



KubeCon



CloudNativeCon

Europe 2018

2020 Vision

Alexis Richardson

CNCF TOC Chair & CEO Weaveworks

@monadic



Welcome to the Harbour* city



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(*) here we use the correct English spelling

Home of Lego



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CNCF in 2016



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CNCF Evil Plan



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Start Up Phase

Amazing tools like
Kubernetes

@ NOW



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2018

Start Up Phase

Amazing tools like
Kubernetes

2018

Start Up Phase

Amazing tools like
Kubernetes

Acceptance

Anyone can use any
component and
plug them together
(interoperability)



Towards UBIQUITY



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We are not a Start Up any more



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- Accepted and Growing
- The pieces slot together and **just work**
- We are building out a **cloud platform**

Why a platform? Because Users



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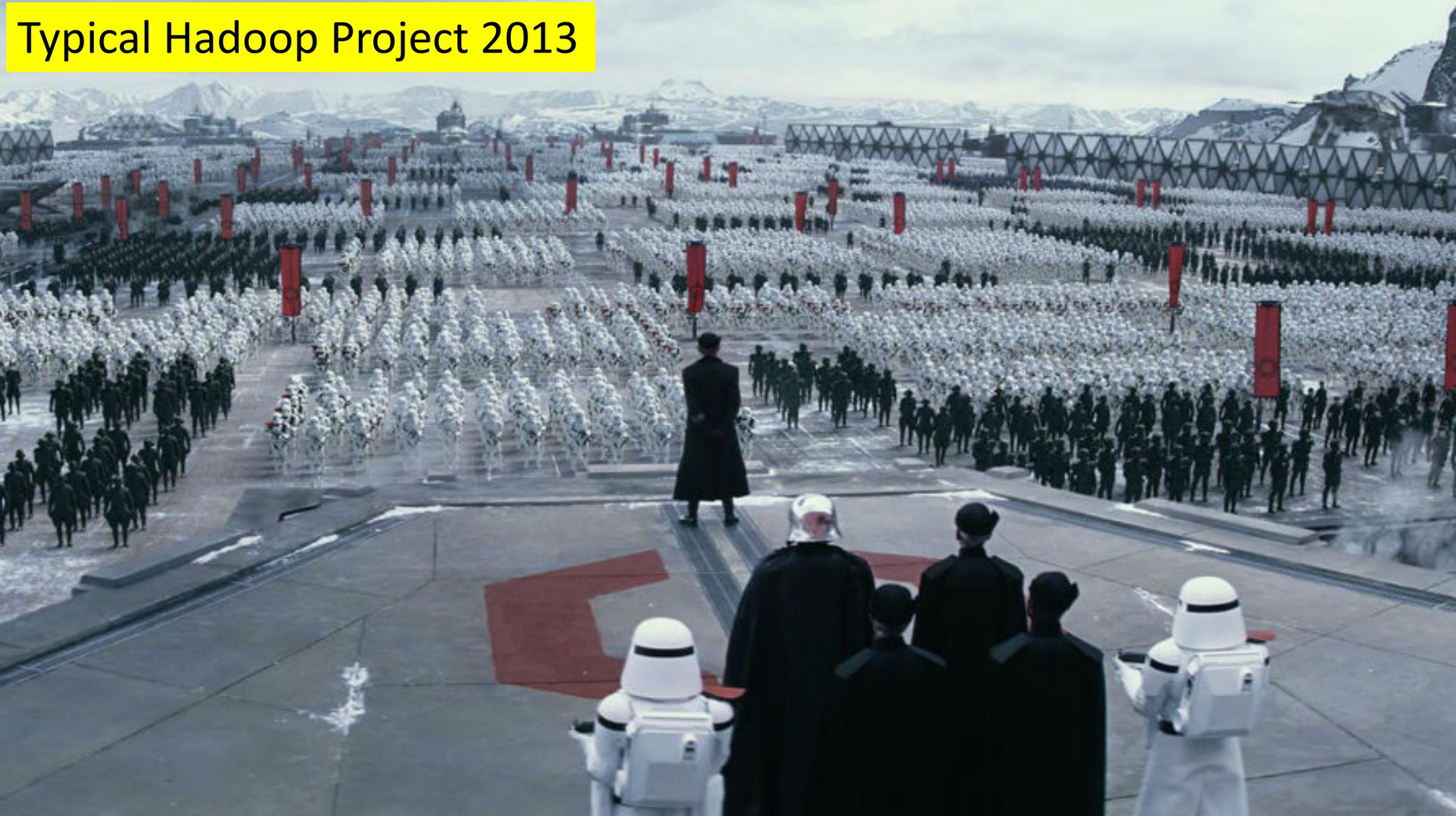


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- For Business Users, *Cloud Native is Cloud*
- They want one story: Cloud Platform for era of ubiquitous services
 - a bigger deal than the Web
 - open like Linux
- Visible business outcomes: *Innovation and new Business Models*

Typical Hadoop Project 2013



2018: we have
Kubeflow



Componentisation



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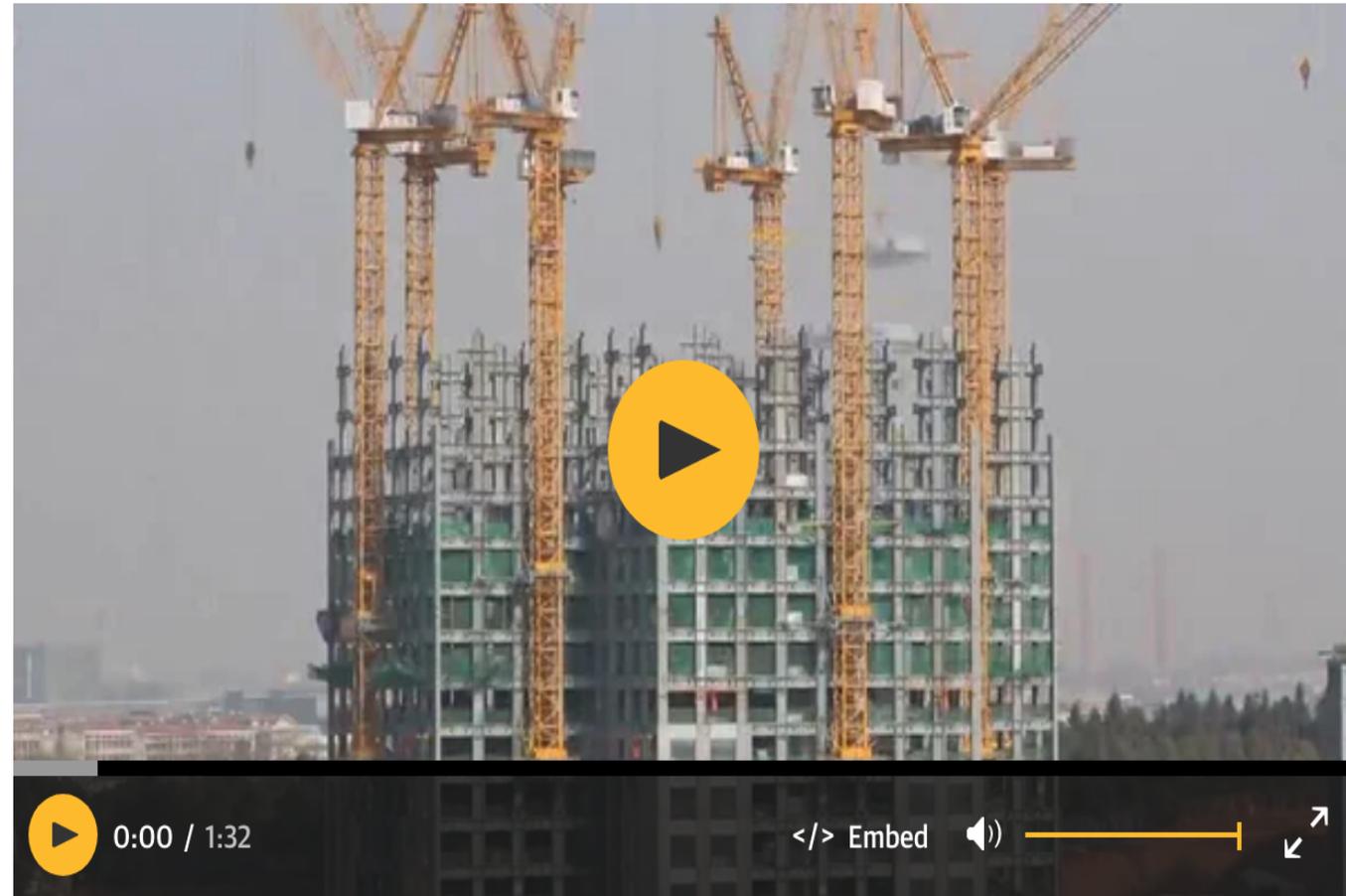
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Componentisation

Chinese construction firm erects 57-storey skyscraper in 19 days

Company claims to be world's fastest builder after assembling Mini Sky City at a pace of three floors a day



i A time-lapse video shows the construction of Mini Sky City from start to finish.

No platform?



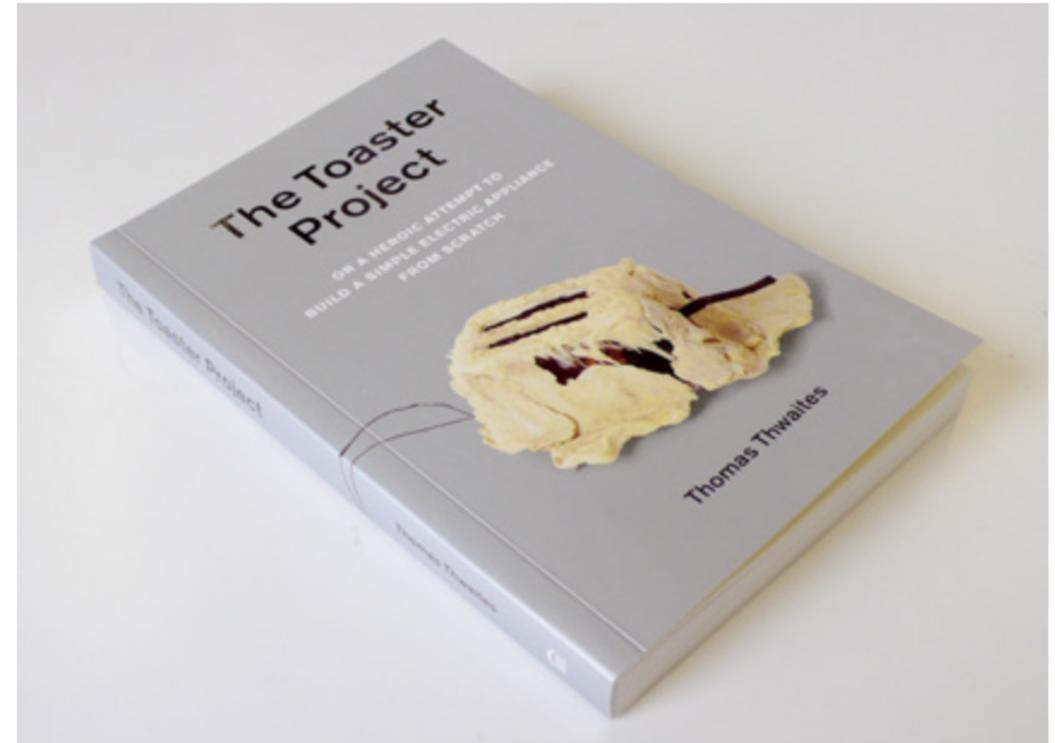
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Who
wants to
build a
toaster?



"Left to his own devices he couldn't build a toaster. He could just about make a sandwich and that was it."

Mostly Harmless, Douglas Adams, 1992

High Velocity



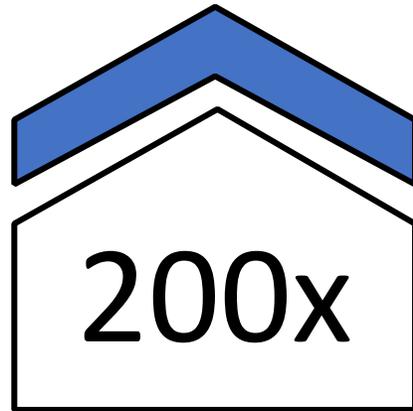
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High-performing teams deploy more frequently and have much faster lead times



200x more frequent deployments



2,555x shorter lead times

They make changes with fewer failures, and recover faster from failures



3x lower change failure rate



24x faster recovery from failures

Desired Outcome



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- Higher speed
- Lower barriers to entry
- Explosion of **higher order systems**

The key pieces we need



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Developers to write code
that powers **Applications**
integrating pre-built **Marketplace** services across clouds
deployed to a **Cloud Platform** that is easy, stable & operable
using best practices for **Continuous Delivery** at high velocity

Cloud Platform



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Code >>

“Just run my code”

Containers >>

Kubernetes

Other CNCF
Projects

Local Services
& Data

Infra - Cloud & DCs & Edge

“Just Run My Code”

- Serverless: Openfaas, Kubeless, OpenEvents, AWS Lambda....
- PaaS (Openshift, Cloud Foundry..), MBaaS, KaaS, ..
- KubeFlow, Istio, Pachyderm and other k8s native app f/works
- Declarative app def eg compose, ksonnet, ballerina
- Ports: Laravel (PHP!) and other ports of app frameworks to K8s
- Testing: ChaosIQ, ..
- And many more!

Serverless & Kubernetes



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In the cloud platform, serverless & k8s will essentially converge:

“Kubernetes, just run my code”

- We shall see both general purpose (eg metaparticle) and use case specific application definition tools for running code
- Consumption and packaging of services is where serverless and functions add value today, and will be part of the Platform
- Ubiquity of Kubernetes will pull serverless into the story and go from “run my containers” to “run my code”

Serverless & Kubernetes



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By 2020

- Commonly used programming tools will unify Kubernetes, containers, “serverless”, managed services / APIs
- These models will be cloud agnostic
- The “pay per call” serverless business model will just be a feature of the cloud platform management layer (eg: AWS Fargate)



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Getting to a Cloud Platform

2017	2018-19	2019-2020
<p>Core Platform</p> <ul style="list-style-type: none">- Kubernetes & containers	<p>Security:</p> <p>Spiffe, OPA, SAFE</p>	<p>Marketplace of Services and other Add-ons</p>
<p>Observability / Operability</p> <ul style="list-style-type: none">- monitoring (prom.)- logging (fluentd)- tracing (jaeger, OT)	<p>Storage:</p> <ul style="list-style-type: none">- orchestration- CSI- other	<p>“Just run my code”</p>
<p>Routing</p> <ul style="list-style-type: none">- mesh (envoy, linkerd)- messaging (nats)	<p>Interfaces:</p> <ul style="list-style-type: none">- OpenMetrics- OpenEvents	
	<p>Developer On Ramp:</p> <p>CICD, Helm packaging, &c</p>	

Practice



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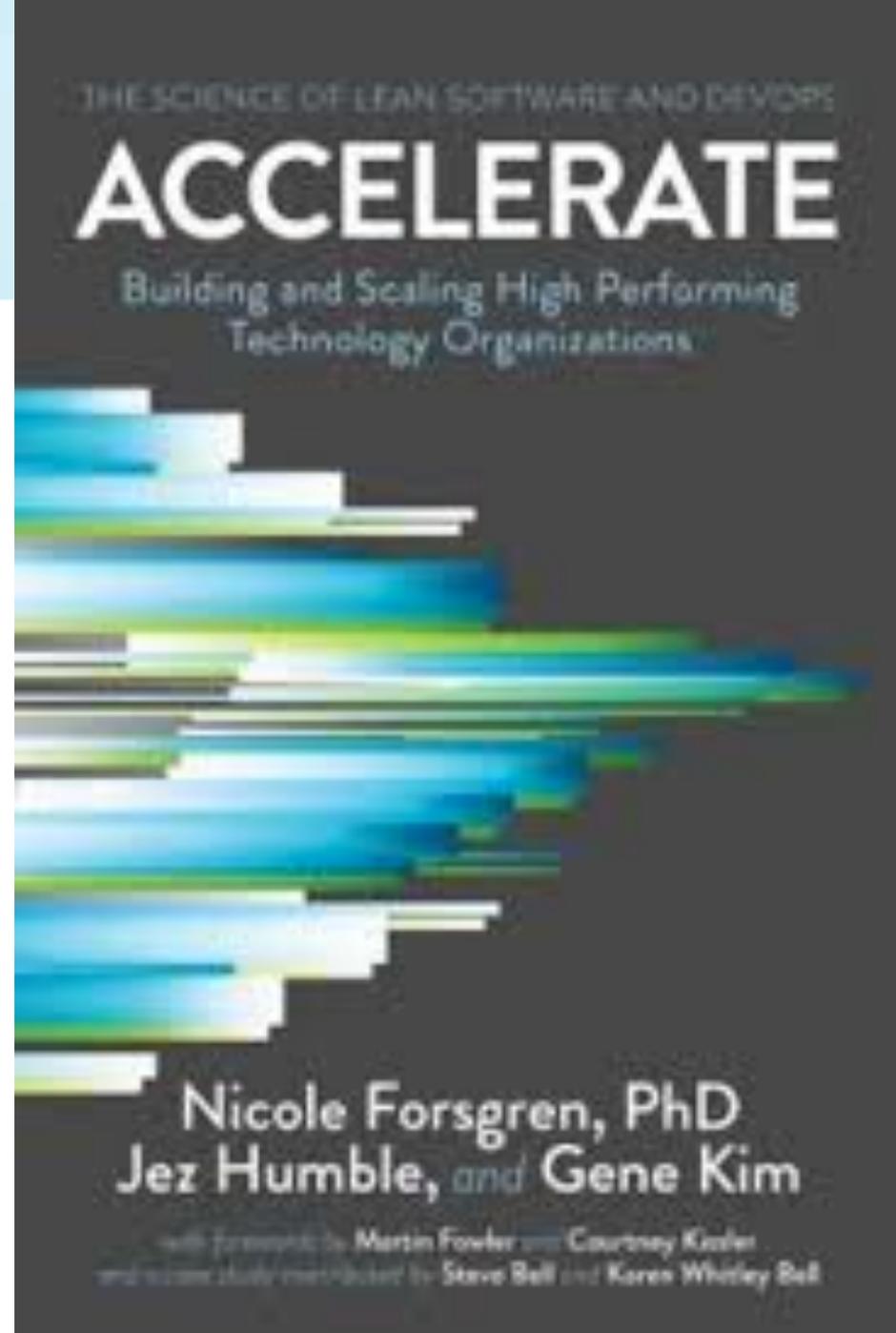
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Tribes gotta tribe



Practice

Tribes gotta tribe



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New ways of working



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cloud led us to devops

cloud native leads to **gitops**

“push code not containers”

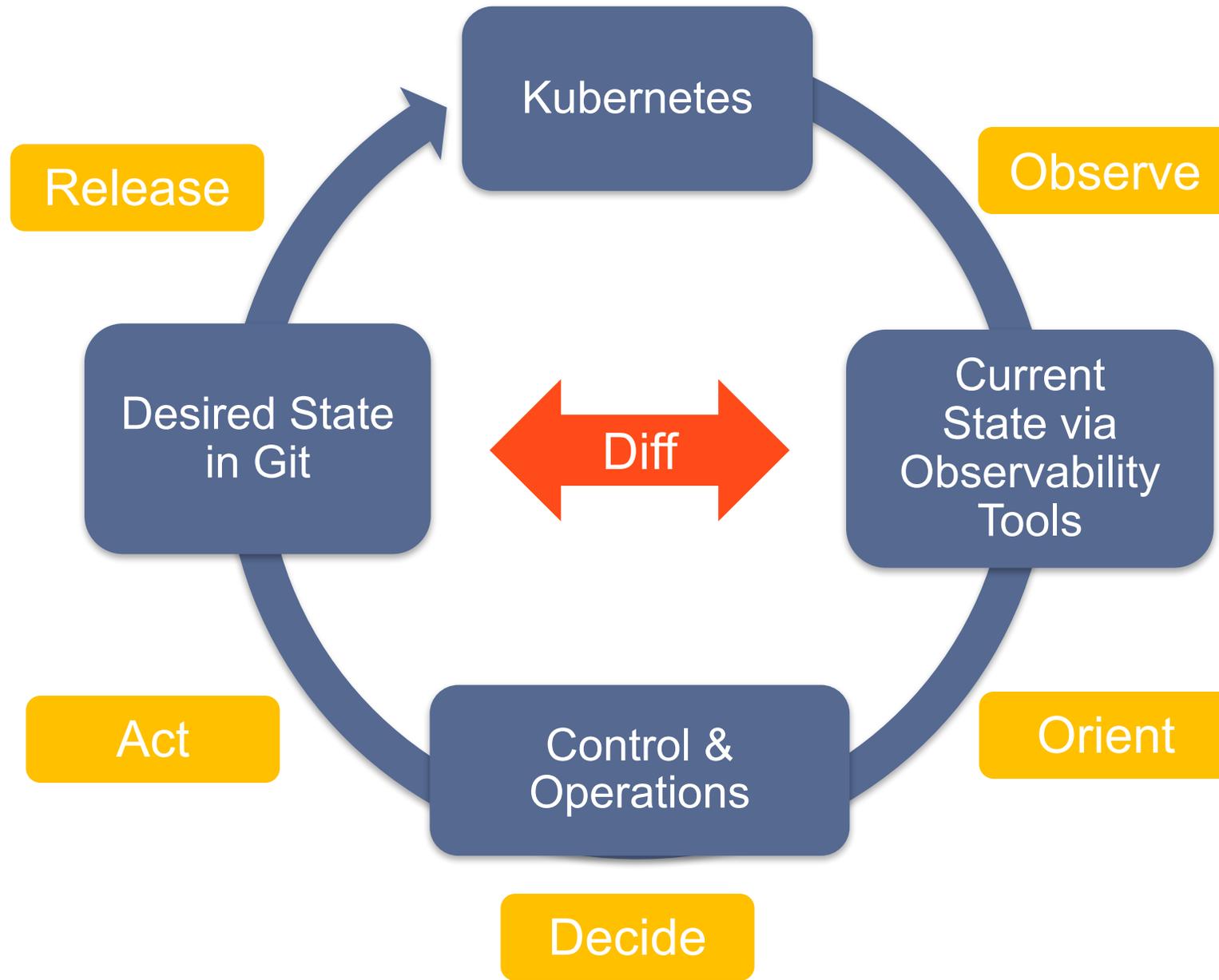
“operations by pull request”

GitOps

Atomic updates for declarative platforms

Developer experience is just **Git push**

Best practice for **Cont. Delivery**



How we go faster...



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- Cloud Platform powered by K8S & CNCF
- Multi Cloud support: EKS, GKE, AKS, Kubeadm, Kops
- Explosion app def tools & services in Marketplace
- GitOps for high velocity delivery pipeline

Kubernetes is a forcing function: You don't buy or use software that isn't *in some way* a kubernetes add-on

Anything missing?



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Who is a developer?



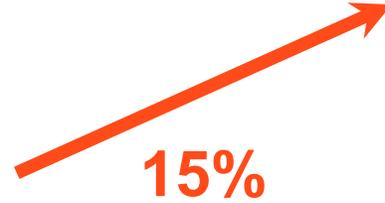
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24
million
TOTAL USERS



100m

Developers on GitHub in 2027

What will developers do?



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- 1960 – 1990 – I can haz computers
- 1990 – 2010 – the Web lowers cost of connectivity
- 2010 – 2030 – ubiquitous services powered by cloud & devices, leads to democracy of skills based on cloud platform explosion
- After 2030... liberation of compute from personal physical gadgets, but possible dystopia

Ethics



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- With great power comes ... YOUR responsibility
- Diversity is table stakes
- We must lower barriers to morality

Don't be these people



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Be these people



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Thank you!

@monadic

@weaveworks

@cloudnativefdn

