"YOU BUILD IT, YOU RUN IT"

–Werner Vogels, Amazon

@kmugrage

"...IT ALSO BRINGS THEM INTO DAY-TO-DAY CONTACT WITH THE CUSTOMER. THIS CUSTOMER FEEDBACK LOOP IS ESSENTIAL FOR IMPROVING THE QUALITY OF THE SERVICE."

–Werner Vogels, Amazon

@kmugrage

https://queue.acm.org/detail.cfm?id=1142065

YOU ONLY HAVE TO CHANGE ONE THING TO DO THE DEVOPS

YOU ONLY HAVE TO CHANGE ONE THING TO DO THE DEVOPS

EVERYTHING

THE CHANGES IN TODAY'S TALK

go

- ▸ (Re)define words for your organization

- ▸ Change your organization to enable DevOps

- ▸ Use modern architectures and technologies

- ▸ Use Continuous Delivery to safely deploy more often

https://www.gocd.org

WHO AM I?

▶ From Seattle, Washington, USA

▶ Teach Continuous Delivery and DevOps for ThoughtWorks

▶ DevOpsDays Core Organizer

▶ @kmugrage on Twitter

REDEFINE WORDS

FOR YOUR ORGANIZATION

WHAT ISN'T DEVOPS

- A Toolset

- A Role

- A Team

https://www.gocd.org

go

develop**ING** and operat**ING**

CAMS

▸ Culture

▸ Automation

▸ Measurement

▸ Sharing

https://blog.chef.io/2010/07/16/what-devops-means-to-me/

CALMS

- ▸ Culture

- ▸ Automation

- ▸ Lean

- ▸ Measurement

- ▸ Sharing

https://blog.chef.io/2010/07/16/what-devops-means-to-me/

https://www.gocd.org

"DEVOPS: A CULTURE WHERE PEOPLE, REGARDLESS OF TITLE OR BACKGROUND, WORK TOGETHER TO IMAGINE, DEVELOP, DEPLOY AND OPERATE A SYSTEM."
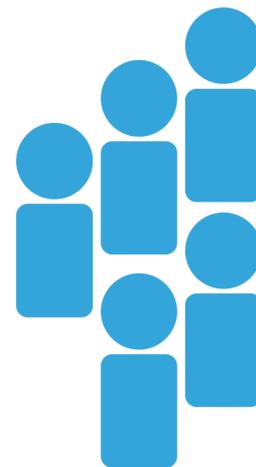
–Me

@kmugrage   https://kenmugrage.com/2017/05/05/my-new-definition-of-devops/

Chairman

President

Innovation & Improvement Office

Overseas Project Office

Cost & Procurement
- General Procurement
- Piping Procurement
- Overseas Procurement
- Expediting
- Export Control

Project Division
- Project Dept
  - Project Admin
  - Project Group 1
  - Project Group 2
  - Project Group 3
  - Project Group 4
  - Project Group 5
  - Project Group 6
- New Business Promotion

Construction Maintenance
- Maintenance Dept
  - Keihin Operations
  - East Japan Operations
  - Tokai Operations
  - West Japan Operations
  - Indonesia Operations
- Construction Dept
- Technical Training
- Project Admin

Engineer...
- Process Engineer...
- Piping
- Mechan...
- Combus... Heat Tr...
- Civil &
- Instrum...
- Electric...
- Informa... Technol...

CHANGE YOUR ORG

TO ENABLE DEVOPS

TRADITIONAL MODEL

go
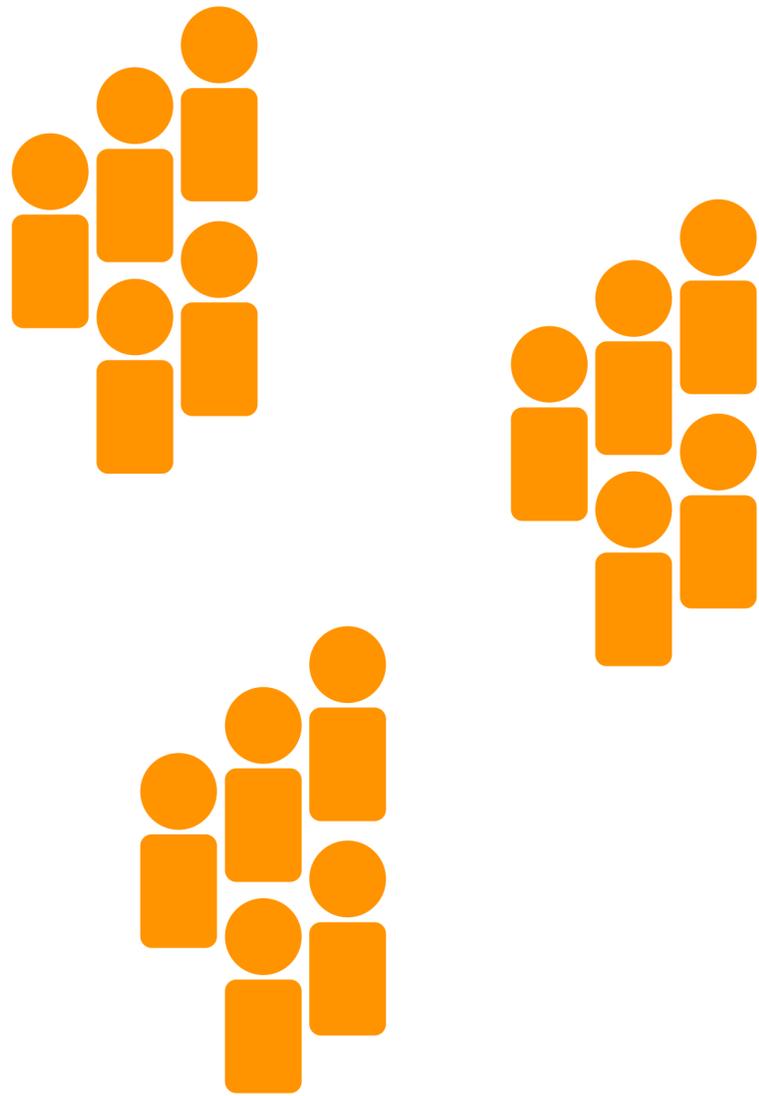
Development Teams

Testing Team

Operations Team

@kmugrage
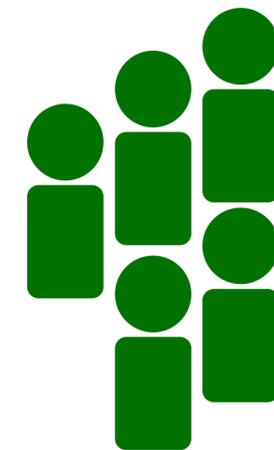
"ANY ORGANIZATION THAT DESIGNS A SYSTEM (DEFINED BROADLY) WILL PRODUCE A DESIGN WHOSE STRUCTURE IS A COPY OF THE ORGANIZATION'S COMMUNICATION STRUCTURE."

–Mel Conway

@kmugrage

http://www.melconway.com/Home/Conways_Law.html
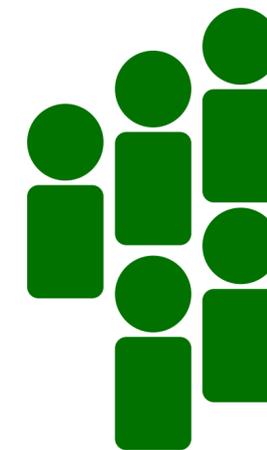
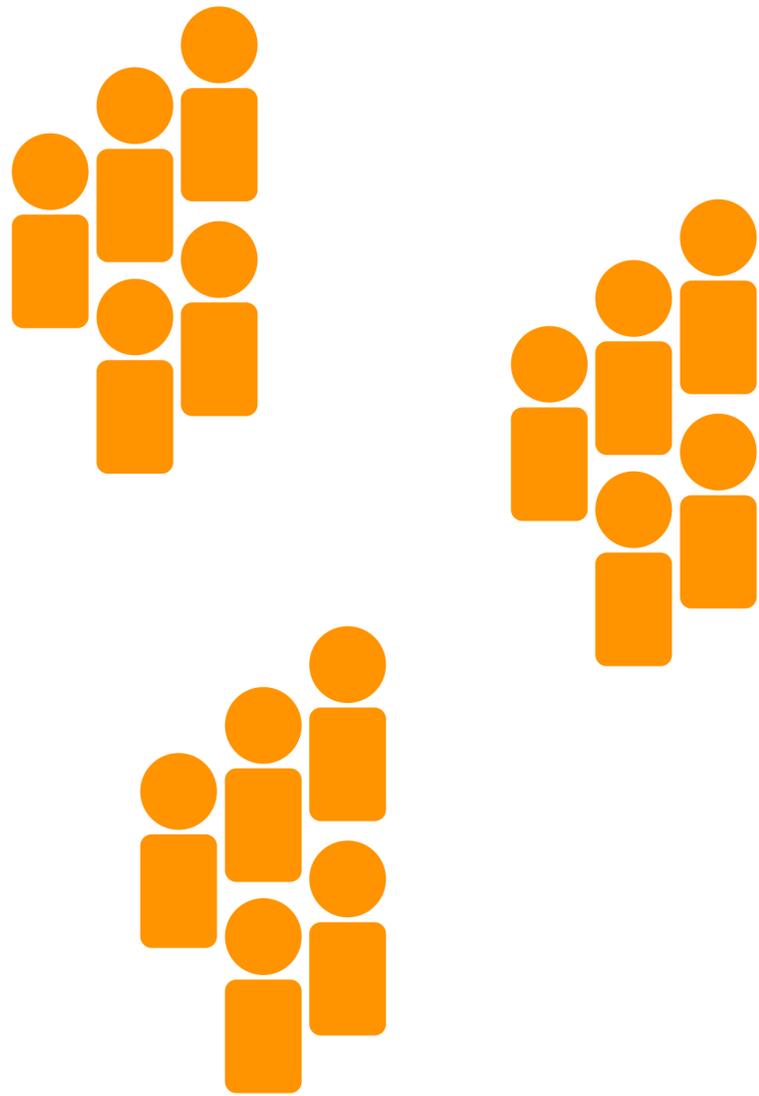# TRADITIONAL MODEL
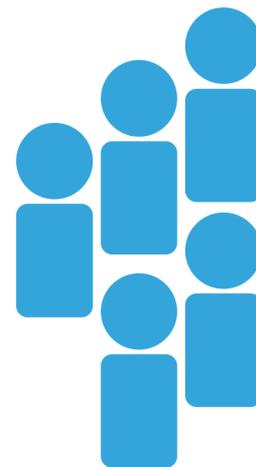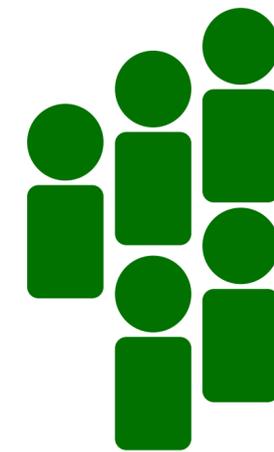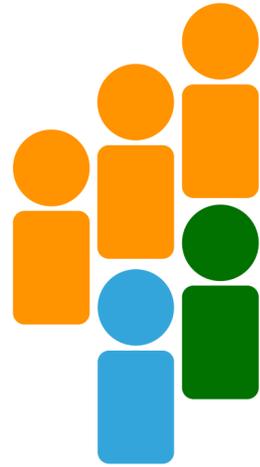
go
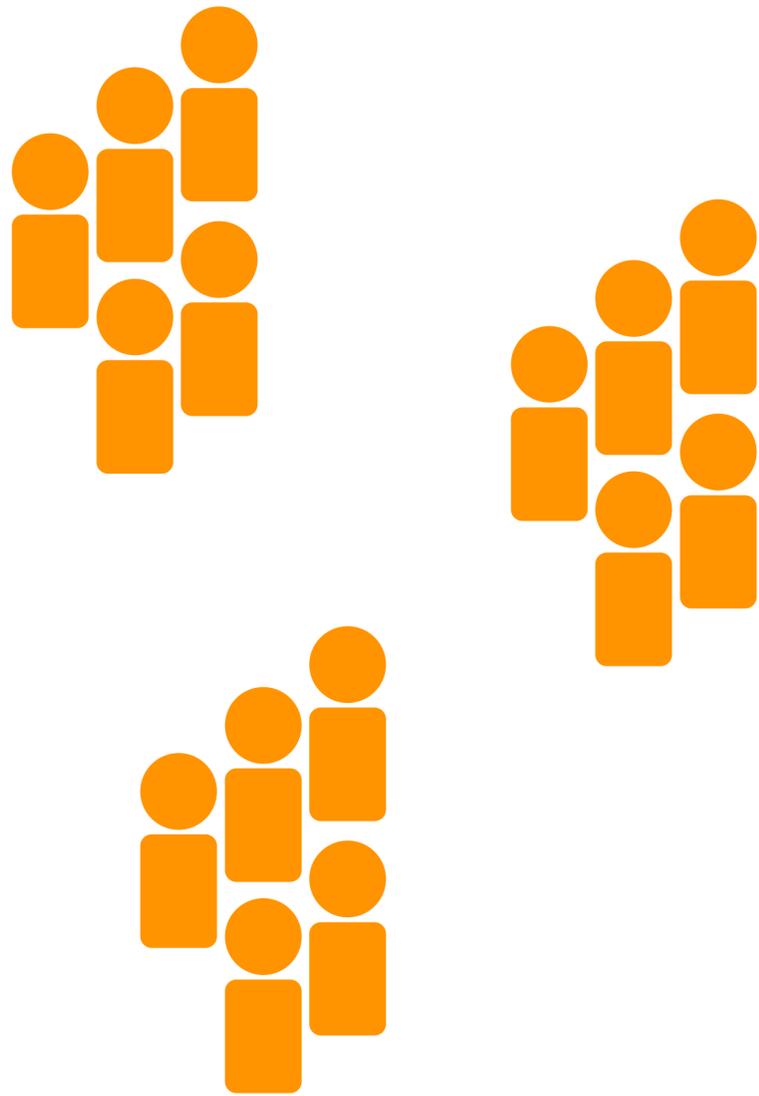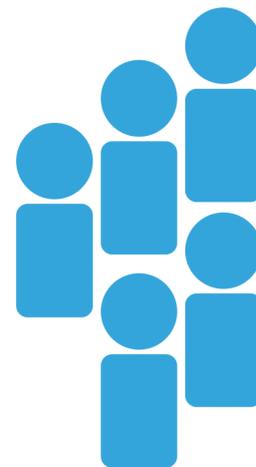
Development Teams   QA Team   Operations Team

RENAMING OPS WON'T SOLVE THE ISSUE

Development Teams

QA Team

DevOps Team

@kmugrage

CREATING ANOTHER SILO DOESN'T SOLVE SILOS

Development Teams

QA Team

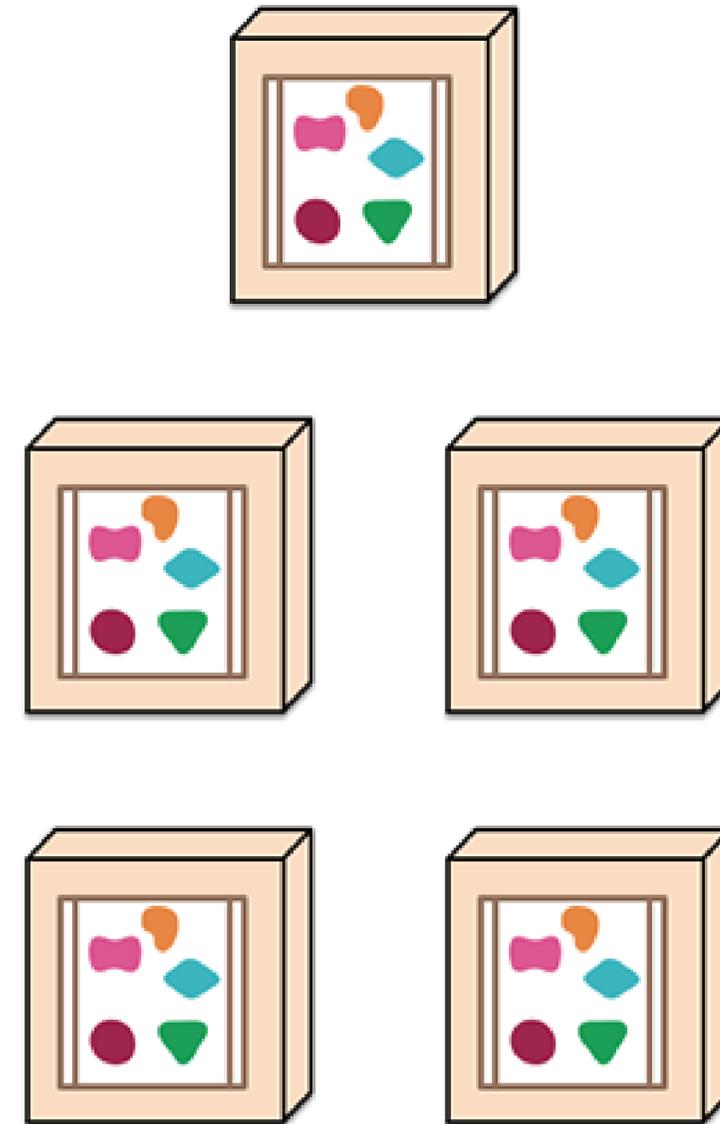Operations Team

DevOps Team

@kmugrage
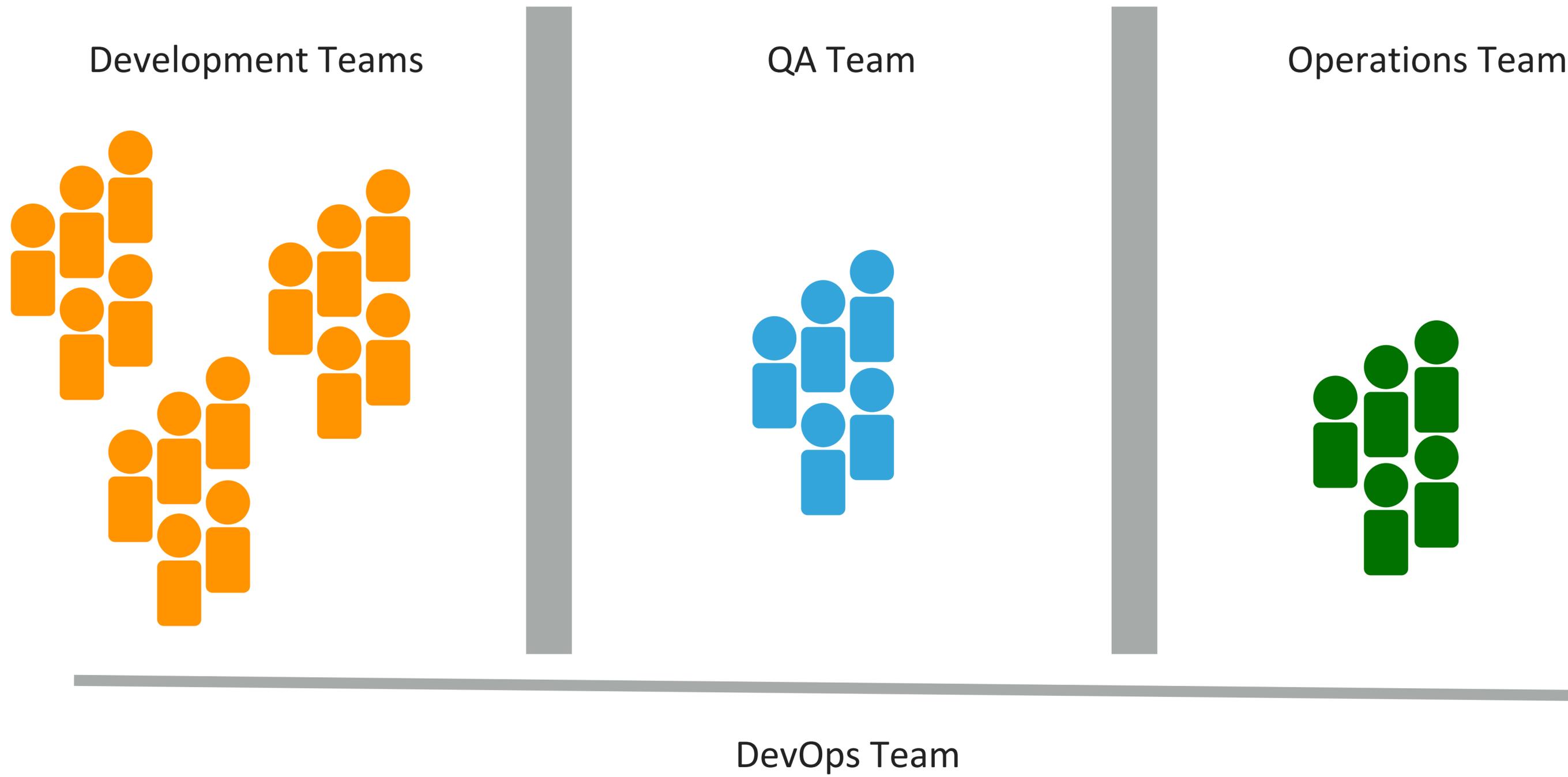
PRODUCT TEAMS
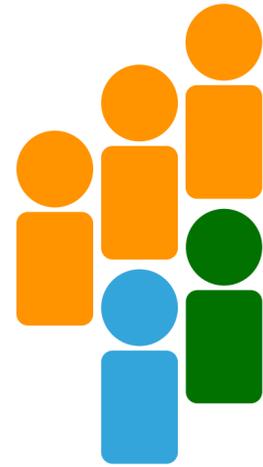
USE MODERN

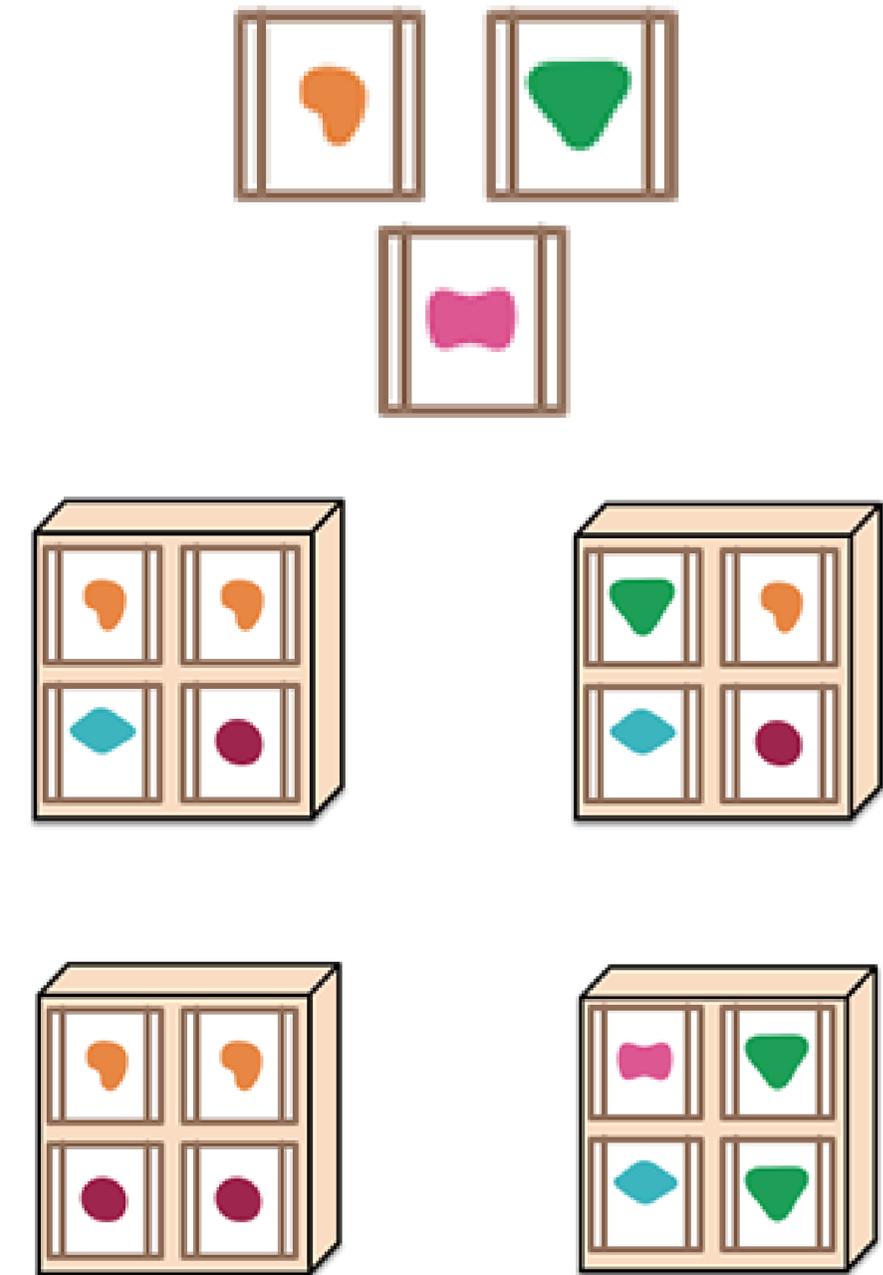# ARCHITECTURES AND TECHNOLOGIES

MONOLITHS CAN BE HARD

- ▸ All functionality is in one process

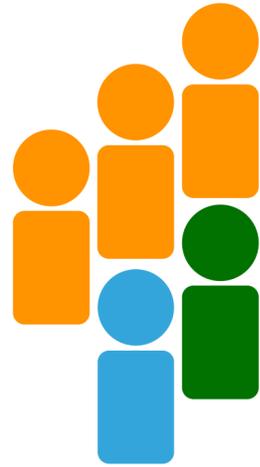- ▸ Scale by replicating the monolith on multiple servers

@kmugrage

MICROSERVICE ARCHITECTURE

▸ Each element of functionality is in a separate service

▸ Scale by distributing these services across servers, replicating as needed
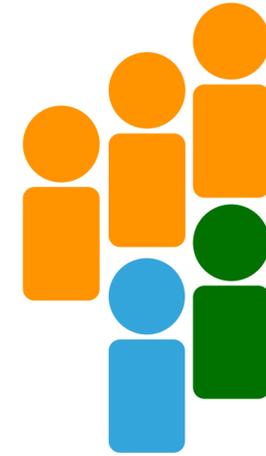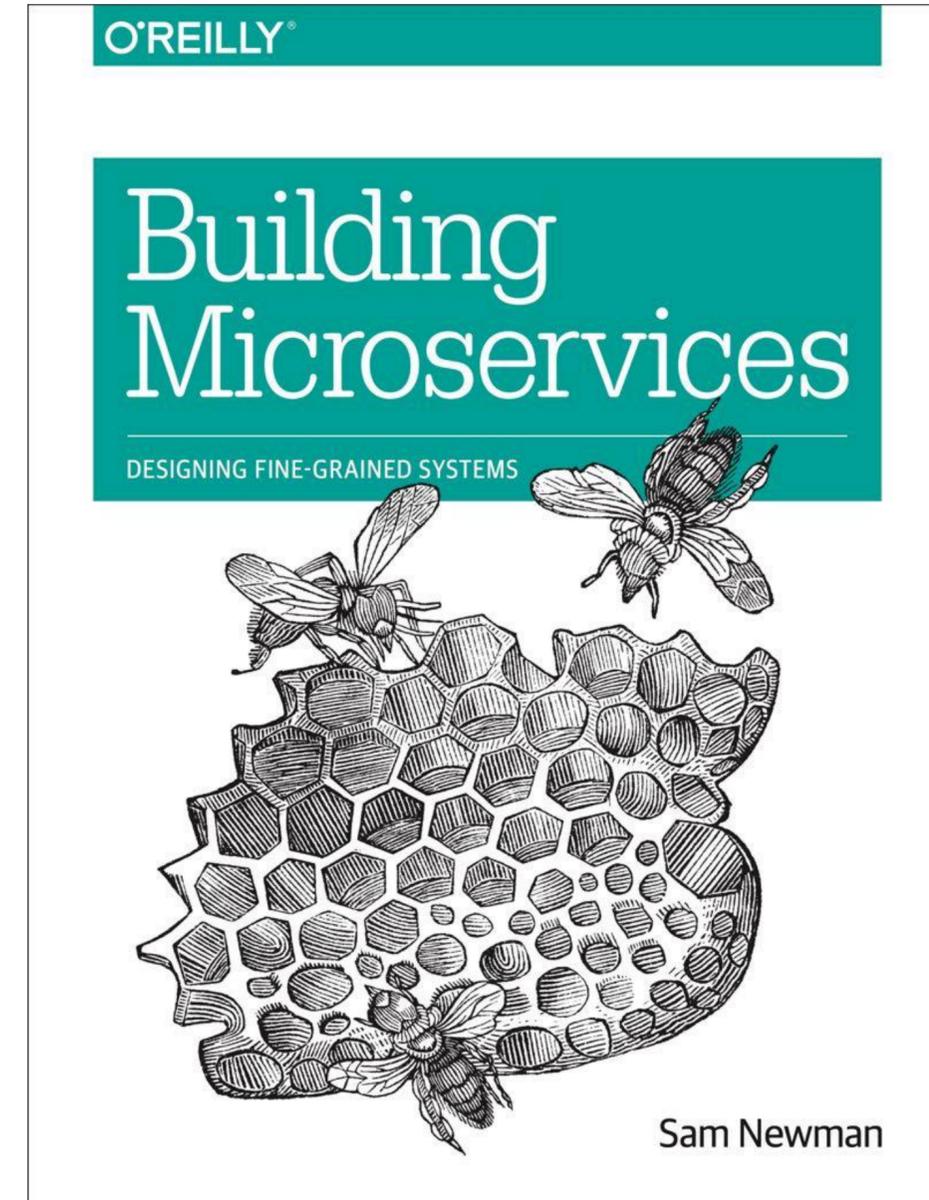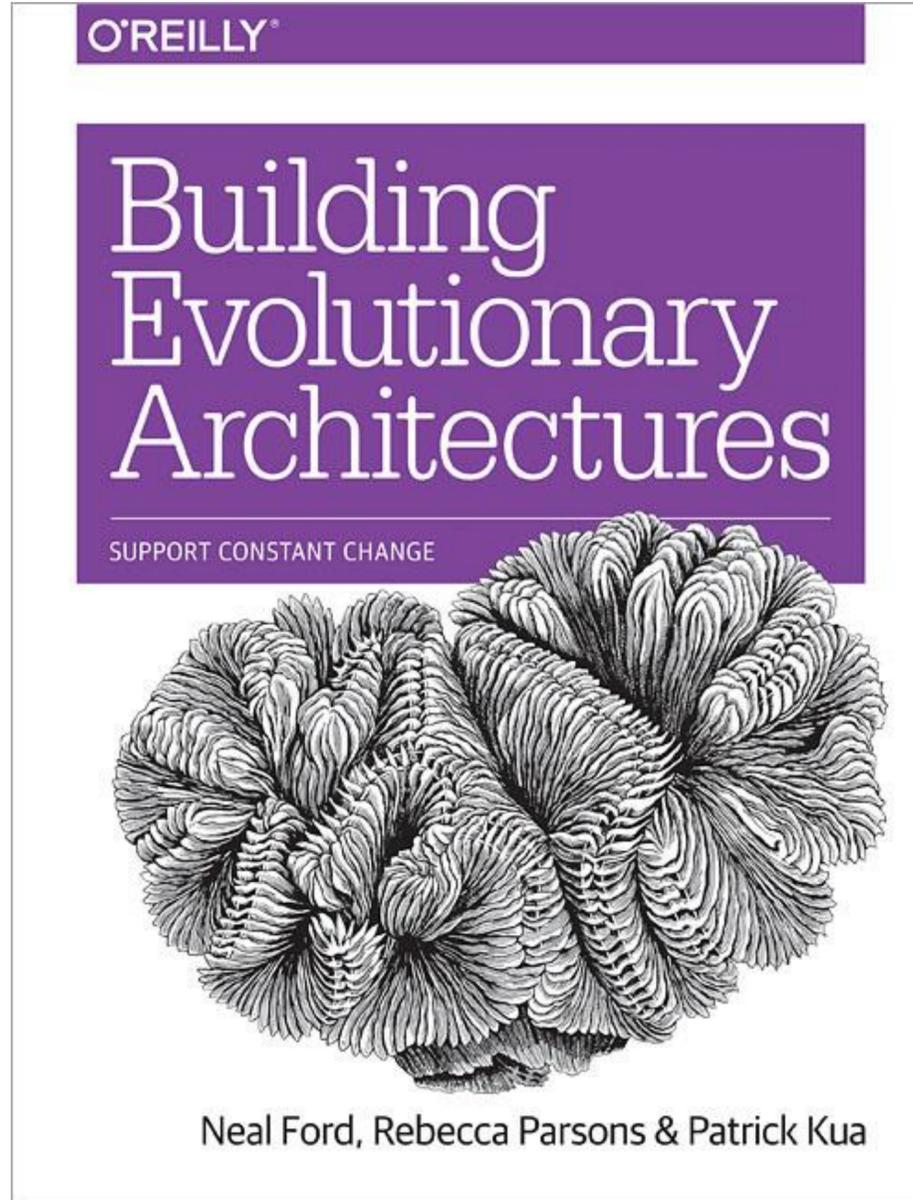
PRODUCT TEAMS

Car Hire

Hotels

Tax
Payments

Airlines

Consumer

Business to Business

@kmugrage

Building Evolutionary Architectures — SUPPORT CONSTANT CHANGE — Neal Ford, Rebecca Parsons & Patrick Kua — O'REILLY

Building Microservices — DESIGNING FINE-GRAINED SYSTEMS — Sam Newman — O'REILLY

WE STILL HAVE TO DEPLOY SOMEWHERE

CAR AS A SERVICE

go

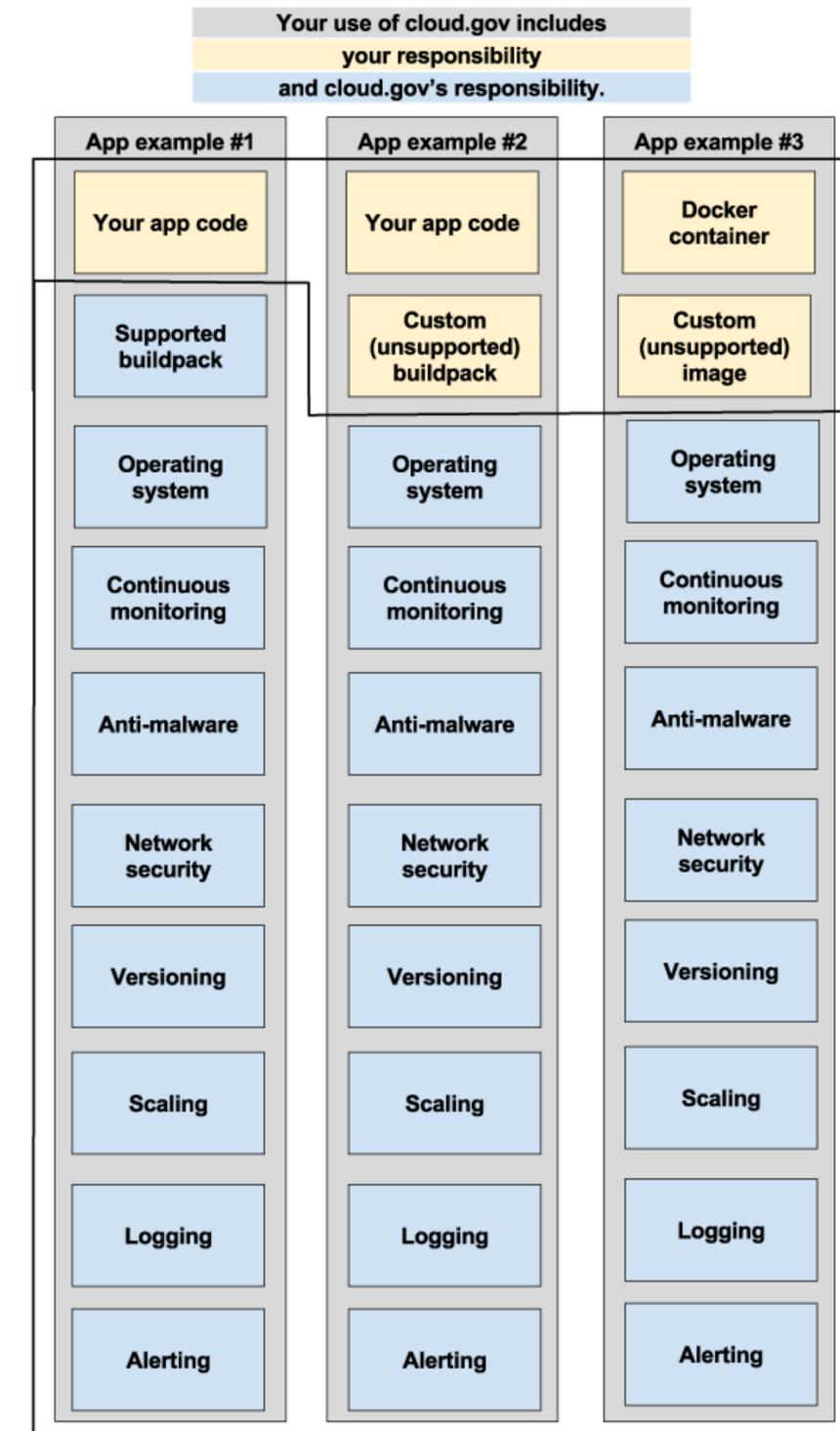| On Premises	Infrastructure as a Service (IaaS)	Platform as a Service (PaaS)	Software as a Service (SaaS)
Car	Car	Car	Car
Finance	Finance	Finance	Finance
Depreciation	Depreciation	Depreciation	Depreciation
Servicing	Servicing	Servicing	Servicing
Renewables	Renewables	Renewables	Renewables
Insurance	Insurance	Insurance	Insurance
Road Tax	Road Tax	Road Tax	Road Tax
Garage	Garage	Garage	Garage
Fuel	Fuel	Fuel	Fuel
Road Tolls	Road Tolls	Road Tolls	Road Tolls
Driver	Driver	Driver	Driver
Car Owned	**Car Leased**	**Car Hired**	**Taxi**

@kmugrage

AN EXAMPLE OF PLATFORM AS A SERVICE

CLOUD.GOV
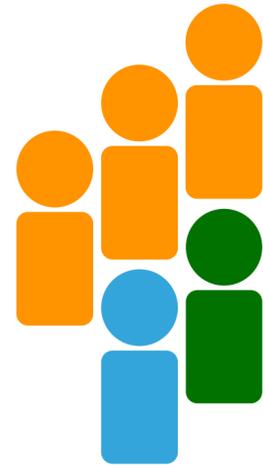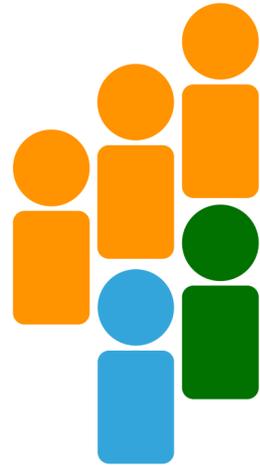
▸ Official service of the US Government

▸ 325 required security controls

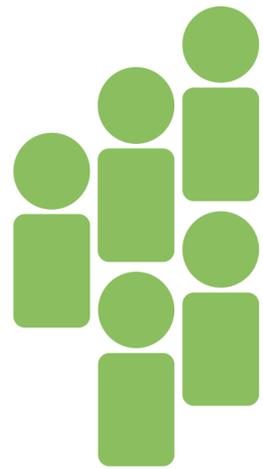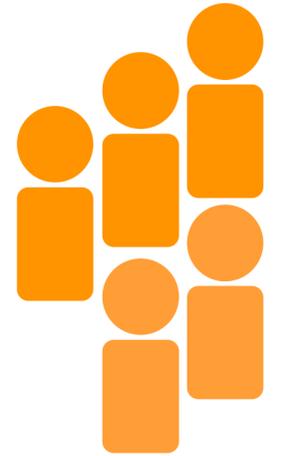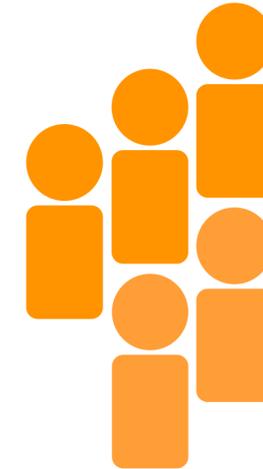 ▸ 269 handled by cloud.gov

  ▸ 41 shared

  ▸ 15 handled by customer

@kmugrage

Your use of cloud.gov includes your responsibility and cloud.gov's responsibility.

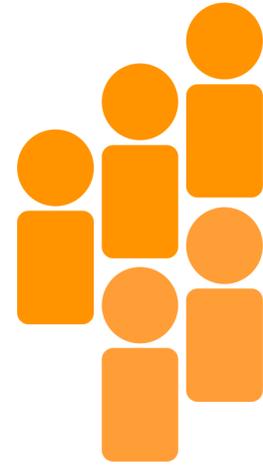| App example #1	App example #2	App example #3
Your app code	Your app code	Docker container
Supported buildpack	Custom (unsupported) buildpack	Custom (unsupported) image
Operating system	Operating system	Operating system
Continuous monitoring	Continuous monitoring	Continuous monitoring
Anti-malware	Anti-malware	Anti-malware
Network security	Network security	Network security
Versioning	Versioning	Versioning
Scaling	Scaling	Scaling
Logging	Logging	Logging
Alerting	Alerting	Alerting

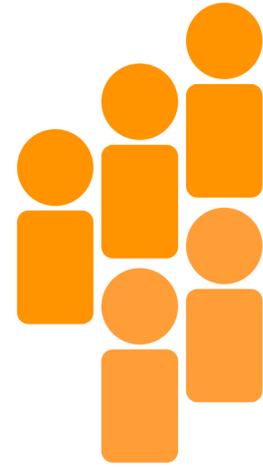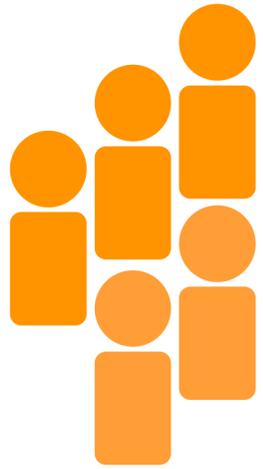# THE CLOUD IS JUST SOMEBODY ELSE'S COMPUTER
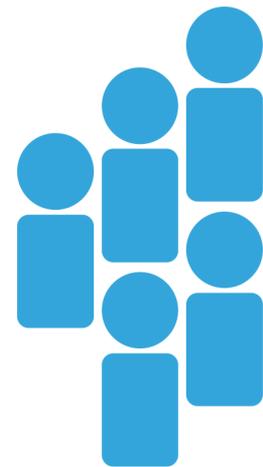
Someone at every conference
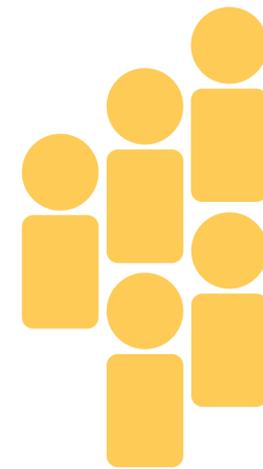
@kmugrage

PRODUCT TEAMS
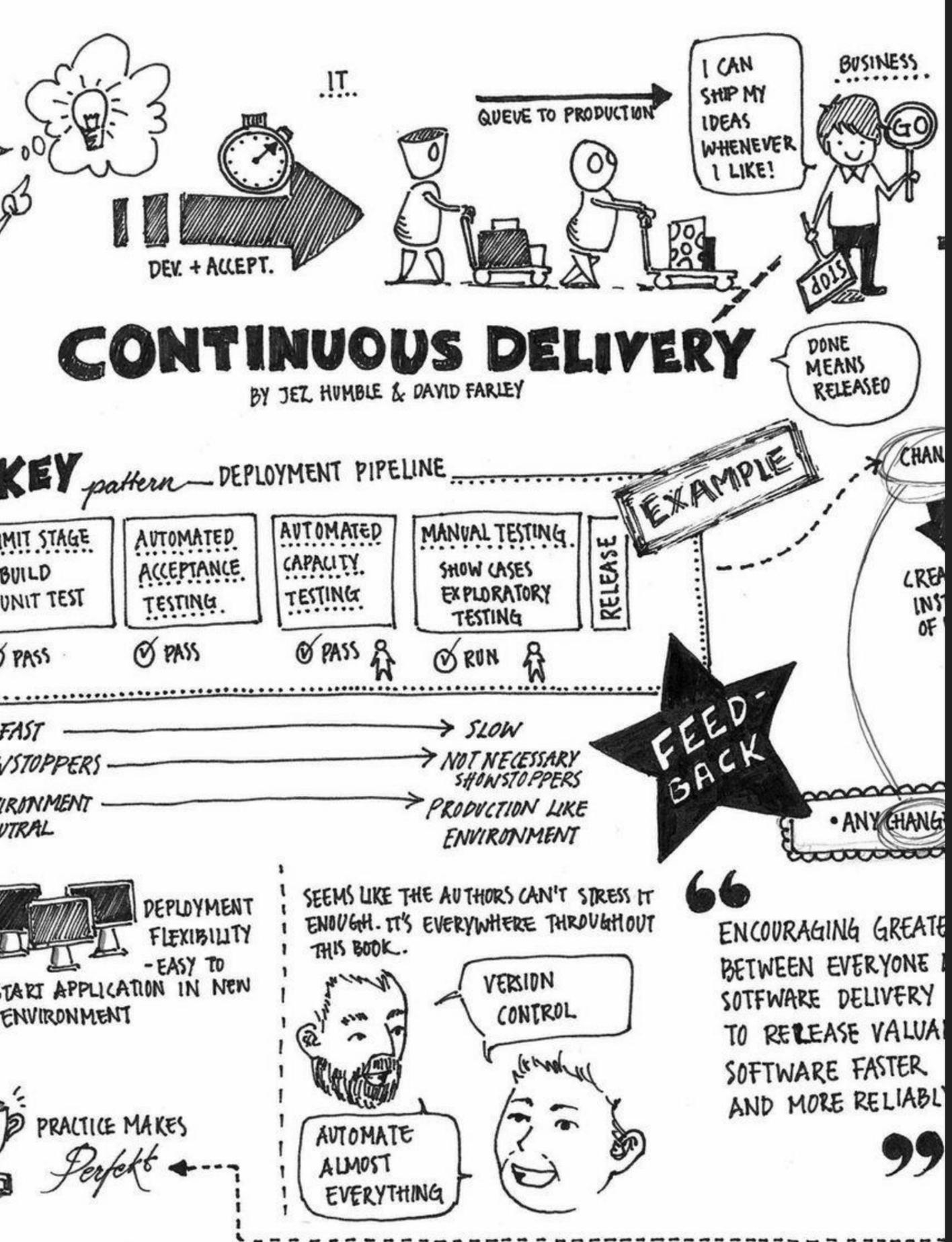

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PRODUCT TEAMS

Platform Team

Compliance Team

Security Team

@kmugrage

USE CONTINUOUS DELIVERY

TO SAFELY DEPLOY MORE OFTEN

CONTINUOUS DELIVERY IS THE ABILITY TO GET CHANGES OF ALL TYPES—INCLUDING NEW FEATURES, CONFIGURATION CHANGES, BUG FIXES AND EXPERIMENTS—INTO PRODUCTION, OR INTO THE HANDS OF USERS, SAFELY AND QUICKLY IN A SUSTAINABLE WAY.
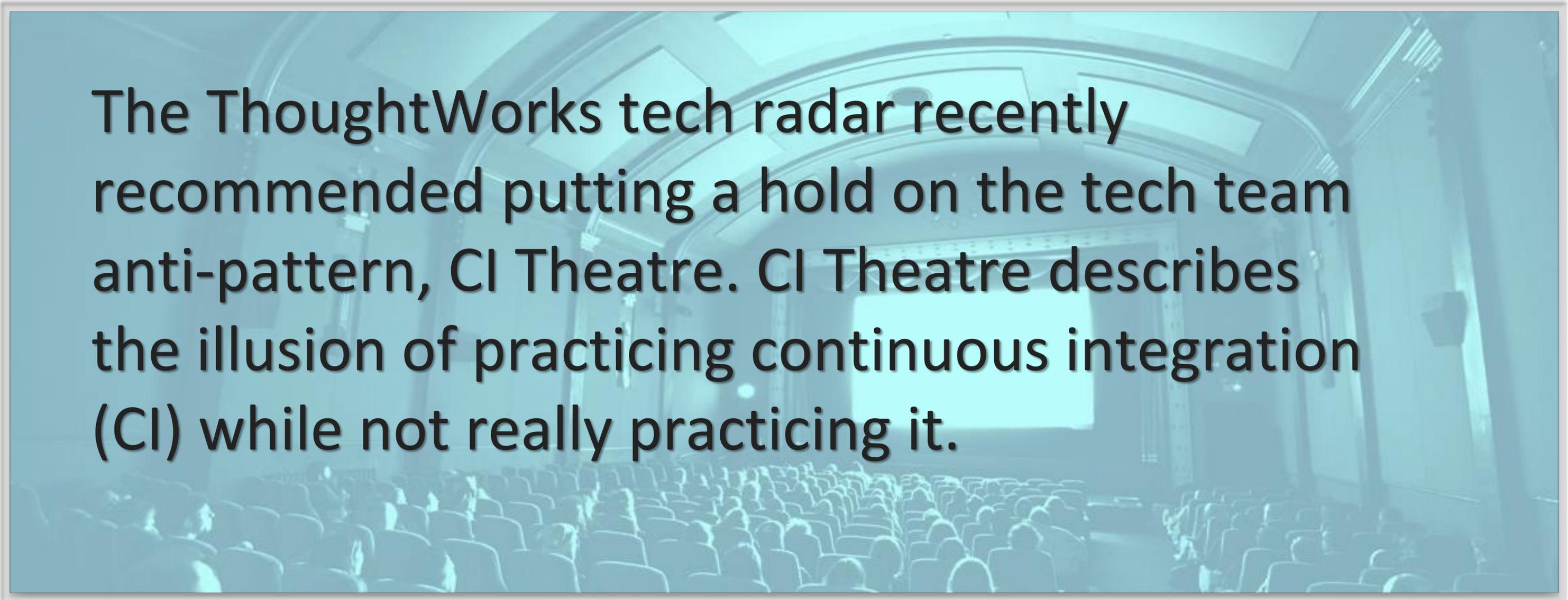
Jez Humble

https://continuousdelivery.com/

MORE HOMEWORK
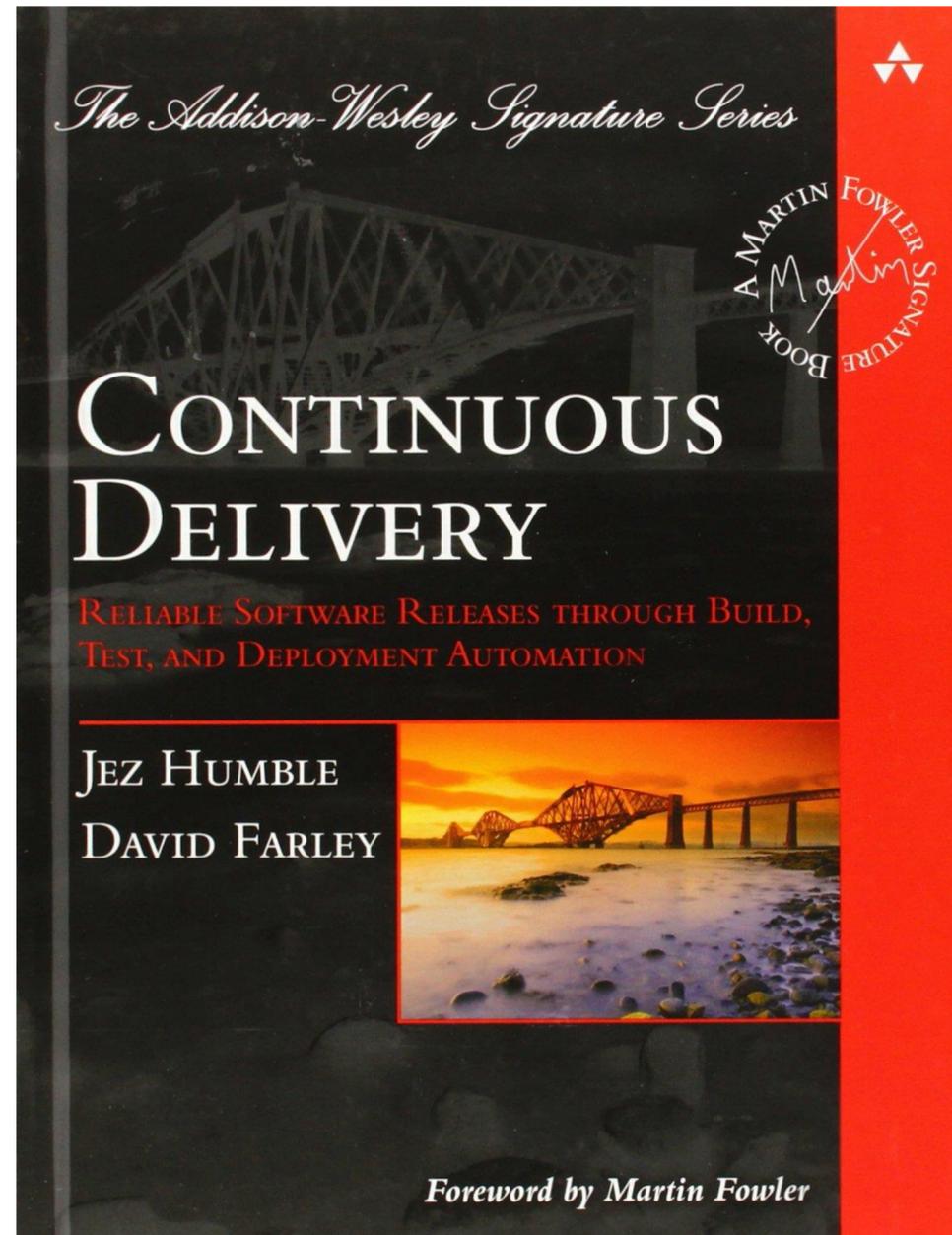
CONTINUOUS DELIVERY IS WHAT YOU "DO" AS PART OF A DEVOPS CULTURE
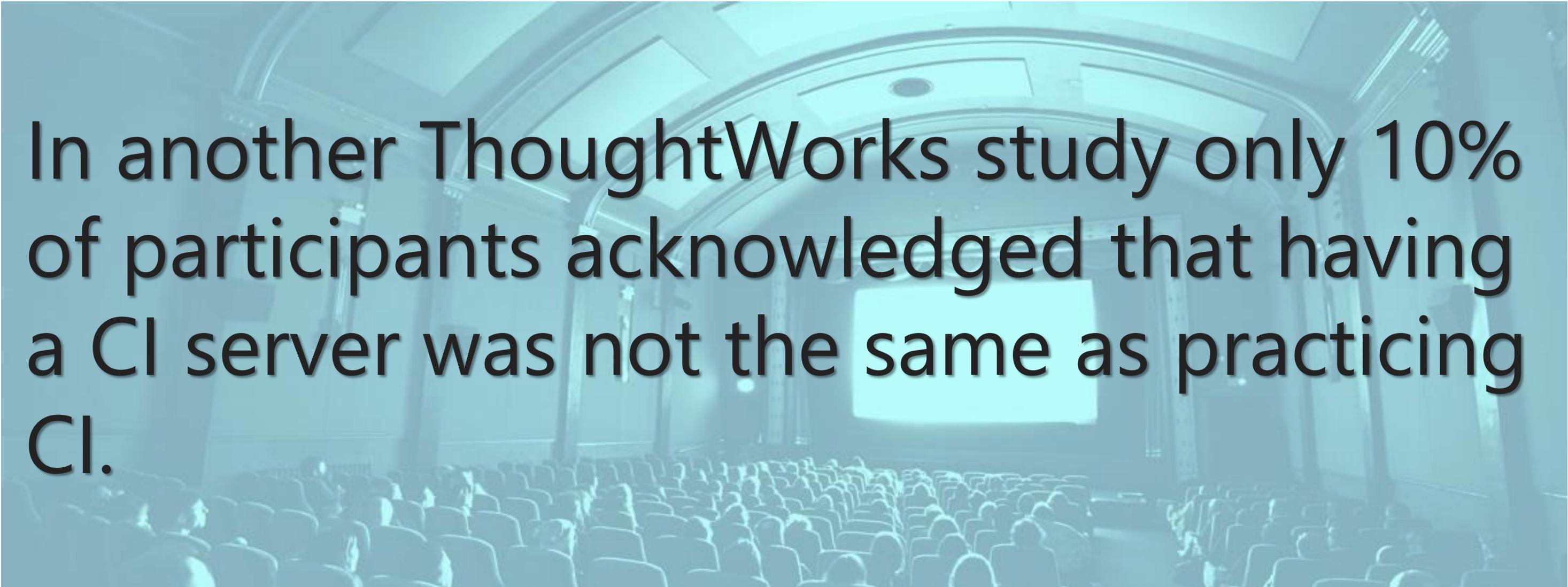
Me

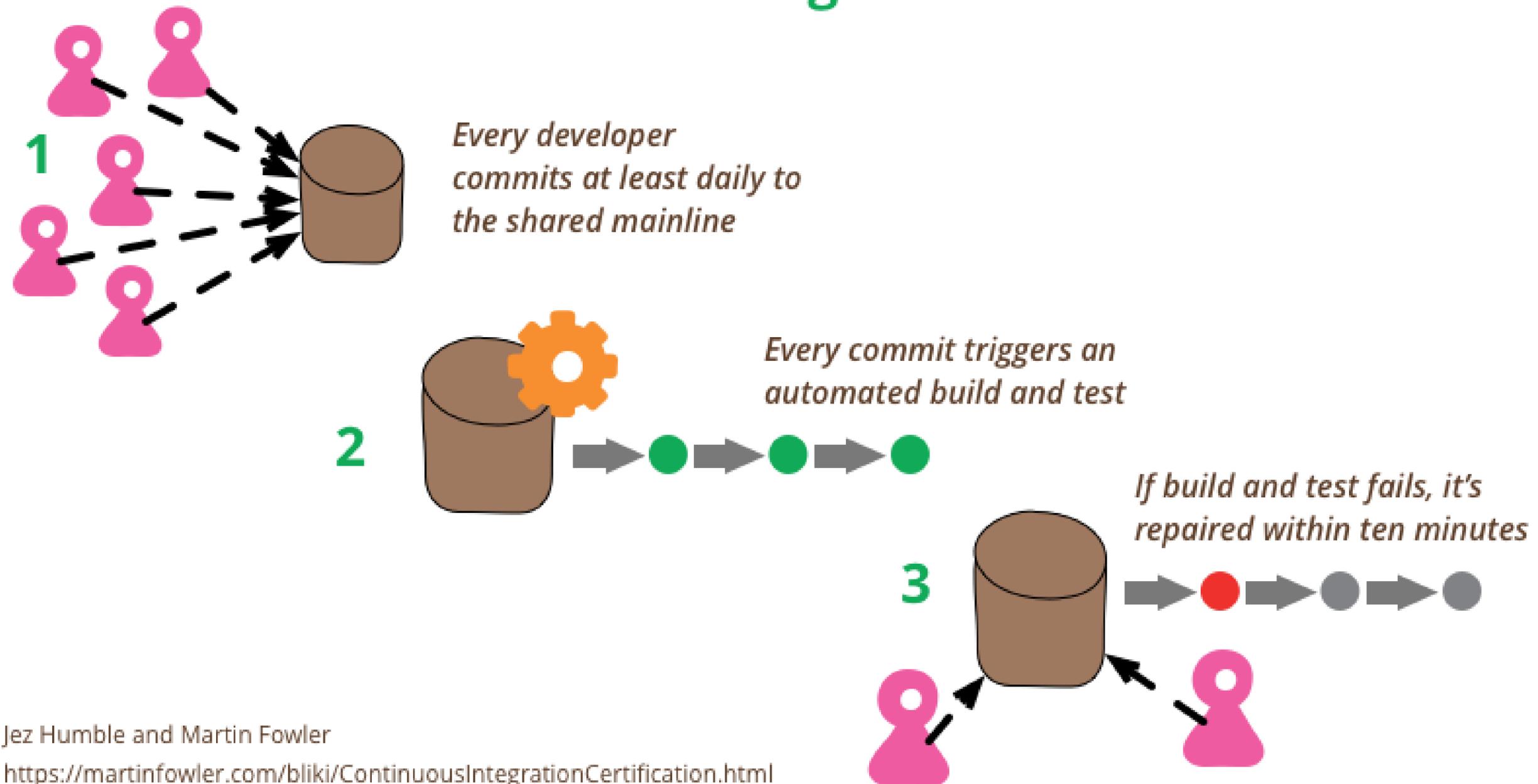A PREREQUISITE TO CD

CONTINUOUS INTEGRATION

The ThoughtWorks tech radar recently recommended putting a hold on the tech team anti-pattern, CI Theatre. CI Theatre describes the illusion of practicing continuous integration (CI) while not really practicing it.

https://www.gocd.org/2017/05/16/its-not-CI-its-CI-theatre/

In another ThoughtWorks study only 10% of participants acknowledged that having a CI server was not the same as practicing CI.
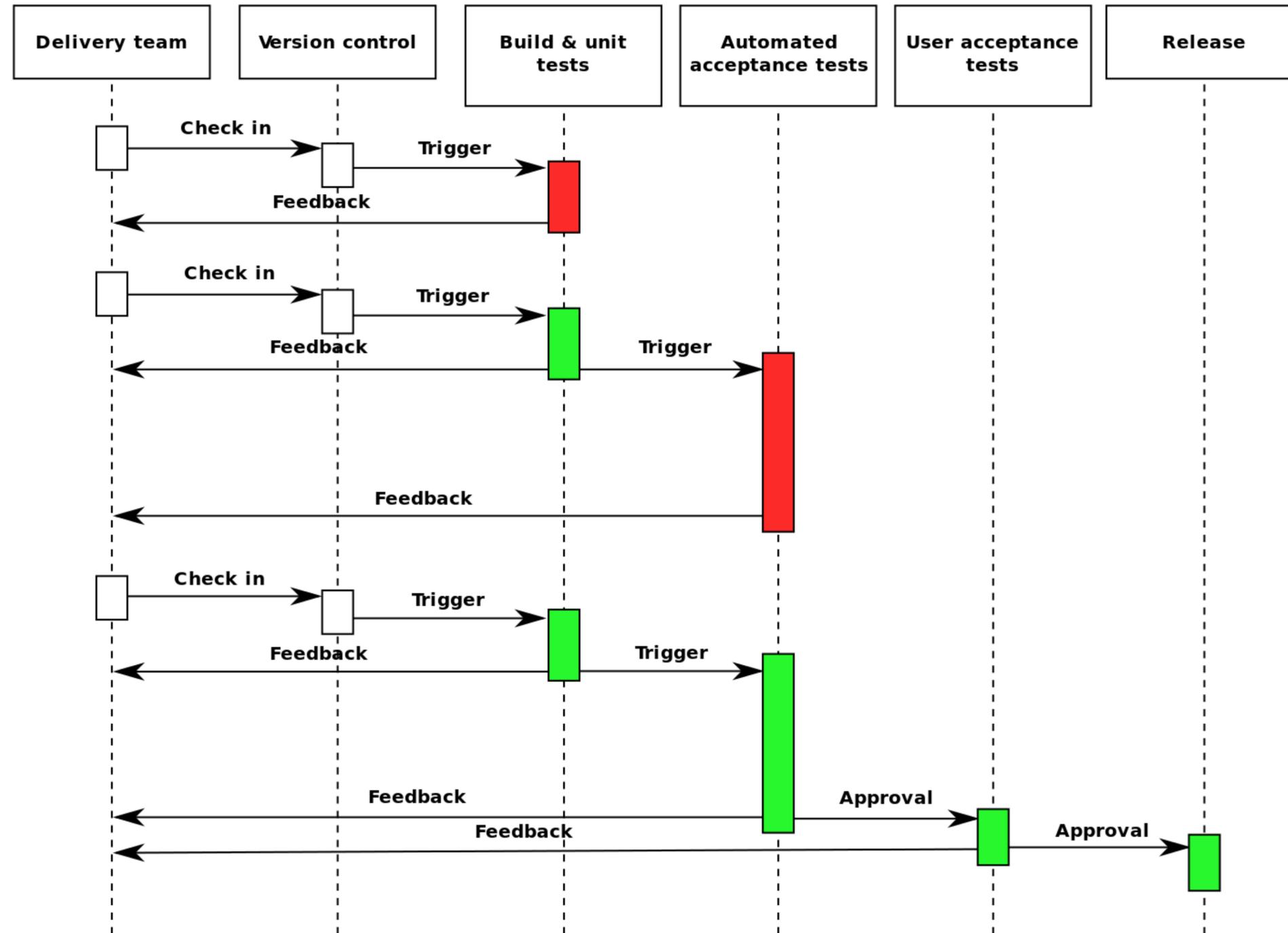
The Continuous Integration Certification Test

1 Every developer commits at least daily to the shared mainline

2 Every commit triggers an automated build and test

3 If build and test fails, it's repaired within ten minutes

Jez Humble and Martin Fowler
https://martinfowler.com/bliki/ContinuousIntegrationCertification.html
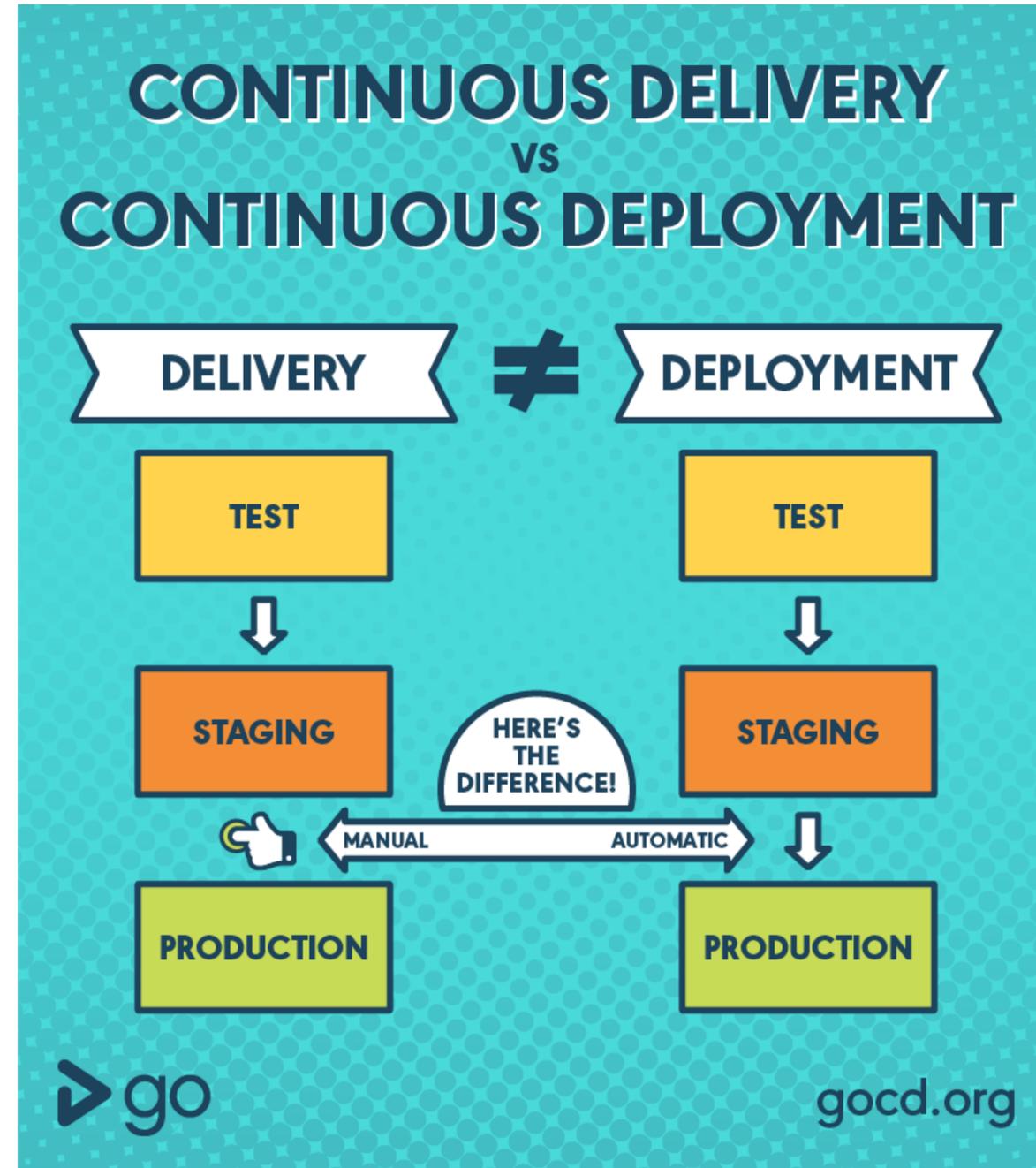
@kmugrage
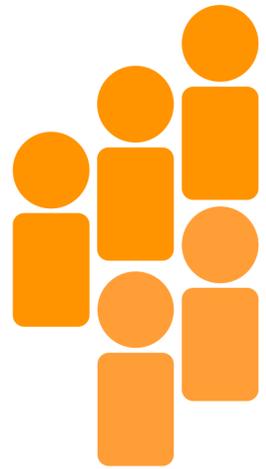
CONTINUOUS DELIVERY PIPELINE

@kmugrage

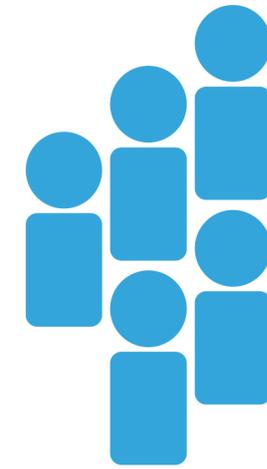CONTINUOUS DELIVERY IS NOT JUST CONTINUOUS INTEGRATION WITH A PLUGIN AND A COUPLE EXTRA STEPS

Me

@kmugrage

OUR TEAMS

Product Team

Security Team

Compliance Team

@kmugrage

OUR CONTINUOUS DELIVERY PIPELINE

go

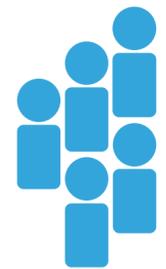| UNIT TESTS | → | FUNCTIONAL TESTS | → | DEPLOY STAGING | → | DEPLOY PRODUCTION |

@kmugrage

EXAMPLES OF THINGS WHICH ARE BAD

▸ Deploying insecure software

▸ Deploying non-performant software

▸ Deploying non-complying software

▸ Deploying ineffective software

THE PURPOSE OF A CONTINUOUS DELIVERY PIPELINE IS TO KILL A RELEASE CANDIDATE
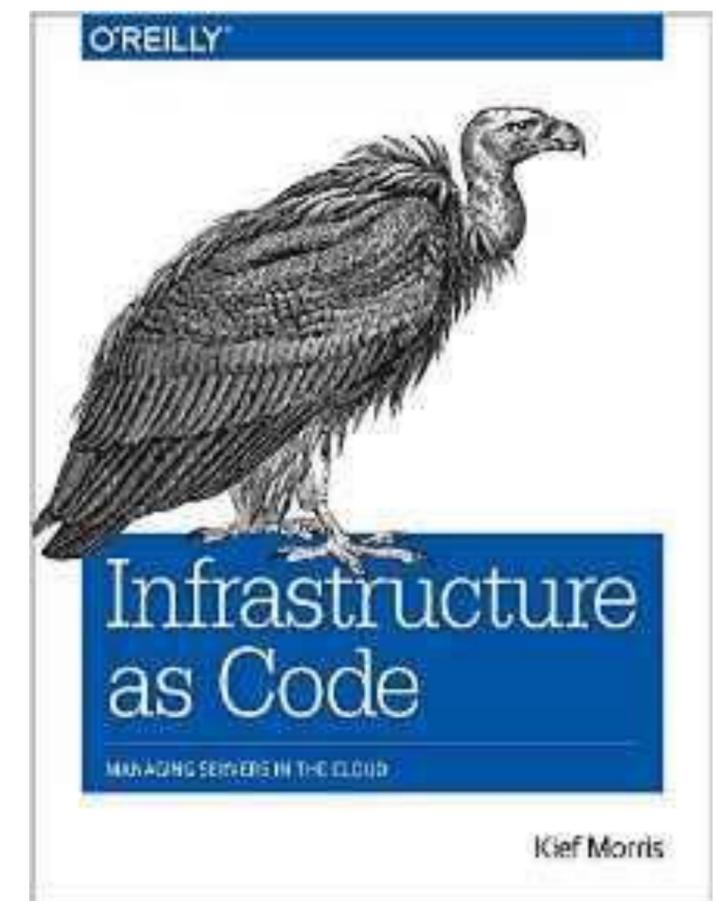
Me, and a lot of other people
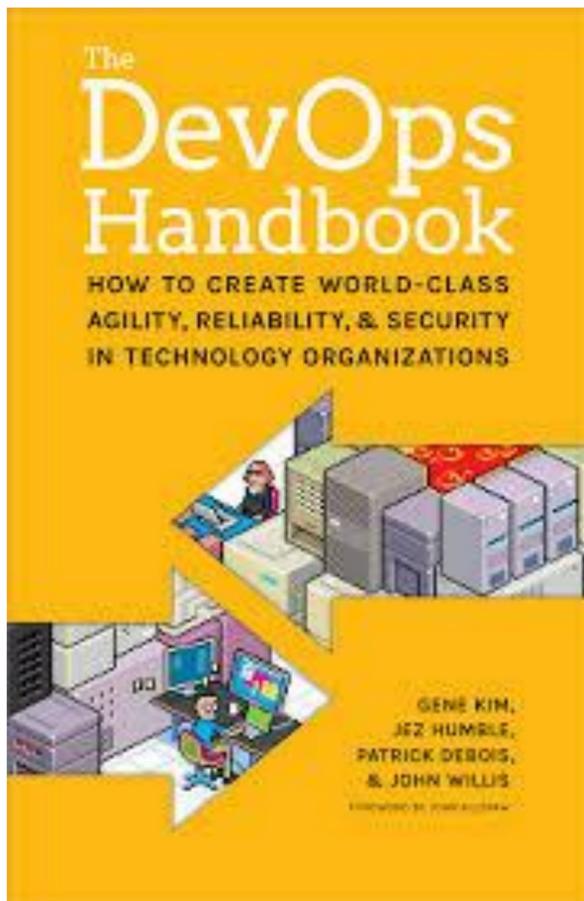
@kmugrage

OUR CONTINUOUS DELIVERY PIPELINE

go

| UNIT TESTS | → | FUNCTIONAL TESTS | → | DEPLOY STAGING | → | DEPLOY PRODUCTION |

SECURITY TESTS (OWASP, OTHERS)

COMPLIANCE TESTS (SERVERSPEC, INSPEC)

@kmugrage
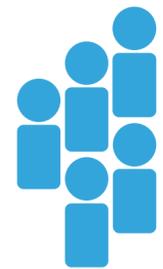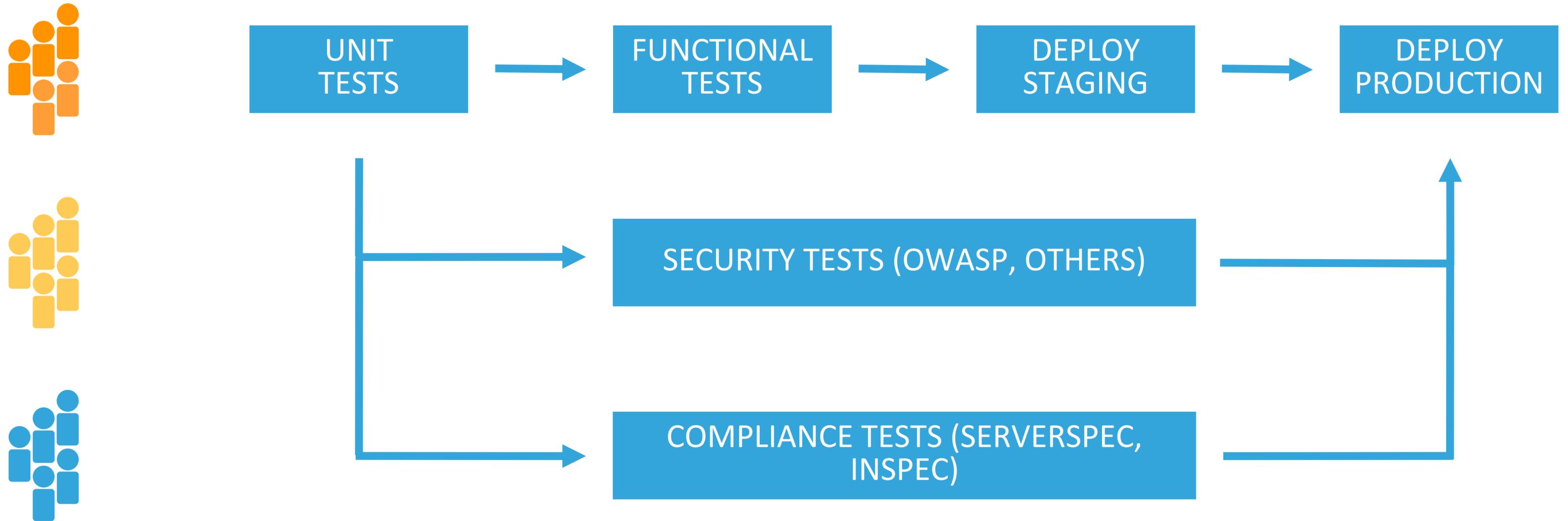
SORRY, THERE'S NO SILVER BULLET

SORRY, THERE'S NO SILVER BULLET

BUT THESE ARE SOLVED PROBLEMS AND THERE IS A LOT OF HELP

SUMMARY

- Redefine words for your organization

- Change your organization to enable DevOps

- Use modern architectures and technologies

- Use Continuous Delivery to safely deploy more often

THANK YOU!

@kmugrage

@goforcd

https://www.gocd.org/