

IT'S NOT CONTINUOUS DELIVERY

IF YOU CAN'T DEPLOY
RIGHT NOW



"NO!

Try not!

DO or DO NOT,

There is no try!"



KEN MUGRAGE

THOUGHTWORKS TECHNOLOGY EVANGELIST

DEVOPSDAYS GLOBAL ORGANIZER

@KMUGRAGE

[HTTPS://KENMUGRAGE.COM/](https://kenmugrage.com/)

WHO AM I?

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

Me



Ken Mugrage

@kmugrage



Test for usage of the word #DevOps - switch with culture. "Culture engineer". Nope. "culture tool" nope. "culture transition" sure.

12:14 AM - 31 Aug 2017

“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

FULFILL THE PROMISE OF AGILE



***We follow these principles:
Our highest priority is to satisfy the customer
through early and continuous delivery
of valuable software.***

***Welcome changing requirements, even late in
development. Agile processes harness change for
the customer's competitive advantage.***

***Deliver working software frequently, from a
couple of weeks to a couple of months, with a
preference to the shorter timescale.***

PARTIALLY DONE MIGHT BE USEFUL

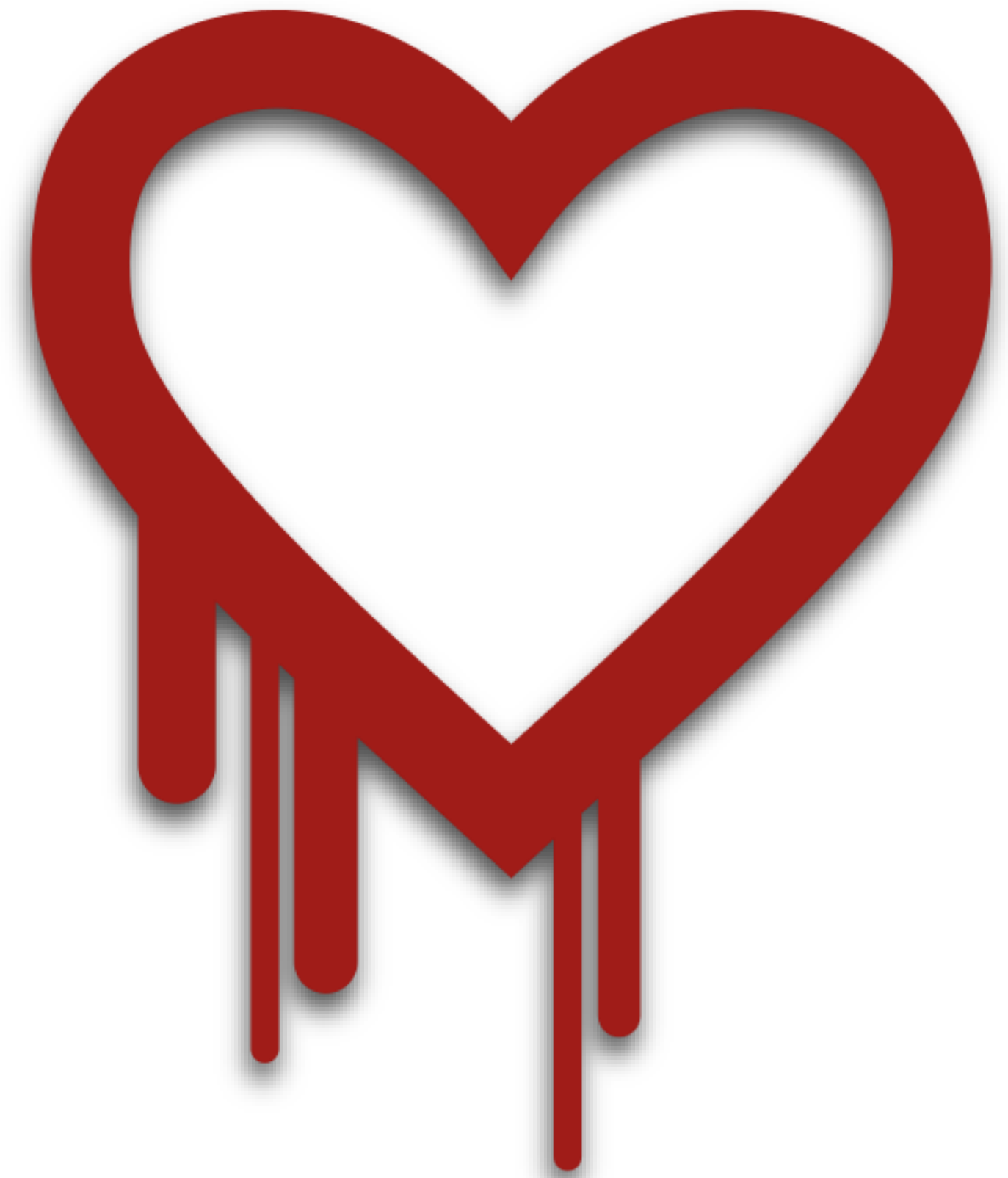


SECURITY THREATS

At the time of disclosure, some 17% (around half a million) of the Internet's secure web servers certified by trusted authorities were believed to be vulnerable to the attack, allowing theft of the servers' private keys and users' session cookies and passwords.

<https://en.wikipedia.org/wiki/Heartbleed>

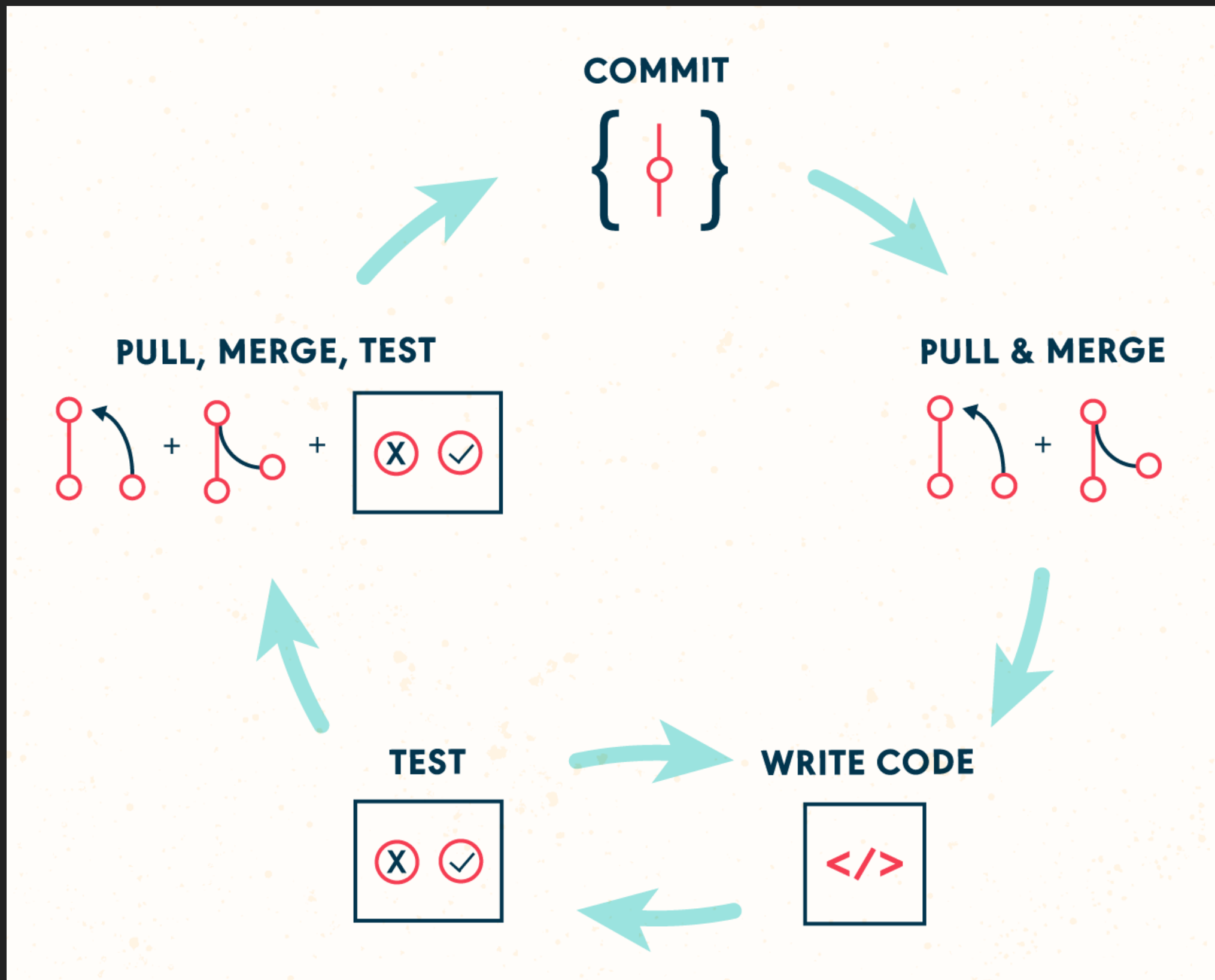
@kmugrage



<https://gocd.org/>

Knight Capital

To be continued....



A PRE-REQUISITE


CONTINUOUS
INTEGRATION

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/>

CONTINUOUS INTEGRATION

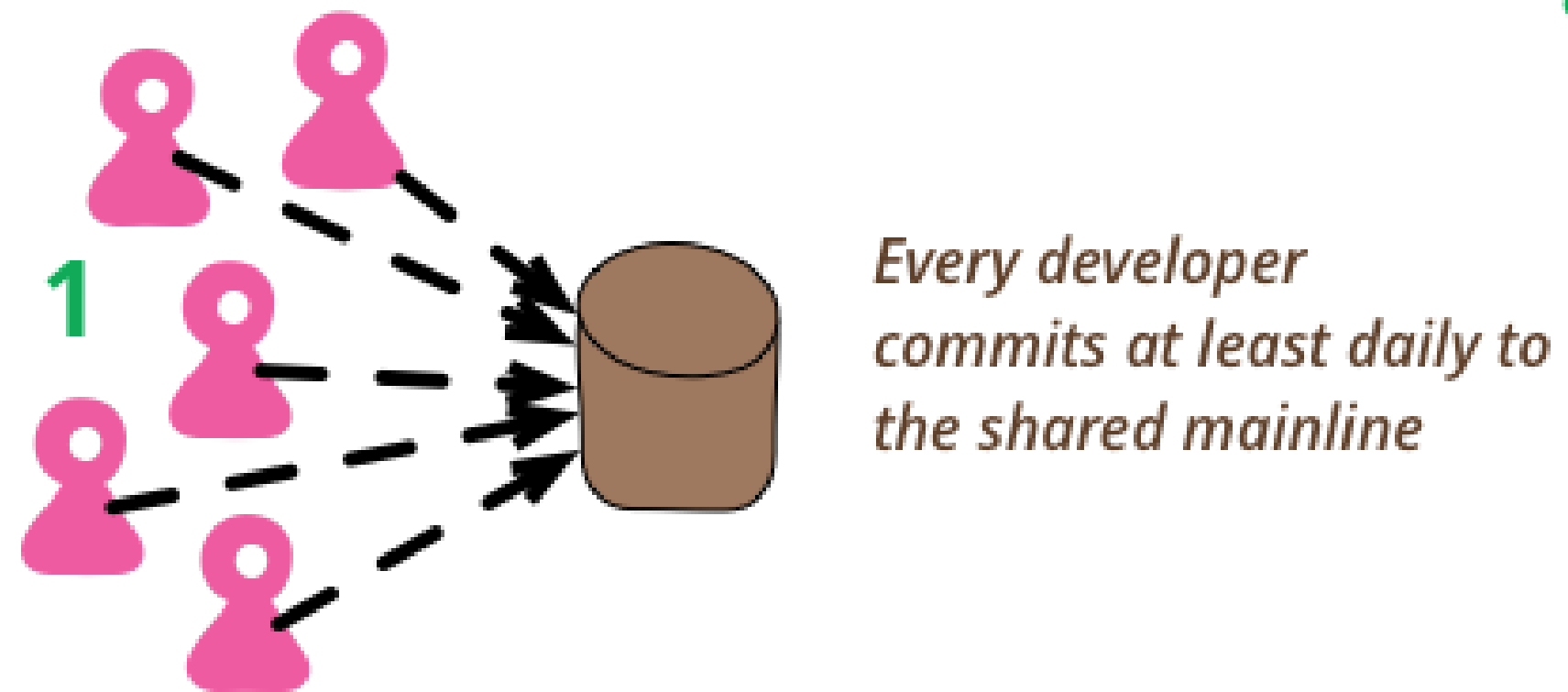


In our study only 10% of participants acknowledged that having a CI server was not the same as practicing CI.

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

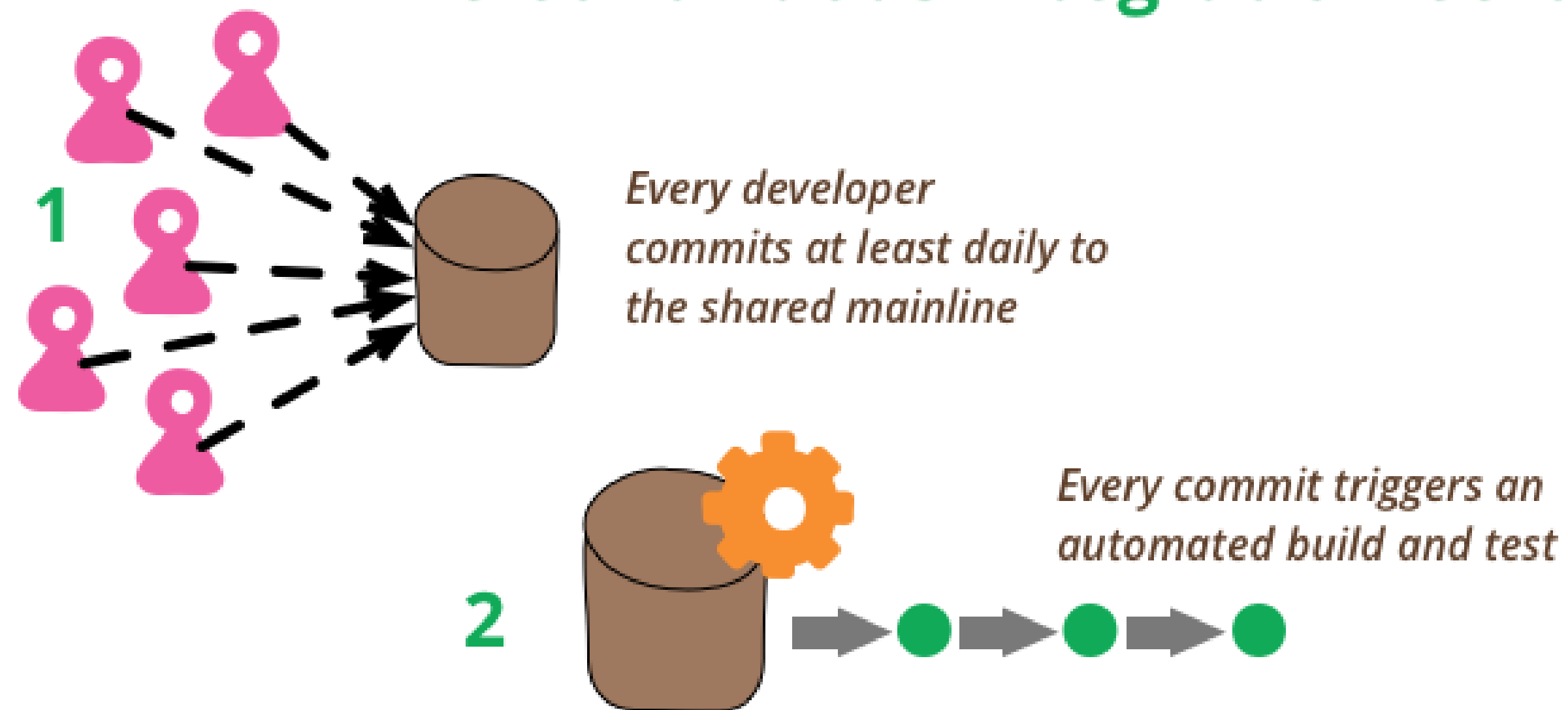
CONTINUOUS INTEGRATION

The Continuous Integration Certification Test



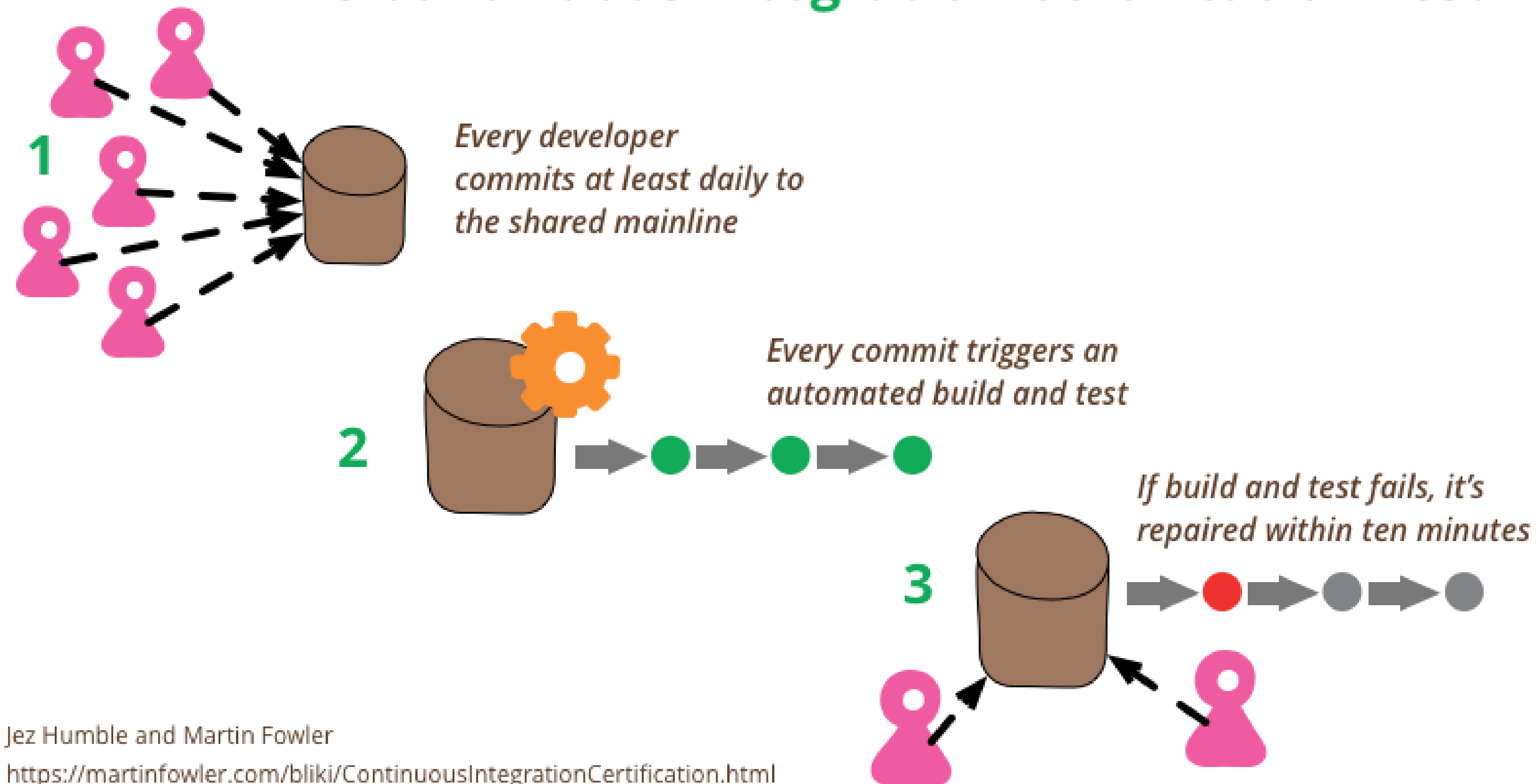
CONTINUOUS INTEGRATION

The Continuous Integration Certification Test



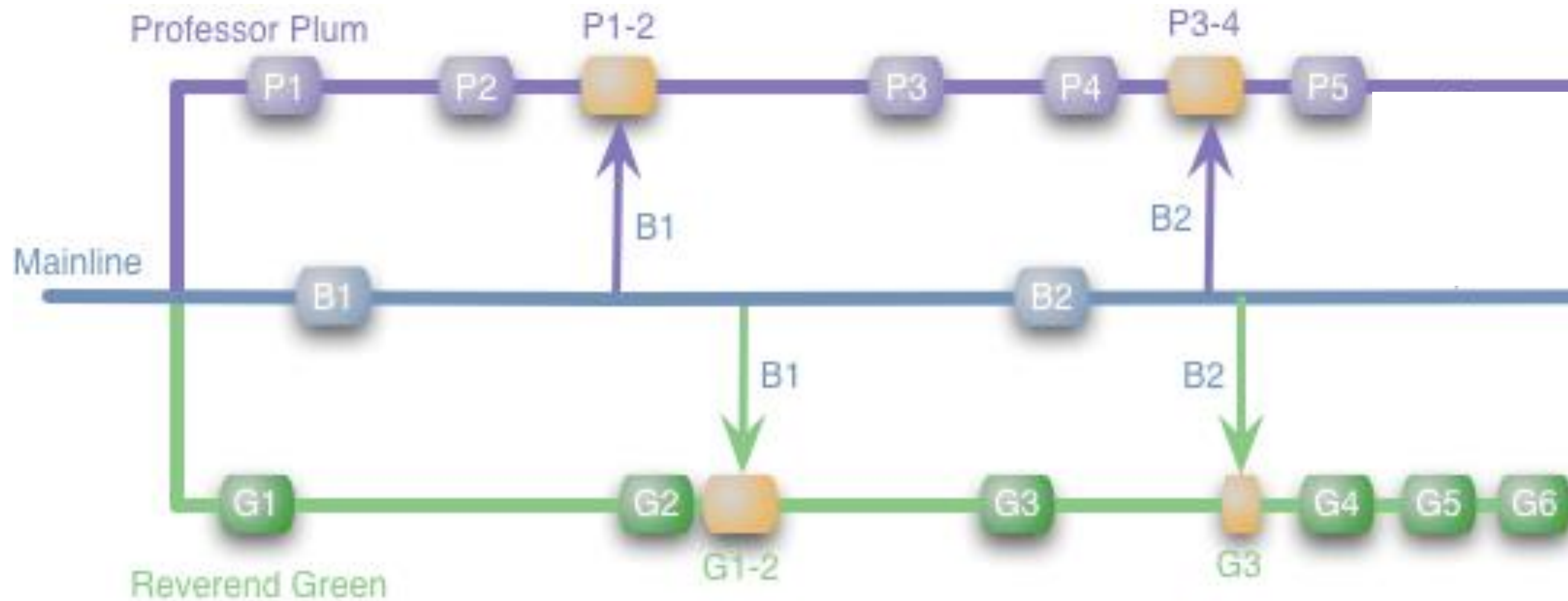
CONTINUOUS INTEGRATION

The Continuous Integration Certification Test



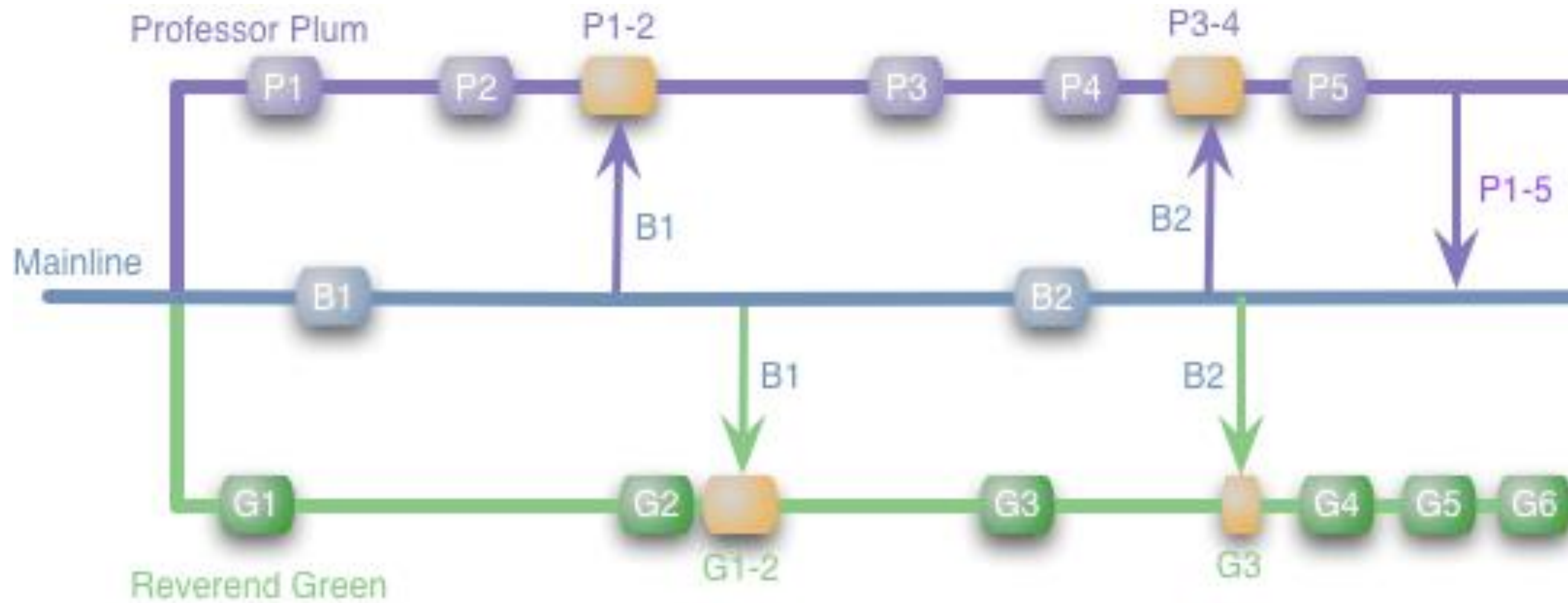
Jez Humble and Martin Fowler
<https://martinfowler.com/bliki/ContinuousIntegrationCertification.html>

FEATURE BRANCHING



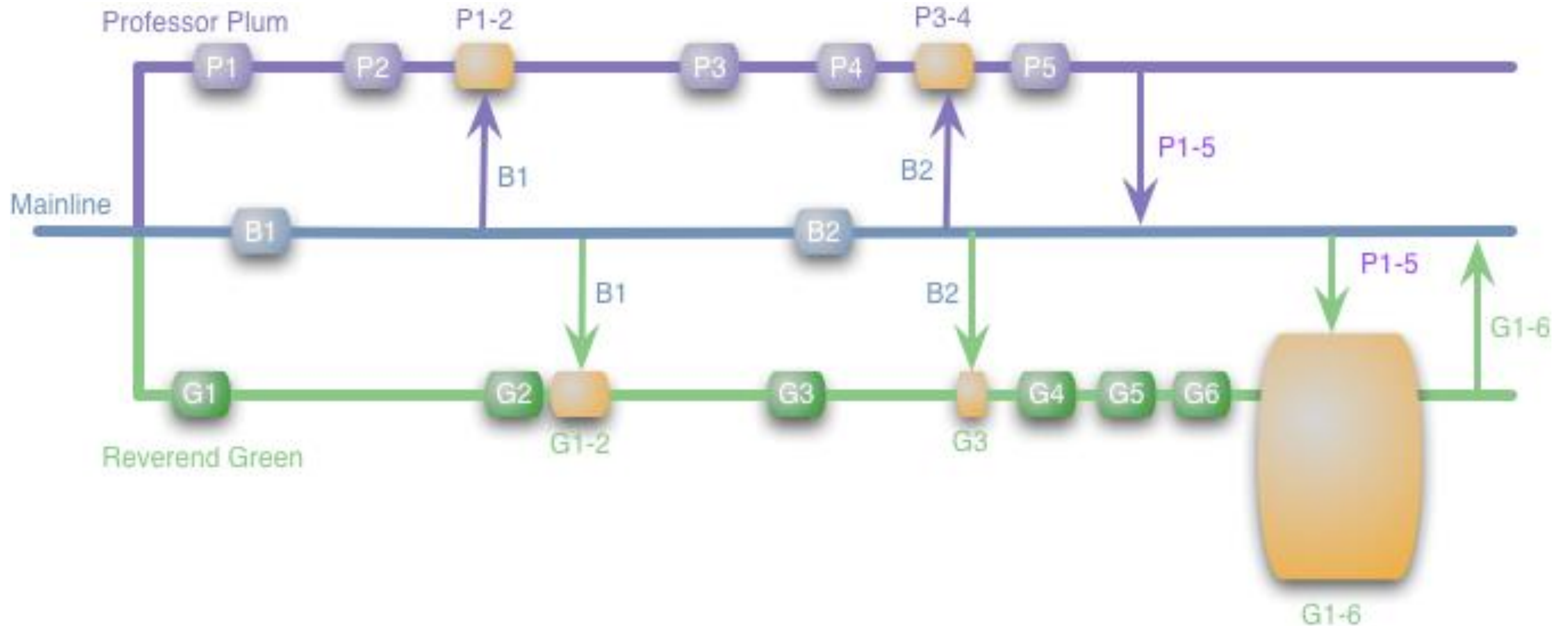
<https://martinfowler.com/bliki/FeatureBranch.html>

FEATURE BRANCHING



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FEATURE BRANCHING

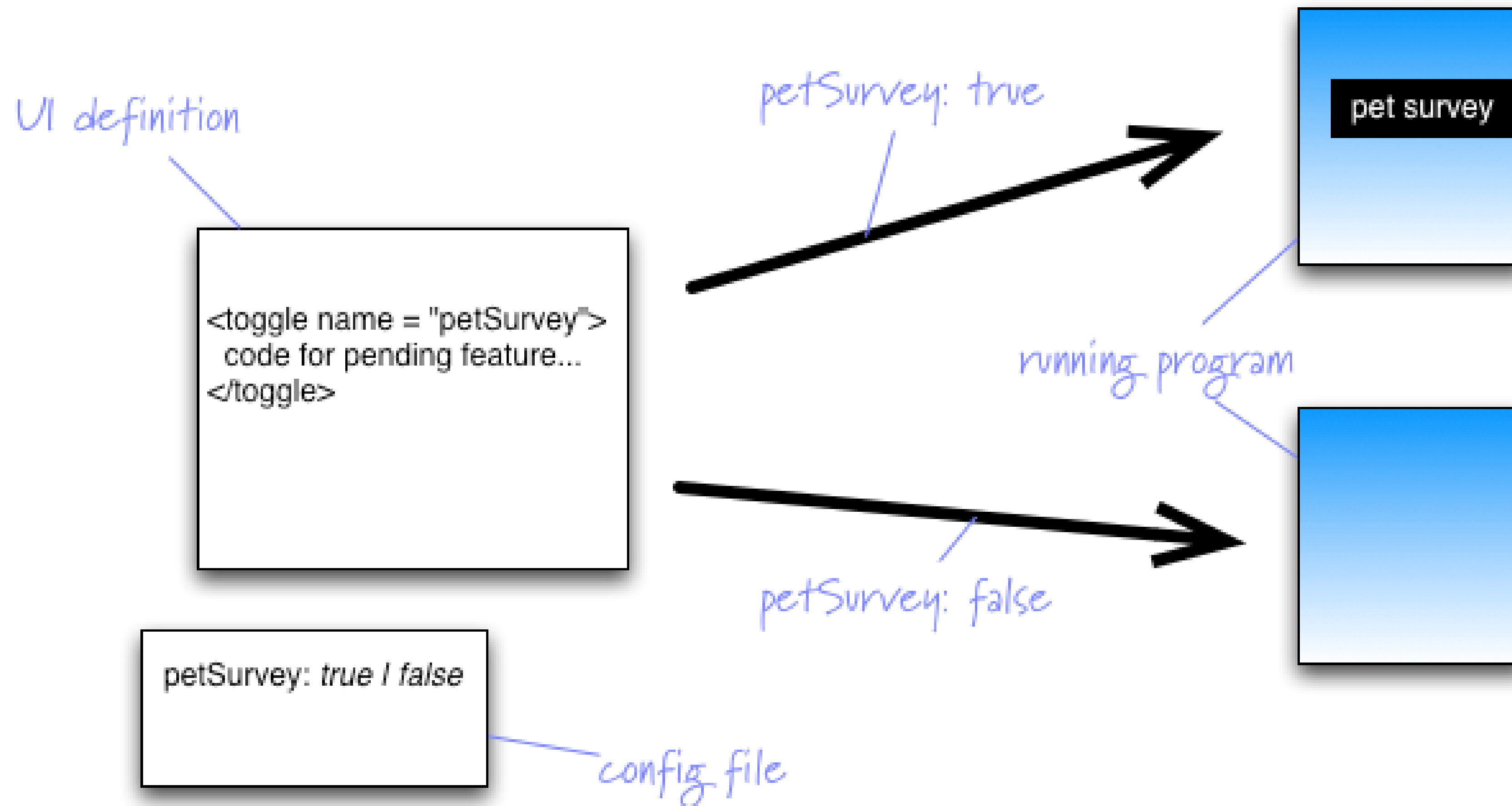


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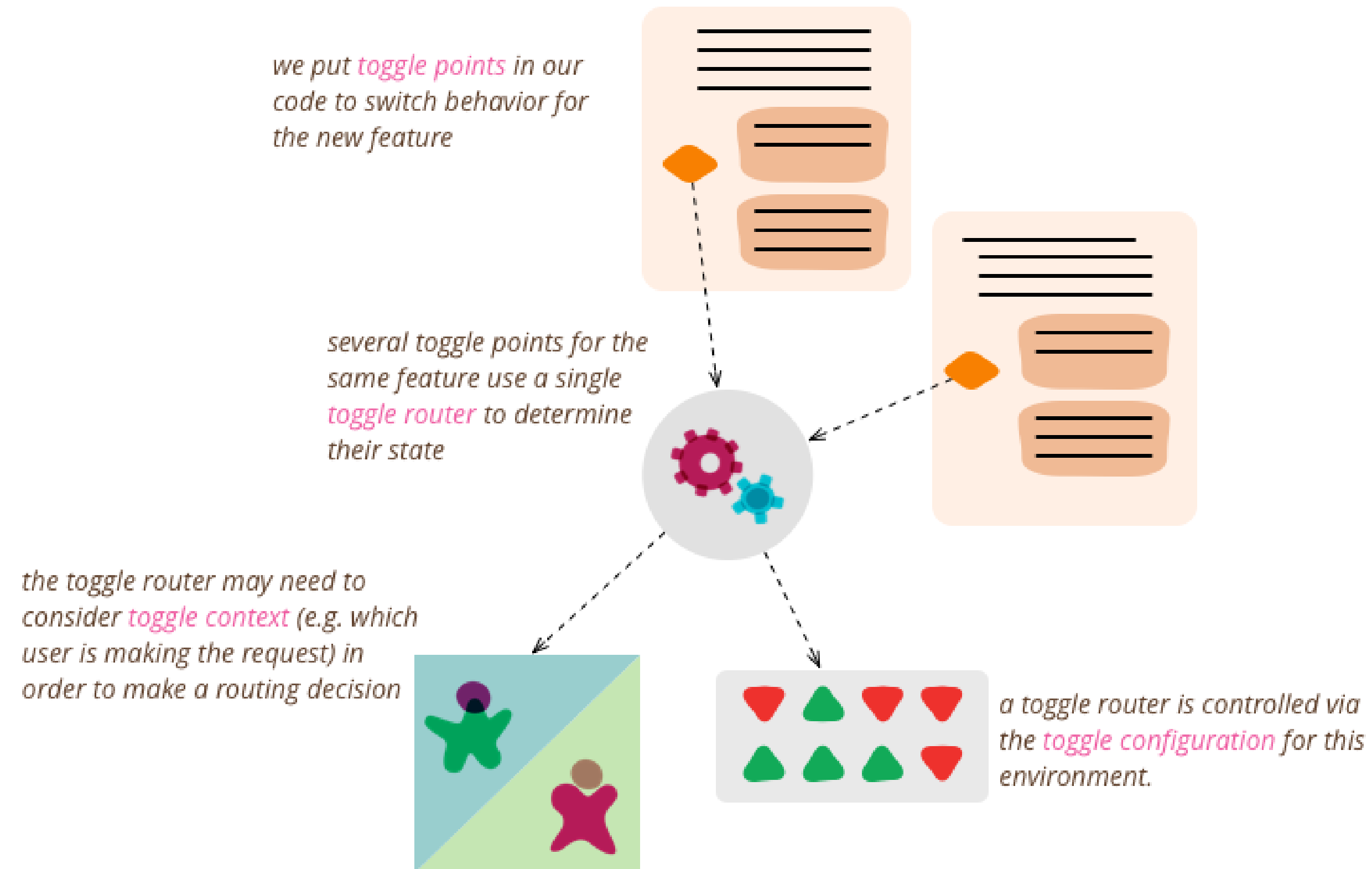
DEPLOYING INCOMPLETE WORK

FEATURE TOGGLES



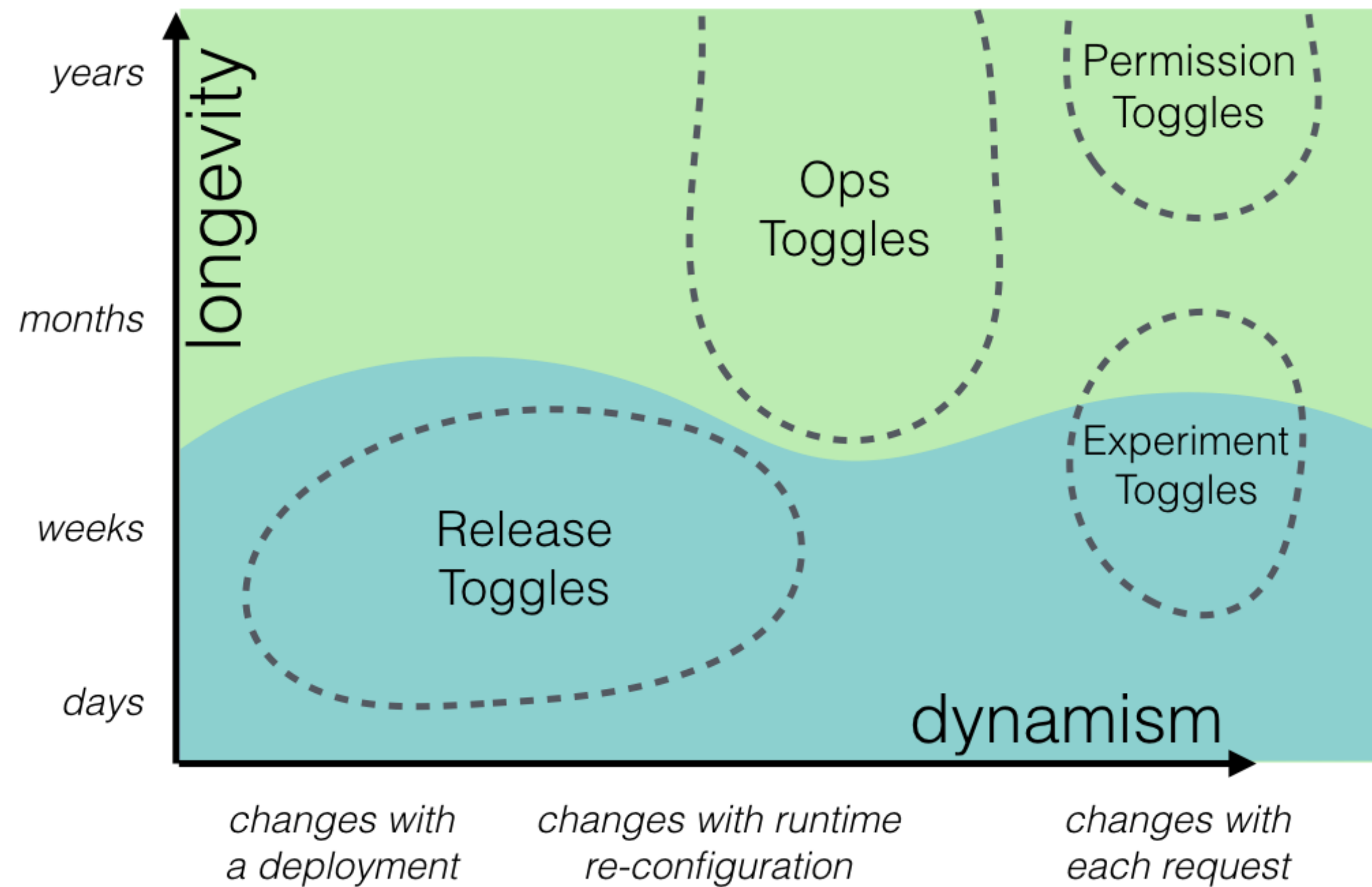
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FEATURE TOGGLES

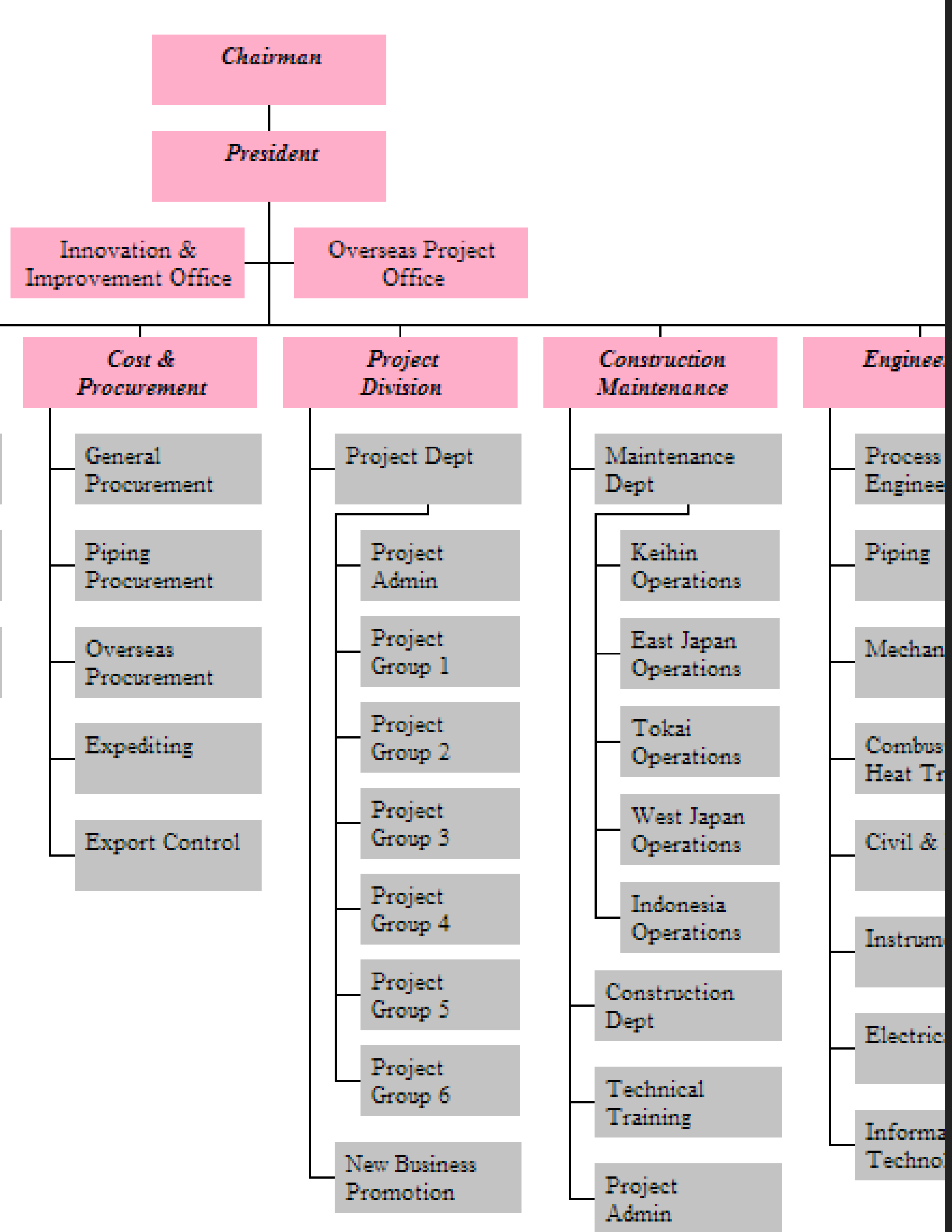


Pete Hodgson - <http://martinfowler.com/articles/feature-toggles.html>

FEATURE TOGGLES



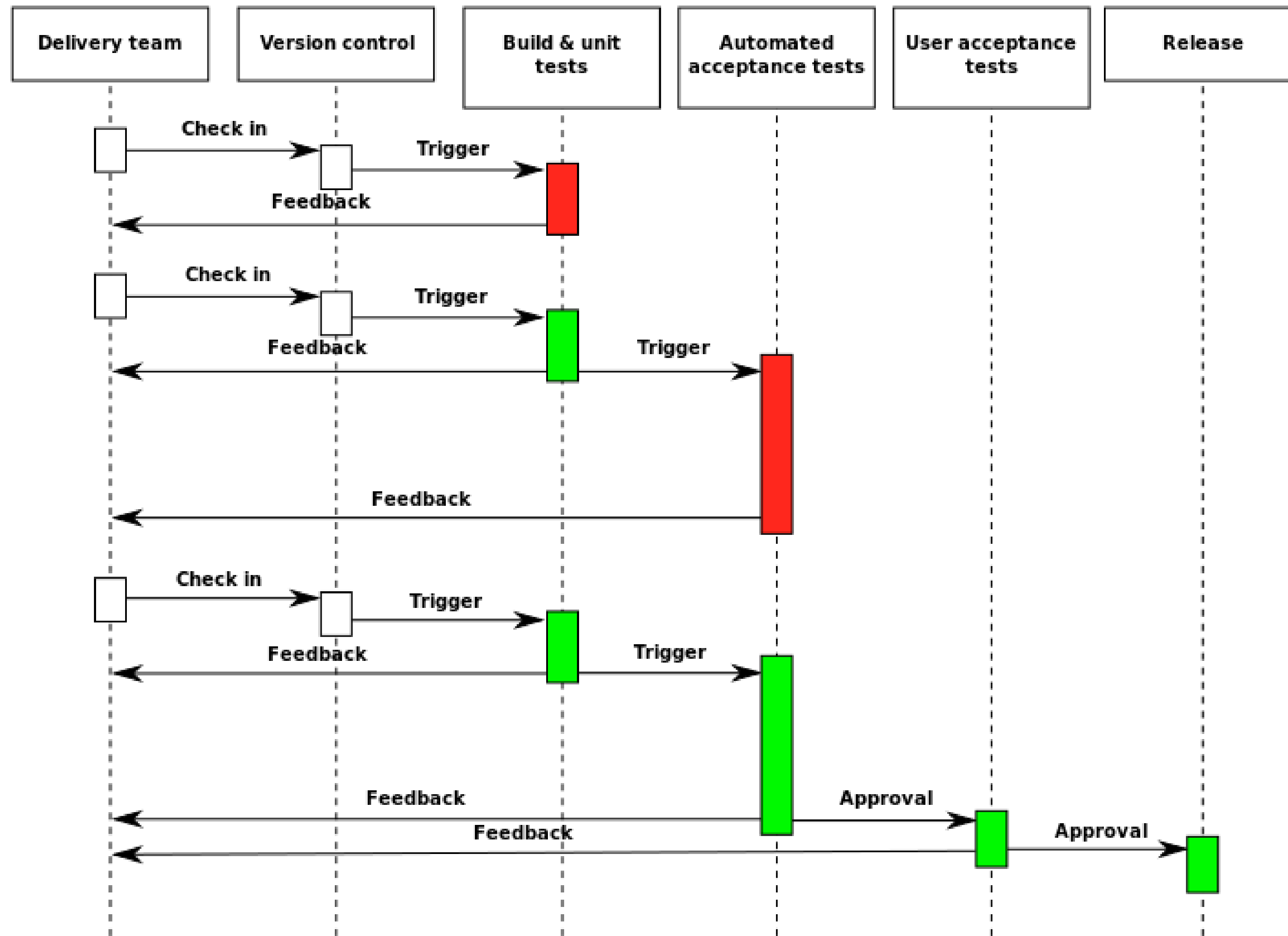
Pete Hodgson - <http://martinfowler.com/articles/feature-toggles.html>



CHANGE YOUR ORG

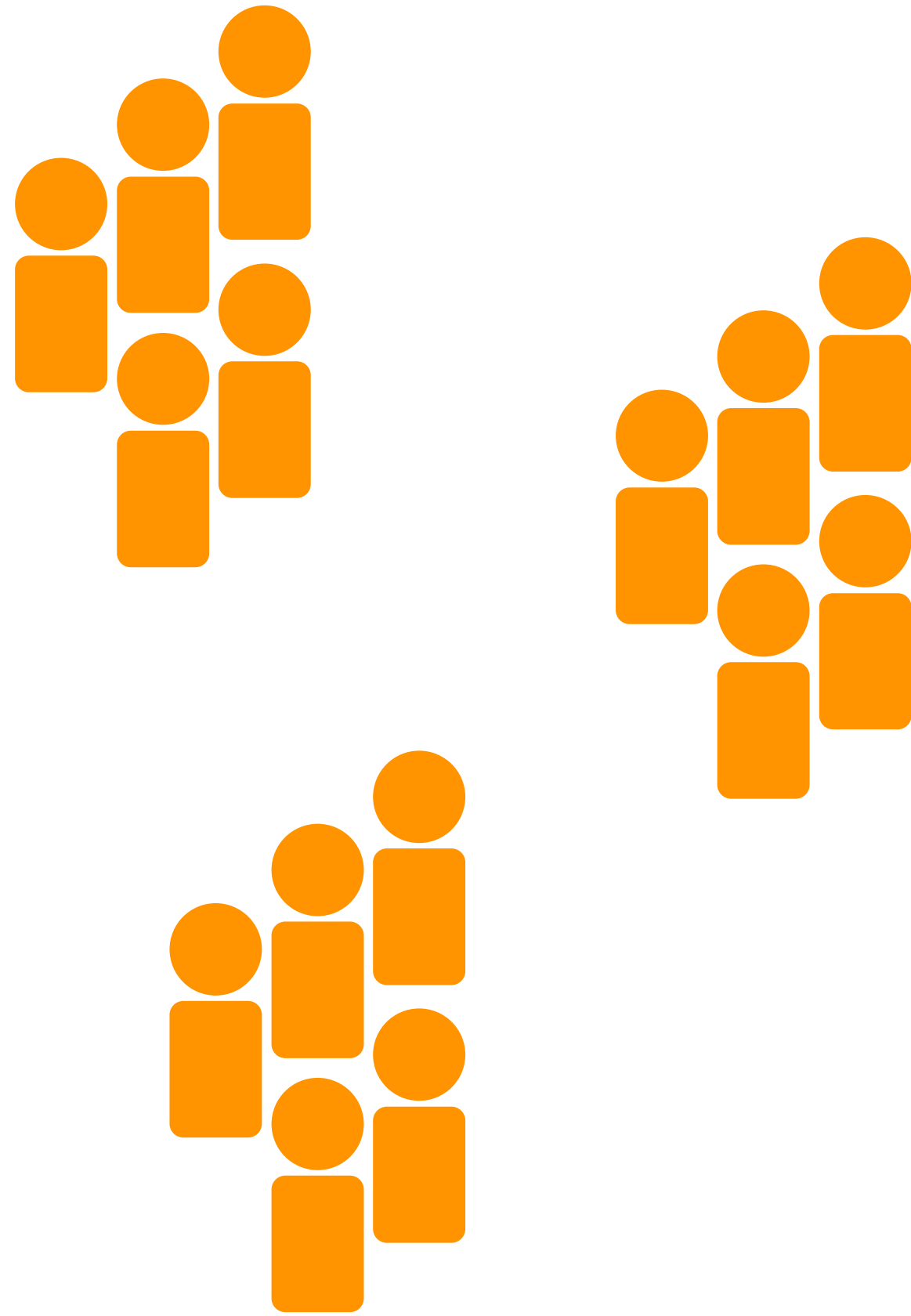
TO ENABLE
CONTINUOUS
DELIVERY

CONTINUOUS DELIVERY PIPELINE

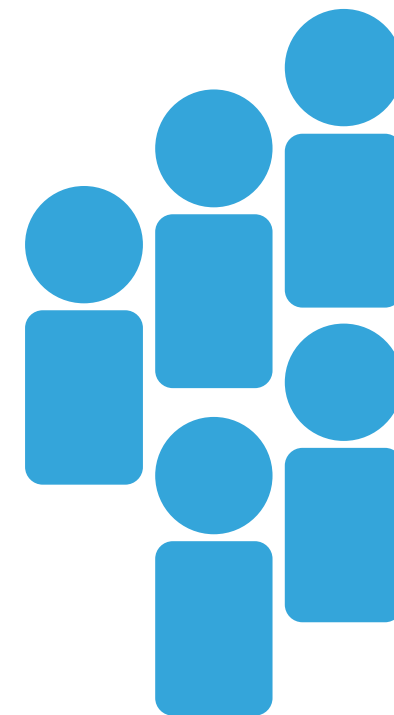


TRADITIONAL MODEL

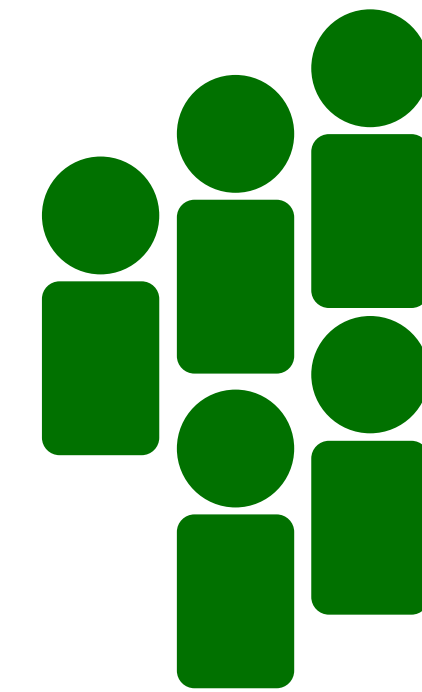
Development Teams



Testing Team



Operations Team

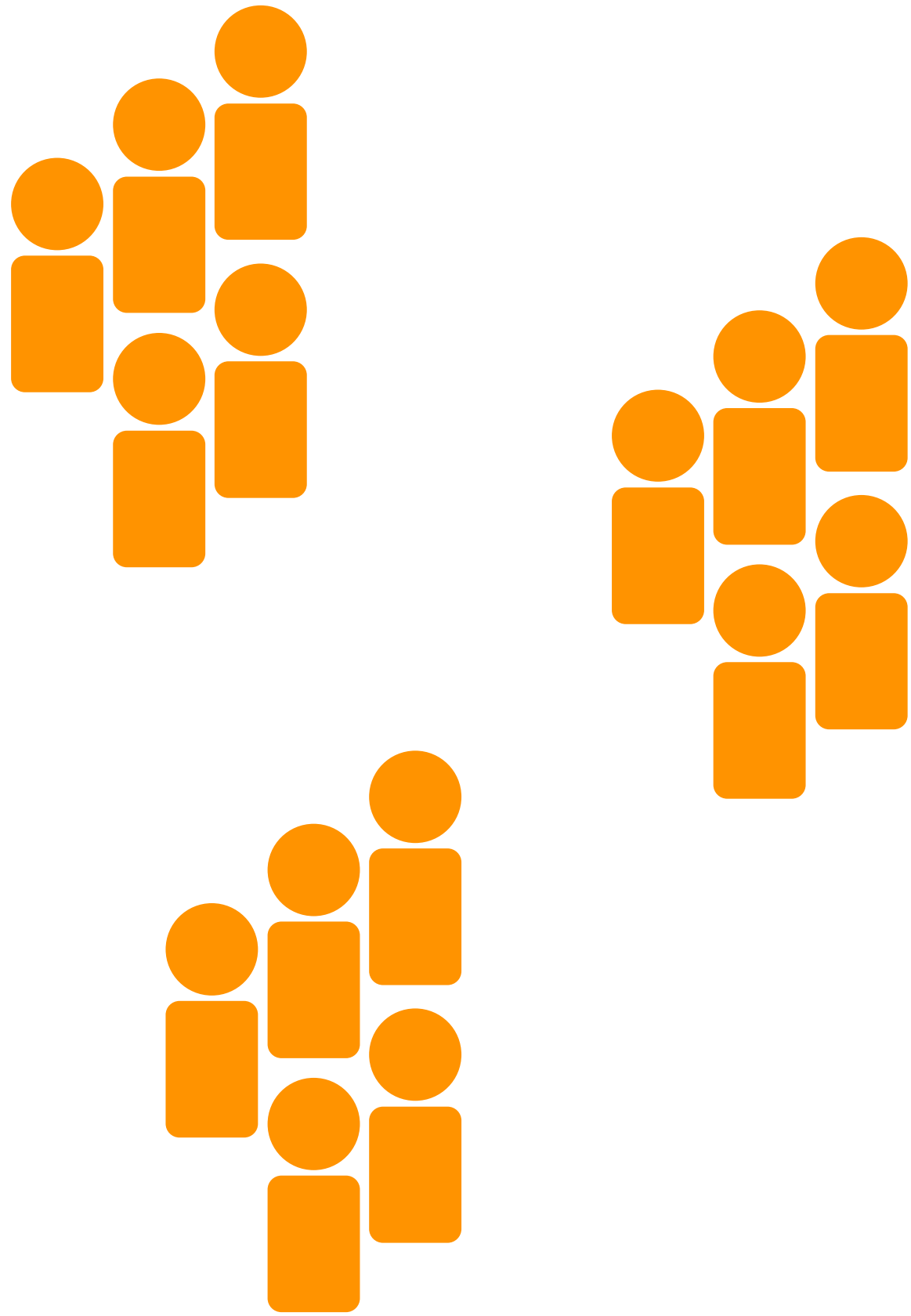


“ANY ORGANIZATION THAT DESIGNS A SYSTEM (DEFINED BROADLY) WILL PRODUCE A DESIGN WHOSE STRUCTURE IS A COPY OF THE ORGANIZATION'S COMMUNICATION STRUCTURE.”

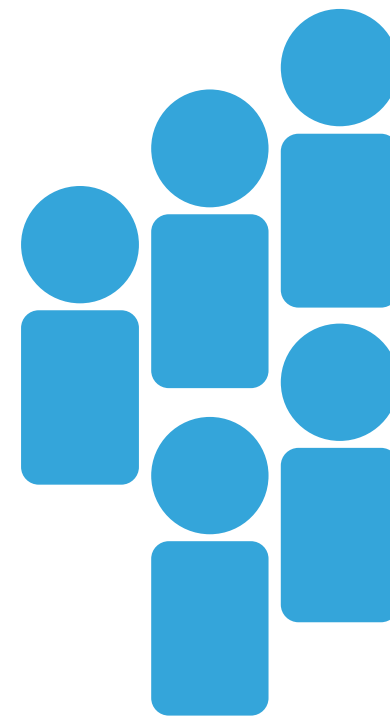
–Mel Conway

TRADITIONAL MODEL

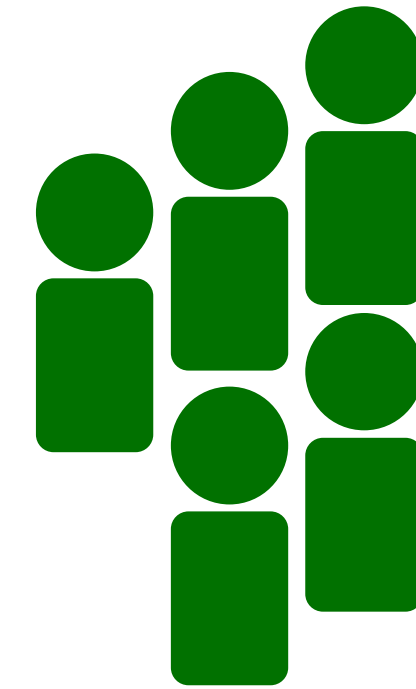
Development Teams



QA Team

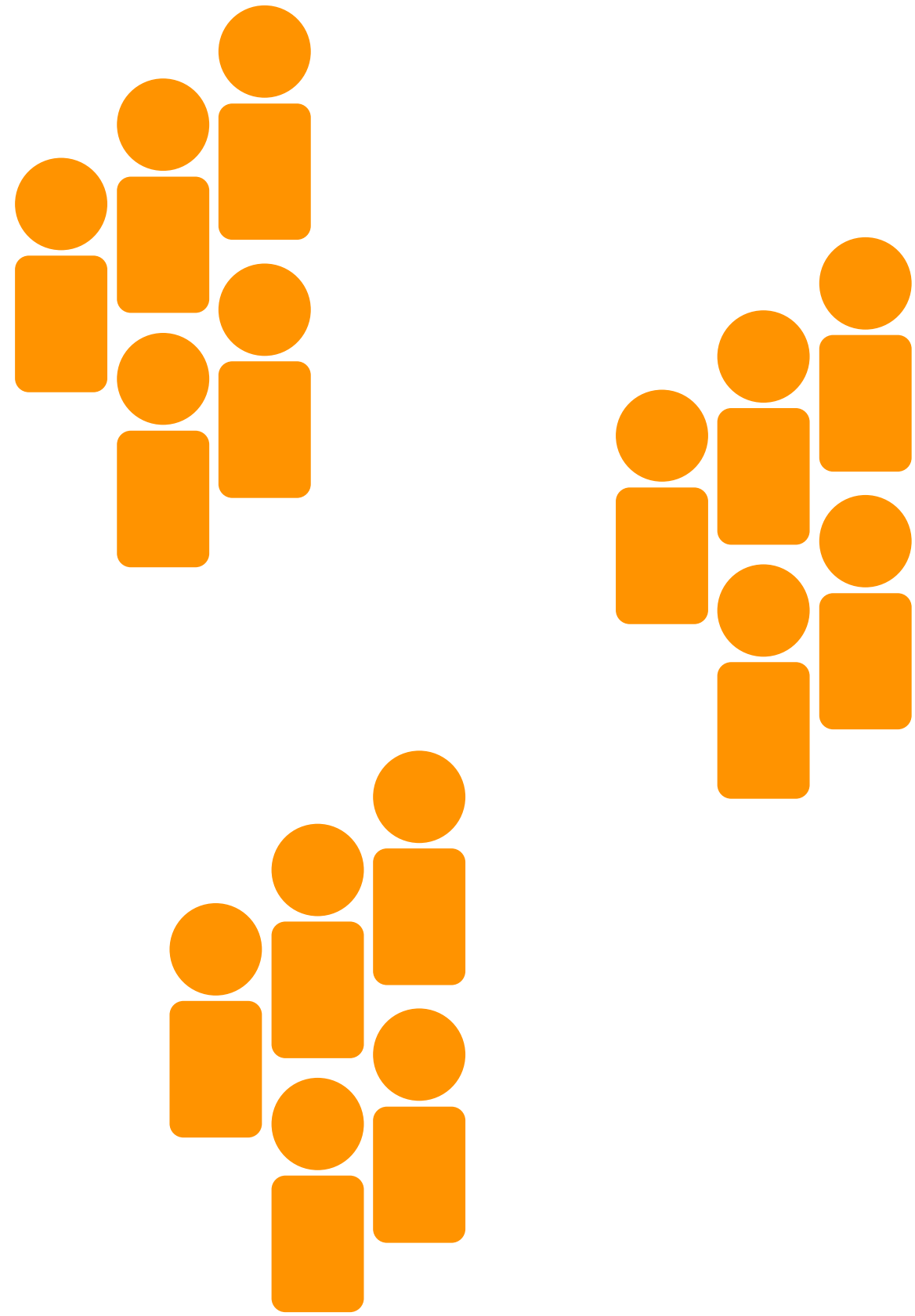


Operations Team

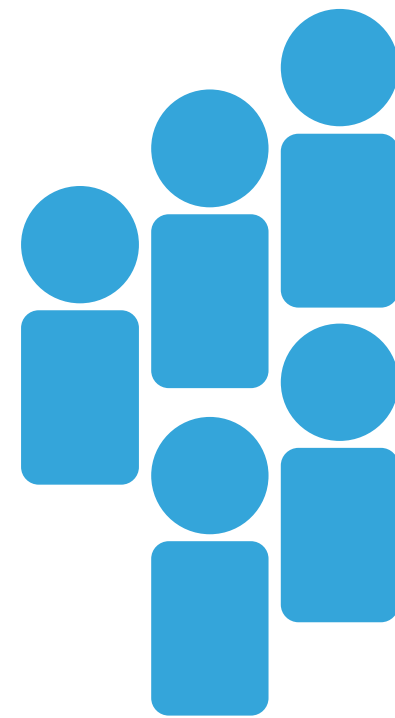


RENAMING OPS WON'T SOLVE THE ISSUE

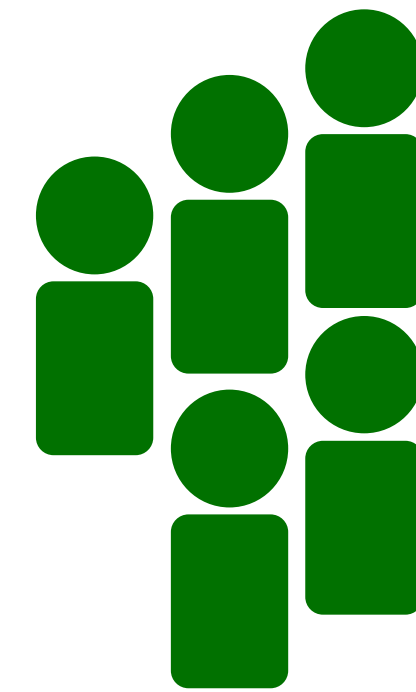
Development Teams



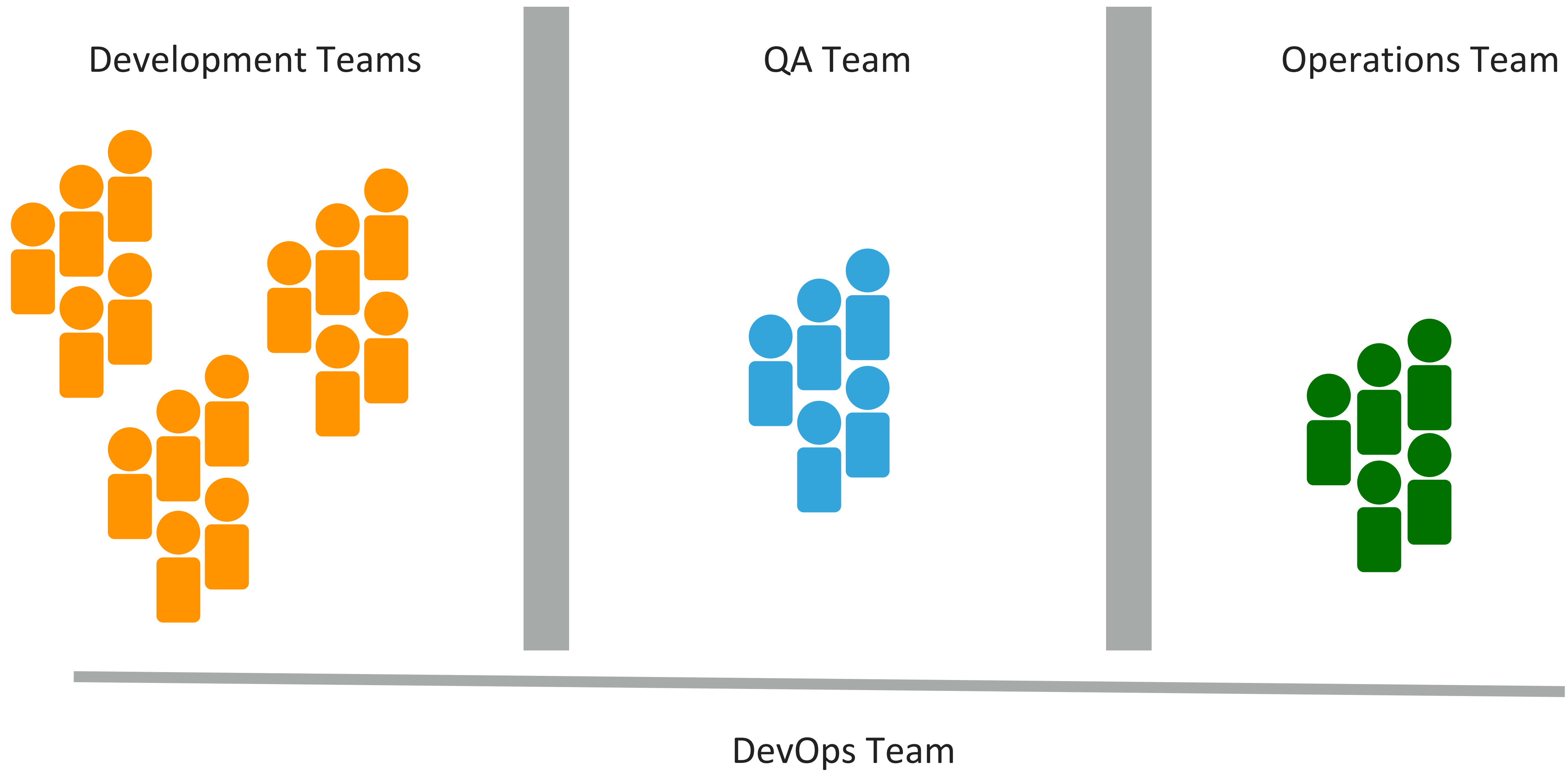
QA Team



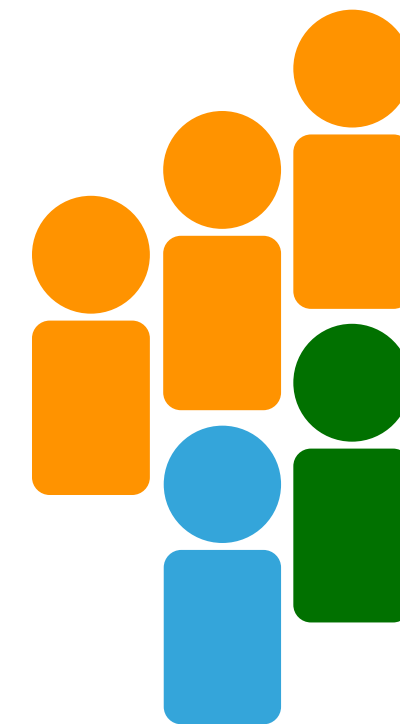
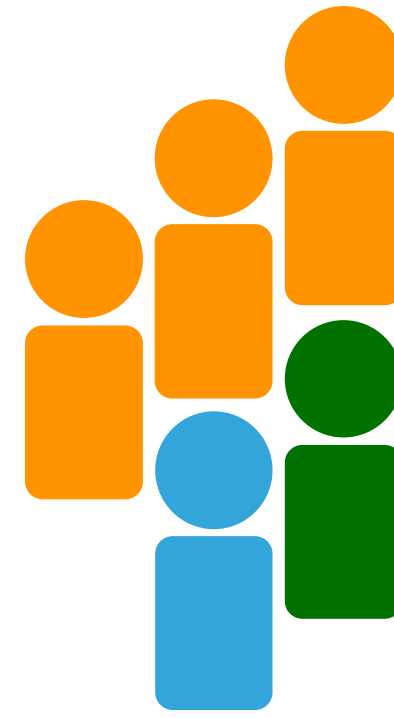
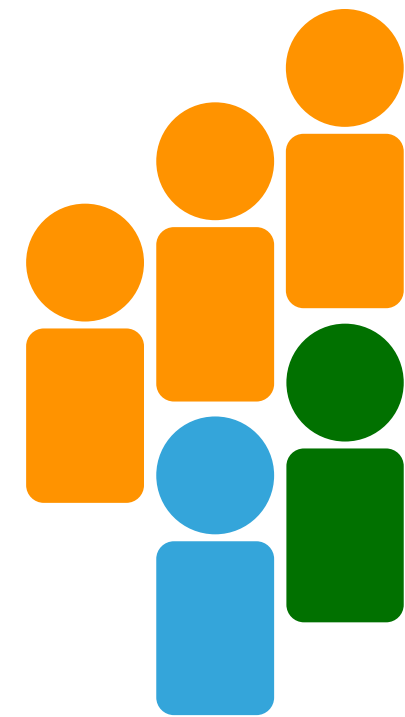
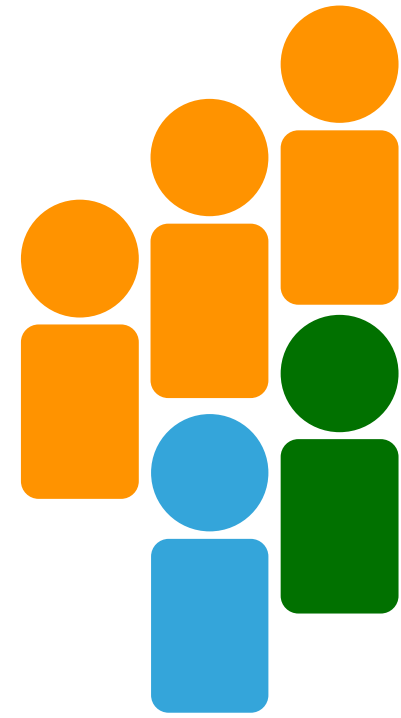
DevOps Team



CREATING ANOTHER SILO DOESN'T SOLVE SILOS



PRODUCT TEAMS



“YOU BUILD IT, YOU RUN IT”

–Werner Vogels, Amazon

“GIVING DEVELOPERS OPERATIONAL RESPONSIBILITIES HAS GREATLY ENHANCED THE QUALITY OF THE SERVICES, BOTH FROM A CUSTOMER AND A TECHNOLOGY POINT OF VIEW. THE TRADITIONAL MODEL IS THAT YOU TAKE YOUR SOFTWARE TO THE WALL THAT SEPARATES DEVELOPMENT AND OPERATIONS, AND THROW IT OVER AND THEN FORGET ABOUT IT. NOT AT AMAZON.

YOU BUILD IT, YOU RUN IT.

THIS BRINGS DEVELOPERS INTO CONTACT WITH THE DAY-TO-DAY OPERATION OF THEIR SOFTWARE. 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

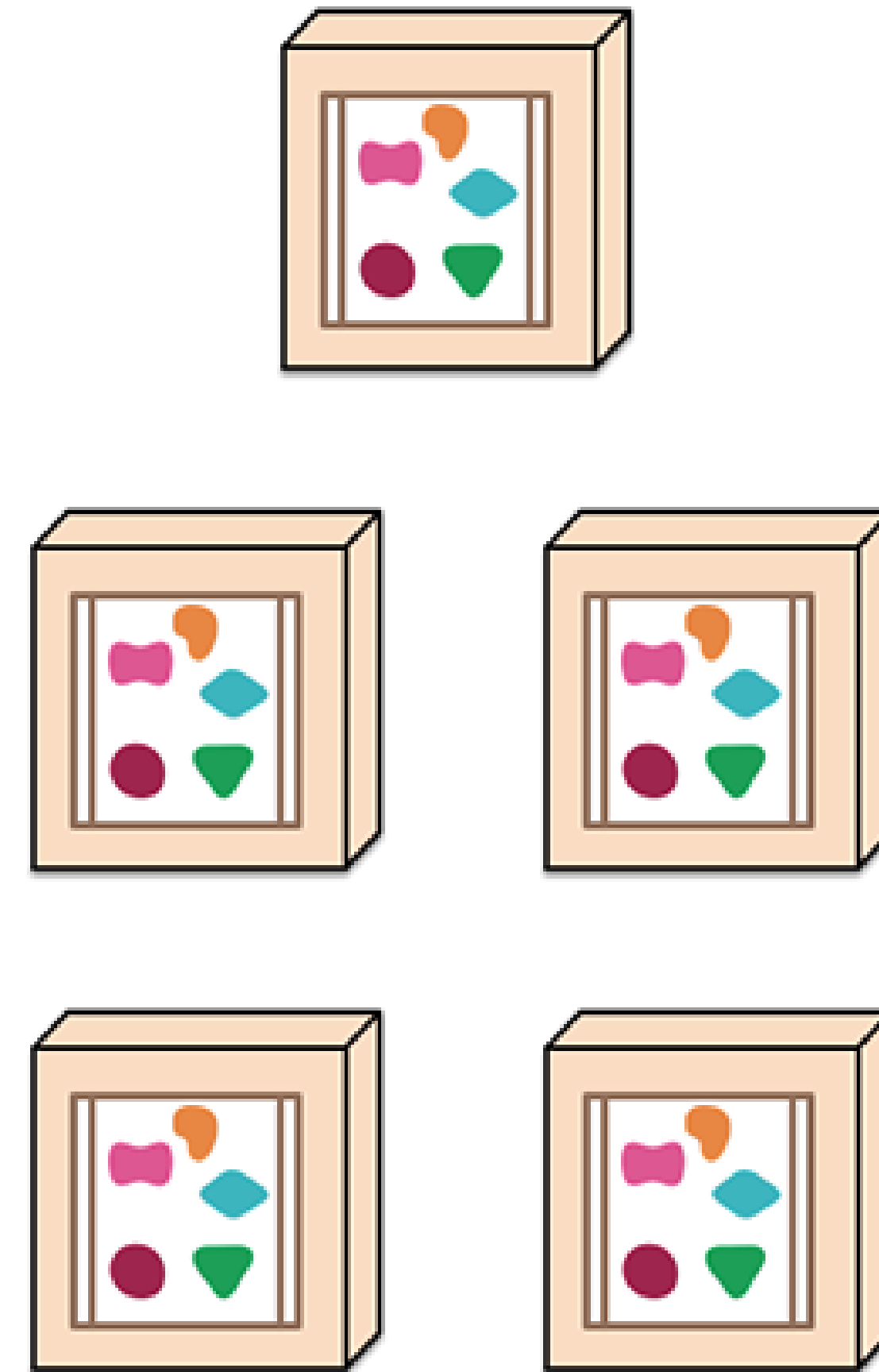


USE MODERN

ARCHITECTURES
AND
TECHNOLOGIES

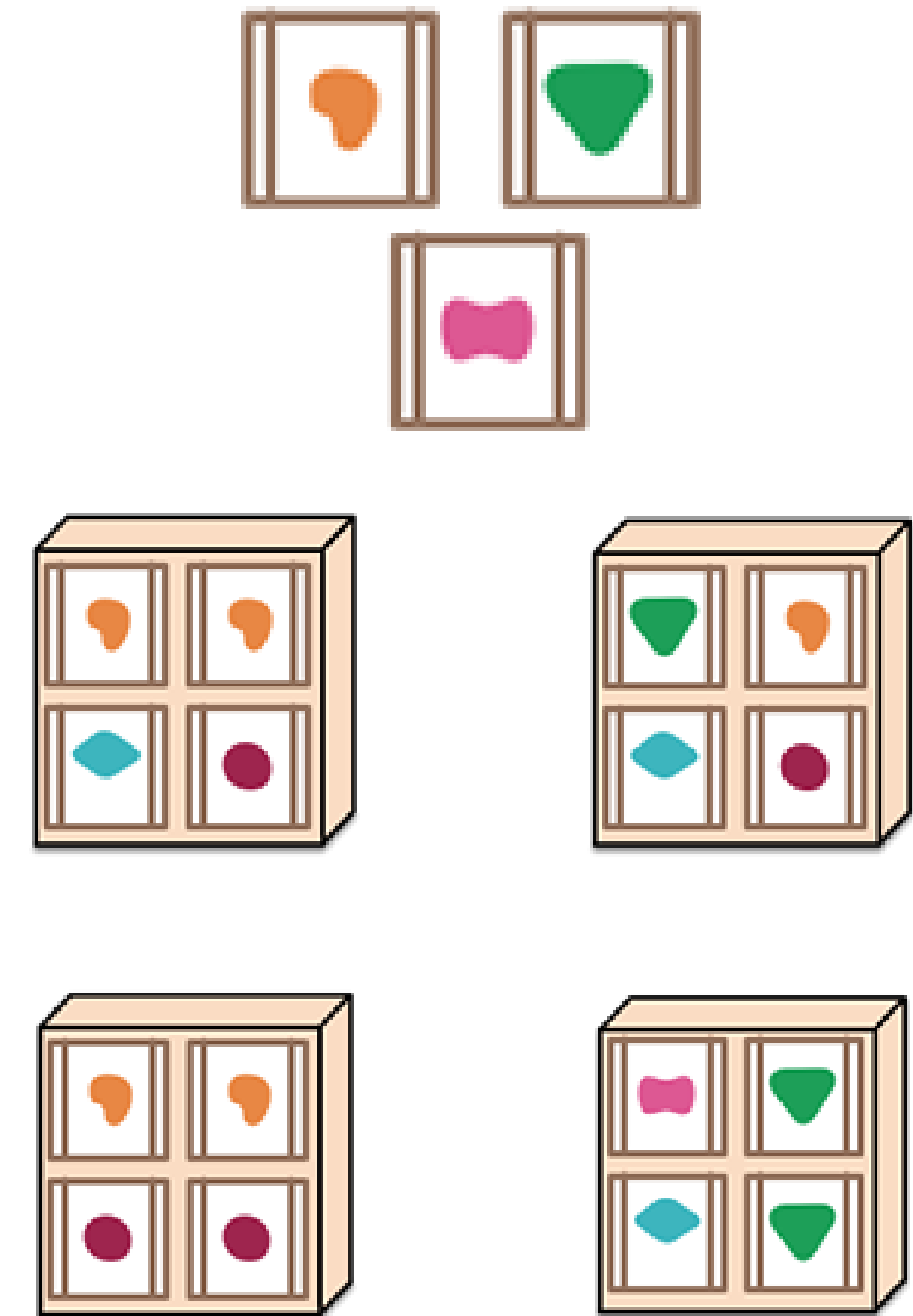
MONOLITHS CAN BE HARD

- ▶ All functionality is in one process
- ▶ Scale by replicating the monolith on multiple servers

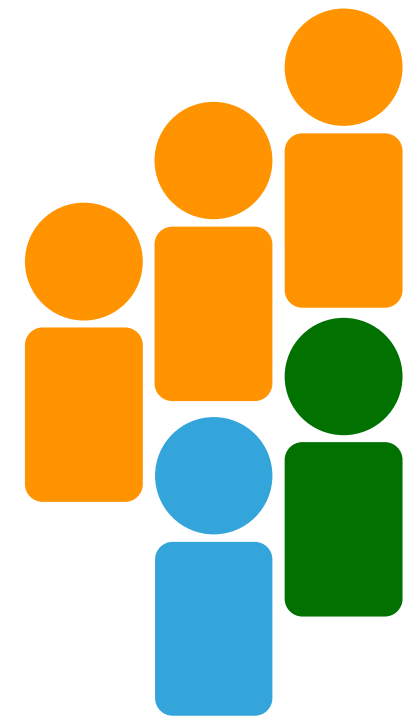


MICROSERVICE ARCHITECTURE

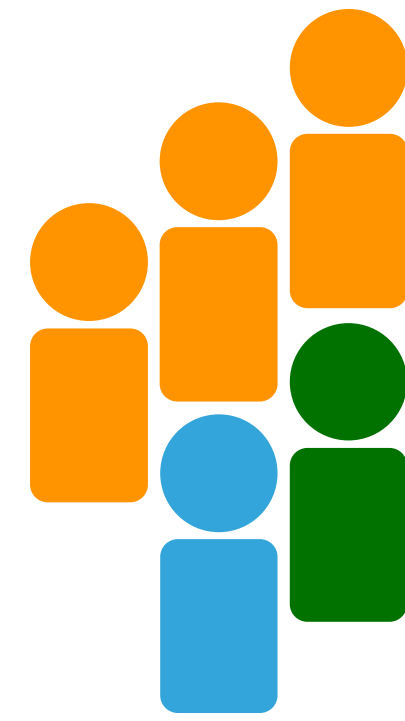
- ▶ Each element of functionality is in a separate service
- ▶ Scale by distributing these services across servers, replicating as needed



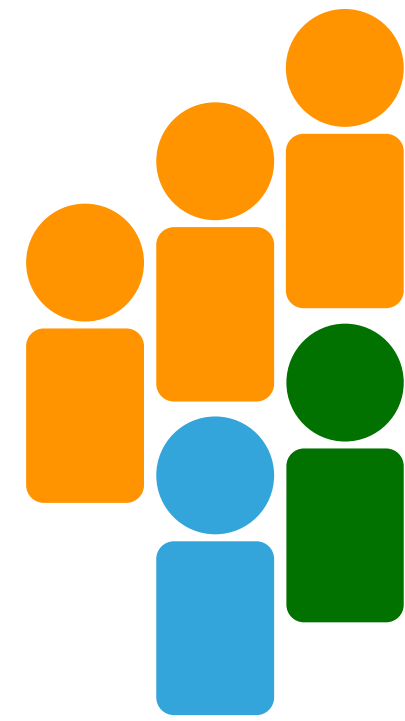
PRODUCT TEAMS



Rental Cars



Tax
Payments



Hotels

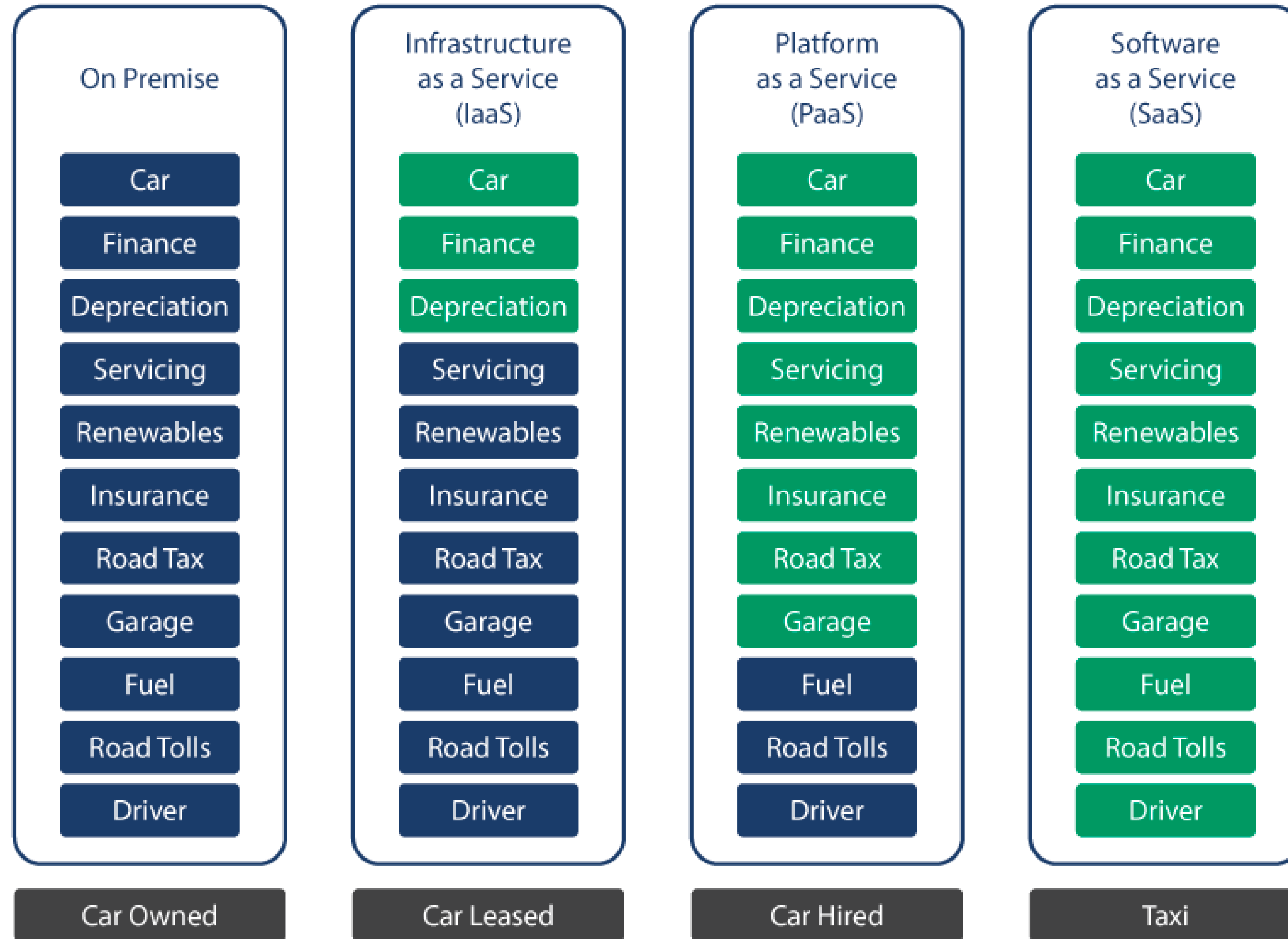


Airlines



Consumer
Business to Business

CAR AS A SERVICE

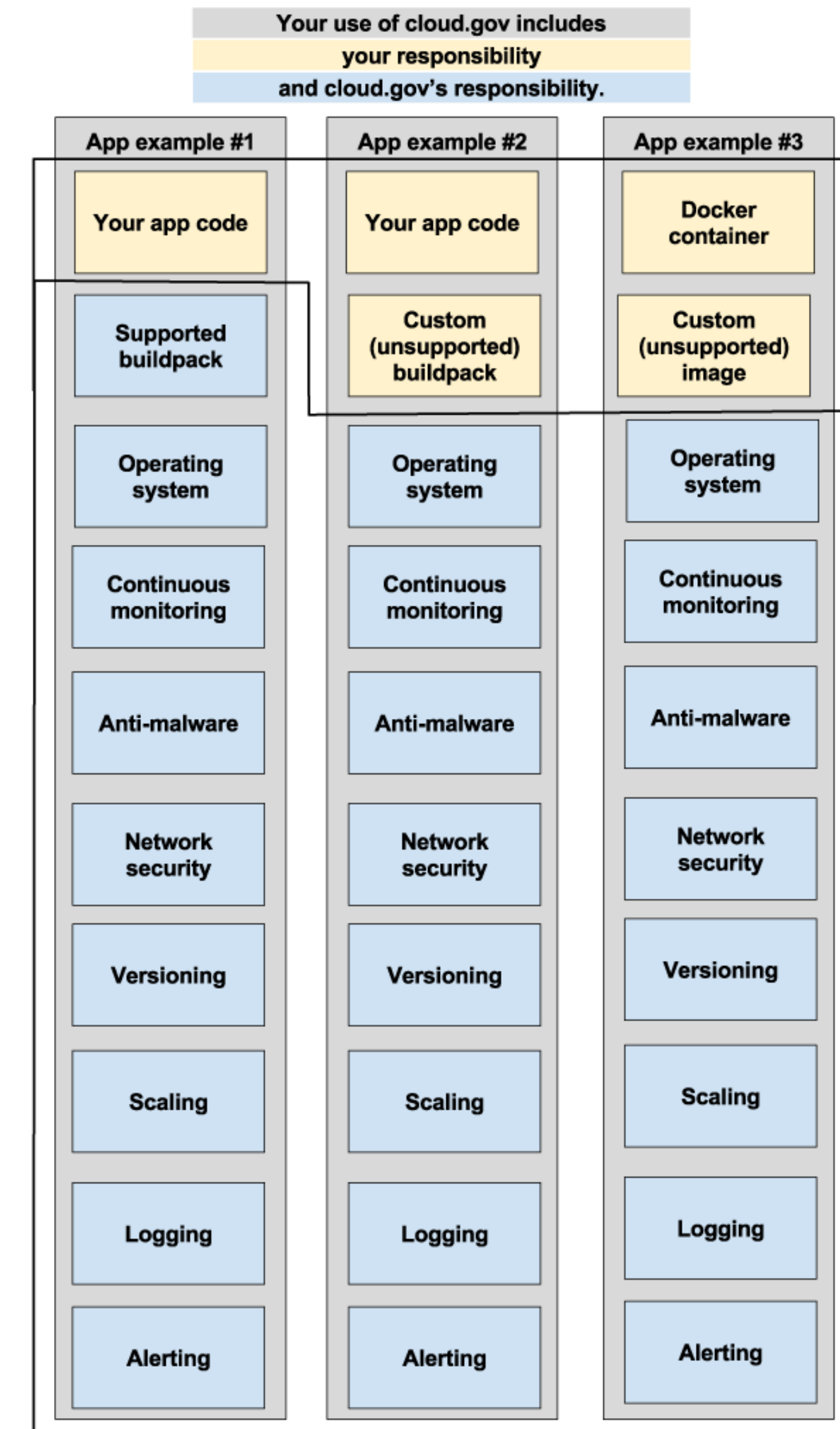


AN EXAMPLE OF PLATFORM AS A SERVICE



CLOUD.GOV

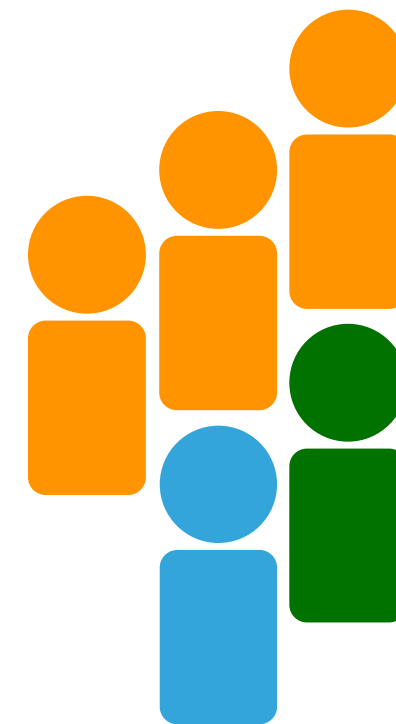
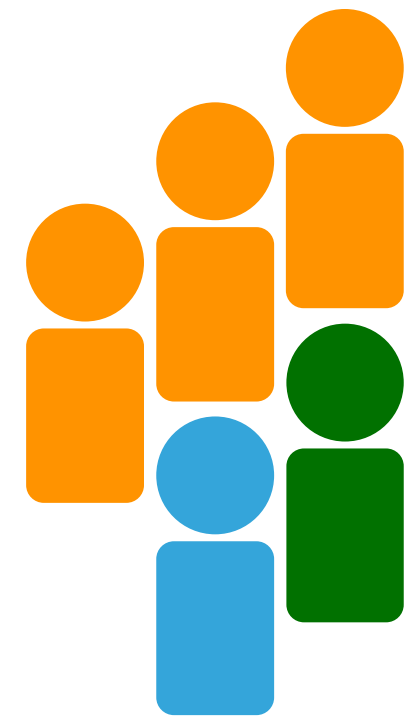
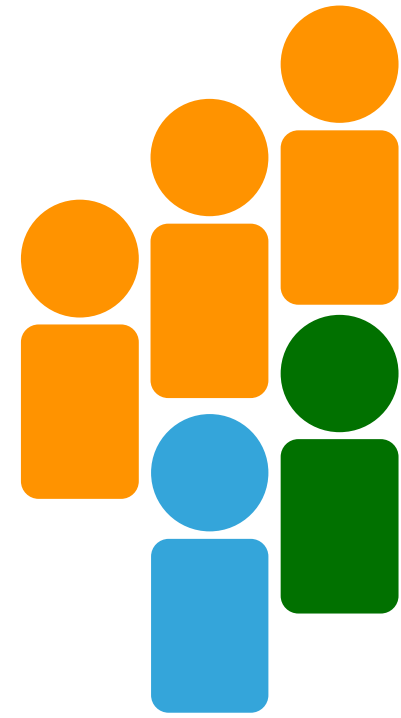
- ▶ Official service of the US Government
- ▶ 325 required security controls
 - ▶ 269 handled by cloud.gov
 - ▶ 41 shared
 - ▶ 15 handled by customer



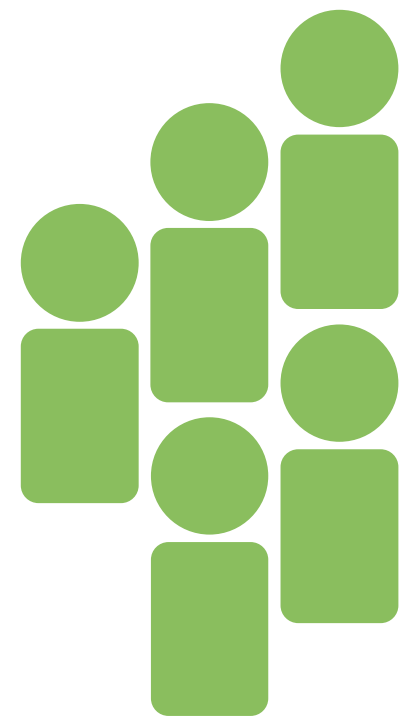
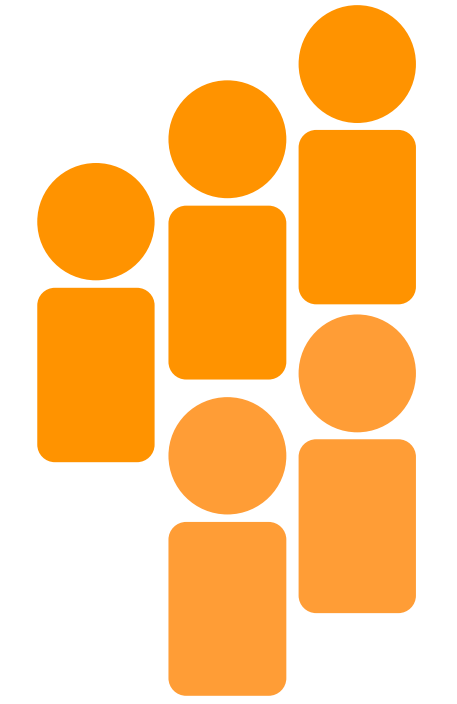
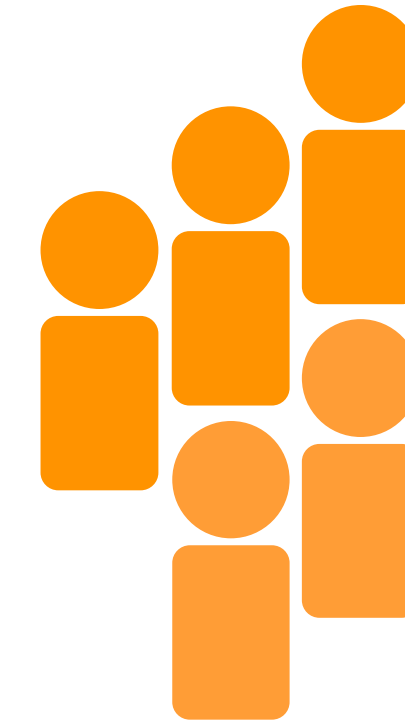
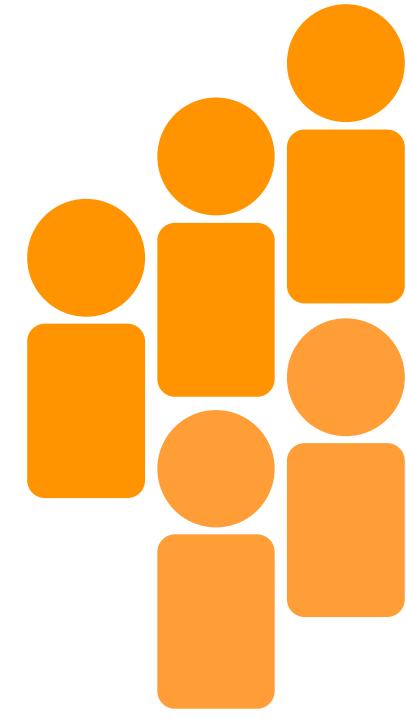
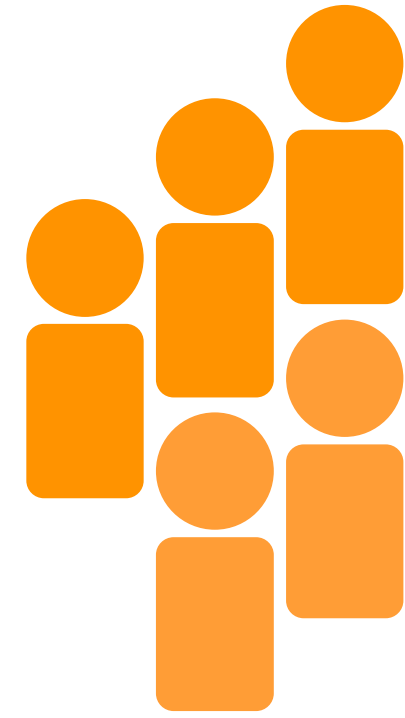
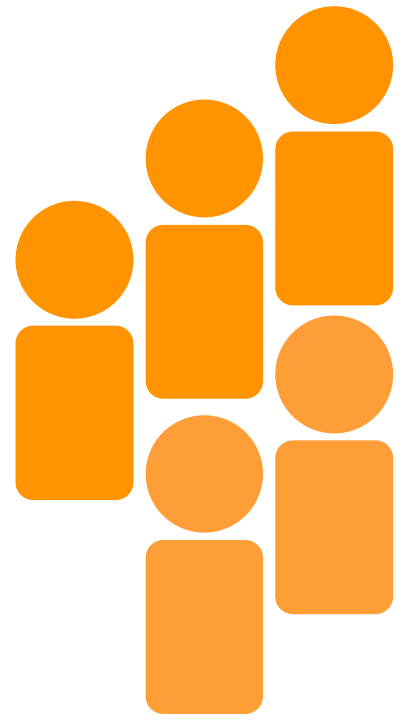
THE CLOUD IS JUST
SOMEBODY ELSE'S
COMPUTER

Someone at every conference

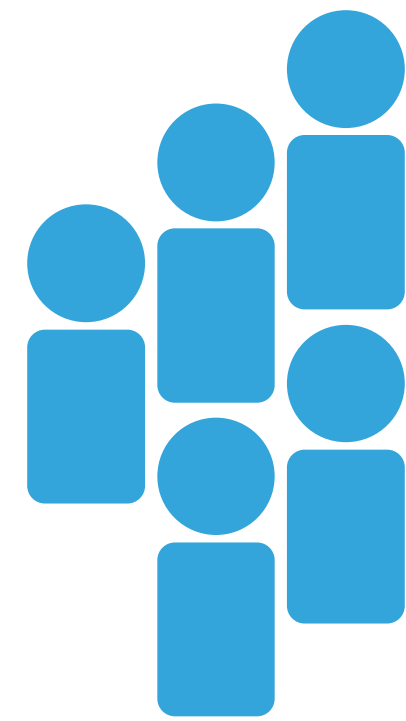
PRODUCT TEAMS



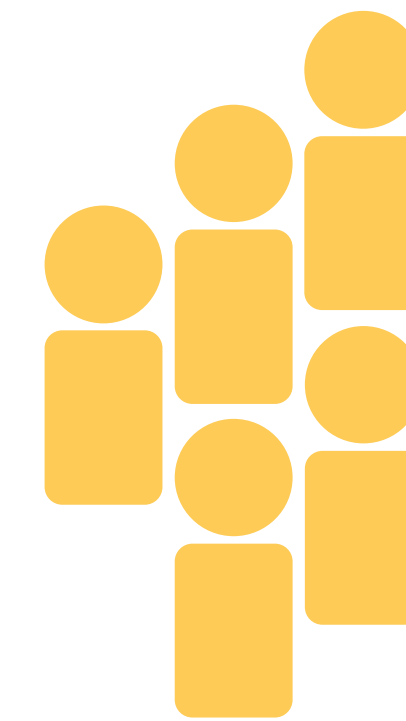
PRODUCT TEAMS



Platform Team

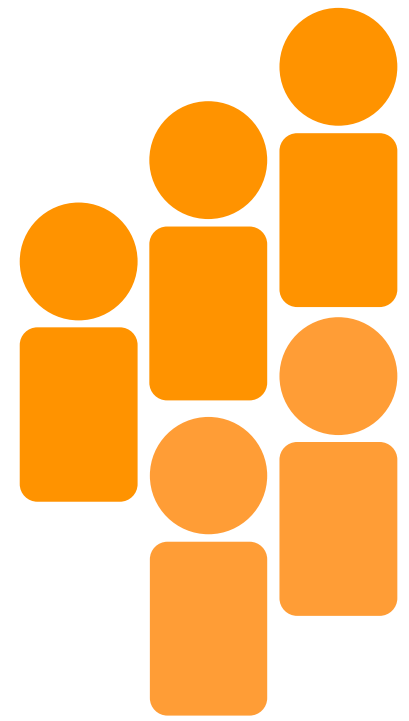


Compliance Team

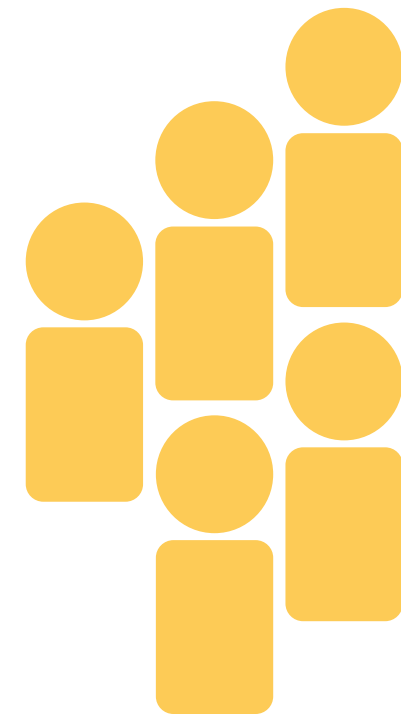


Security Team

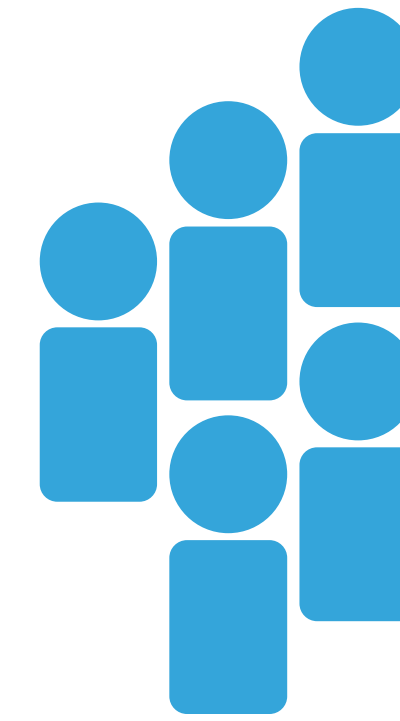
OUR TEAMS



Product Team

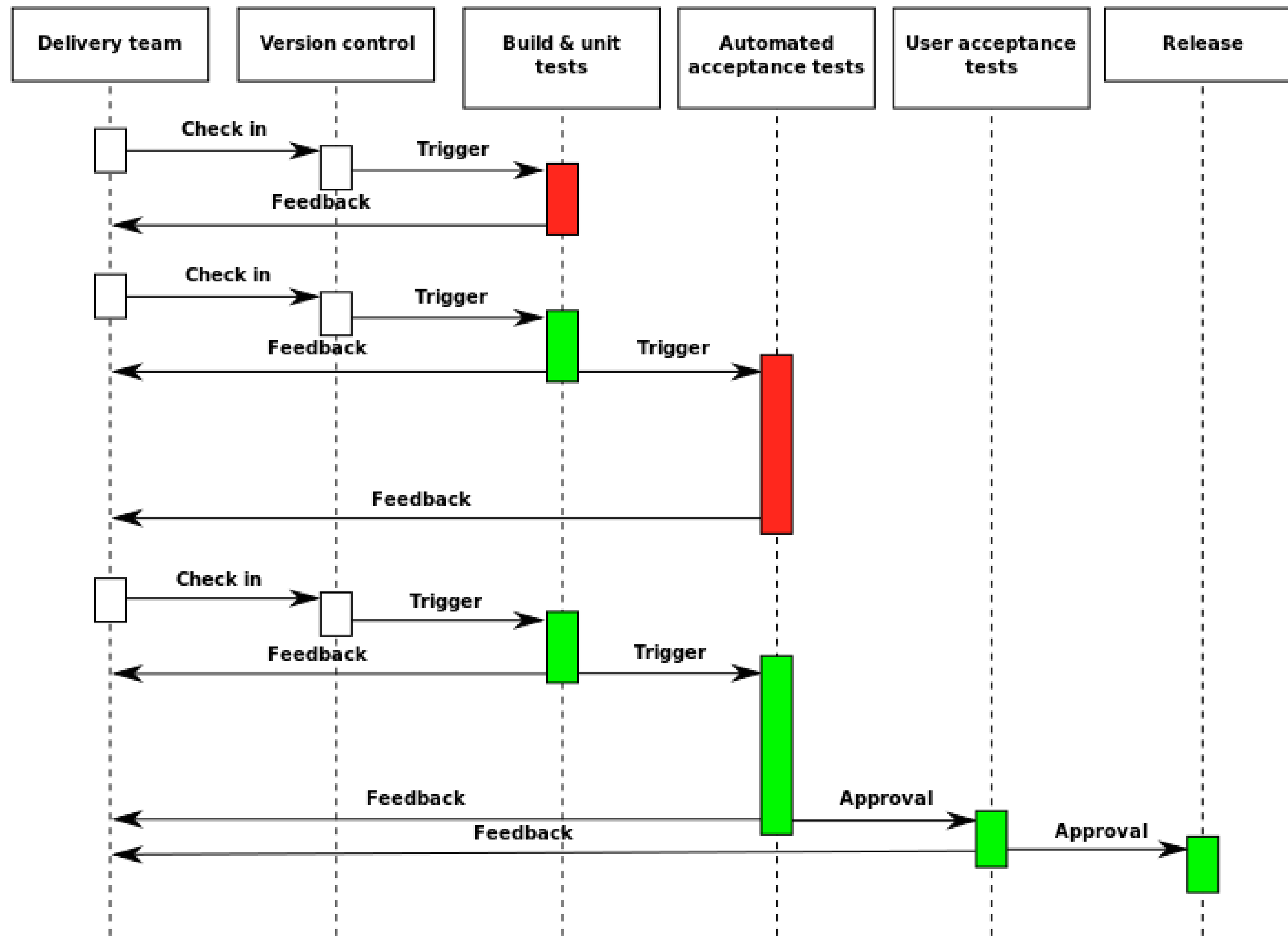


Security Team



Compliance Team

CONTINUOUS DELIVERY PIPELINE



OUR CONTINUOUS DELIVERY PIPELINE



UNIT TESTS



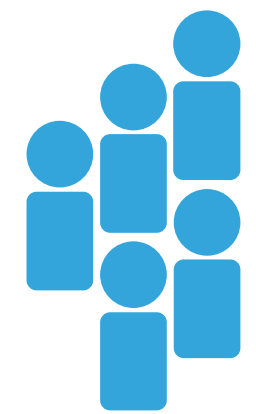
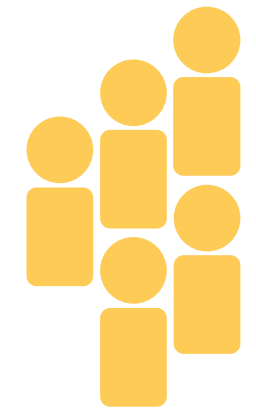
FUNCTIONAL TESTS



DEPLOY STAGING



DEPLOY PRODUCTION



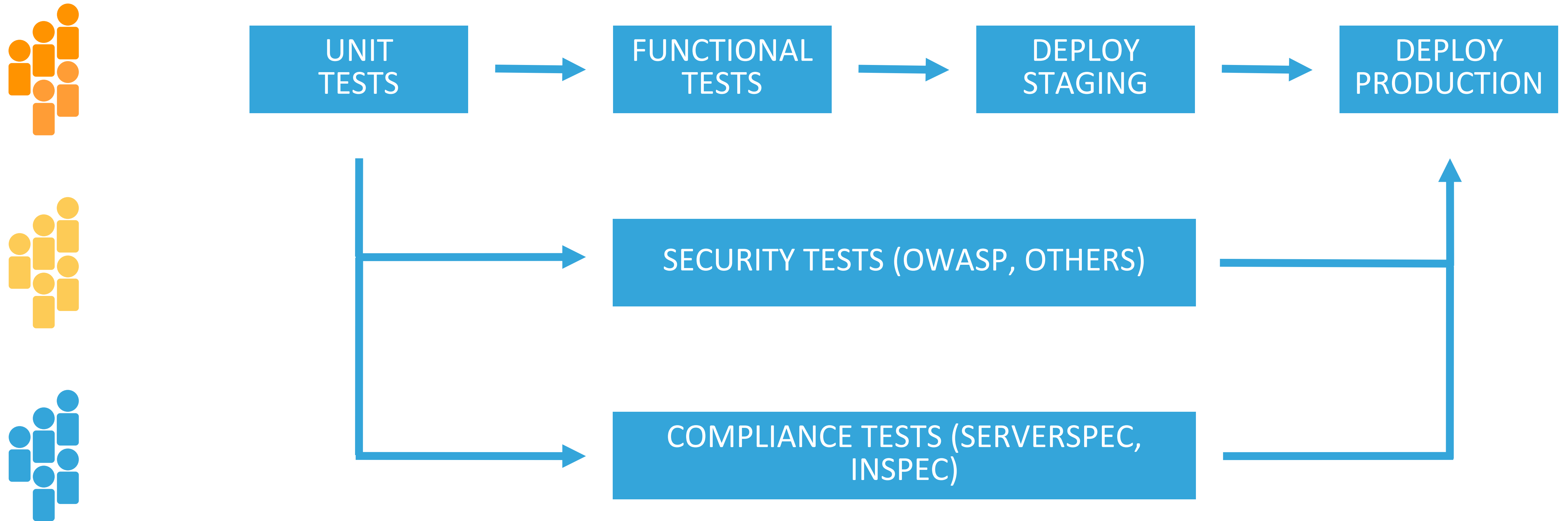
EXAMPLES OF THINGS WHICH ARE BAD

- ▶ Deploying insecure software
- ▶ Deploying non-performant software
- ▶ Deploying non-complying software
- ▶ Deploying ineffective software

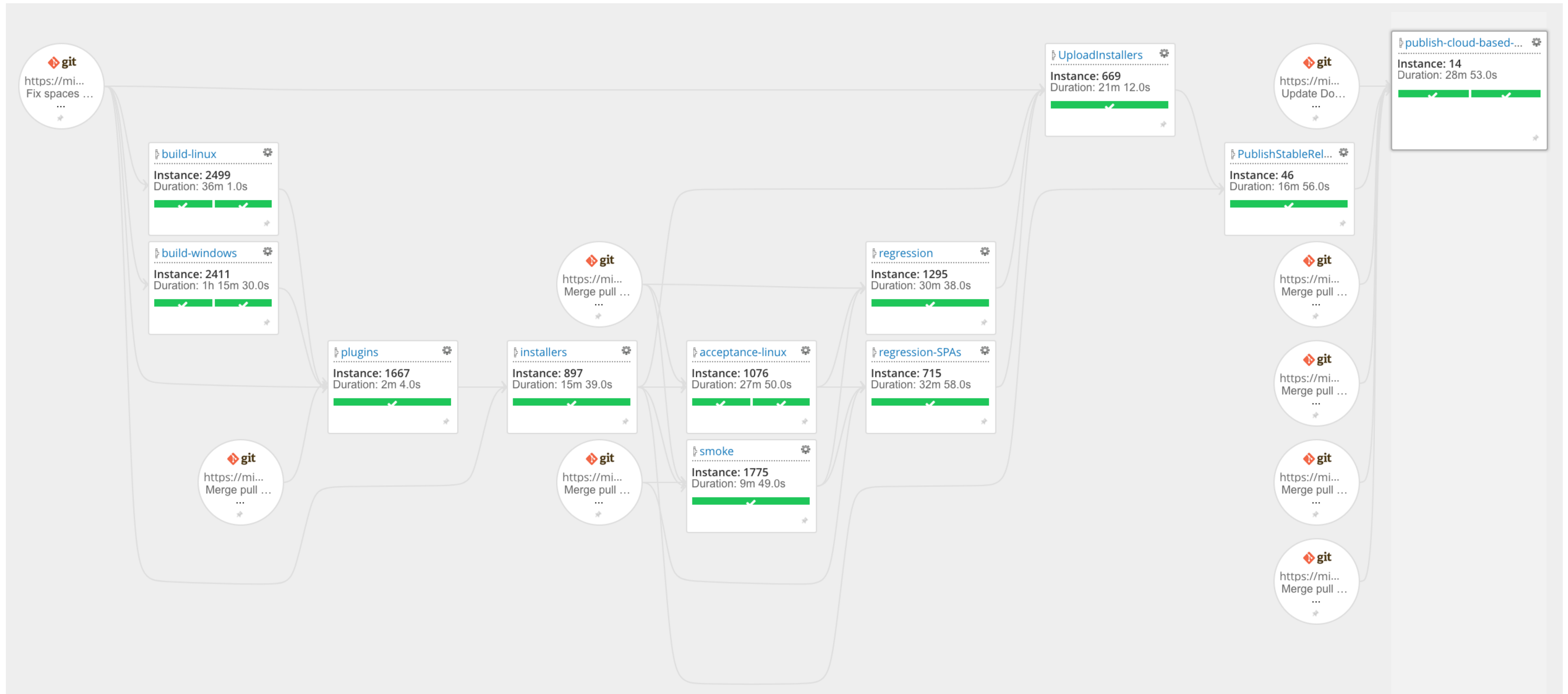
THE PURPOSE OF A CONTINUOUS
DELIVERY PIPELINE IS TO KILL A
RELEASE CANDIDATE

Me, and a lot of other people

OUR CONTINUOUS DELIVERY PIPELINE



A REAL LIFE EXAMPLE

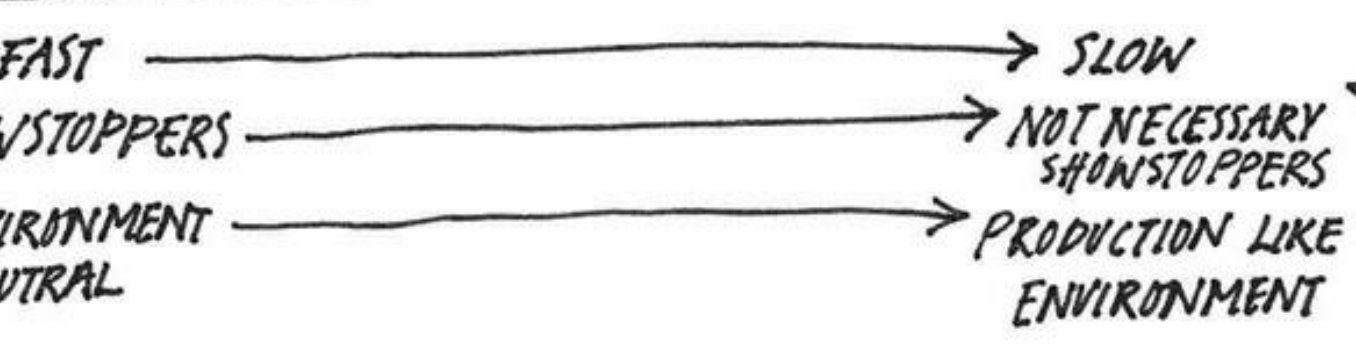
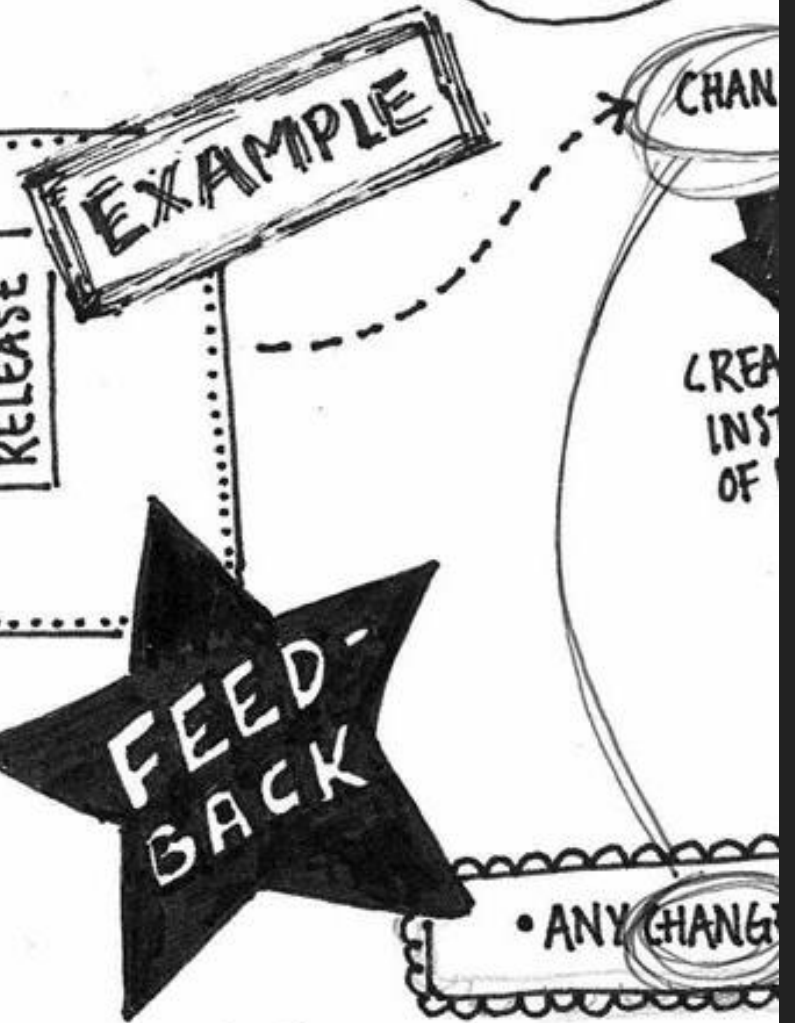
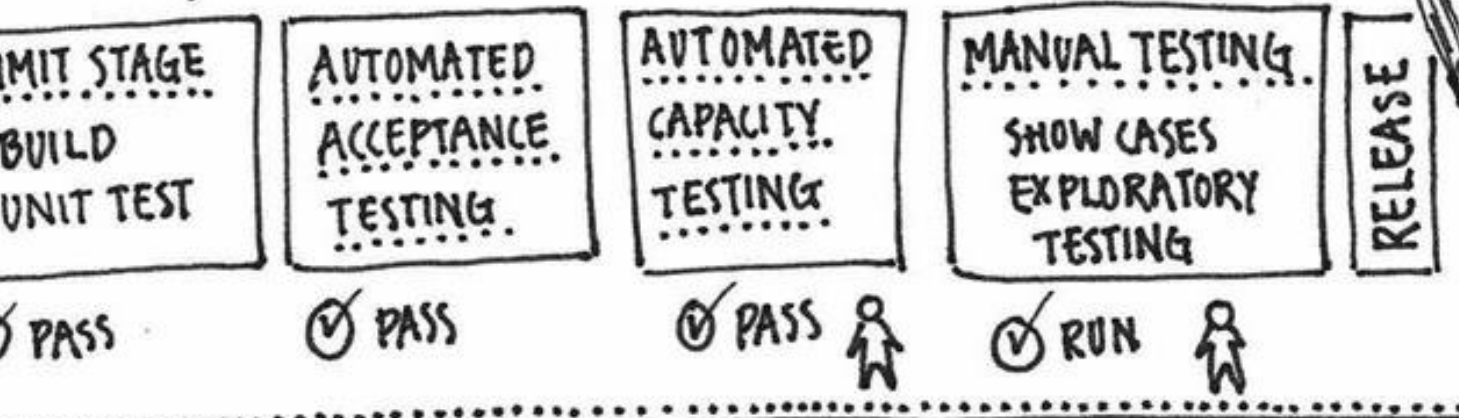




CONTINUOUS DELIVERY

BY JEZ HUMBLE & DAVID FARLEY

KEY pattern — DEPLOYMENT PIPELINE



DEPLOYMENT FLEXIBILITY
- EASY TO
START APPLICATION IN NEW
ENVIRONMENT

SEEMS LIKE THE AUTHORS CAN'T STRESS IT ENOUGH. IT'S EVERYWHERE THROUGHOUT THIS BOOK.



PRACTICE MAKES
Perfect

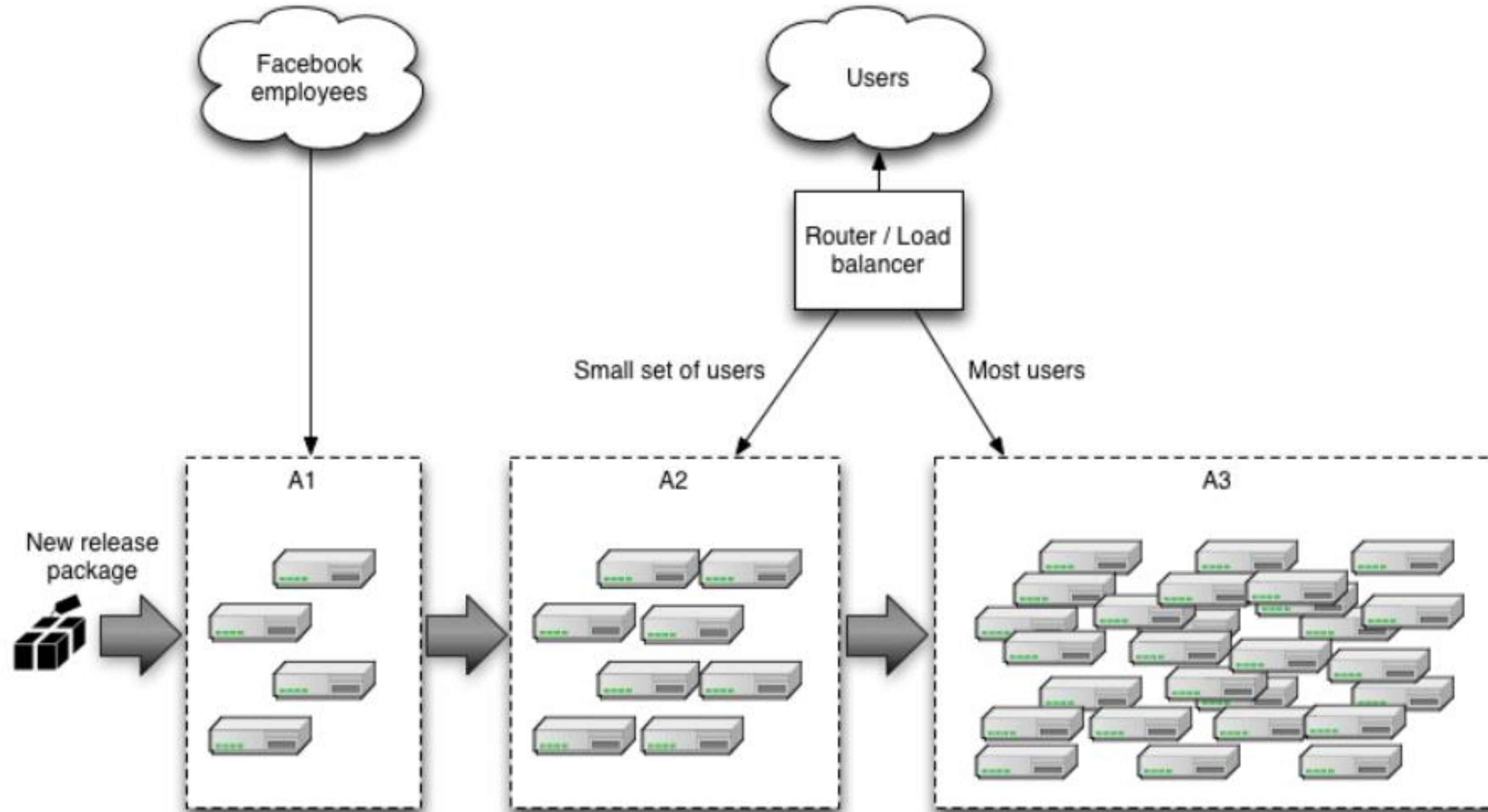
“ ENCOURAGING GREATER COLLABORATION BETWEEN EVERYONE IN SOFTWARE DELIVERY TO RELEASE VALUABLE SOFTWARE FASTER AND MORE RELIABLY ”

DEPLOYMENT PATTERNS

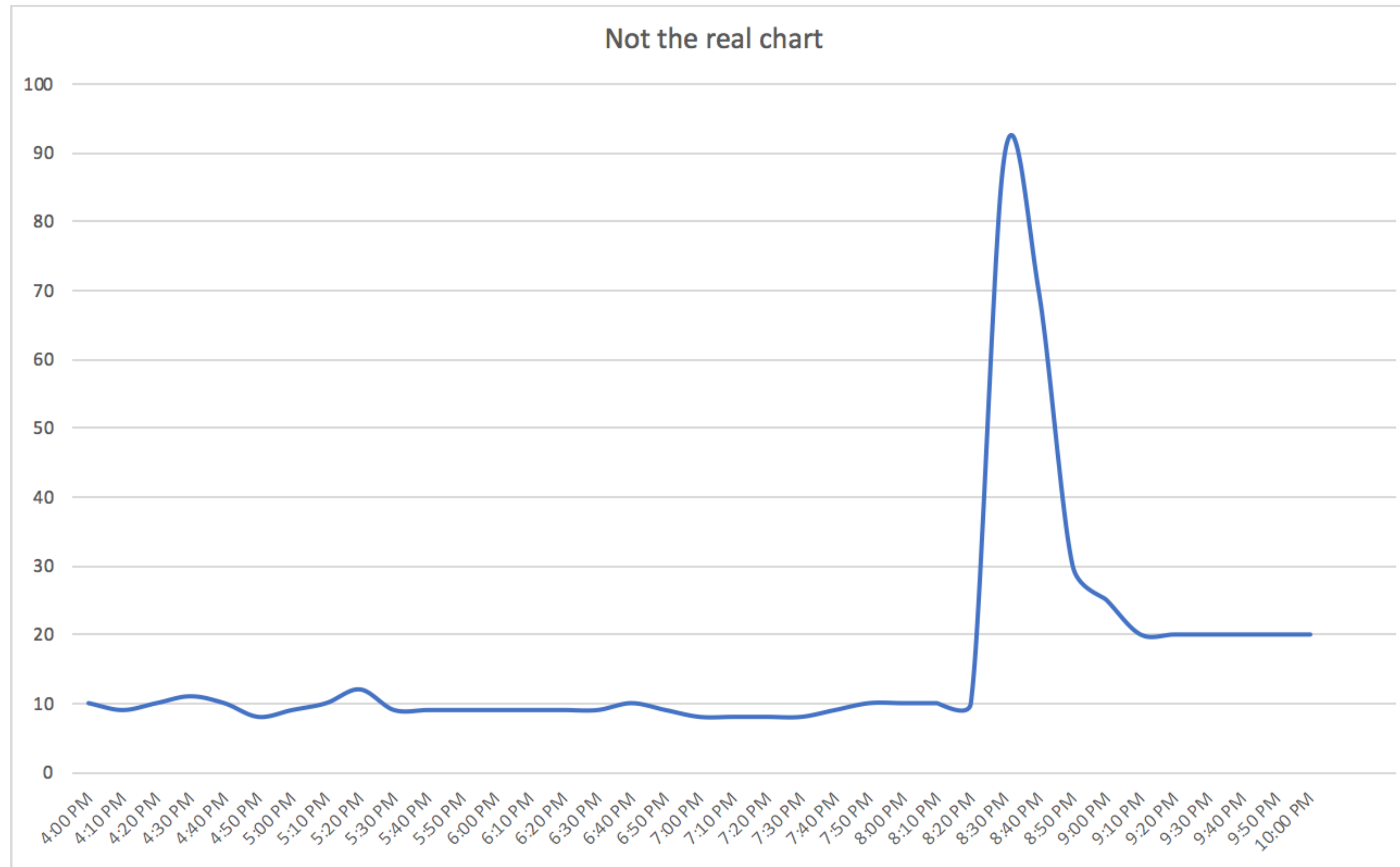
WE RECOMMEND STRICTLY USING THE TERM DEPLOYMENT WHEN REFERRING TO THE ACT OF DEPLOYING A CHANGE TO APPLICATION COMPONENTS OR INFRASTRUCTURE. THE TERM RELEASE SHOULD BE USED WHEN A FEATURE CHANGE IS RELEASED TO END USERS.

<https://www.thoughtworks.com/radar/techniques/decoupling-deployment-from-release>

CANARY RELEASE



DARK LAUNCHING



<https://www.facebook.com/notes/facebook-engineering/hammering-username/96390263919/>

@kmugrage

<https://gocd.org/>

KNIGHT CAPITAL

On August 1, 2012, Knight Capital deployed untested software to a production environment which contained an obsolete function. The incident happened due to a technician forgetting to copy the new Retail Liquidity Program (RLP) to one of the eight SMARS computer servers....

...sent millions of child orders, resulting in 4 million executions in 154 stocks for more than 397 million shares in approximately 45 minutes.

Knight Capital took a pre-tax loss of \$440,000,000

SUMMARY

- ▶ The goal of Continuous Delivery is to make sure your software is always in a deployable state
- ▶ It's possible (or even likely) that organizational structure needs to be changed
- ▶ Smaller pieces are easier to deliver
- ▶ Don't skip the "other" kinds of testing

THANK YOU