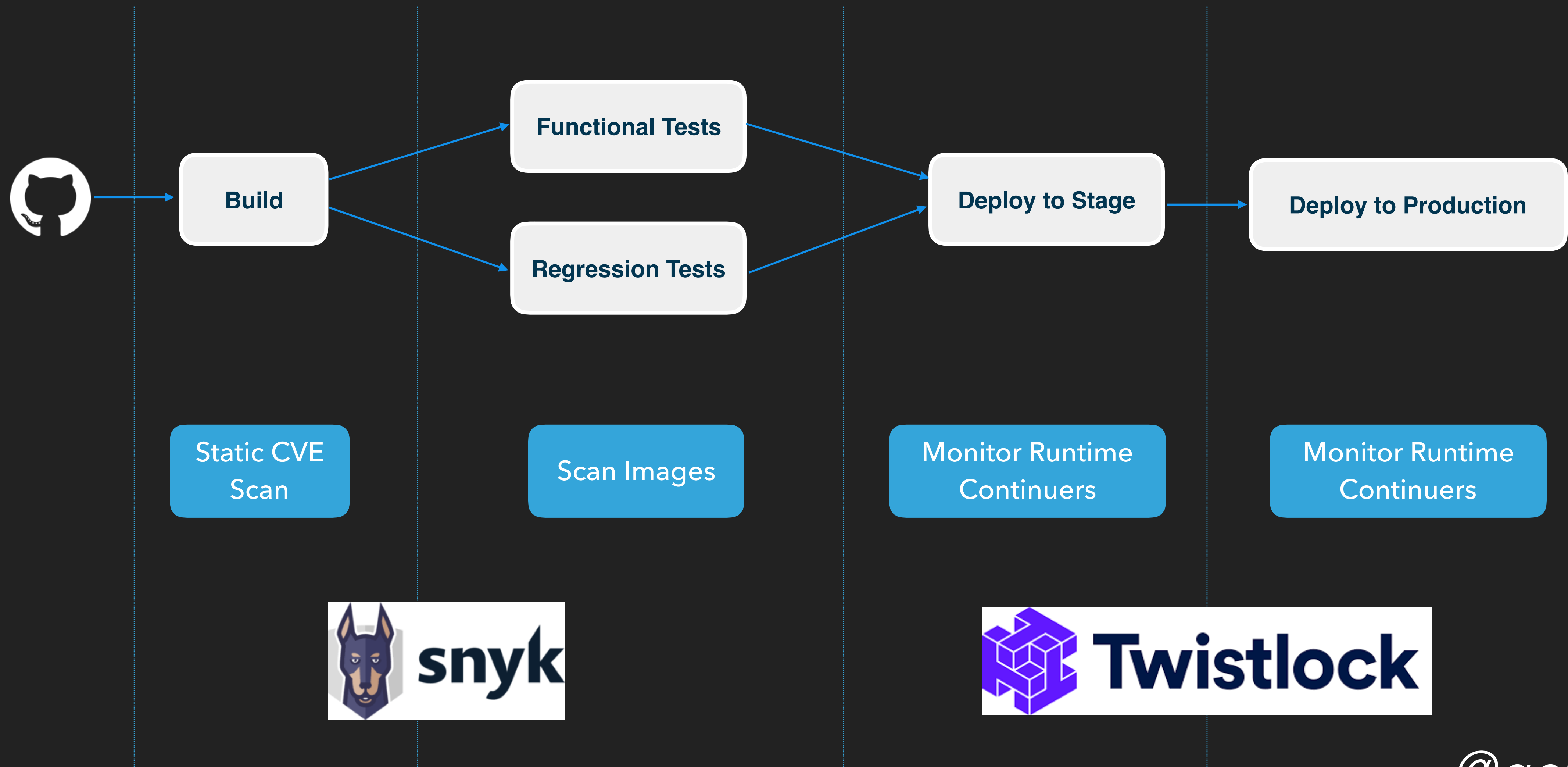
@goforcd



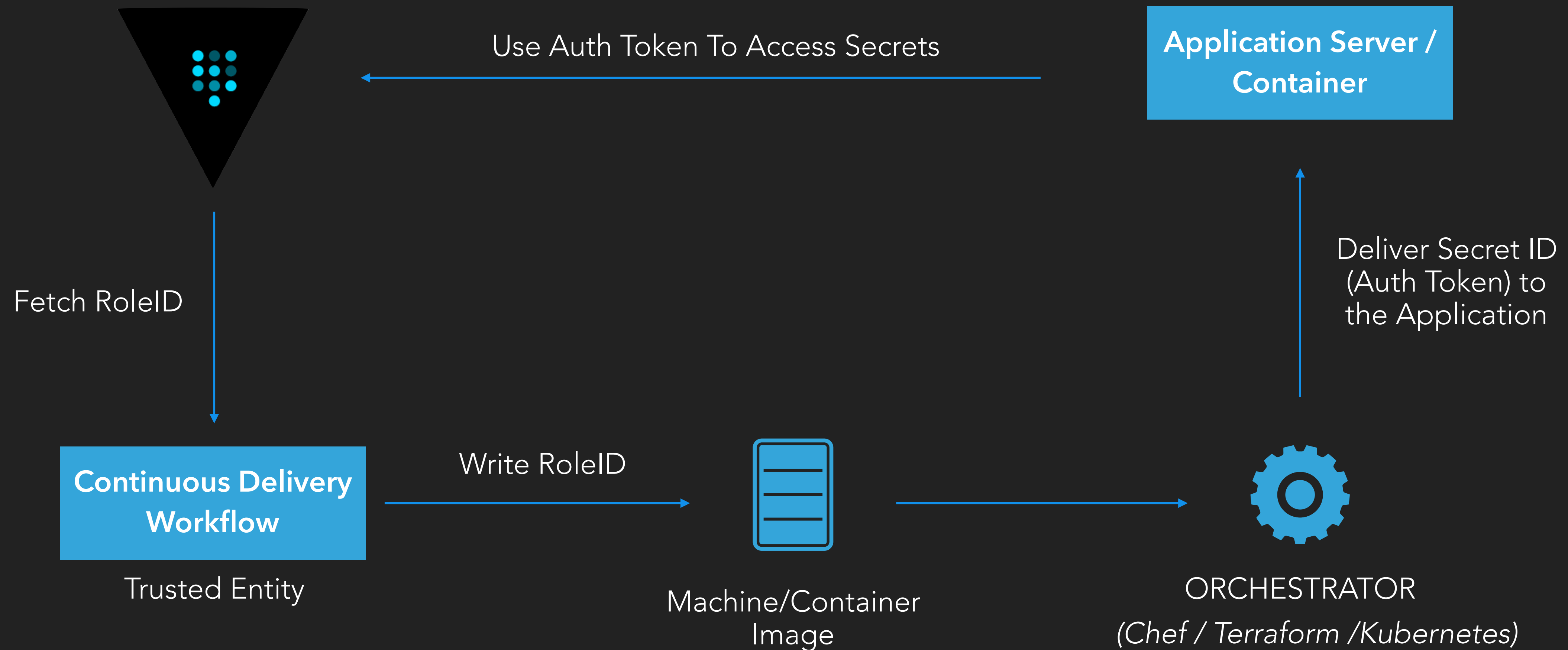
SECURITY IN YOUR CD PIPELINE

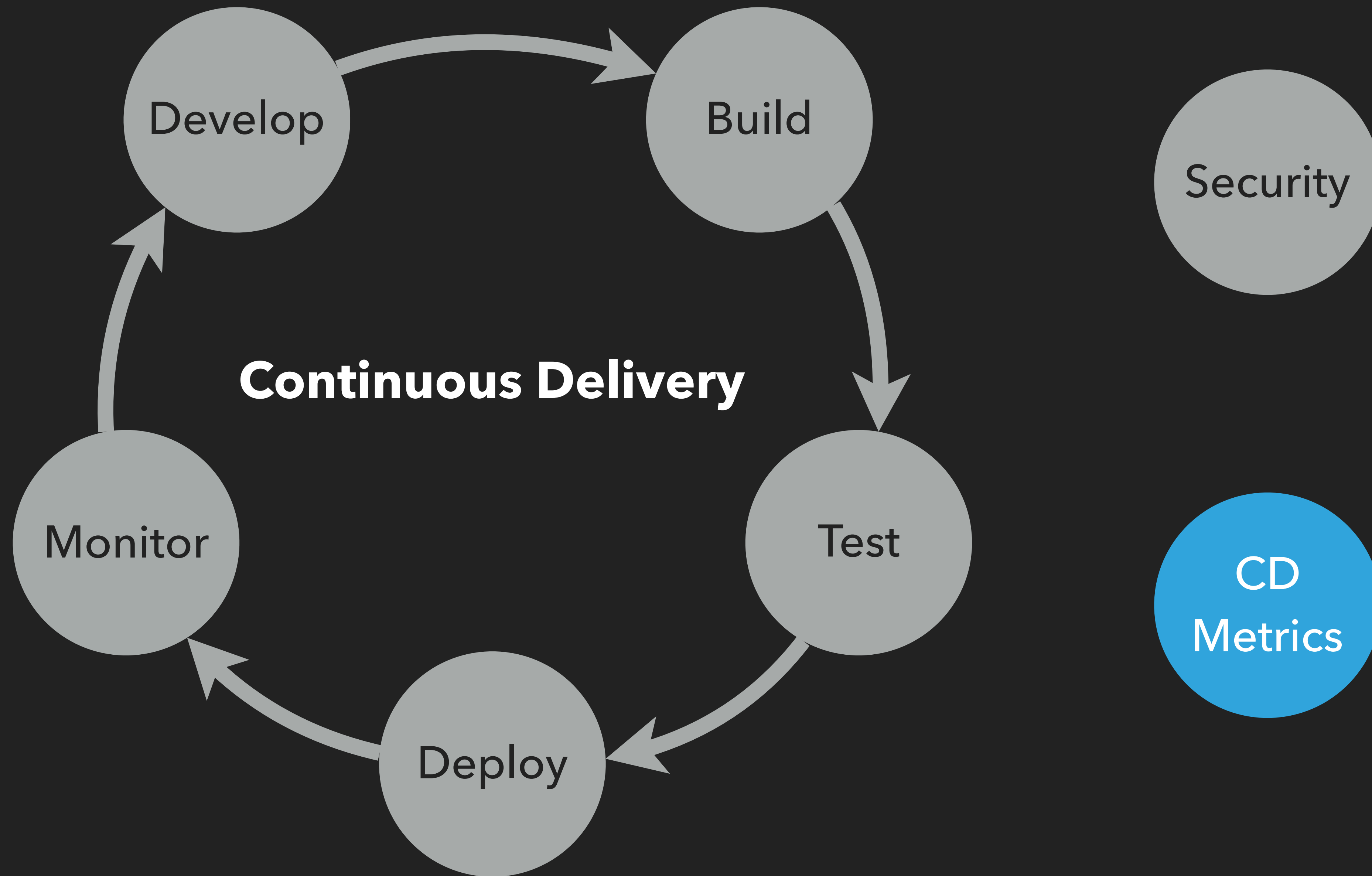
- ▶ Vulnerability planning
- ▶ Secrets management
- ▶ Automate ad-hoc manual tasks

SECURITY IN YOUR CD PIPELINE – VULNERABILITY PLANNING



SECURITY IN YOUR CD PIPELINE – SECRETS MANAGEMENT





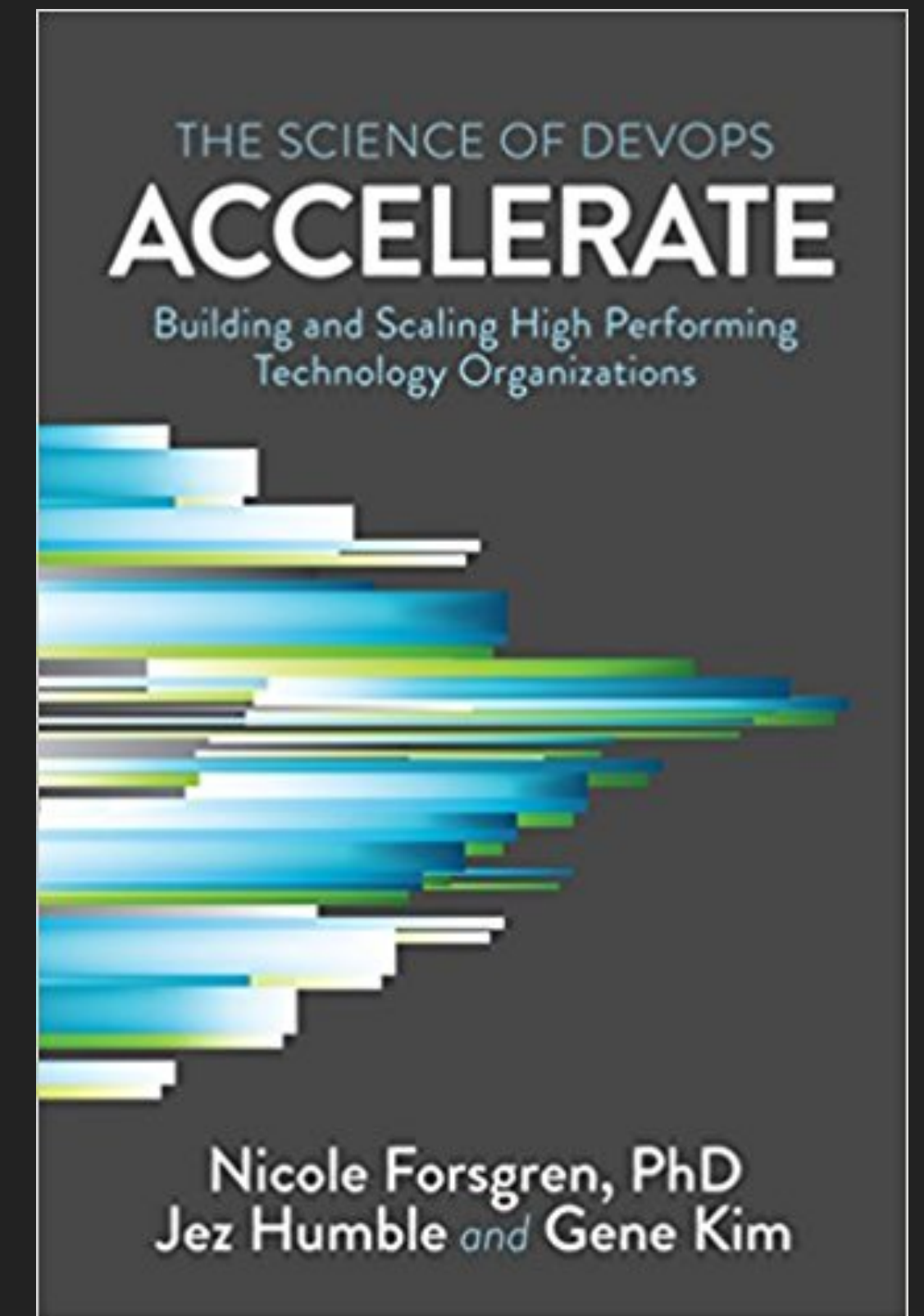
MEASURING YOUR CONTINUOUS DELIVERY PROCESS

“The highest performers excel
at throughput and stability”

State of the DevOps Report 2018

Nicole Forsgren, PhD, Jez Humble, Gene Kim

<https://devops-research.com/>

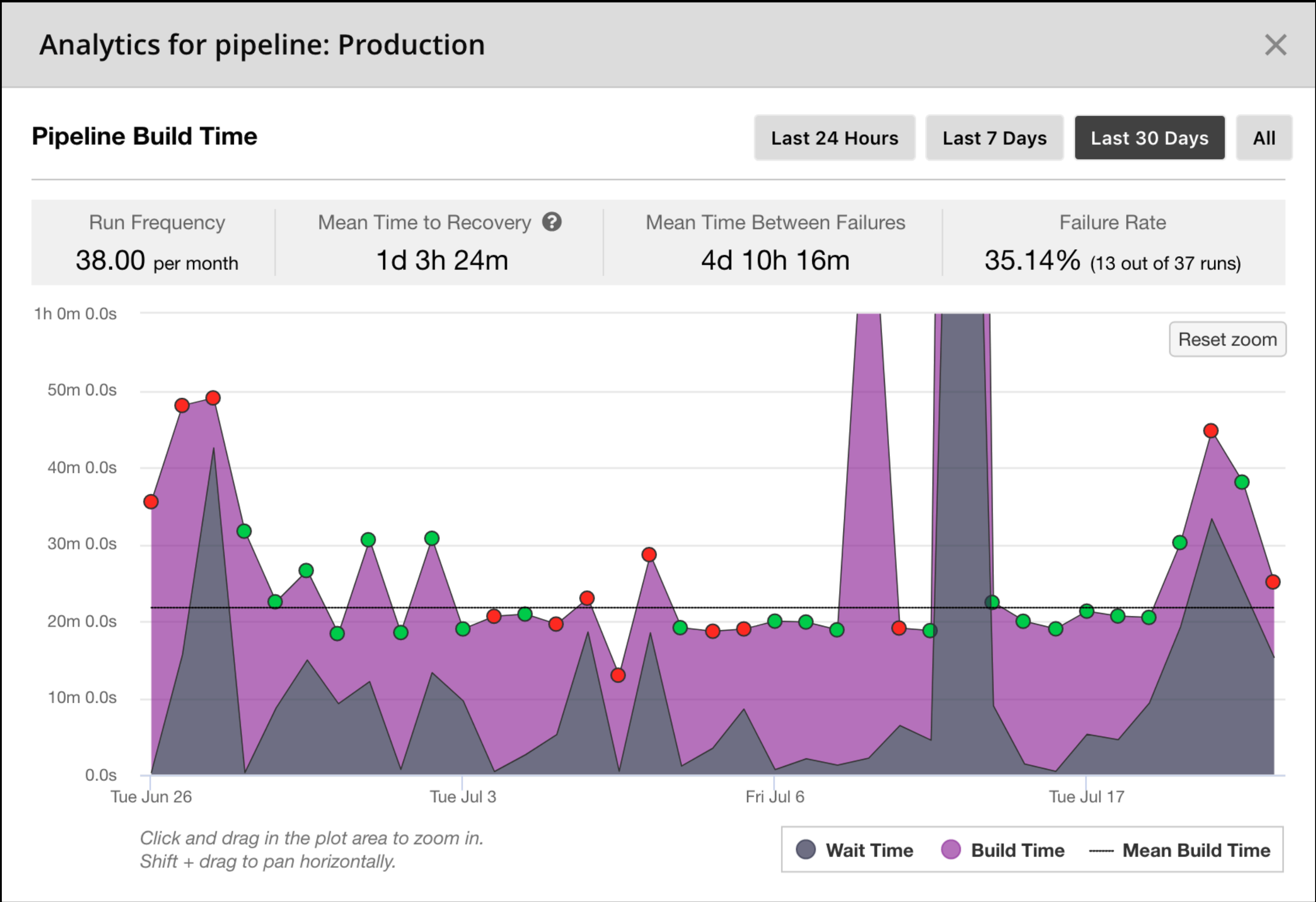


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MEASURING YOUR CONTINUOUS DELIVERY PROCESS

Throughput	Stability
<p>Deployment Frequency</p> <p>46x more frequent</p>	<p>Change Failure Rate</p> <p>5x lower (1/5 as likely)</p>
<p>Lead Time For Changes</p> <p>440x faster</p>	<p>Mean Time To Recover (MTTR)</p> <p>96x faster</p>

MEASURING YOUR CONTINUOUS DELIVERY PROCESS



MODERN DAY CD – A SUMMARY

- ▶ Build Engineering
- ▶ Test Engineering
- ▶ Deployments
- ▶ Monitoring And Observability
- ▶ Security In Your CD Pipeline
- ▶ Measuring Your CD Process



Thank You Copenhagen!

@goforcd



Please

**Remember to
rate this session**

Thank you!

