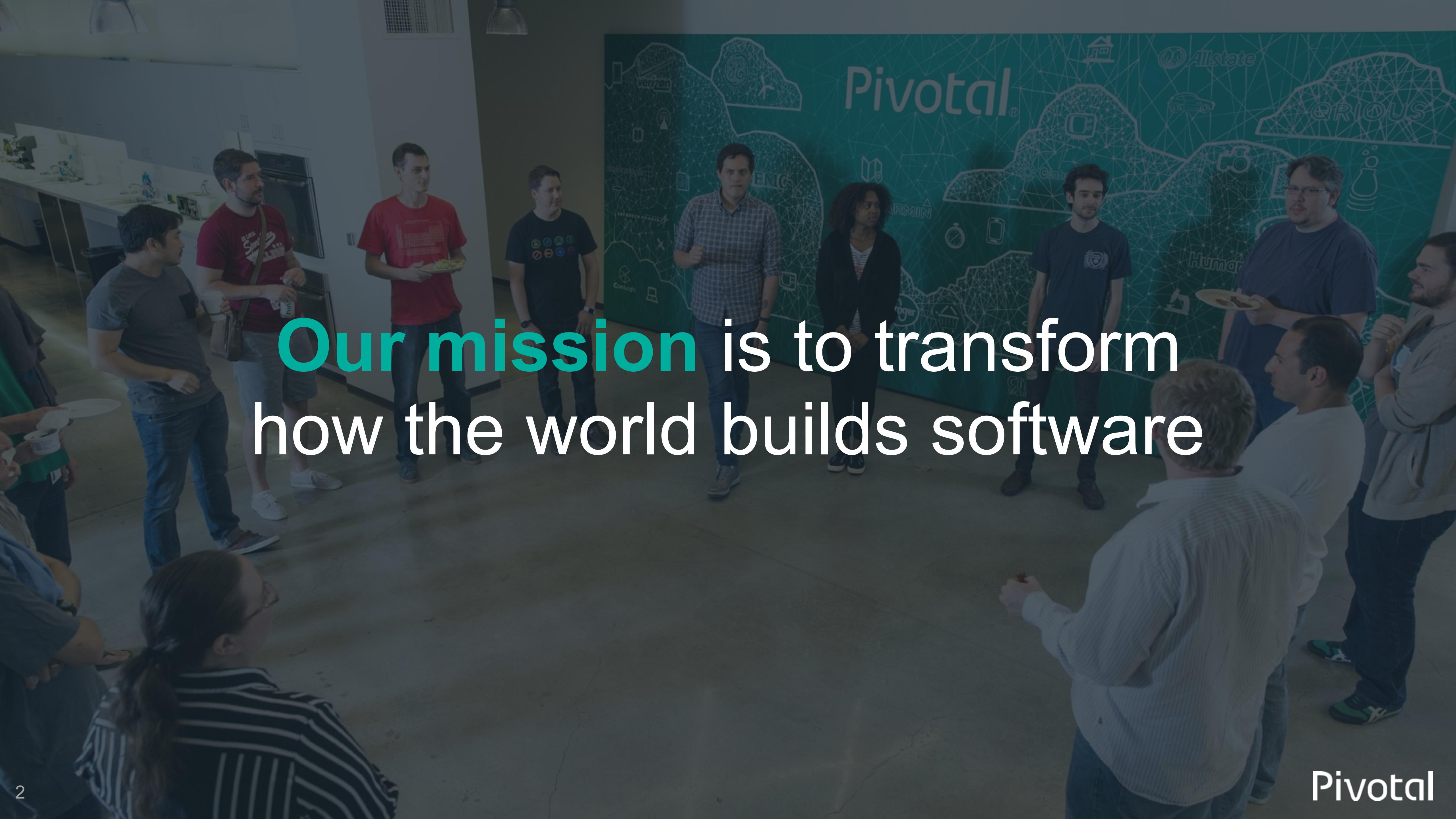


Cloud Native Roadshow

Boston

Pivotal®



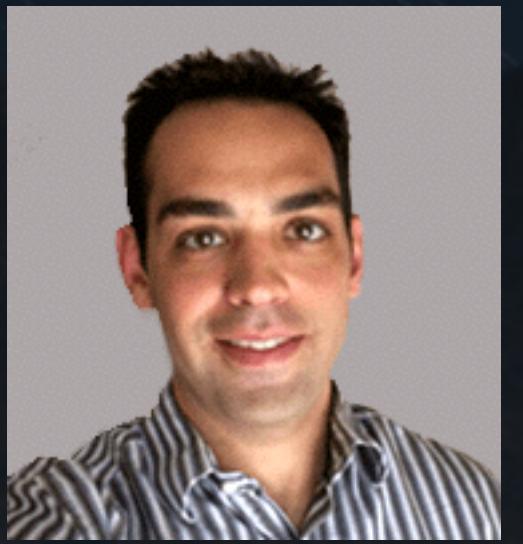
Our mission is to transform
how the world builds software



Casey West @caseywest



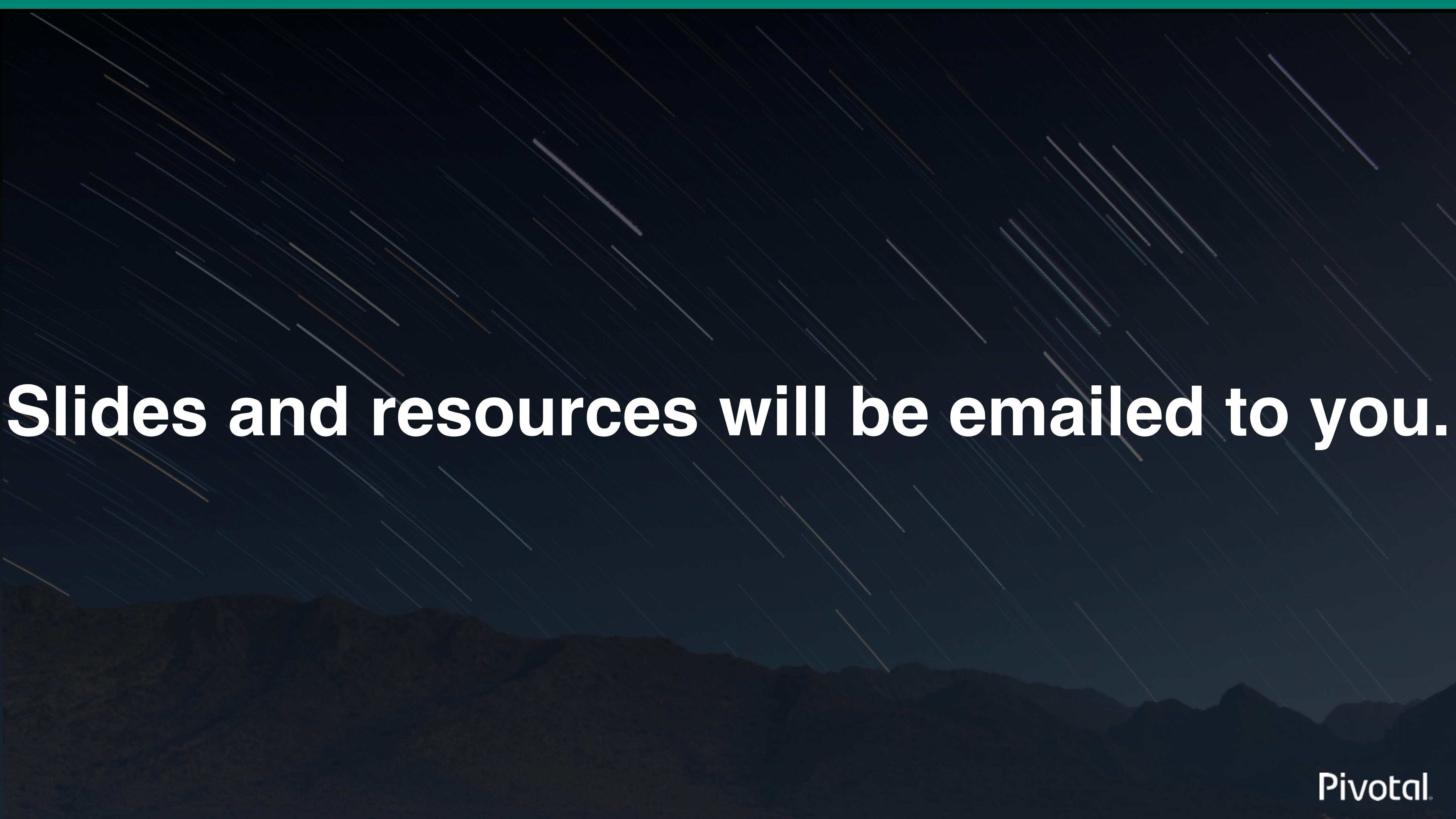
Kenny Bastani @kennybastani



Fred Melo @fredmelo_br



yes



Slides and resources will be emailed to you.

75%

of application development supporting digital business will be **built not bought** by 2020

Source: Gartner



Software is Eating the World

Uber Has Pretty Much Destroyed Regular Taxis in San Francisco

director of taxis for San Francisco's transportation authority, who revealed that average monthly trips per city taxi have plummeted from 1,424 in 2012 to 504 in July 2014 —a drop of almost 65%

Once a sure bet, taxi medallions becoming unsellable



Aamer Madhani, USA TODAY

8:22 a.m. EDT May 18, 2015

Uber and the Great Taxicab Collapse

Should taxpayers bailout bankrupt medallion owners?

Jim Epstein | August 27, 2015

Taxis warn of industrywide collapse

A slew of taxi-medallion owners have fallen behind on their loan payments to credit unions, and prices for medallions continue to slip.

The Taxi Industry Is in Total Collapse

Lawmakers scramble to protect traditional cabs from apps as Philly medallions fetch less than 17% of asking price

By Ken Kurson | 05/07/15 6:14pm

COMMENT 



“Silicon Valley is coming...and
they all want to eat our lunch.”

- Jamie Dimon
CEO, JPMorgan Chase

Source: JPMorgan Chase Annual Shareholder Letter (2015)

Pivotal

JPMC Cloud Native Maturity Model

Cloud Native

- Microservices architecture
- API-first design

Cloud Resilient

- Fault-tolerant and resilient design
- Cloud-agnostic runtime implementation
- Bundled metrics and monitoring
- Proactive failure testing

Cloud Friendly

- 12 Factor App methodology
- Horizontally scalable
- Leverages platform for high availability

Cloud Ready

- No permanent disk access
- Self-contained application
- Platform-managed ports and networking
- Consumes platform-managed backing services

tl;dr

you are building a software company

or losing to someone who is

tl;dr

you are continuously delivering microservices

or losing to someone who is

CLOUD FOUNDRY

The Spring logo consists of the word "spring" in a bold, lowercase, sans-serif font. Above the letter "i", there is a stylized graphic element resembling a leaf or a drop of water, composed of a yellow-green shape with a dark green outline and a smaller dark green shape underneath.

CLOUD FOUNDRY



FOUNDATION

EMC²

Hewlett Packard
Enterprise

IBM

intel

Pivotal

SAP

vmware[®]

accenture
High performance. Delivered.

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sas[®]

swisscom

Telstra

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Akamai
FASTER FORWARD

ALTOROS

魔泊云
ANCHORA MoPaaS

anynines

apigee

APPDYNAMICS

grape up[®]

hazelcast

HITACHI
Inspire the Next

Honeywell

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ca
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MIMACOM

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newtglobal

NIA
NATIONAL INFORMATION SOCIETY AGENCY

PROXIMETRY

cloudsoft

docker

dynatrace

ECS
TEAM

evoila

FUJITSU

gemalto[®]

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redislabs

SW
STARK & WAYNE

SUSE[®]

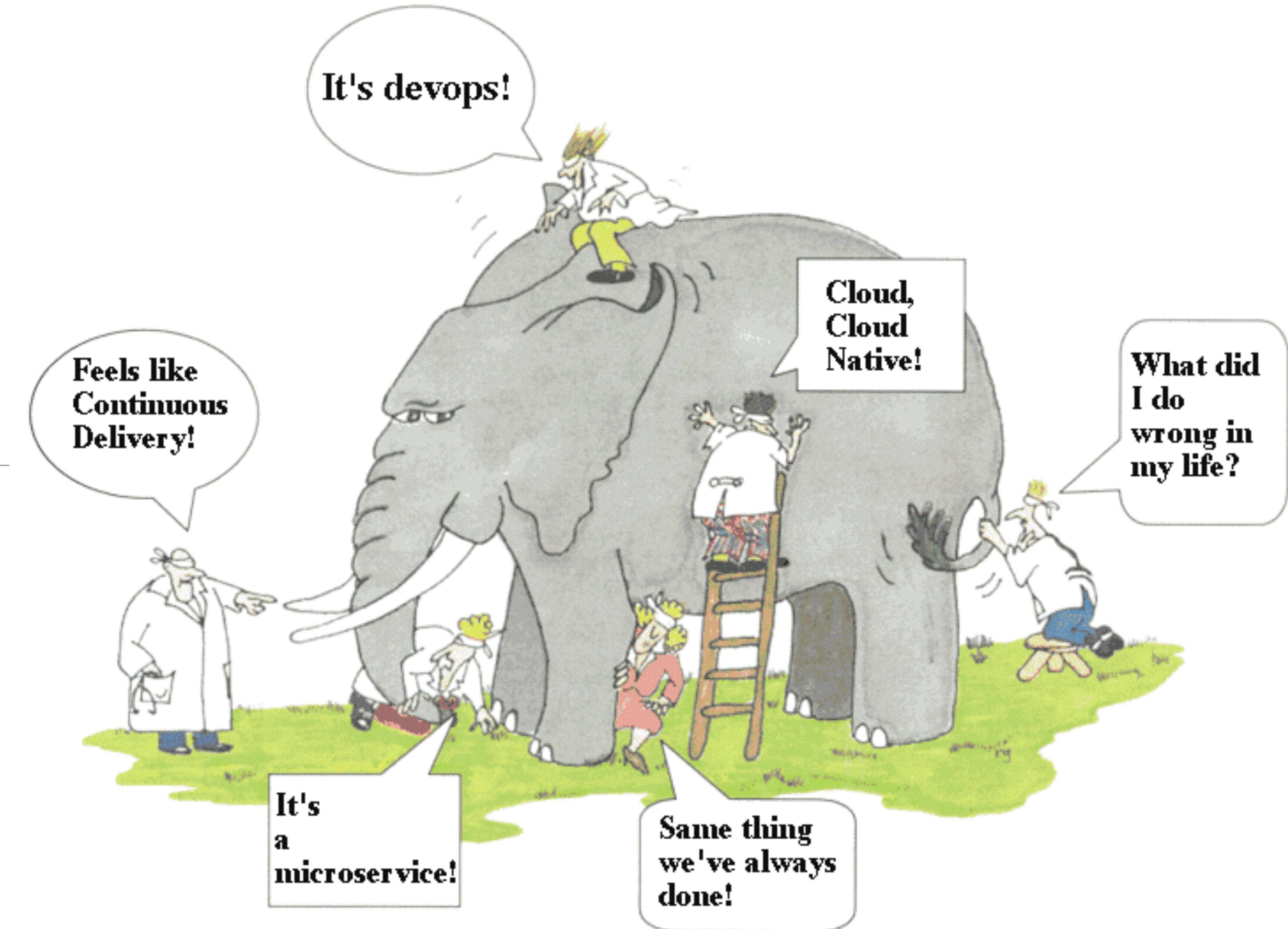
TIBCO[®]

TOSHIBA
Leading Innovation >>>

Volkswagen

devops,
platforms,
continuous delivery,
microservices...

These things are all one...

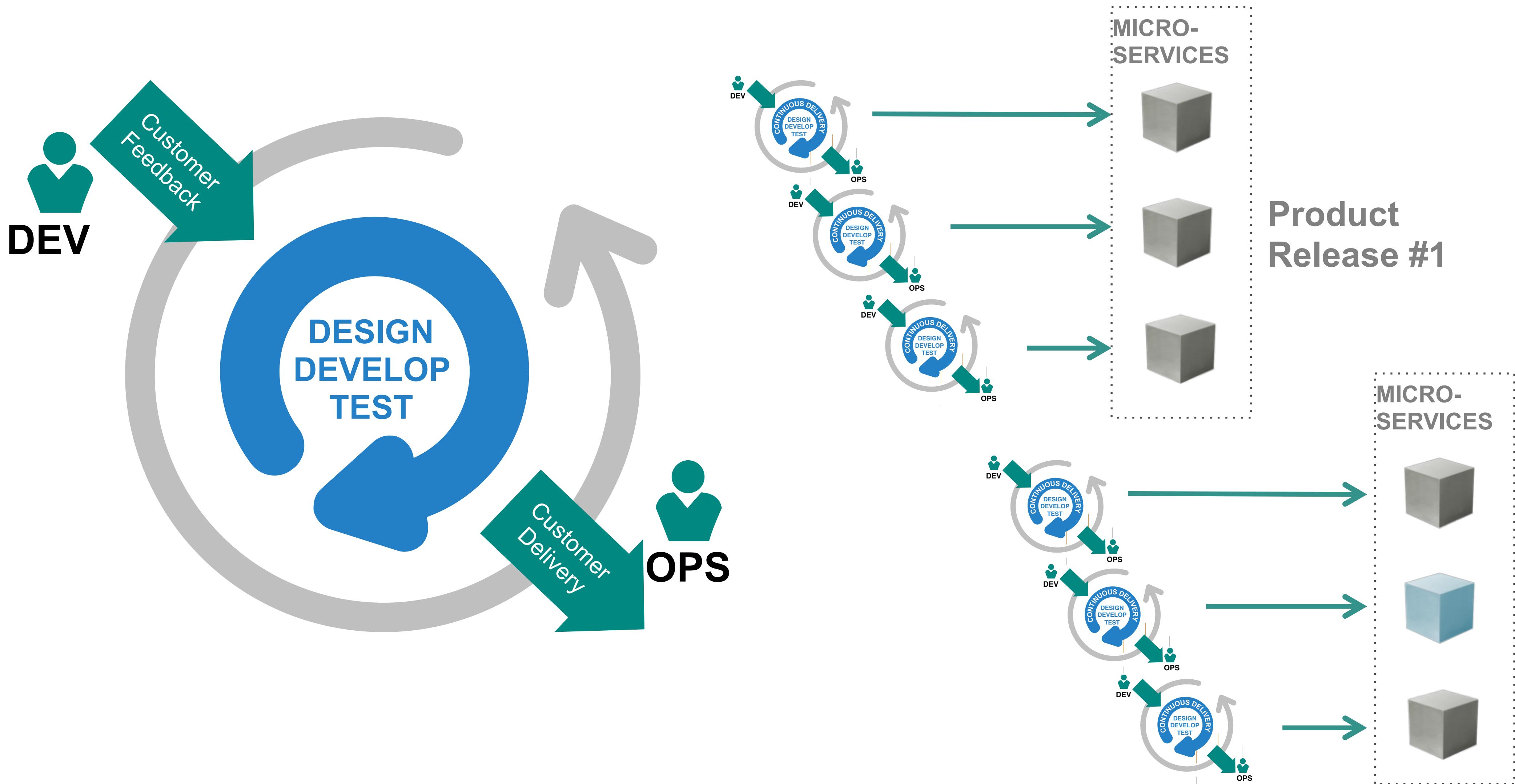


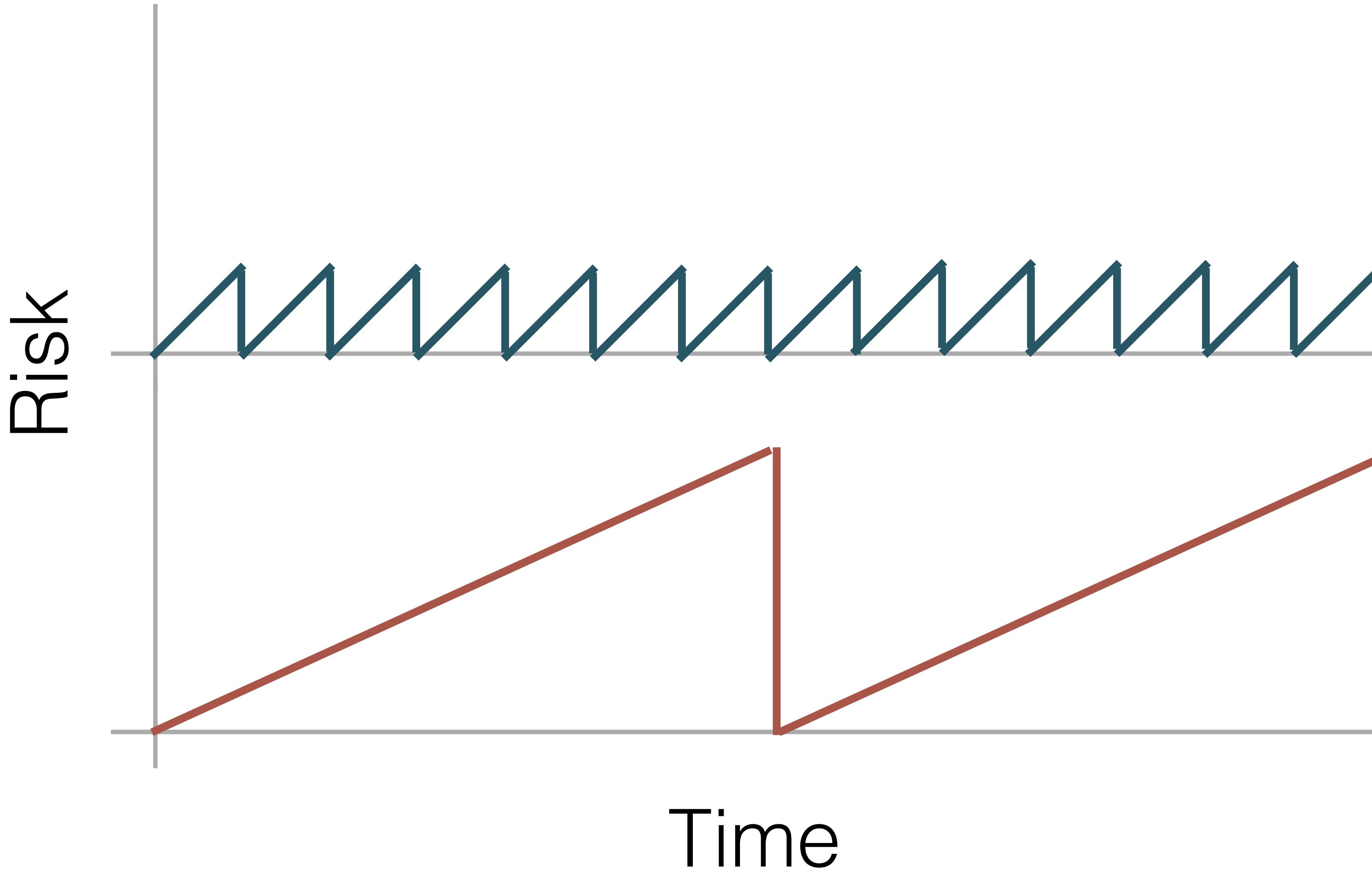
I'm going to call all that together...
‘Cloud Native’

Amazon, a bookstore in Seattle, deploys
code to production every 11 seconds...

1 second

Rise of the cloud natives



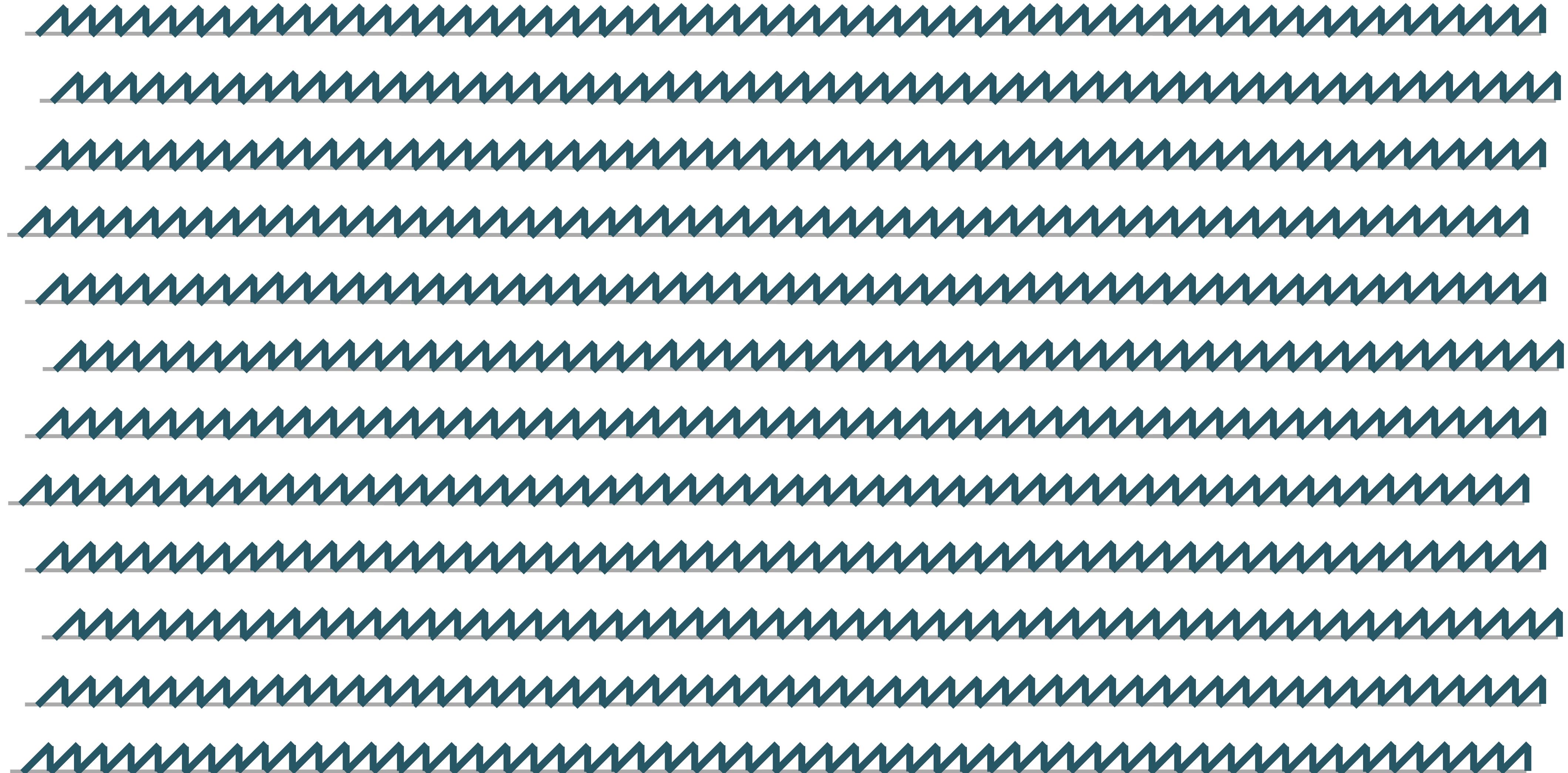




Continuous Delivery?

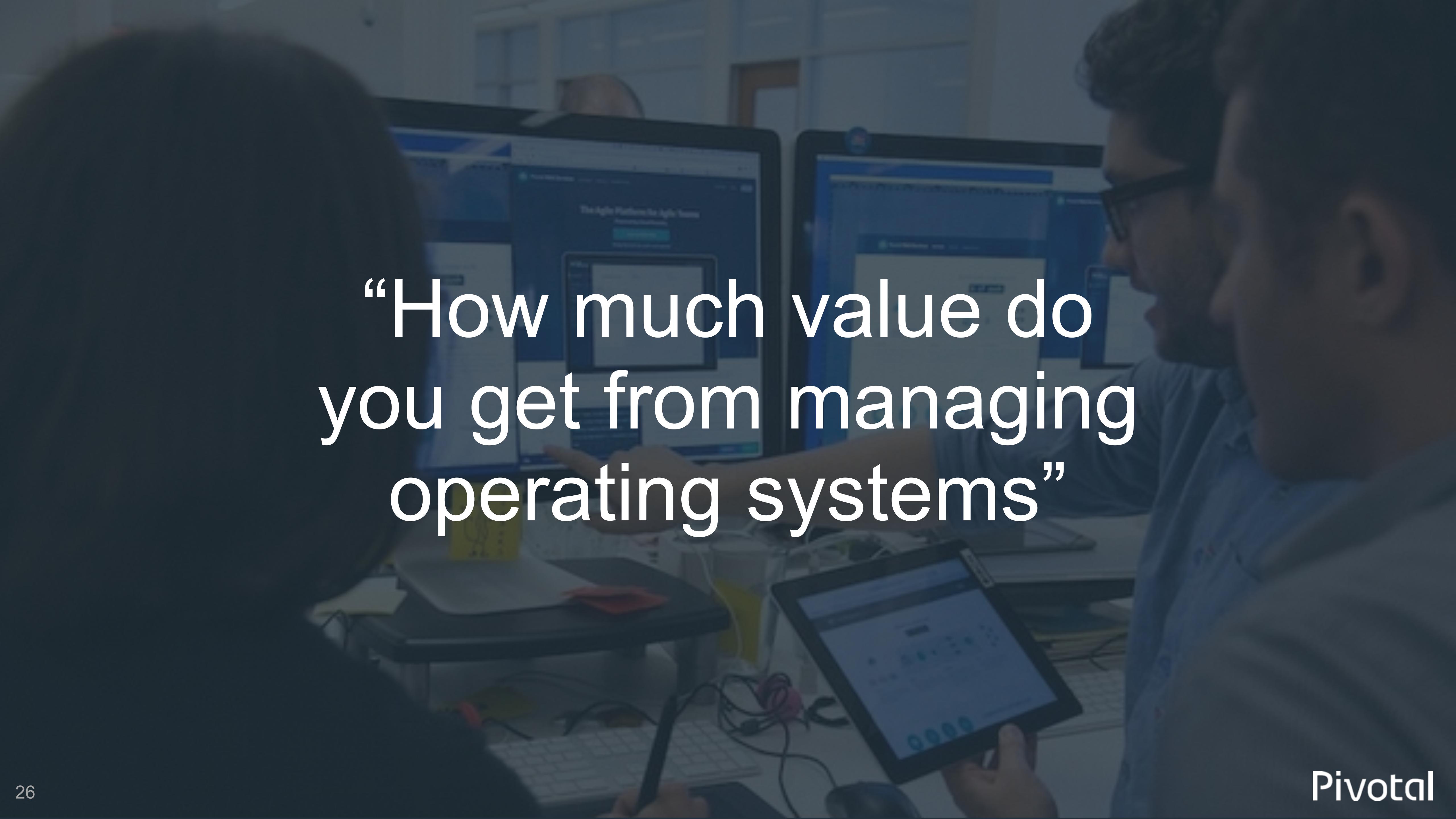


A Quantum of Delivery



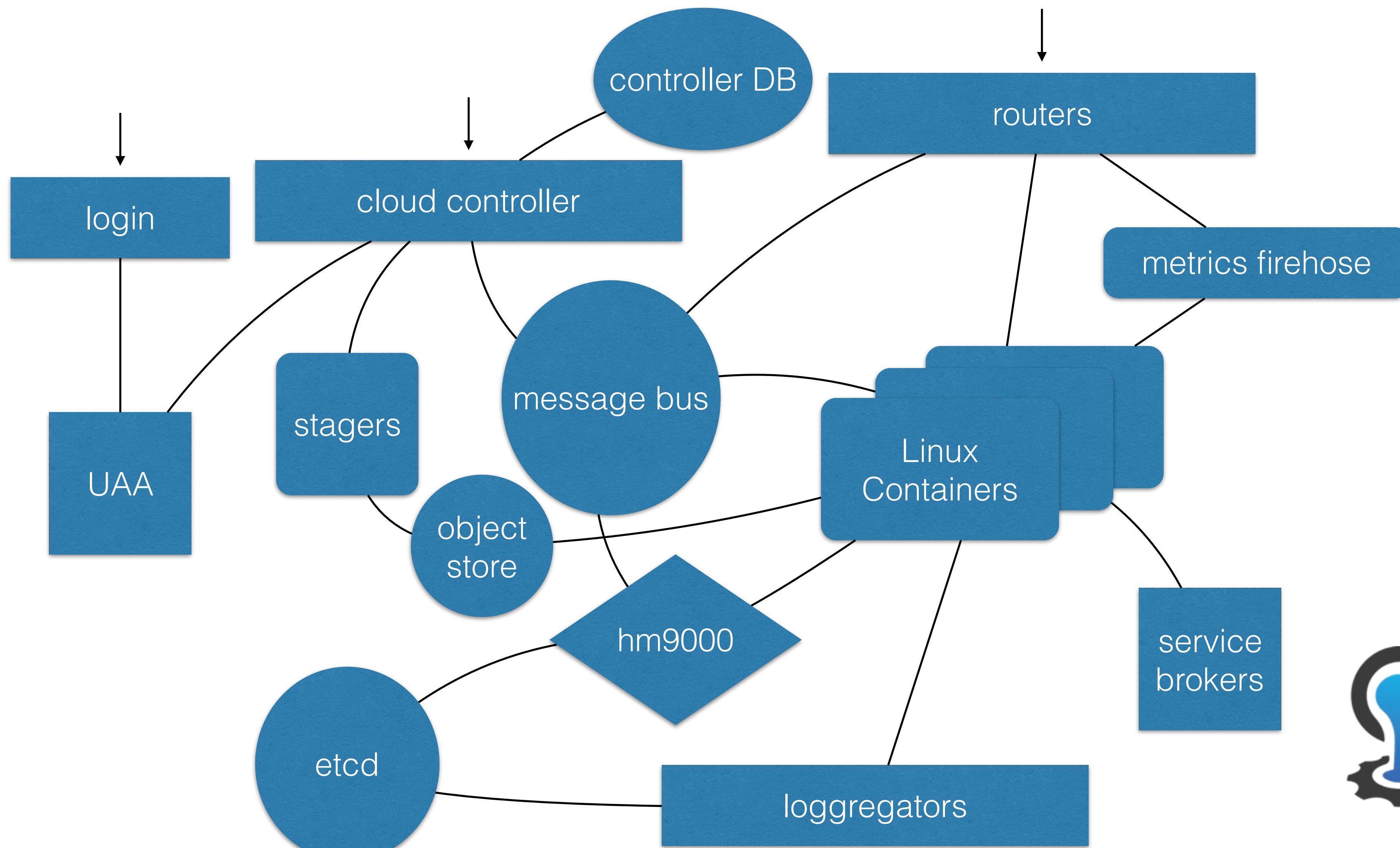
continuously delivered microservices

continuously delivered microservices
means many more deployments &
many more services to manage

A person is working at a desk, viewed from behind. They are looking at two computer monitors. The screens show what appears to be a software interface for managing operating systems, with various windows and data. The person is wearing a light-colored shirt.

“How much value do
you get from managing
operating systems”

Cloud Foundry Elastic Runtime



CLOUD FOUNDRY

Cloud Native Contracts



Cloud Native Application Framework



12 Factor



Cloud Native Runtime Platform

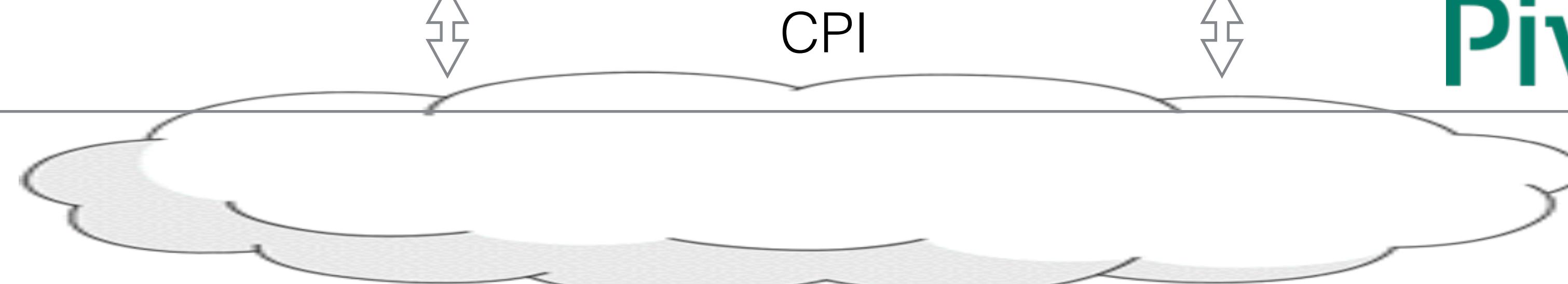
BOSH release



Cloud Native Infrastructure Automation

CPI

Pivotal™



Spring Boot



- Dynamic language productivity with maturity of enterprise Java
- Cloud Native: Direct support for Microservices, NetflixOSS++
- Fully automated app server configuration and deployment
- Production ready Ops metrics out of the box, with a switch

Innovation Speed in Java WINS



**“Velocity on
the JVM is the
Killer App”**

Andy Glover (Netflix Cloud Ops)
@ SpringOne2GX 2014 Keynote –
Early Spring Boot adopters

[Youtube Link to Video](#)

Pierre Pureur
@PGP60

Our first **#SpringBoot** app is in production on
@pivotalcf with 30% less code than the JBOSS
version - Big thanks to **@starbuxman** & **@pivotal!**

RETWEETS 40 LIKES 51

9:57 AM - 23 Apr 2016

Follow

...

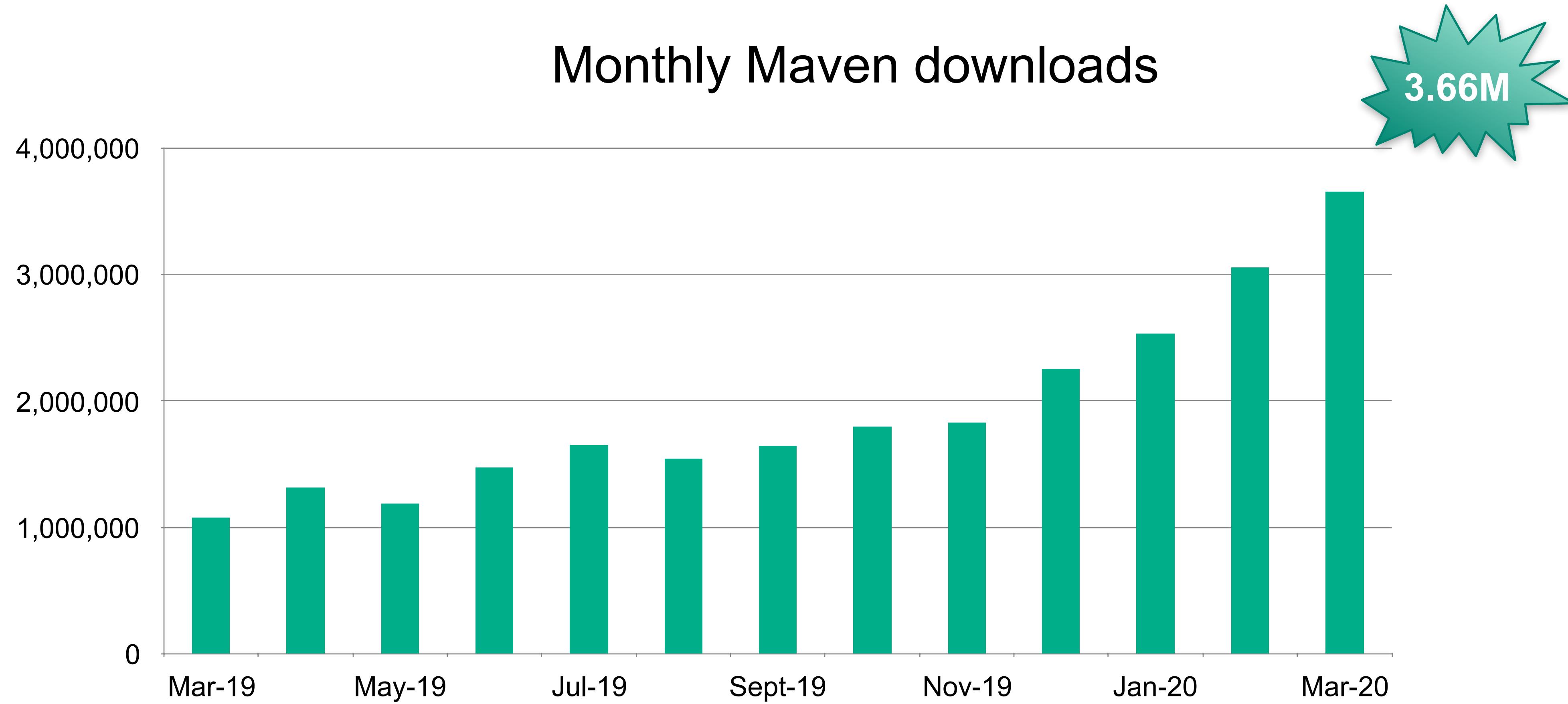
THEN

- Java was verbose, complex
- Manual, SOAP based SOA
- App server sprawl, manual
- Complex Ops, Admin, Manage
- **Low productivity** for Development and ops

NOW

- Dynamic language productivity
- Dynamic, REST microservices
- Autoconfig & embed app server
- Prod Ops features with a switch
- **High productivity** shared
- DevOps responsibility

Spring Boot Adoption



Source: oss.sonatype.org



Spring Cloud

Spring Cloud

application coordination patterns

- Runtimes and their client libraries for:
 - Service Discovery
 - Configuration Management
 - Circuit Breakers
 - Intelligent Client Side Routing
 - Reverse Proxies
 -and much more
- Security (encrypt, SSO, roles)
- Connectors for CF, Heroku, AWS

The screenshot shows the 'Circuit Breaker' service page in the Pivotal Cloud Foundry catalog. It features a teal circular icon with a circuit breaker symbol and the text 'Circuit Breaker'. Below it is the subtitle 'Circuit Breaker Dashboard for Spring Cloud Applications'. To the right is a section titled 'ABOUT THIS SERVICE' with a brief description and links to 'Documentation' and 'Support'. A 'SERVICE PLANS' section shows a single plan labeled 'standard'.

The screenshot shows two service pages in the Pivotal Cloud Foundry catalog: 'Service Registry' and 'Config Server'. Both services have teal circular icons and subtitles indicating they are for Spring Cloud Applications. The 'Service Registry' page has a 'ABOUT THIS SERVICE' section and a 'PLAN FEATURES' section listing 'Single-tenant' and 'Netflix OSS Eureka'. The 'Config Server' page has a similar structure. A large callout box highlights the 'Select this plan' button for the 'Config Server' service, with a mouse cursor hovering over it. The background of the callout box is light gray, and the text is white.

Spring Cloud Services for PCF

Netflix OSS-as-a-service in Pivotal Cloud Foundry

- Fully integrated to Cloud Foundry Service
 - dramatically lower operational complexity
- Enterprise Security
 - OAUTH2, HTTPS, CF UAA integration, RBAC
- Simple provisioning and setup
 - Lower operational costs and time to provision





James Taylor

@jctbmwi8

Follow

Working session @comcast @thoughtworks
@pivotal focusing on optimizing & hardening our
@cloudnativeapps fun times



Zipkin Tracing

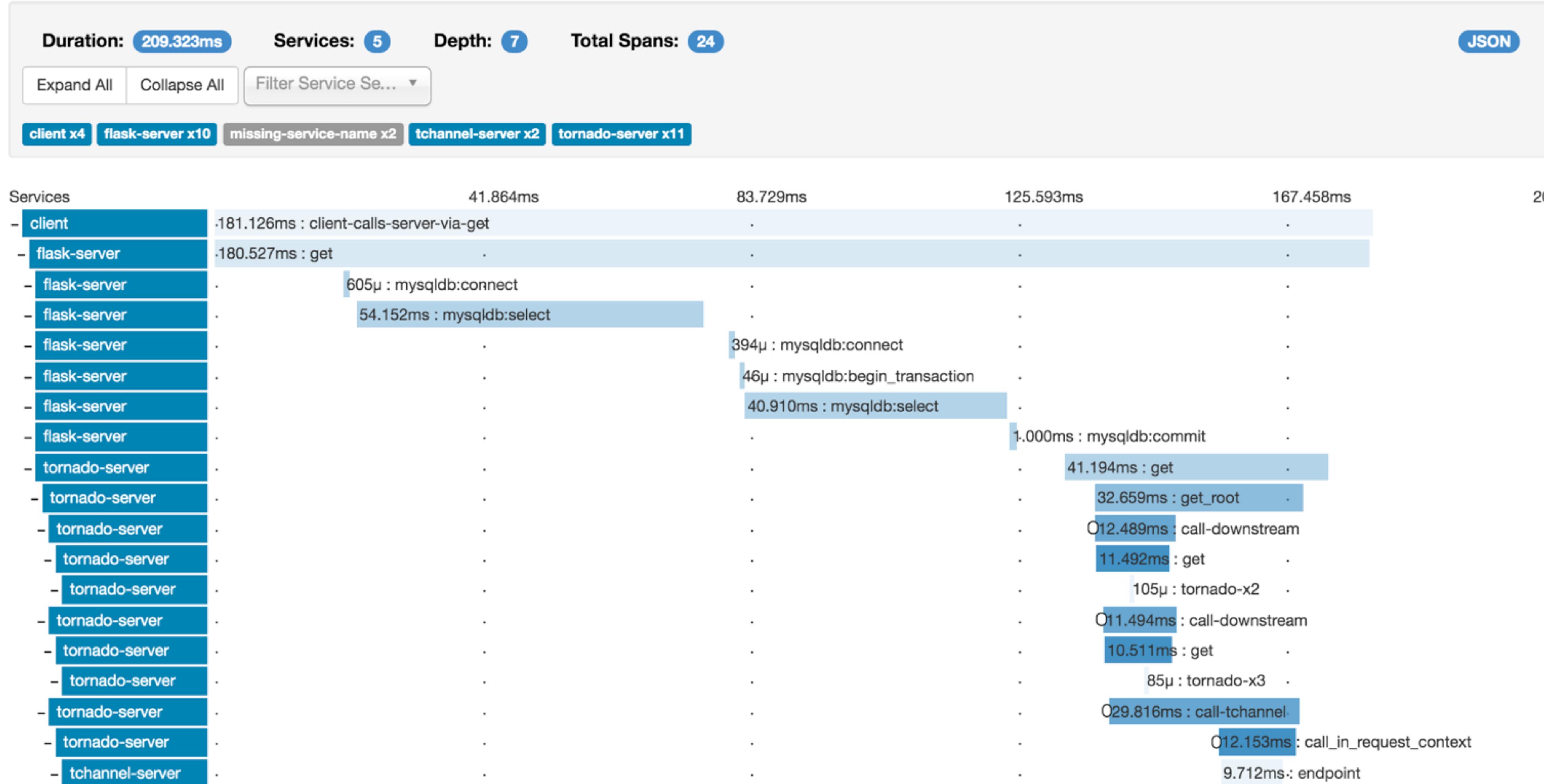
Operational Visibility: Distributed Tracing

- Latency visibility into a request's end-to-end call graph
- Quickly identify a problematic service in a distributed system
- Zipkin is a open source distributed tracing system. It helps gather timing data needed to troubleshoot latency problems in microservice architectures.
- Pivotal is investing in Zipkin to solve distributed tracing use cases
 - Apache 2.0 License
 - Created by Twitter in 2012.
 - In 2015, OpenZipkin became the  primary fork





openzipkin



Essential elements of a cloud native platform

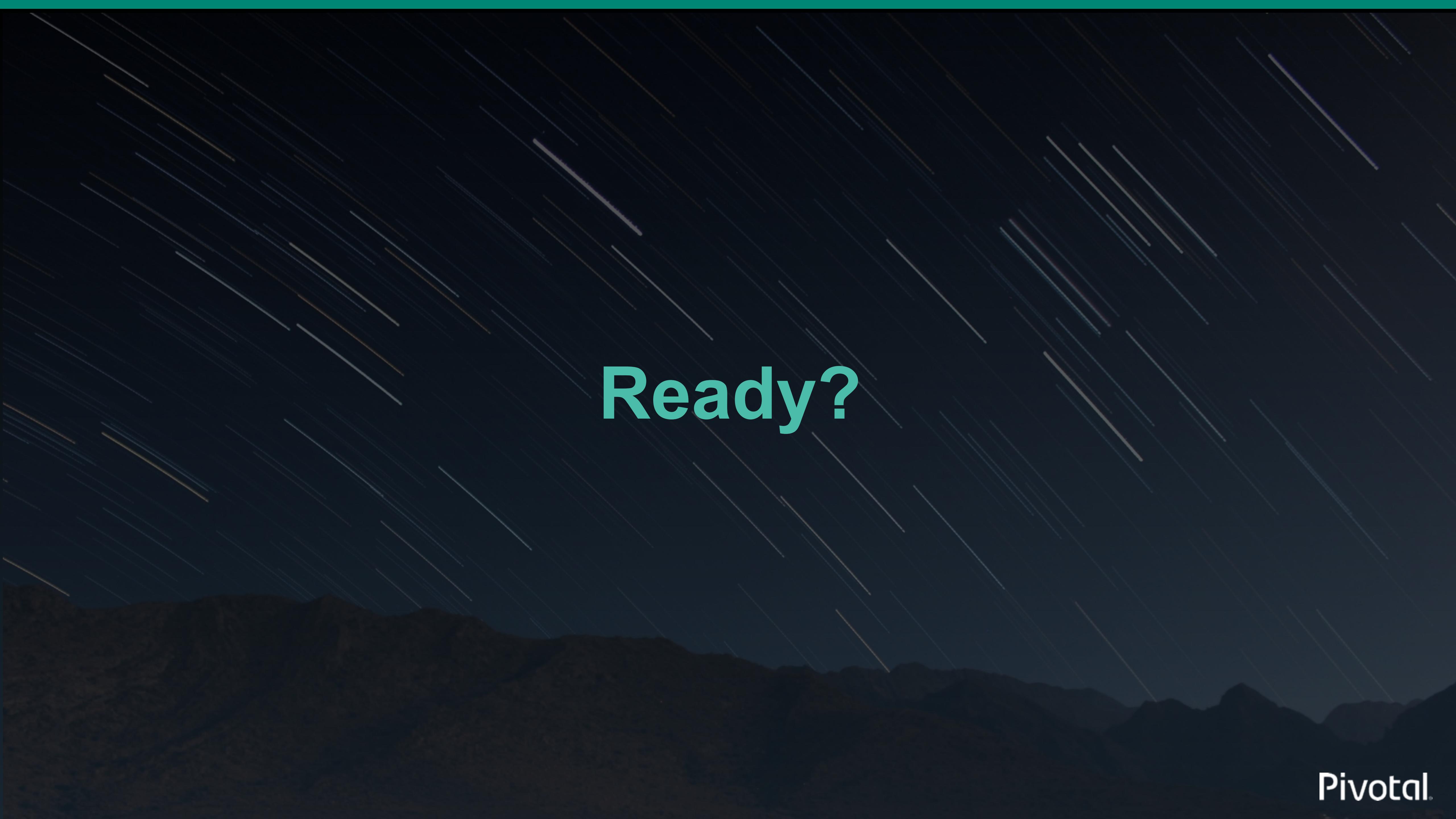
- Rapid Provisioning
- Rapid Application Deployment & Management
- Scale Horizontally
- Basic Monitoring, Logs & Metrics
- No-downtime platform upgrades
- Dynamic load balancing and routing
- Manage supporting services (data, messaging)
- Failure detection and health remediation



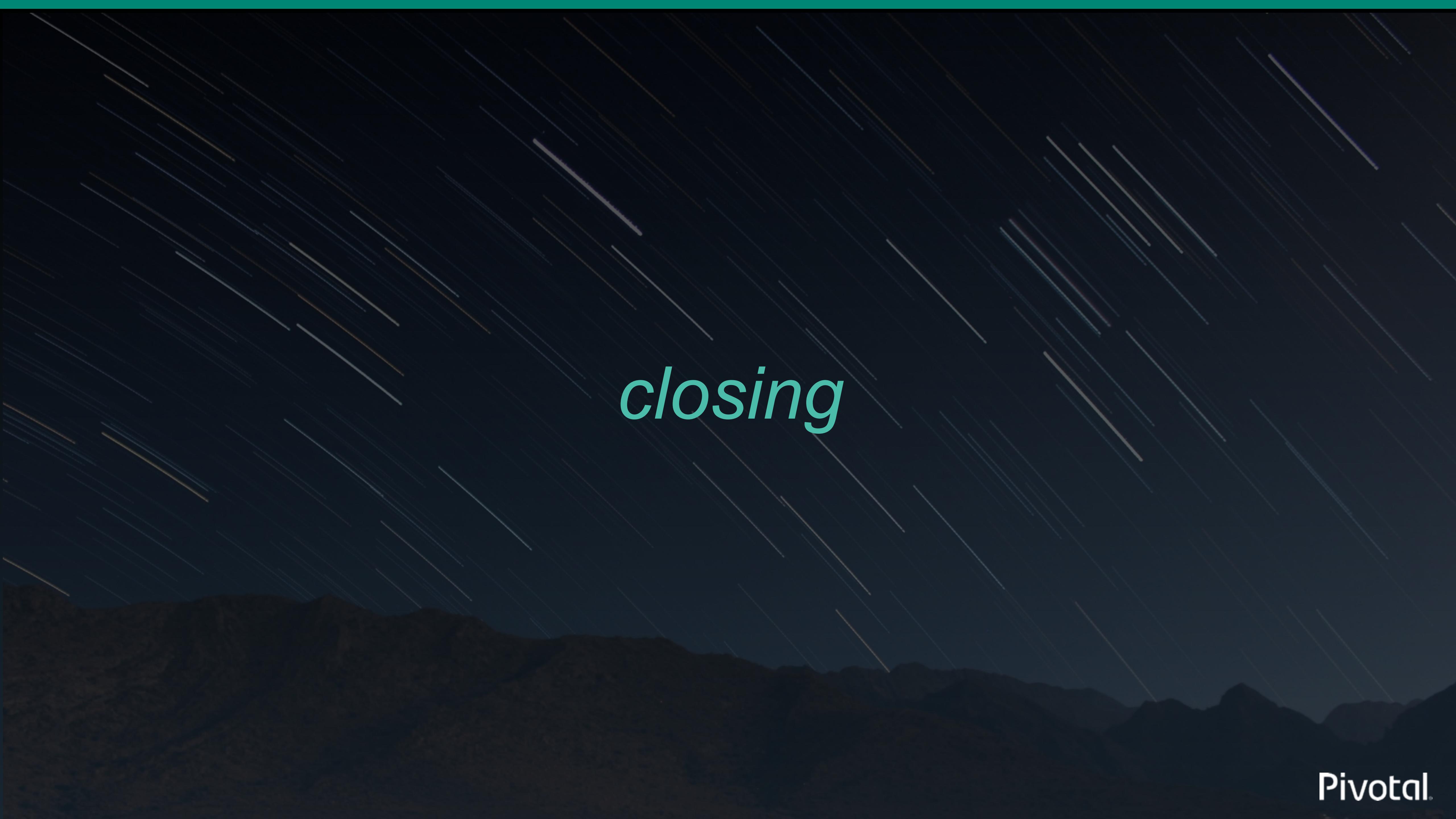
Essential elements of a cloud native application

- Horizontally Scalable
- Dynamic Service Discovery
- Resilience
- Fault-Tolerant
- Updateable
- Health Metrics





Ready?



closing

Customer Results



“App in 10 weeks instead of 9 months”

“From 2 months for provisioning servers to deliver product in less than 5 weeks”



“The lean, agile product development practice we’ve stood up in partnership with Pivotal labs is a vehicle for cultural transformation.”



“18 lines of code to get a database, messaging middleware and an app server - kind of amazing!”



“Experience really been positive. Helped us become more “T” shaped engineers”

in review:
continuously deliver microservices

or die trying

Cloud Native Contracts



Cloud Native Application Framework



12 Factor



Cloud Native Runtime Platform

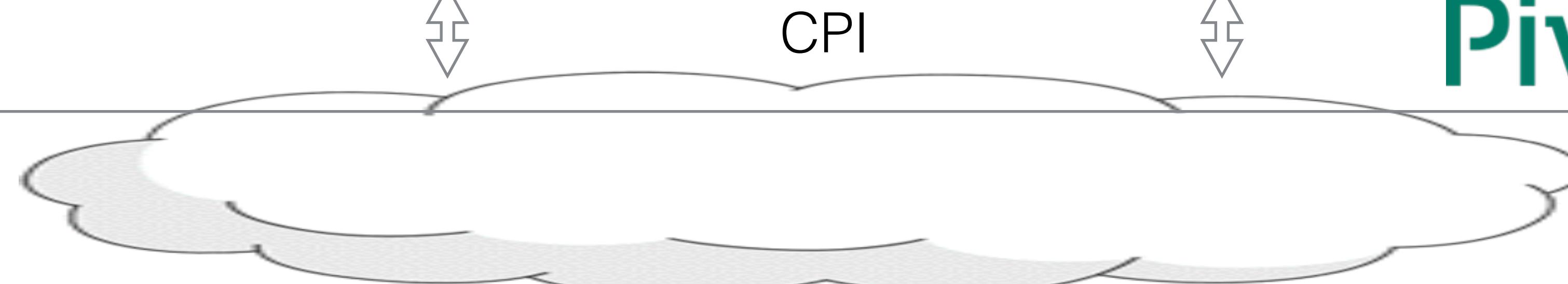
BOSH release

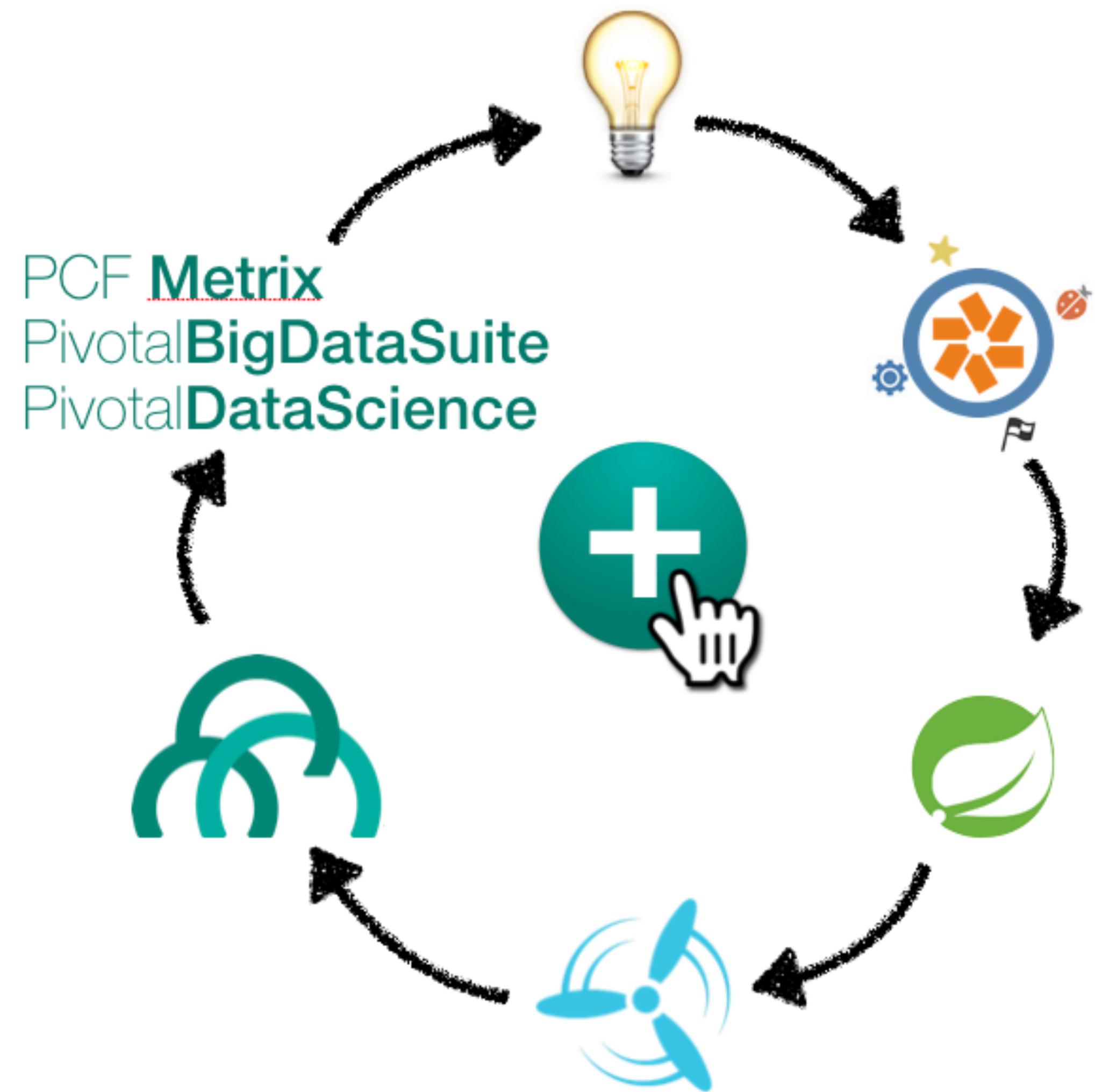


Cloud Native Infrastructure Automation

CPI

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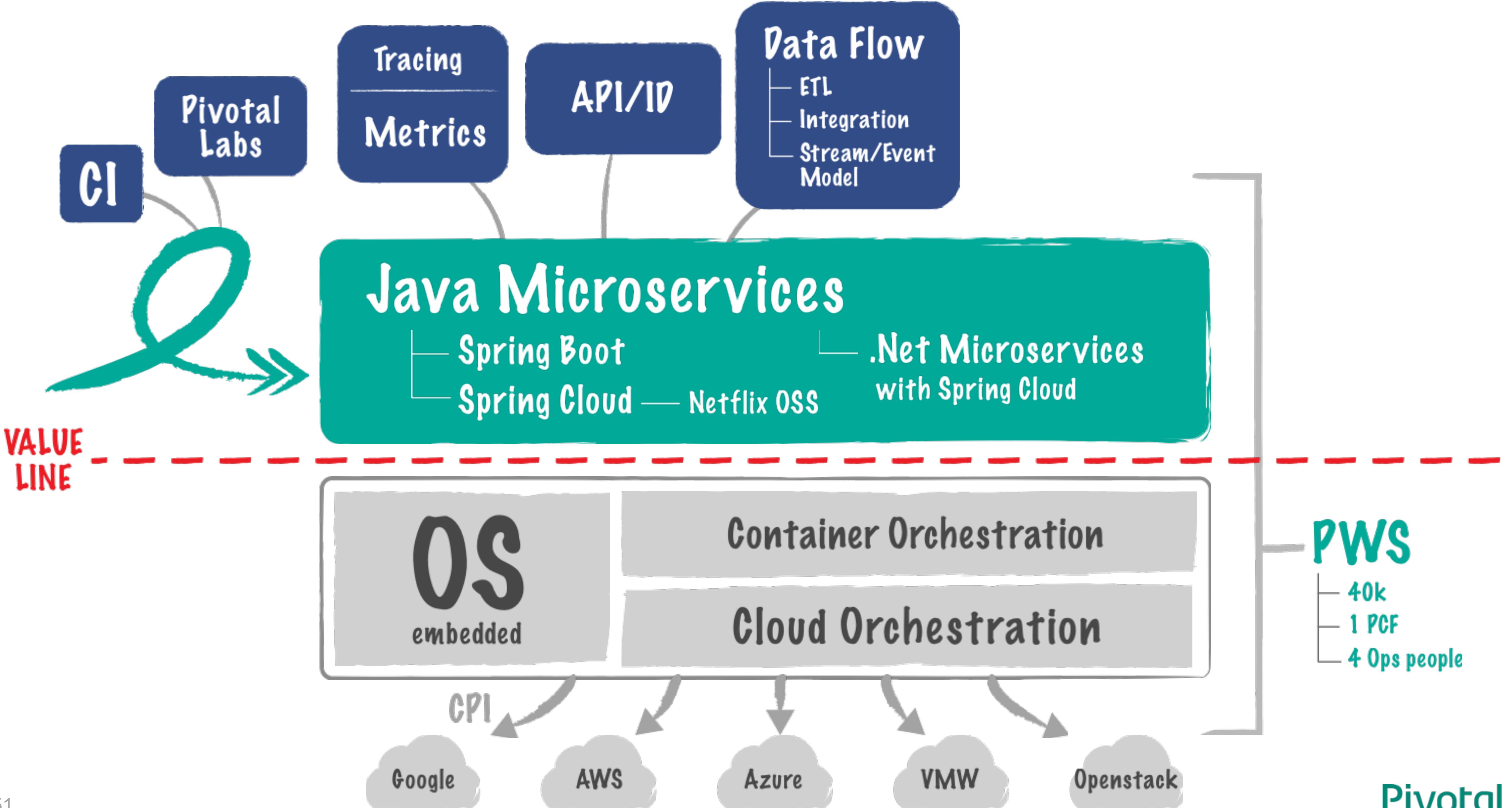
Where is the Value?

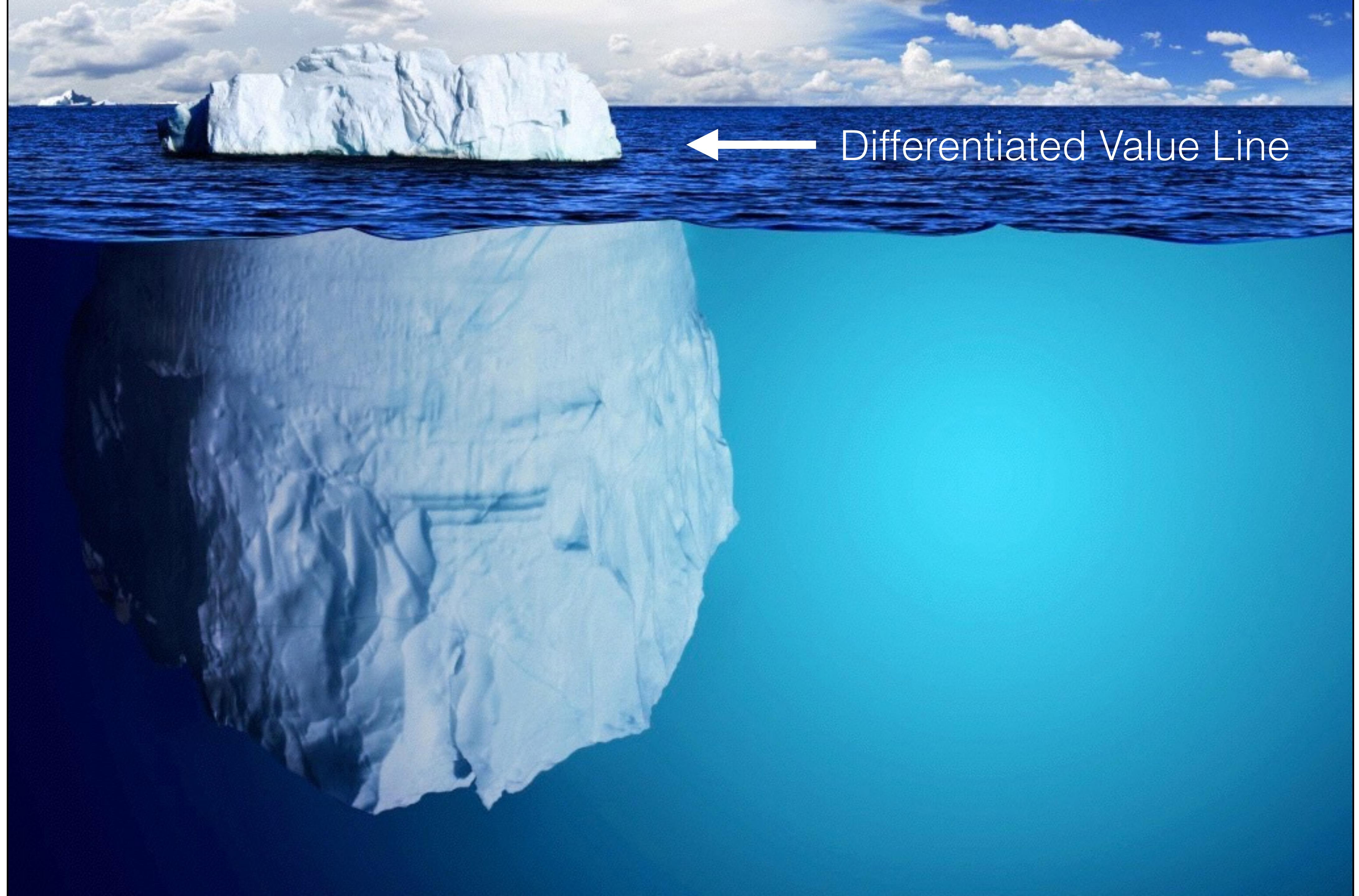
“Good job configuring servers this year.”

—No CEO Ever...

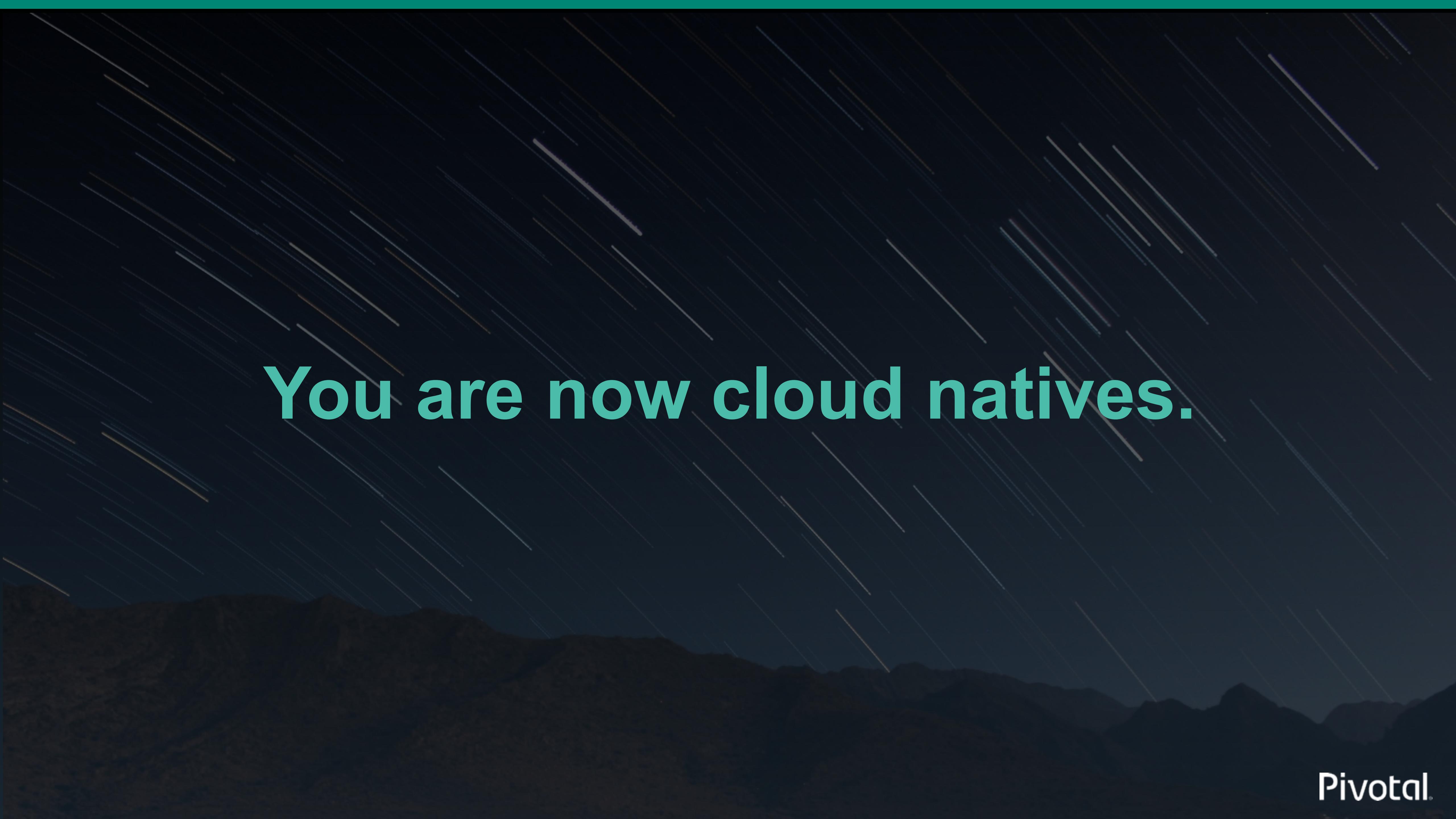
“Good job deploying software this year.”

–No CEO Ever...





← Differentiated Value Line



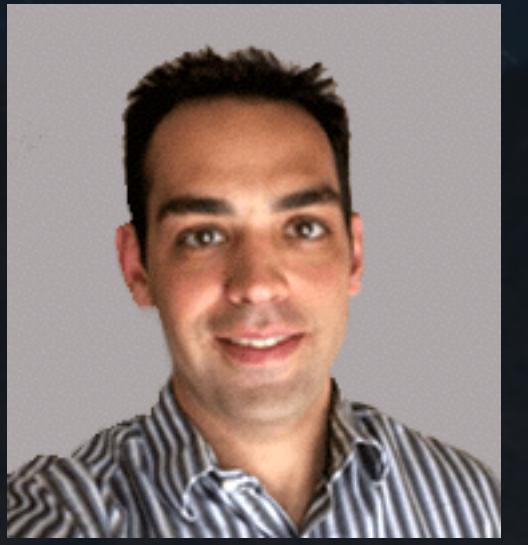
You are now cloud natives.



Casey West @caseywest



Kenny Bastani @kennybastani



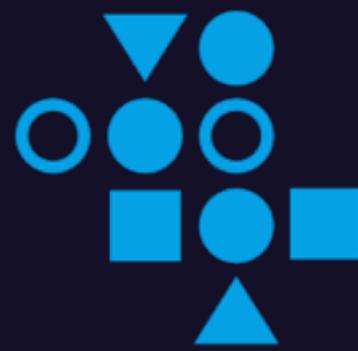
Fred Melo @fredmelo_br



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