Pivotal

SpringOne Platform by Pivotal

re:Cap Seoul 2019

S1P 2019 Technical Highlights

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Agenda

- IT Paradigm Shift
- Pivotal Platform in VMware Tanzu
- 4 Cloud Native Principles

Pat Gelsinger (CEO, VMware)

James Waters (SVP, Strategy, Pivotal)

Cornelia Davis (VP, Technology, Pivotal)

Mark Fisher (Sr. Staff Engineer, Pivotal)

Cloud-native: Technology




Cloud-native: Philosophy

Litmus test: Developer experience to prod

What's in

- ➔ Containerized
- ➔ Dev centric
- ➔ CI/CD friendly
- ➔ Testable
- ➔ Just another Boot app

What's out

Everything that slows down developers

Proprietary or hosted only API Gateways

Proprietary integration/ESB

Proprietary ETL

Continuous delivery is eating enterprise IT

2019 Accelerate State of DevOps Report

Old		New
Projects	→	**Products**
Waterfall	→	**Lean**
ITIL	→	**CI/CD**
VMs	→	**Cloud-native platforms (k8s)**
JavaEE	→	**Spring Boot**
Batch	→	**Kafka Streaming Platform**

Cloud-native
infrastructure

Cloud-native
app infrastructure


vmware
Pivotal

VMware Tanzu

VMware Tanzu

Build

bitnami

Pivotal

spring

Run

VMware PKS | Project Pacific

Manage

VMware Tanzu Mission Control

heptio

VMware Tanzu

Build

Modern Applications

Traditional | COTS | Cloud-native

Run

Enterprise Kubernetes

On-premises | Public cloud | Edge

Manage

Kubernetes for Developers and IT

Multi-cloud

Multi-cluster

Multi-team

Build modern applications

VMware Tanzu

Build

Pivotal Platform

Continue Leadership in Application Service

Leverage Kubernetes for Application Services

Bring Services to Kubernetes

Build modern applications

VMware Tanzu

Build

Pivotal Platform

Continue Leadership in Application Service

Leverage Kubernetes for Application Services

Bring Services to Kubernetes

Pivotal Application Service 2.7 available

Native rolling application deployments

Self-service app redeployments and revisions

Improved App SysLog

Improved Java running in user-provided sidecars

Build modern applications

VMware Tanzu

Build

Pivotal Platform

Continue Leadership in Application Service

Leverage Kubernetes for Application Services

Bring Services to Kubernetes

Cody
Application
Developer

```
$ cf push myApp
$ cf logs myApp
$ cf scale myApp -i 5
```

Alana
Platform
Engineer

```
$ kubectl get pods -n pas-eirini
```

BOSH-deployed VMs

PAS for K8s Control Plane

Cloud Controller

eirini/0

K8s cluster: pas-k8s

k8s-master/0

k8s-worker/0

namespace: pas-eirini

APP

PKS Control Plane

BOSH

Build modern applications

VMware Tanzu

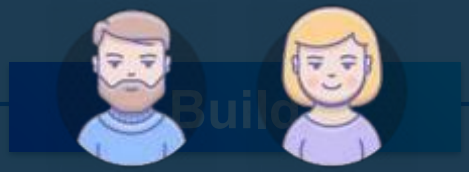
Build

Pivotal Platform

Continue Leadership in Application Service

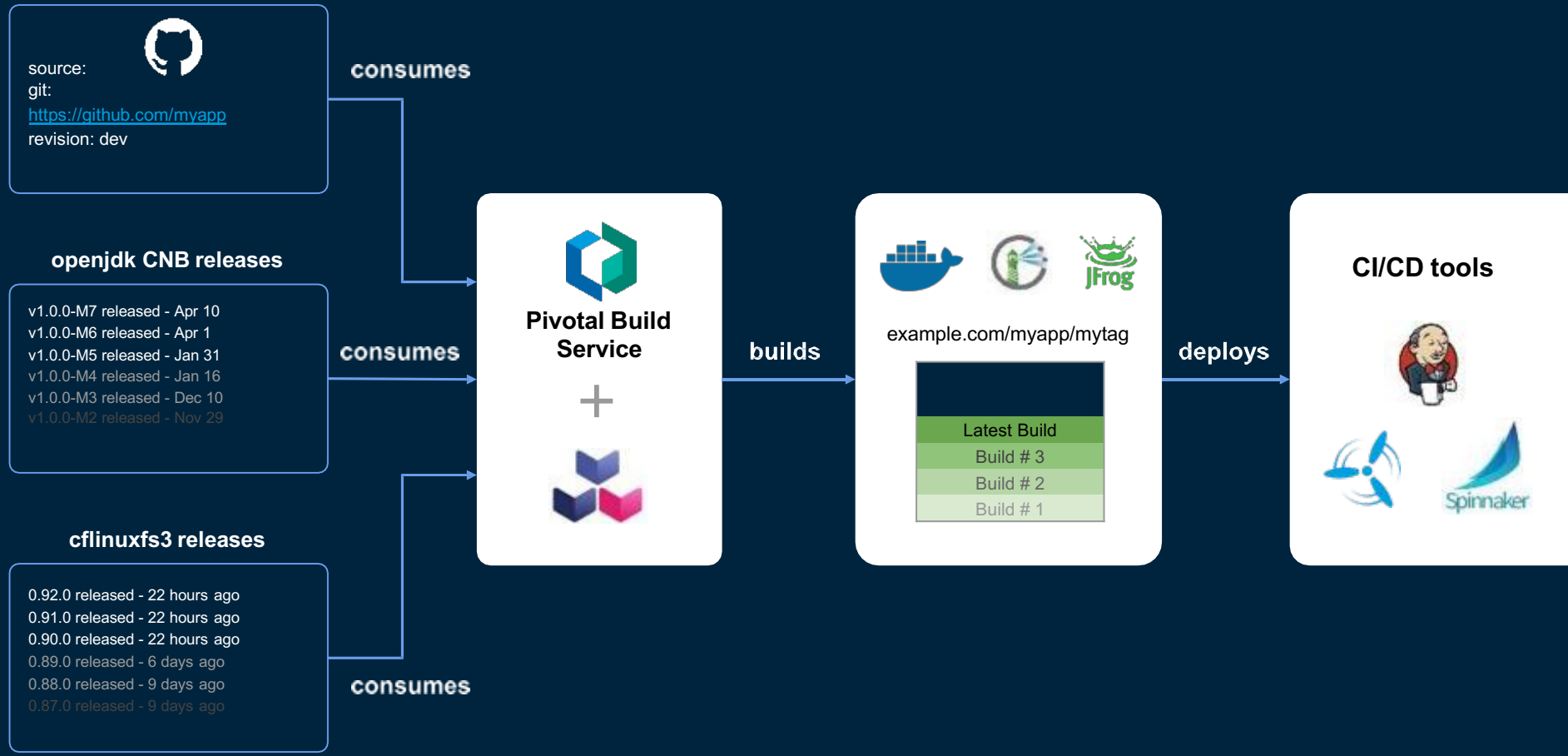
Leverage Kubernetes for Application Services

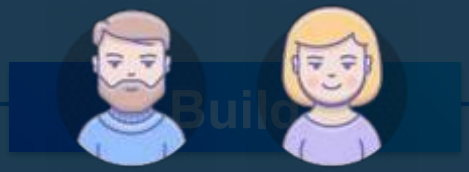
Bring Services to Kubernetes



The process of building code needs to be repeatable

Bring Services to Kubernetes


source:
git:
https://github.com/myapp
revision: dev
consumes
openjdk CNB releases
v1.0.0-M7 released - Apr 10
v1.0.0-M6 released - Apr 1
v1.0.0-M5 released - Jan 31
v1.0.0-M4 released - Jan 16
v1.0.0-M3 released - Dec 10
v1.0.0-M2 released - Nov 29
consumes
cflinuxfs3 releases
0.92.0 released - 22 hours ago
0.91.0 released - 22 hours ago
0.90.0 released - 22 hours ago
0.89.0 released - 6 days ago
0.88.0 released - 9 days ago
0.87.0 released - 9 days ago
consumes
Pivotal Build Service
builds
JFrog
example.com/myapp/mytag
Latest Build
Build # 3
Build # 2
Build # 1
deploys
CI/CD tools
Spinnaker

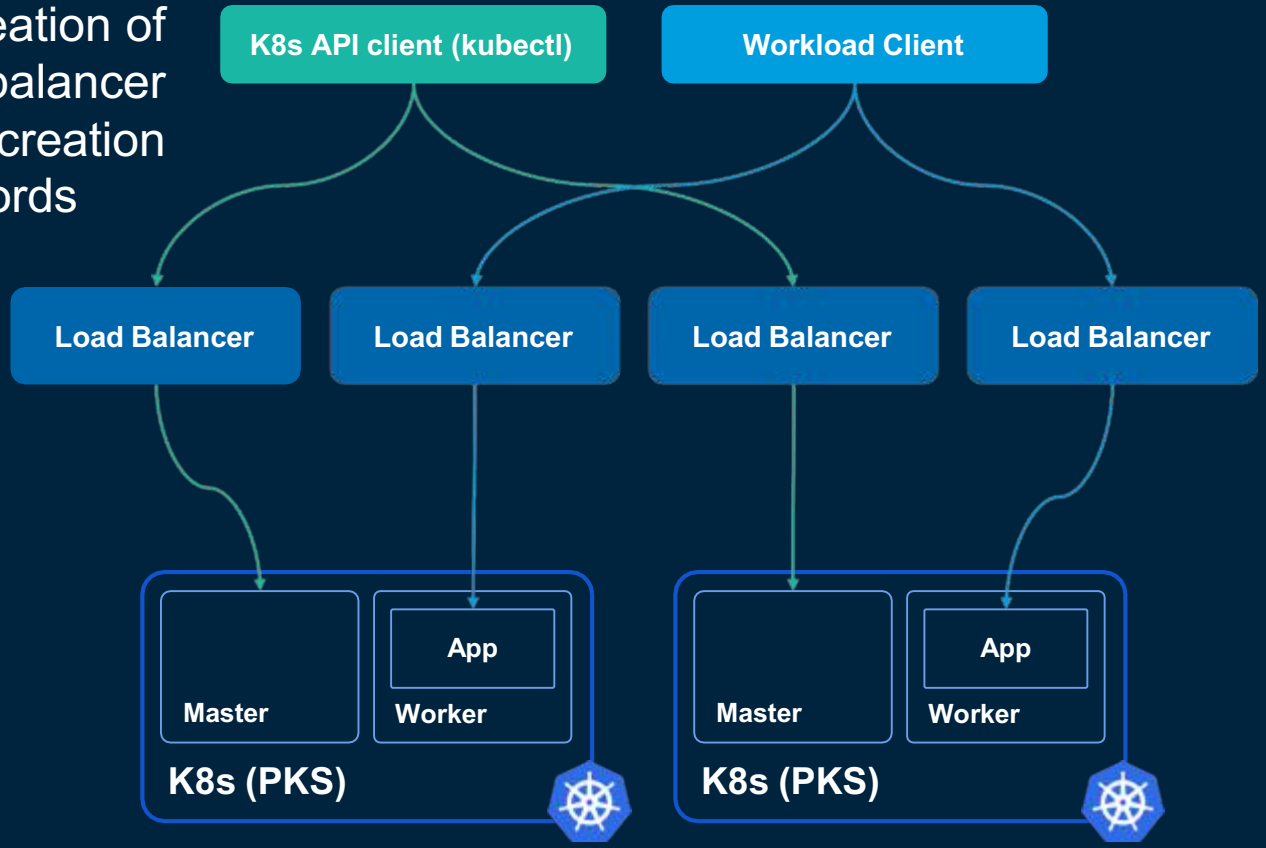


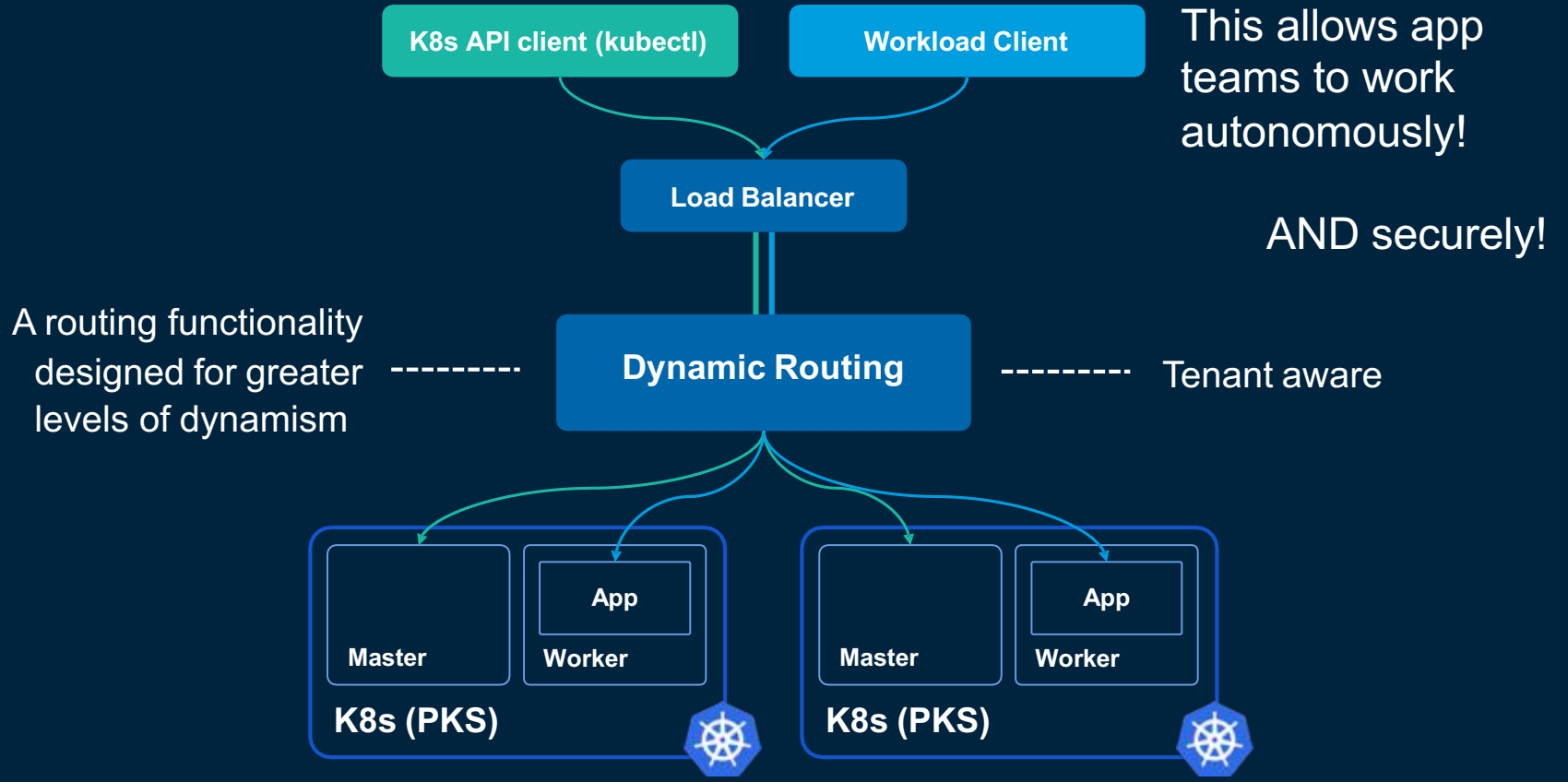
App teams need to be self-sufficient

Bring Services to Kubernetes

With the creation of each load balancer comes the creation of DNS records

Is that via ticket?



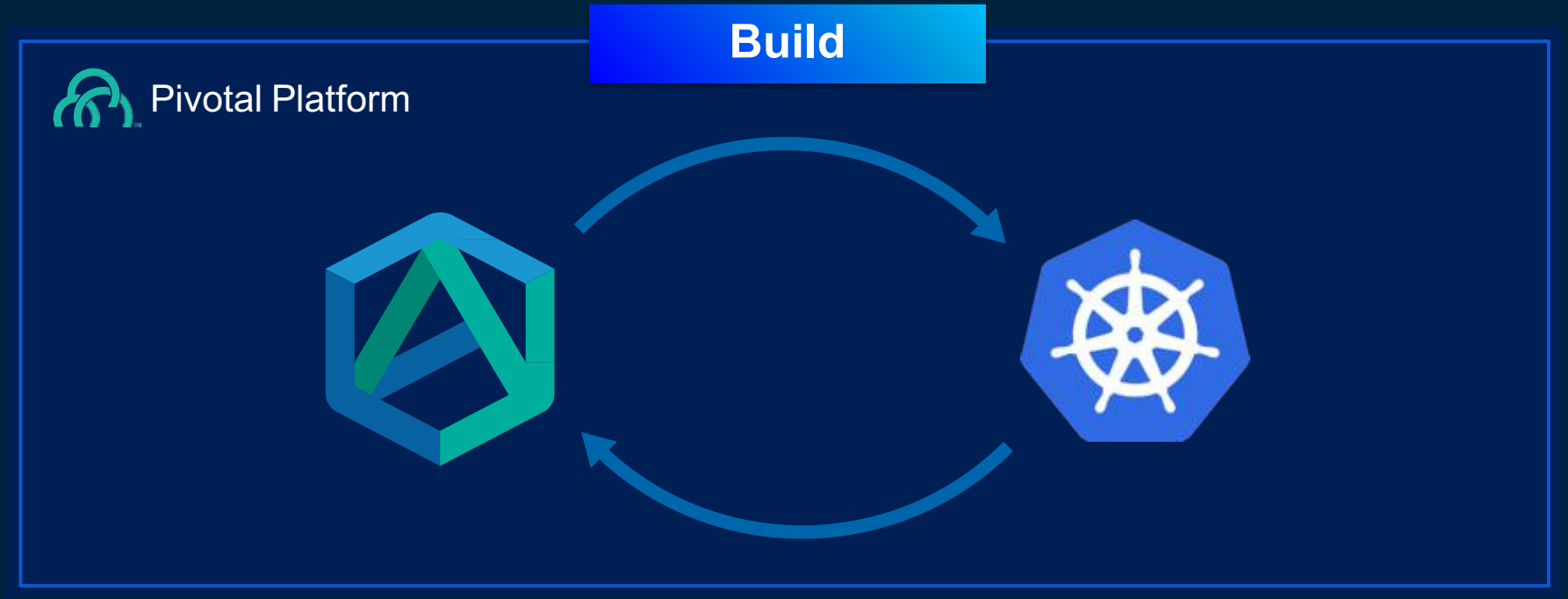


This allows app teams to work autonomously!

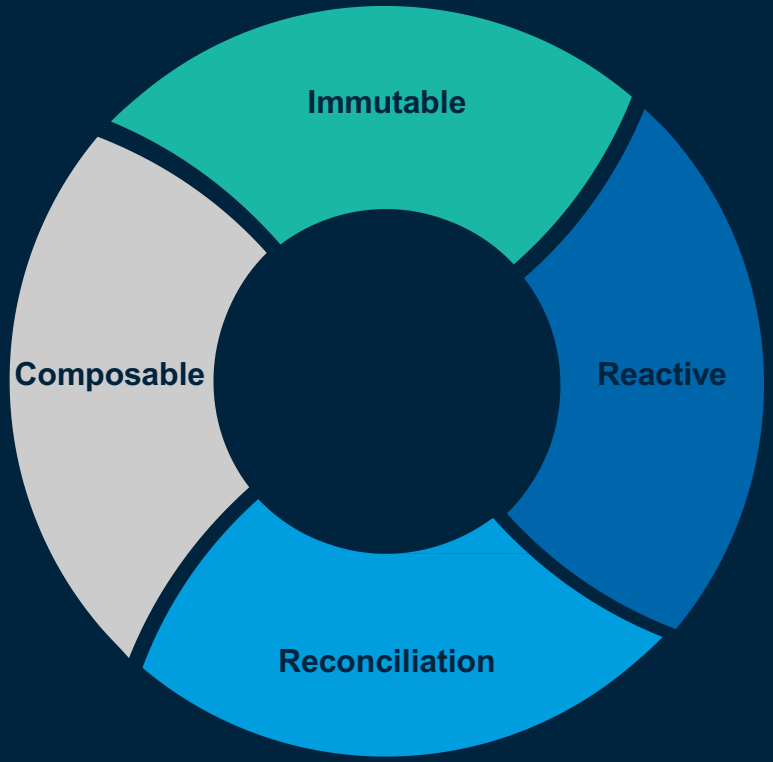
AND securely!

Build modern applications

VMware Tanzu



Four cloud-native principles in practice



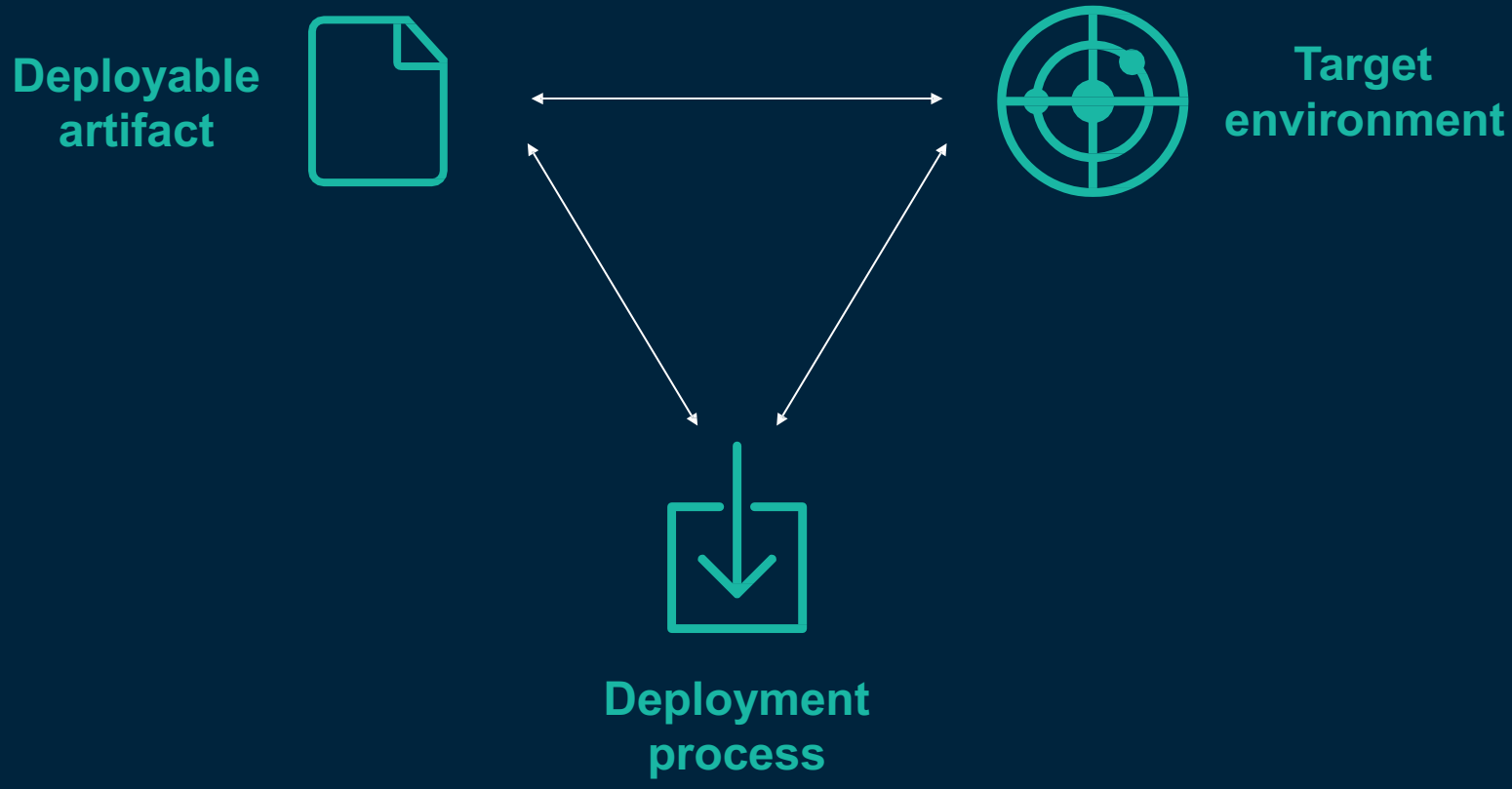
Cloud-native
infrastructure

Cloud-native
applications

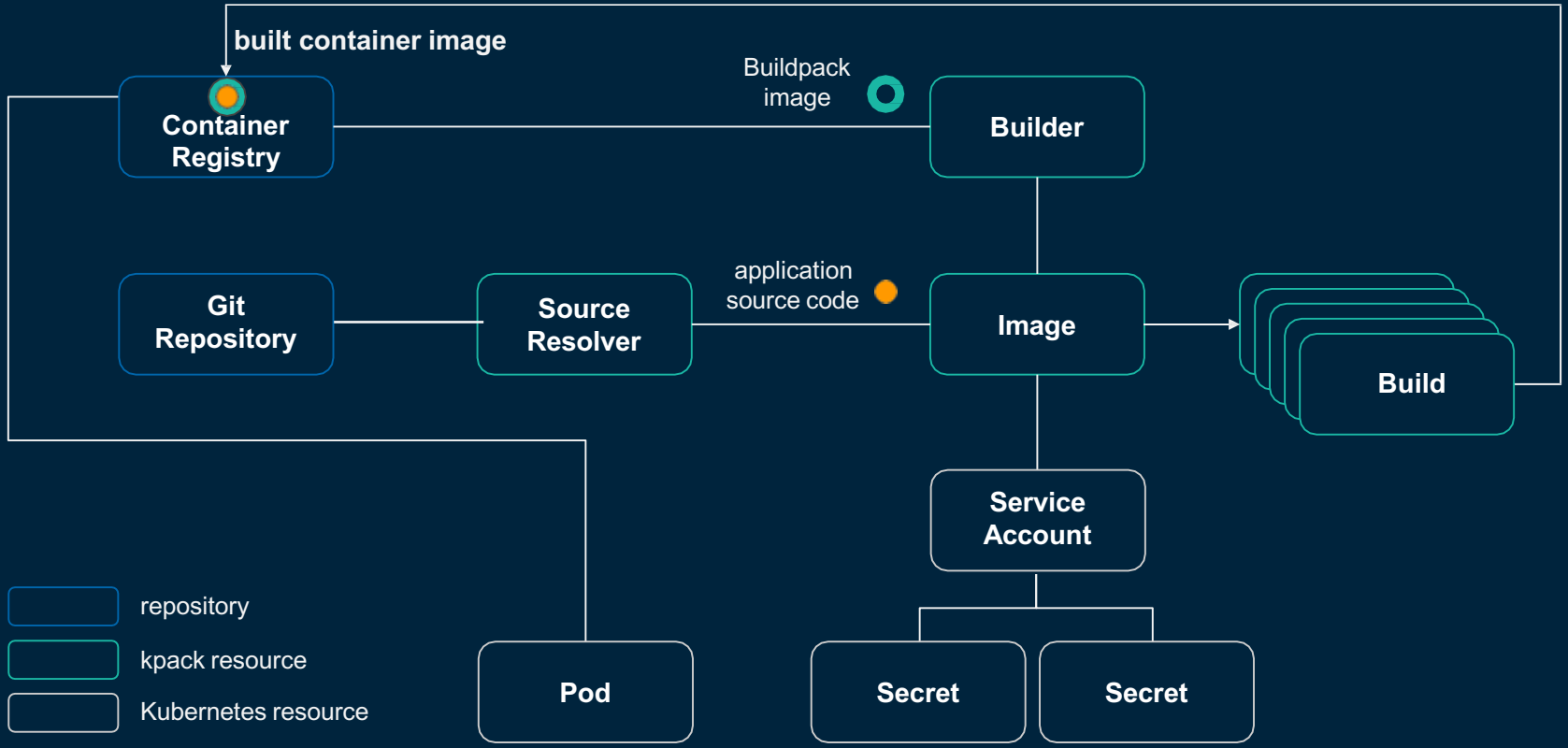
Immutability

Image source: NASA Johnson Space Center

Repeatability



kpack


built container image
Container Registry
Buildpack image
Builder
Git Repository
Source Resolver
application source code
Image
Build
Service Account
repository
kpack resource
Kubernetes resource
Pod
Secret
Secret

Event Streams

searched for "boot"

viewed "Spring Boot In Action"

Added "Spring Boot In Action"

viewed "Spring Cloud Sleuth In Action"

added "Spring Cloud Sleuth In Action"

viewed "Cloud Native Patterns"

added "Cloud Native Patterns"

removed "Spring Cloud Sleuth In Action"

checked out

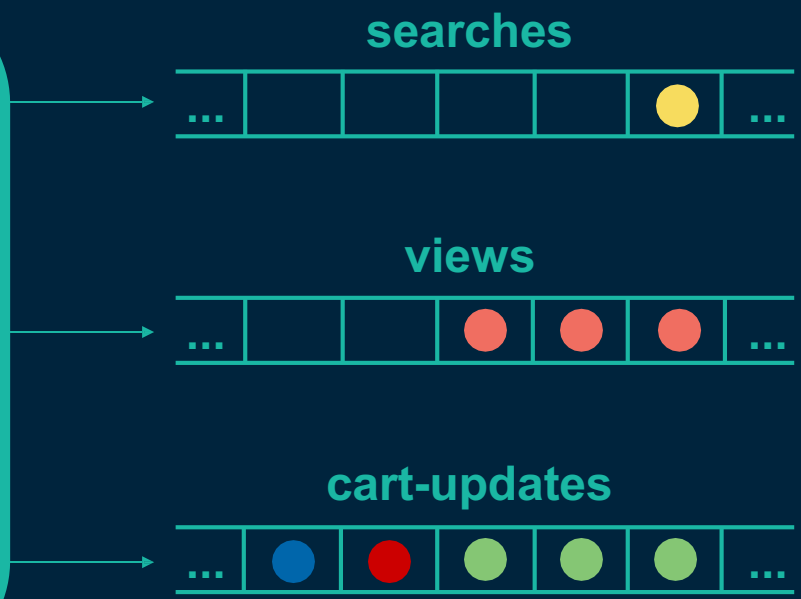
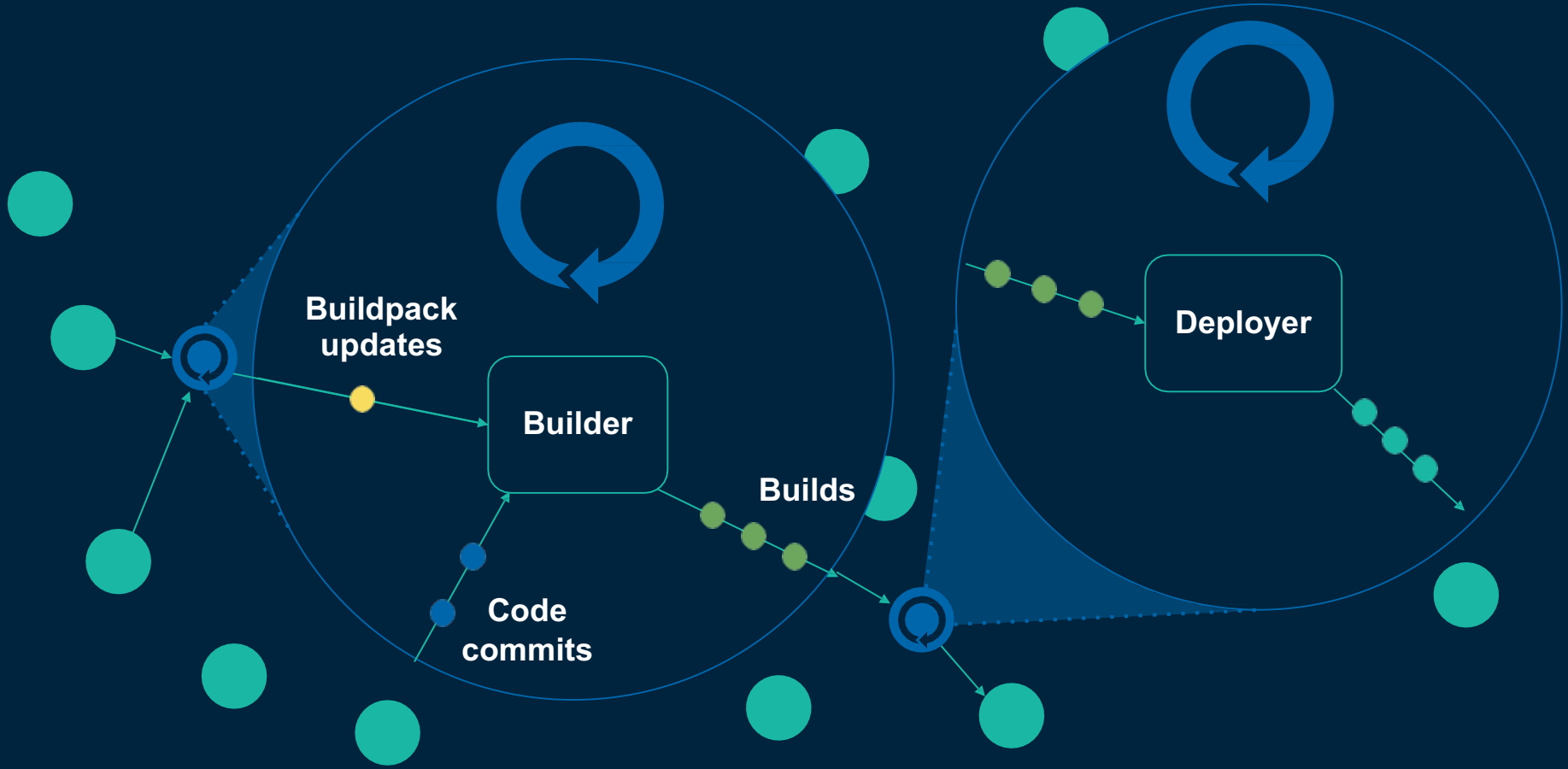
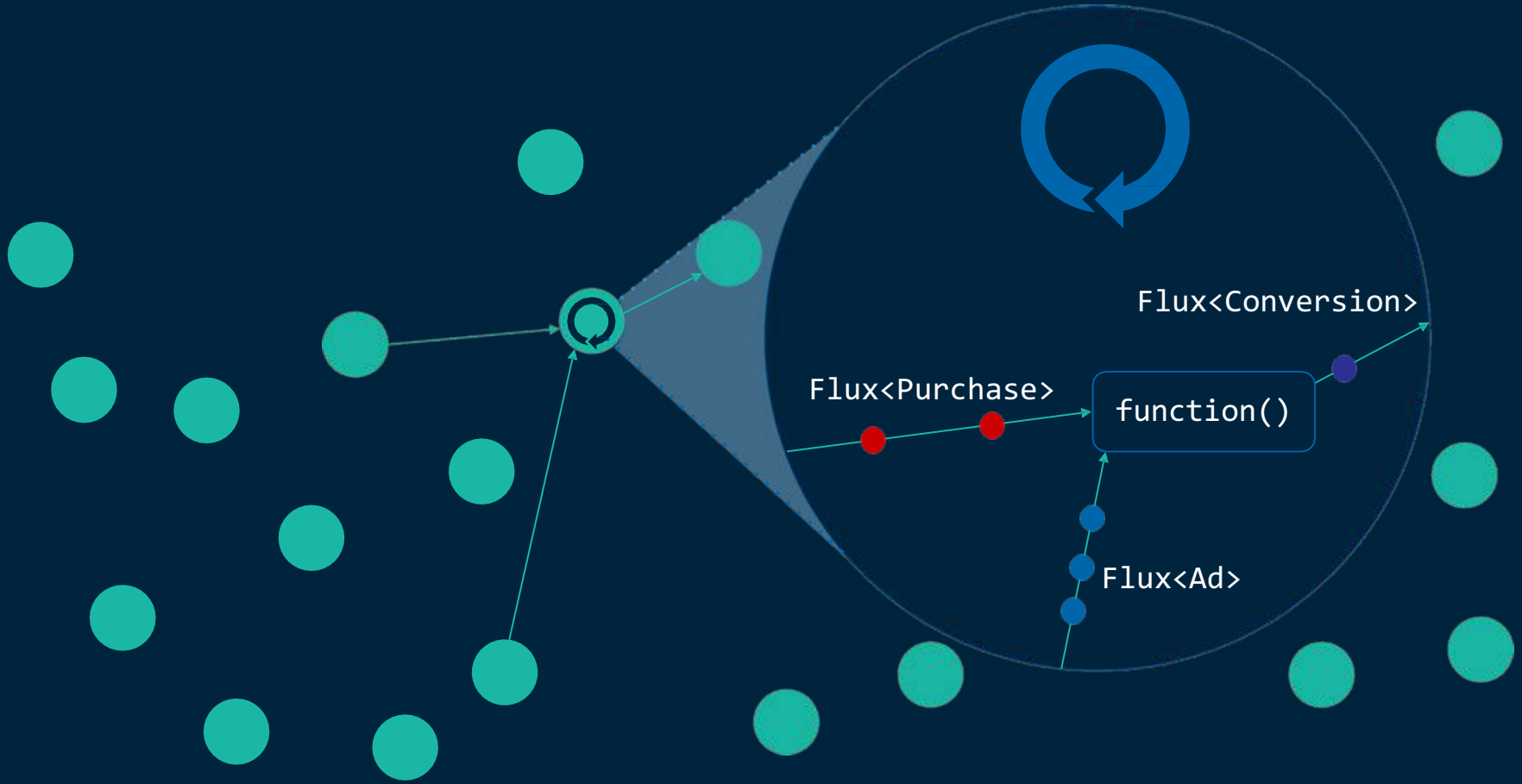


Image source: NASA Johnson Space Center

Continuous delivery



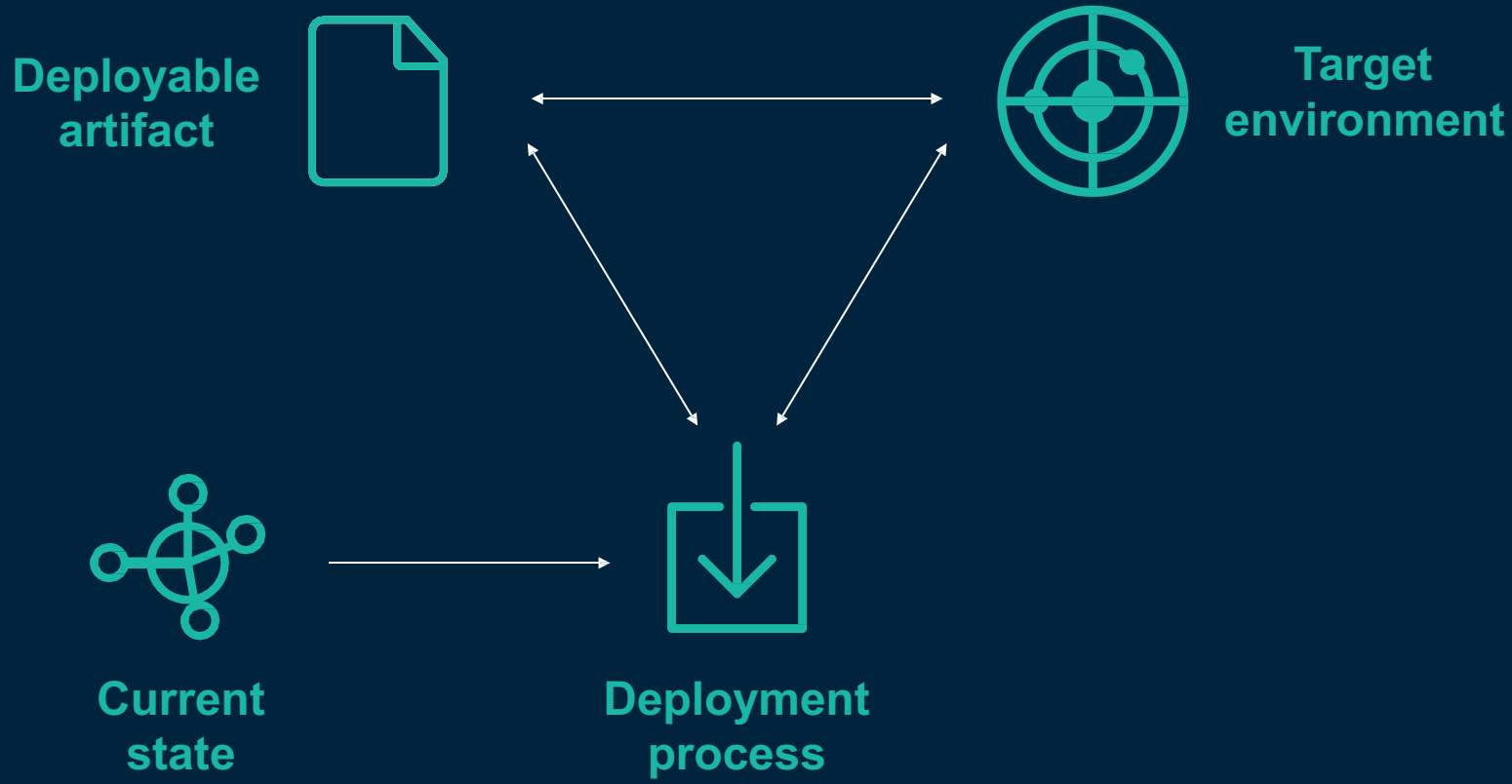
Reactive Stream processing



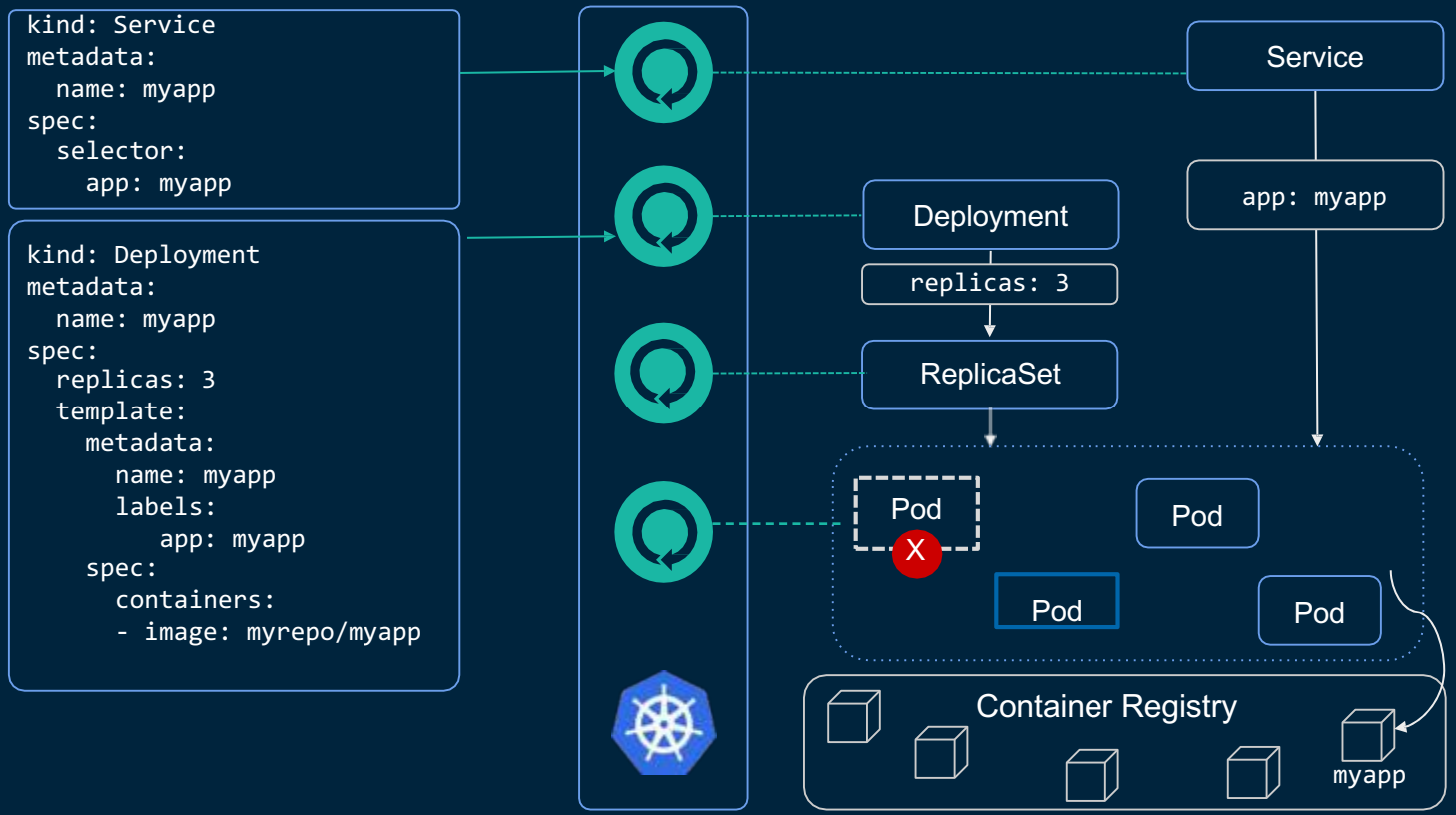
Reconciliation

Image source: NASA Goddard Space Flight Center

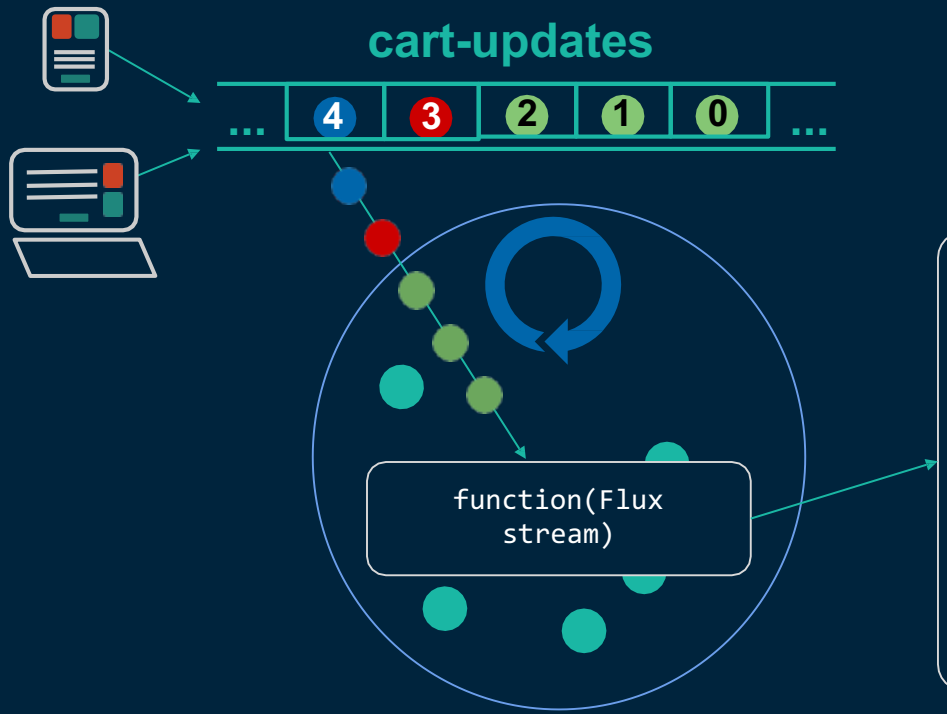
To support repeatability



Kubernetes reconciliation



Streams and tables

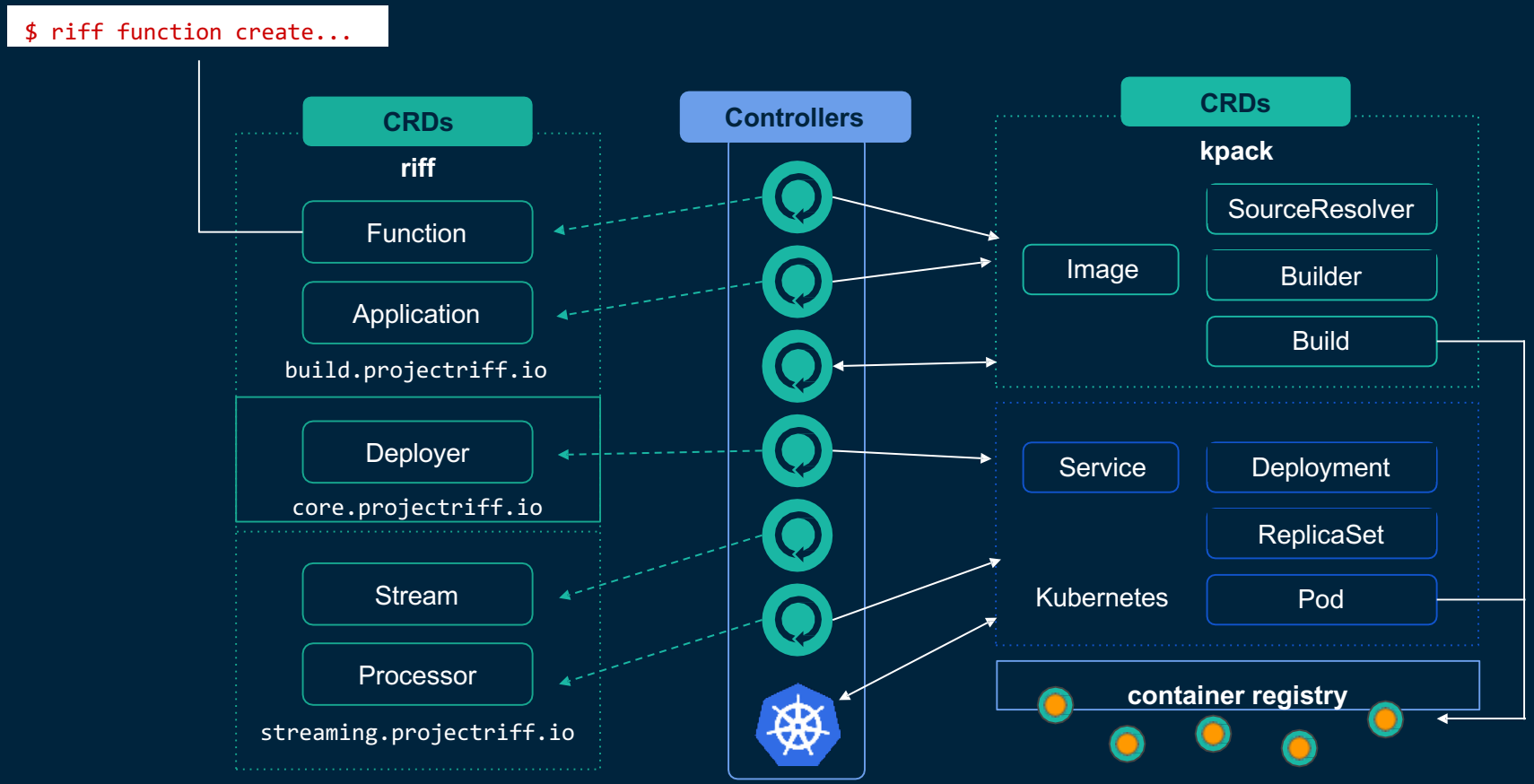


Orders

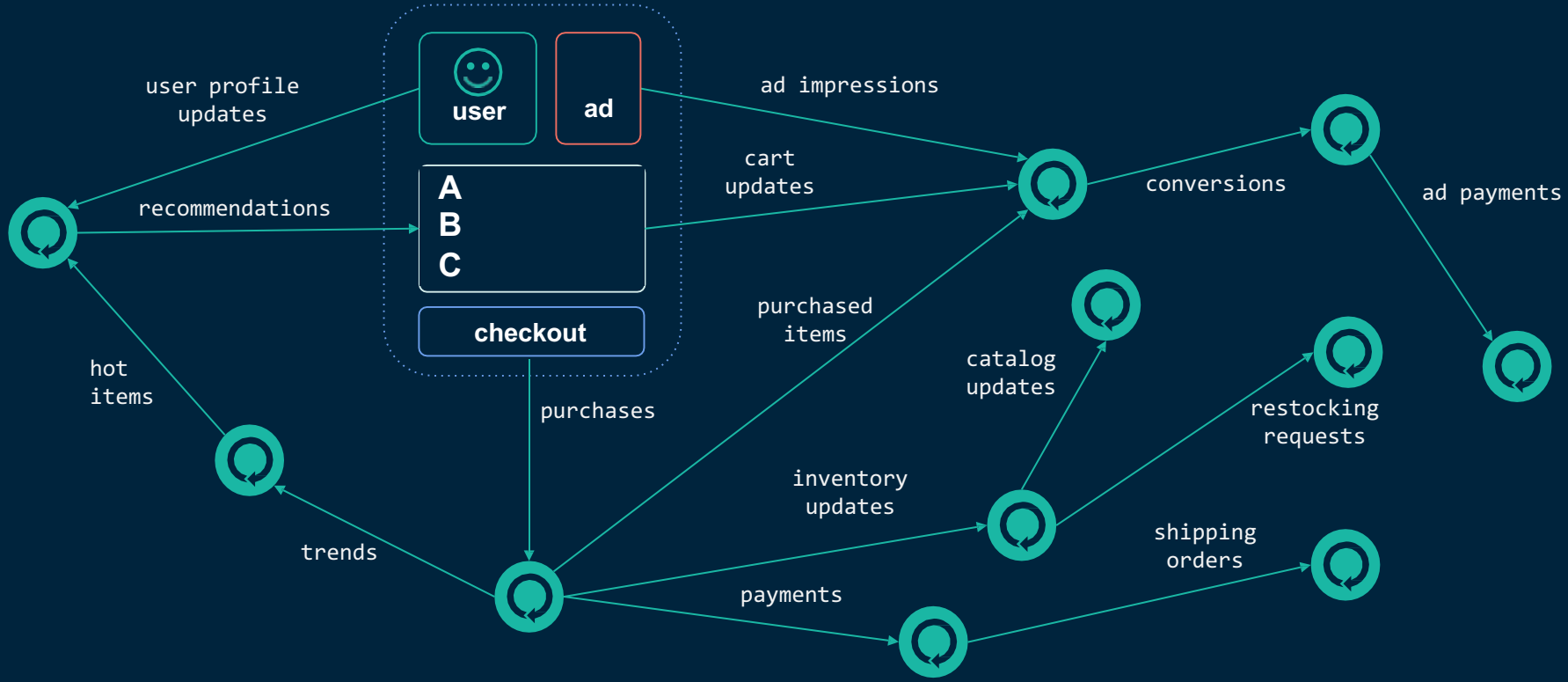
ID	QUANTITY	ITEM
99	1	Spring Boot in Action
99	1	Cloud Native Patterns

Image source: NASA Goddard Space Flight Center

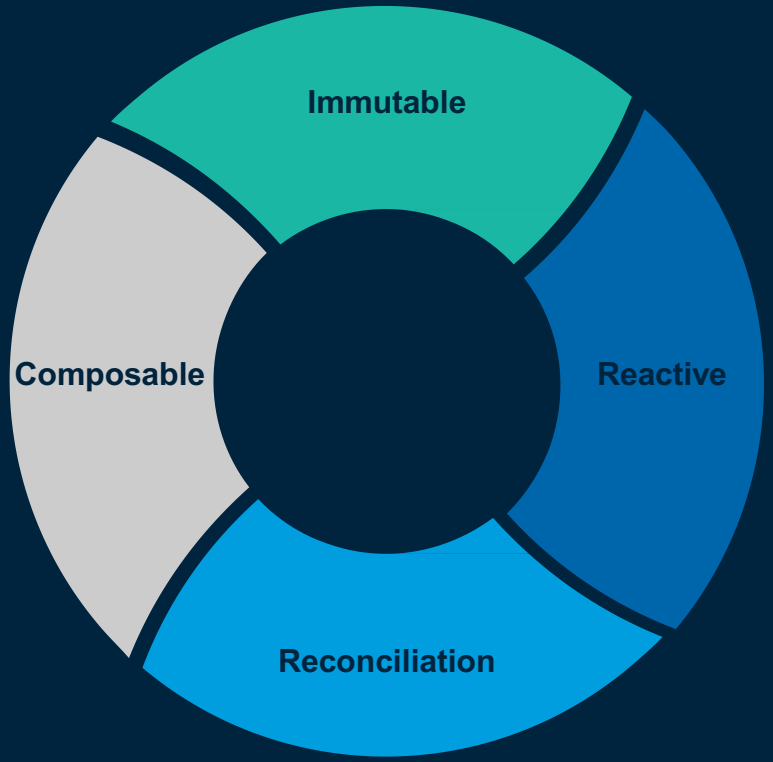
Extending Kubernetes with Custom Resources



Composing event stream processors



Four cloud-native principles in practice



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Thank You

For Full Videos, Search 'SpringOne Platform 2019' inYouTube