Why, What, and How of Continuous Delivery

cloudbees

Time to Assemble a Model-T

12.5 hrs

↓

1.5 hrs

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Incredible Efficiency of Assembly Line

Ford built **300,000** cars with **13,000** employees

That's more than their **300** competitors combined, with **65,000** employees

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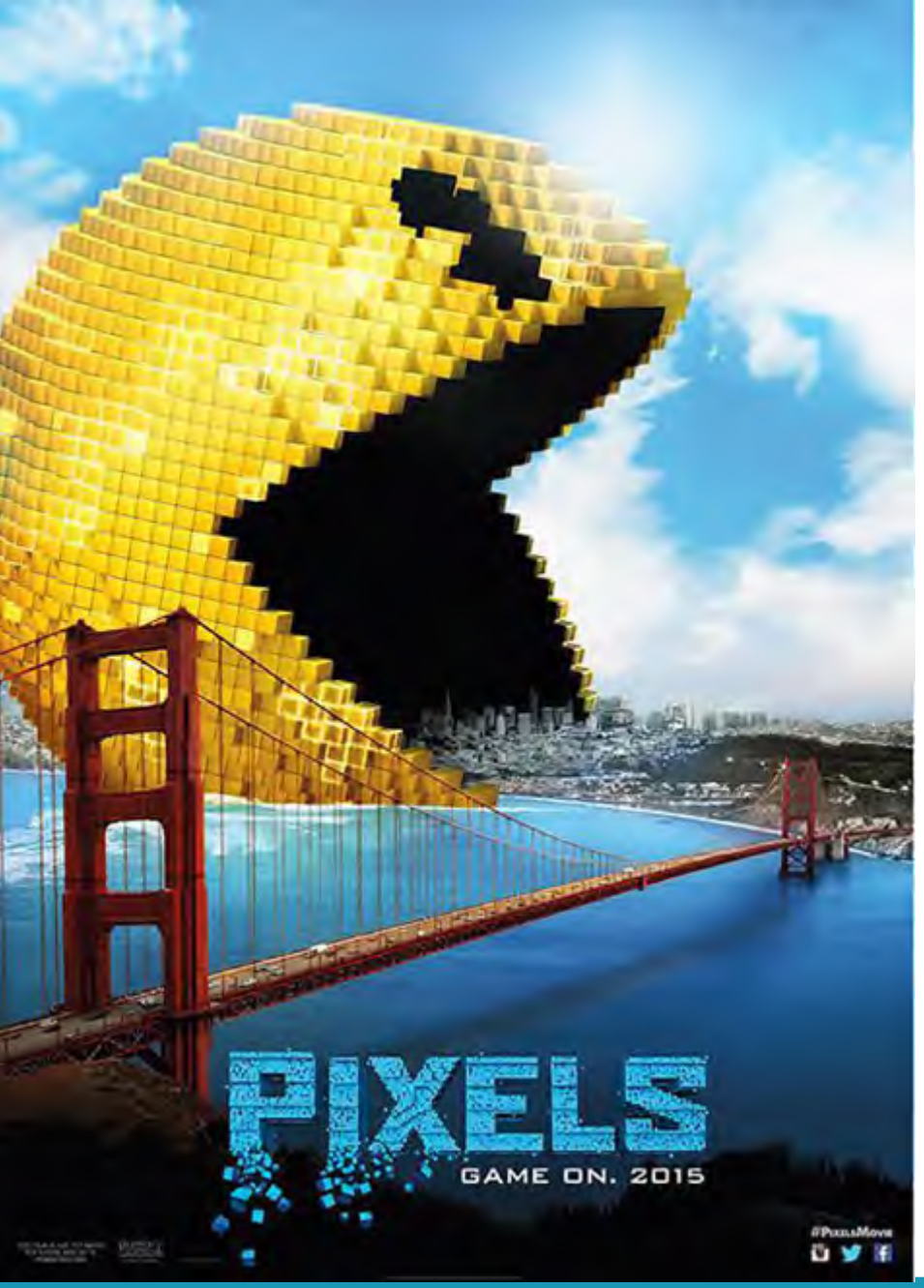

Software is eating the world

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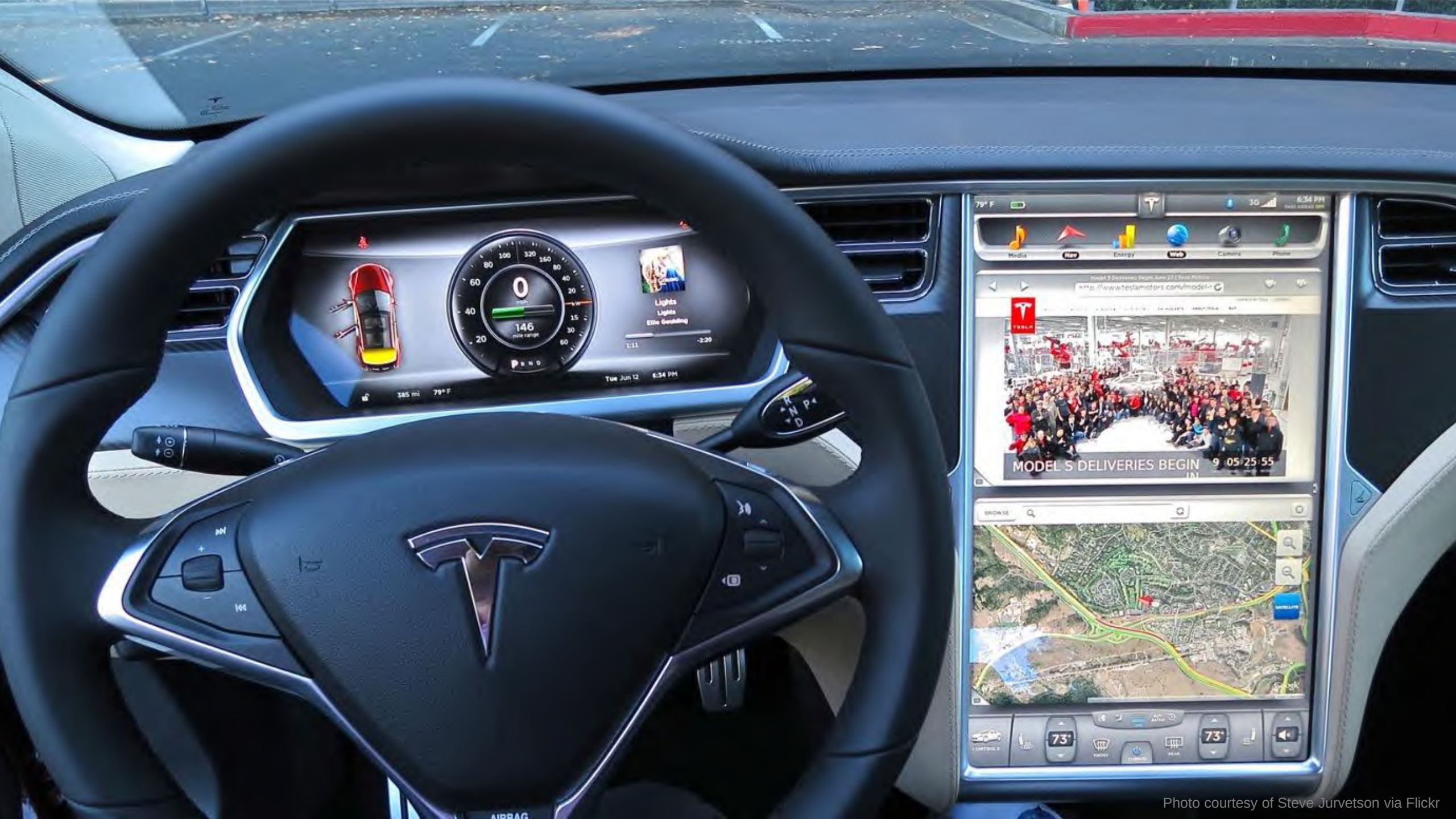
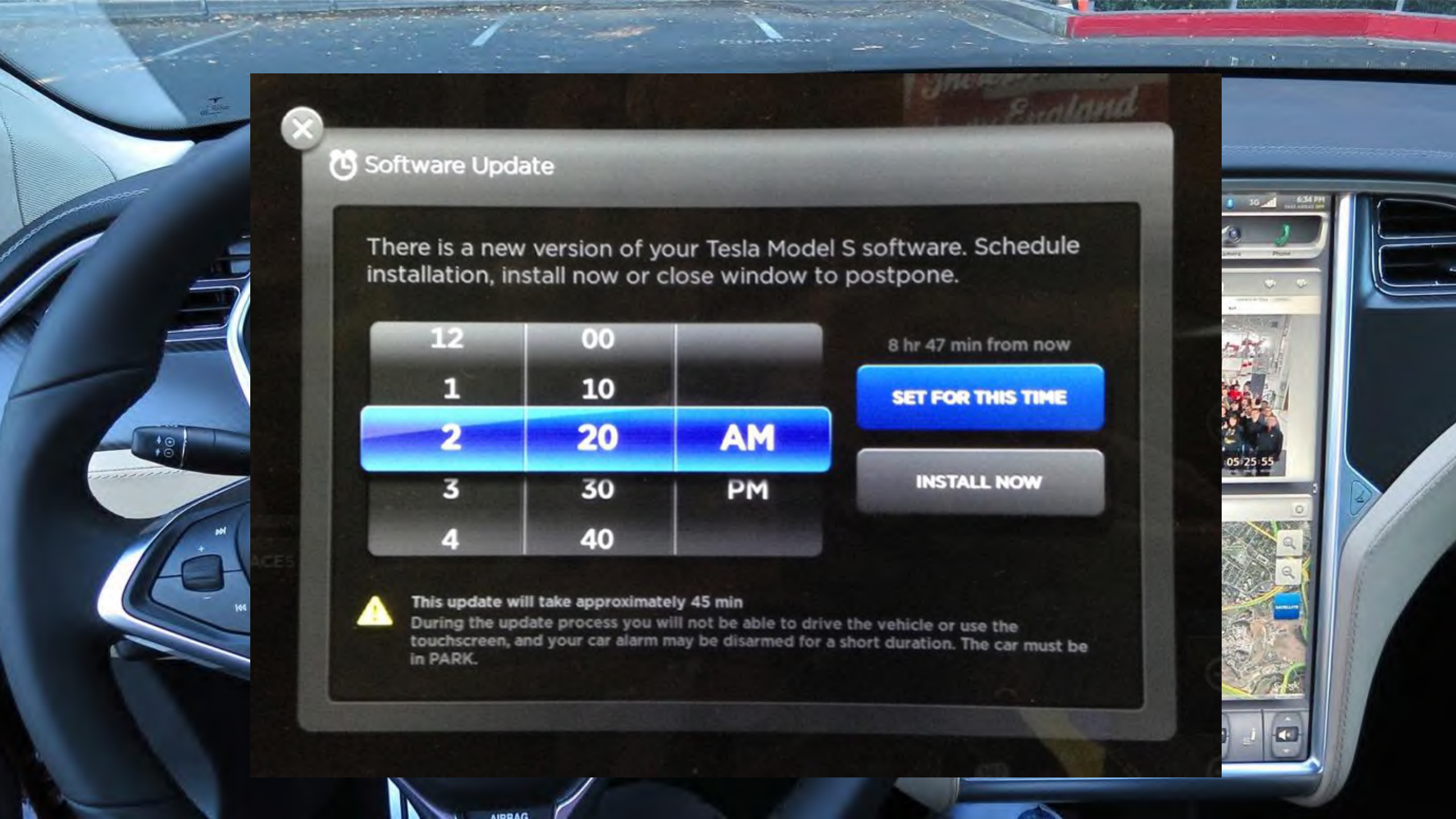


Photo courtesy of Steve Jurvetson via Flickr


Software Update
There is a new version of your Tesla Model S software. Schedule installation, install now or close window to postpone.
12
1
2
3
4
00
10
20
30
40
AM
PM
8 hr 47 min from now
SET FOR THIS TIME
INSTALL NOW
This update will take approximately 45 min
During the update process you will not be able to drive the vehicle or use the touchscreen, and your car alarm may be disarmed for a short duration. The car must be in PARK.

Tesla's Model S Safety Solution: Software

BY DOUG NEWCOMB DECEMBER 5, 2013 6 COMMENTS

A recent over-the-air upgrade increases highway ground clearance after vehicles struck road debris and caught fire.

44 SHARES

Most automakers typically respond to an investigation by government safety regulators by providing documents, and by approaching federal officials with a certain deference. Tesla, of course, is not a typical automaker.

The electric vehicle (EV) company and its CEO Elon Musk met news of a recent National Highway Traffic Safety Administration (NHTSA) **investigation into fires involving the Tesla Model S** with a mix of bluster, statistics, and a software upgrade. While these tactics are unorthodox in the staid automotive world, they're in character for Tesla and particularly for Musk.

In a subsequent back and forth between Tesla and NHTSA, the media mainly focused on the Musk's role as a maverick raconteur. But little attention has been paid to an important subplot to the melodrama: the way Tesla has ostensibly addressed the issue through an over-the-air (OTA) software update rather than the

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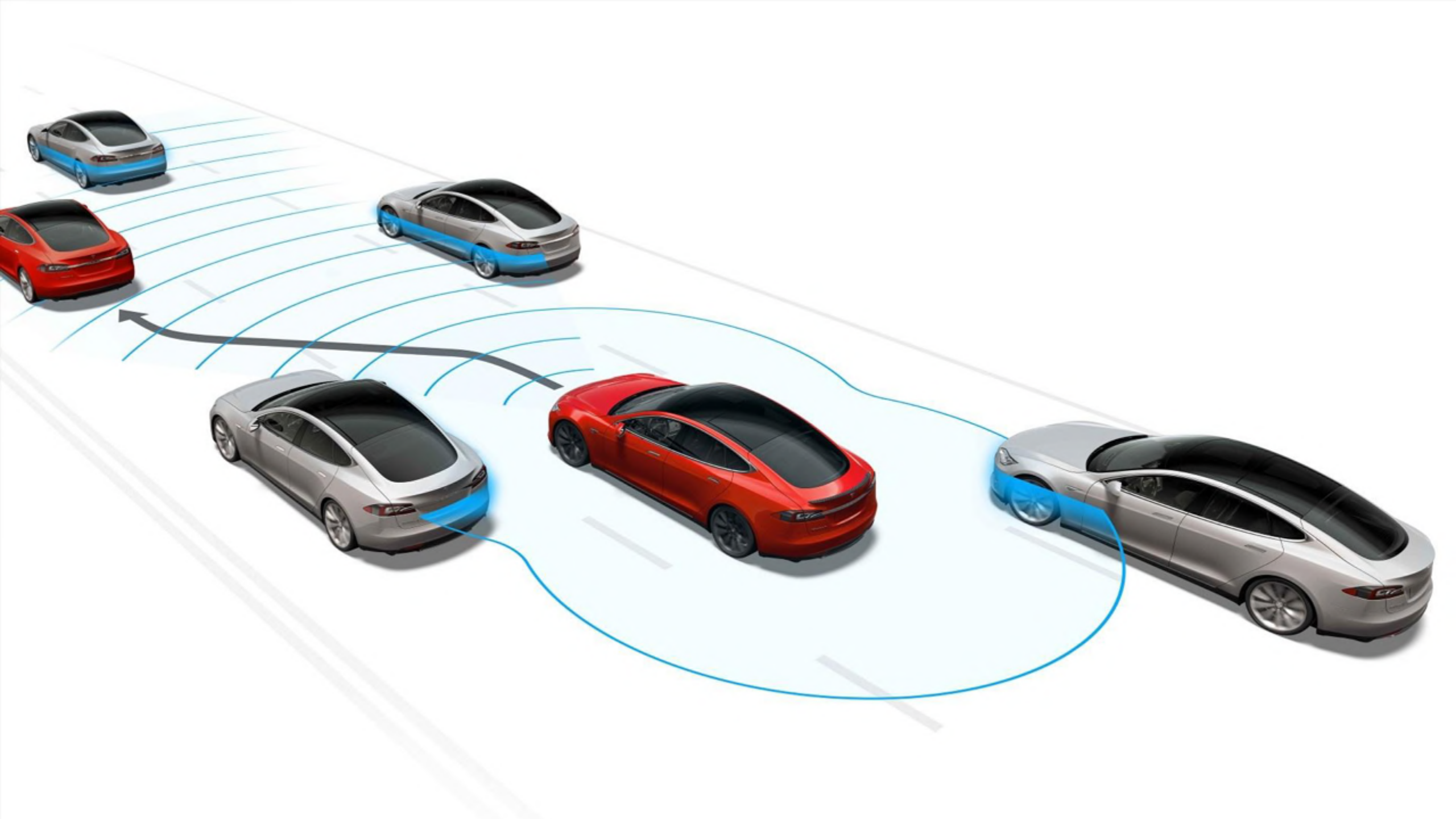

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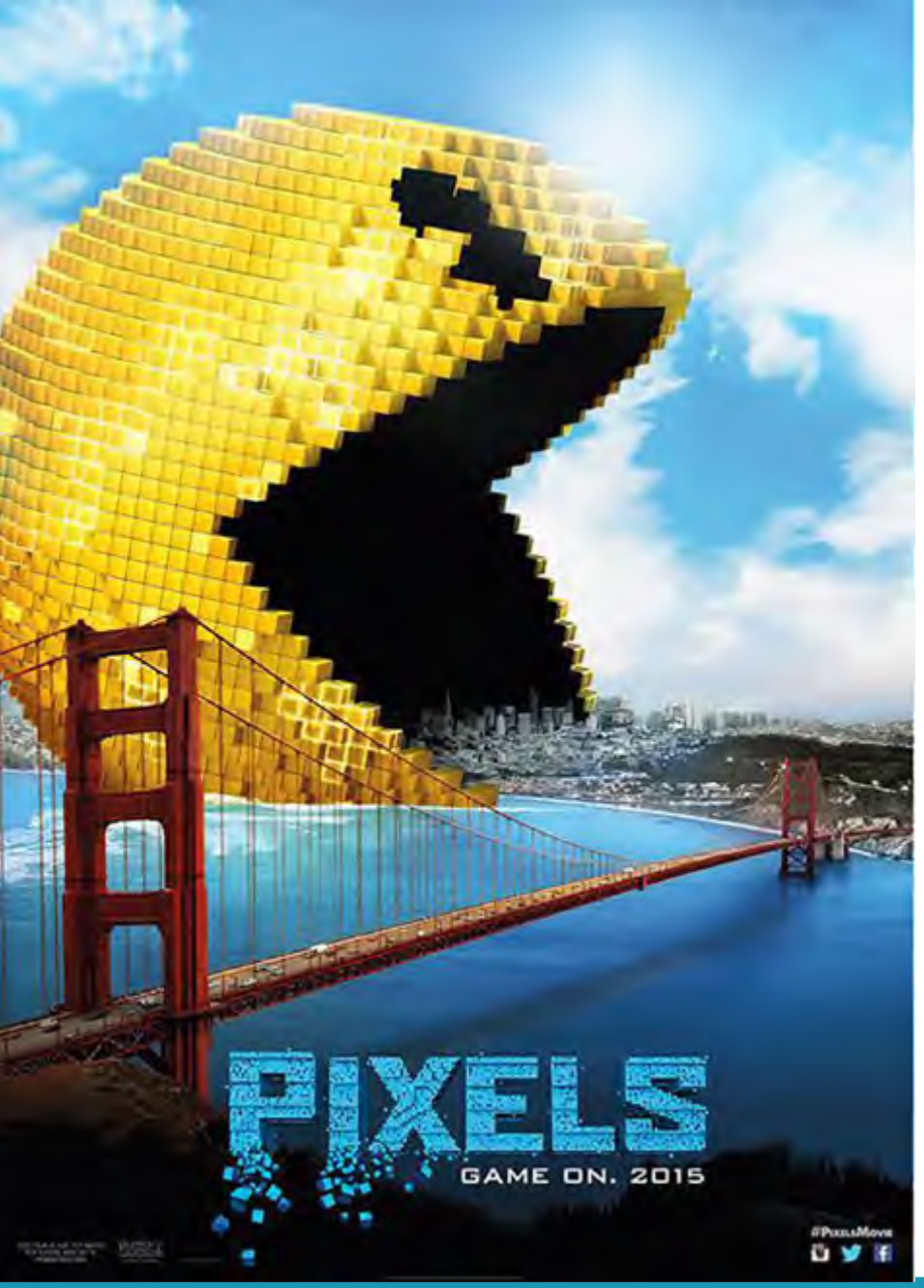
Tomorrow is around the corner…



Software is eating the world

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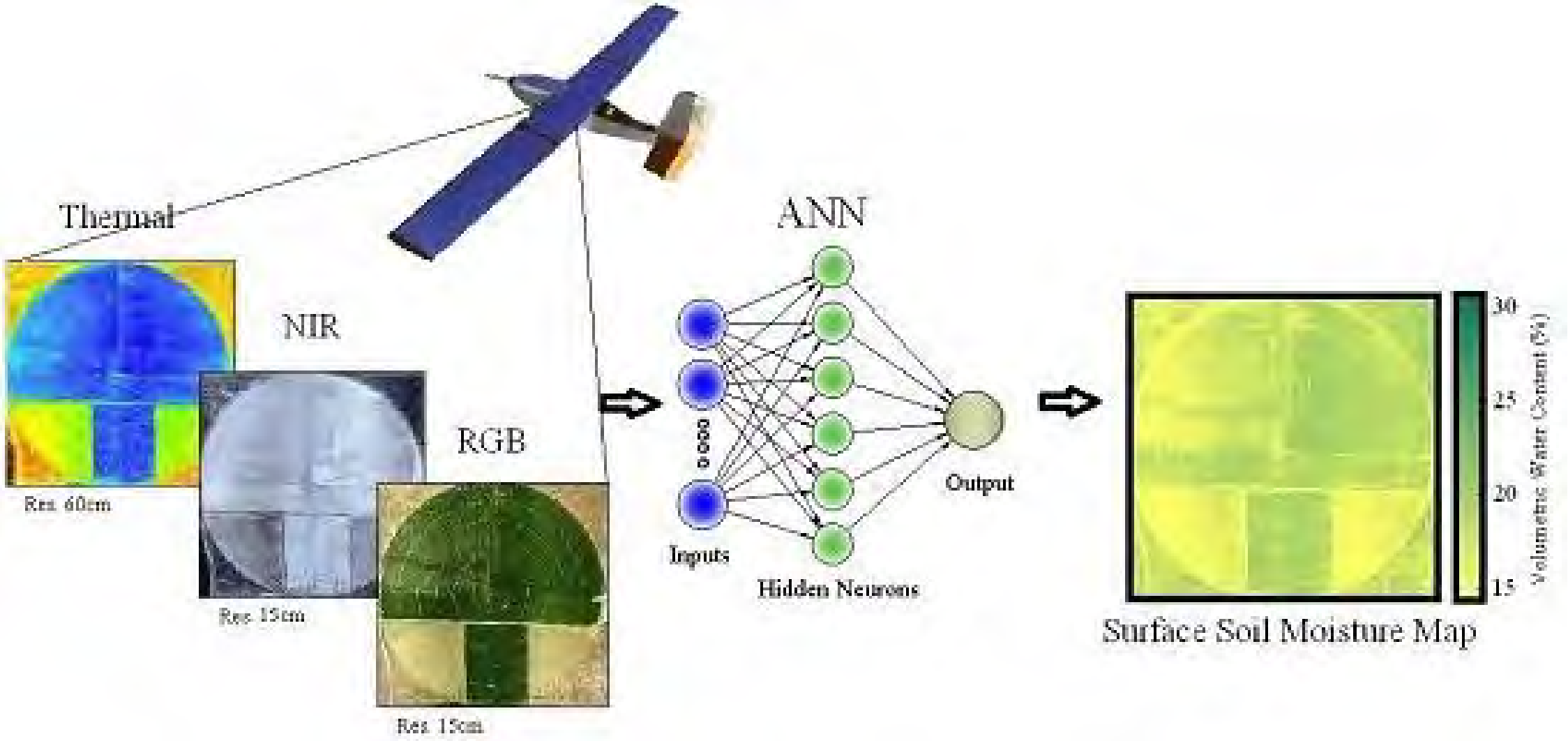

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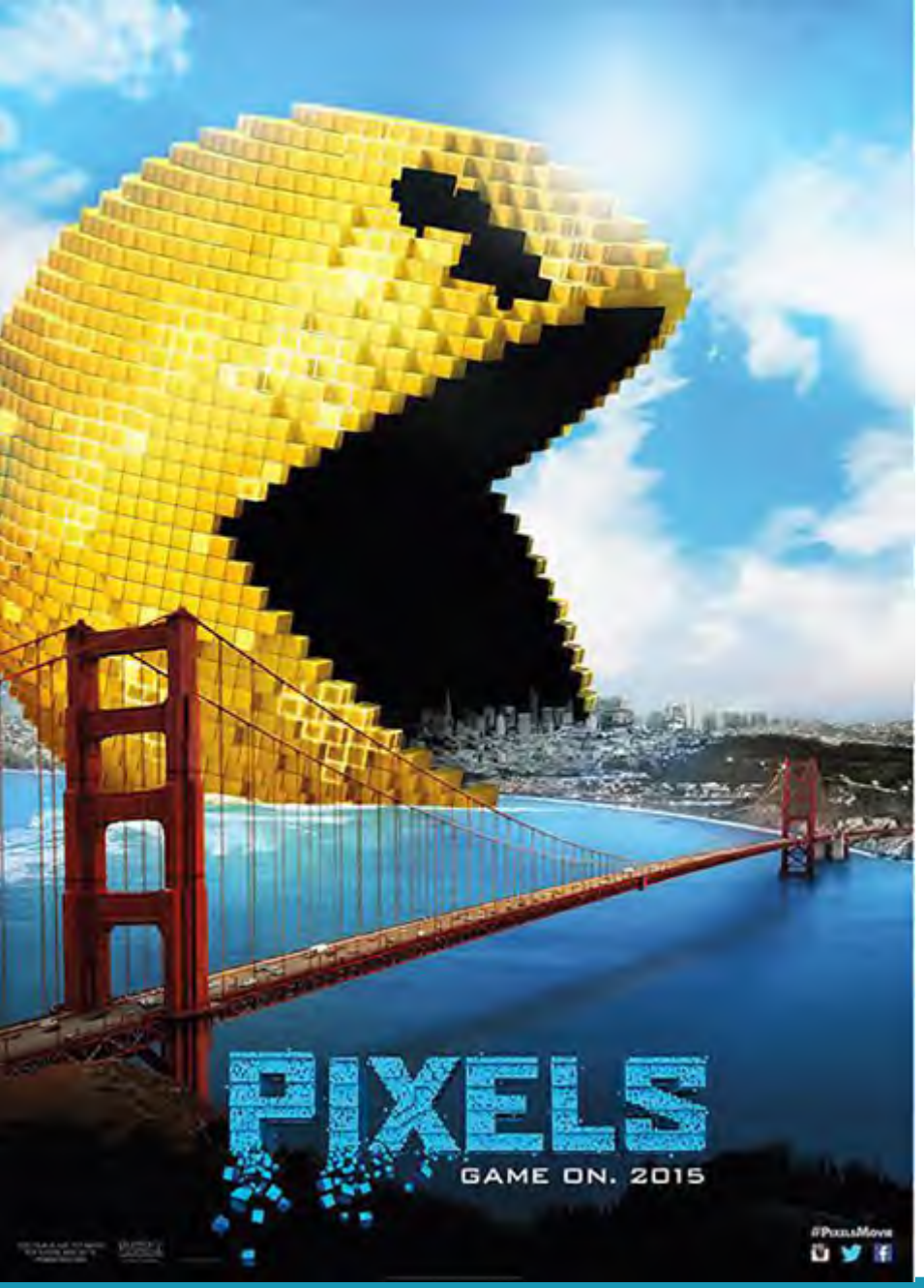
6210R



Software is eating the world

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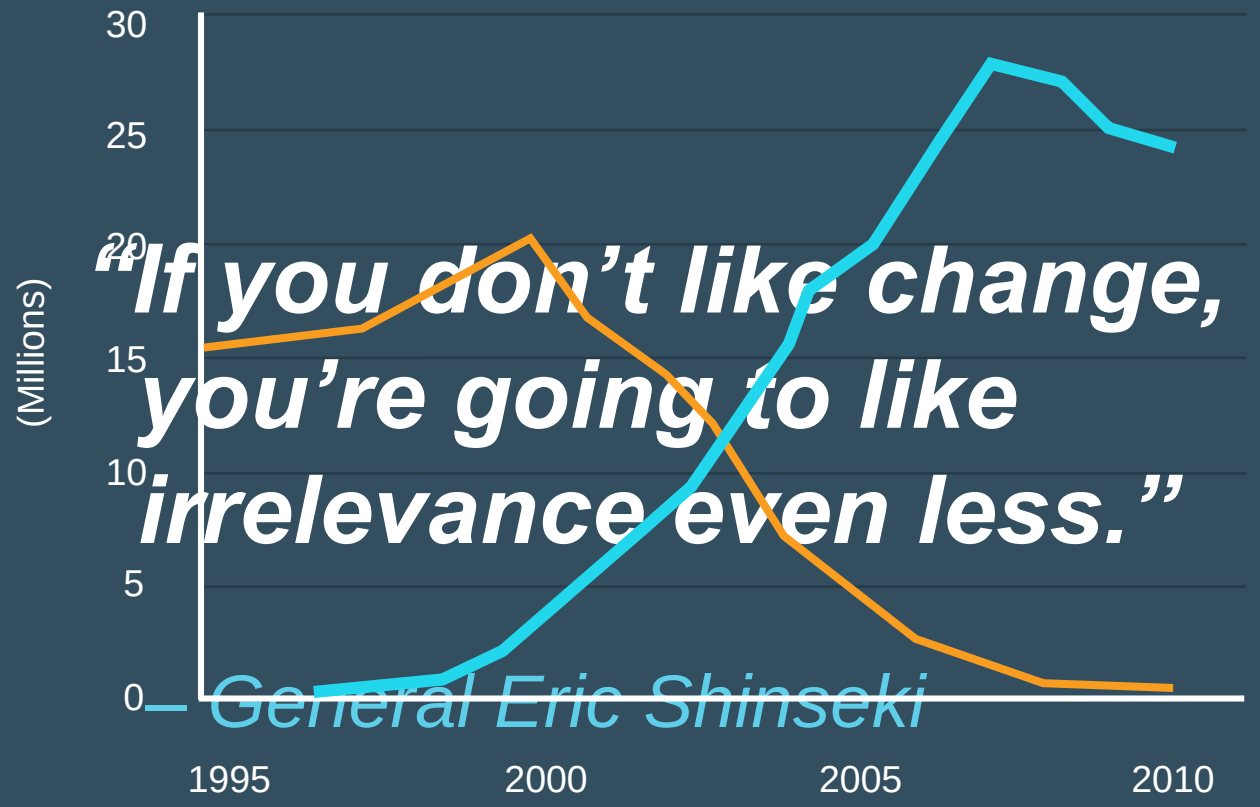
Evolution is required. But it is hard.



"If you don't like change, you're going to like irrelevance even less."

— General Eric Shinseki

“Nonstop demand is the #1 problem facing IT departments today.”

Gartner

KPMG

“Continually optimize the IT delivery model”

McKinsey&Company

“Reorganizing IT for faster software delivery”

451 Research

“DevOps helps drive faster software development”

IDC Analyze the Future

“DevOps can accelerate delivery 15-20%”

Deloitte.

“Real Time DevOps”

FORRESTER®

“Continuous delivery”

NASCIO Representing Chief Information Officers of the States

“Agile & Incremental Software Delivery”

Forbes

“#3. Speed of IT Delivery”

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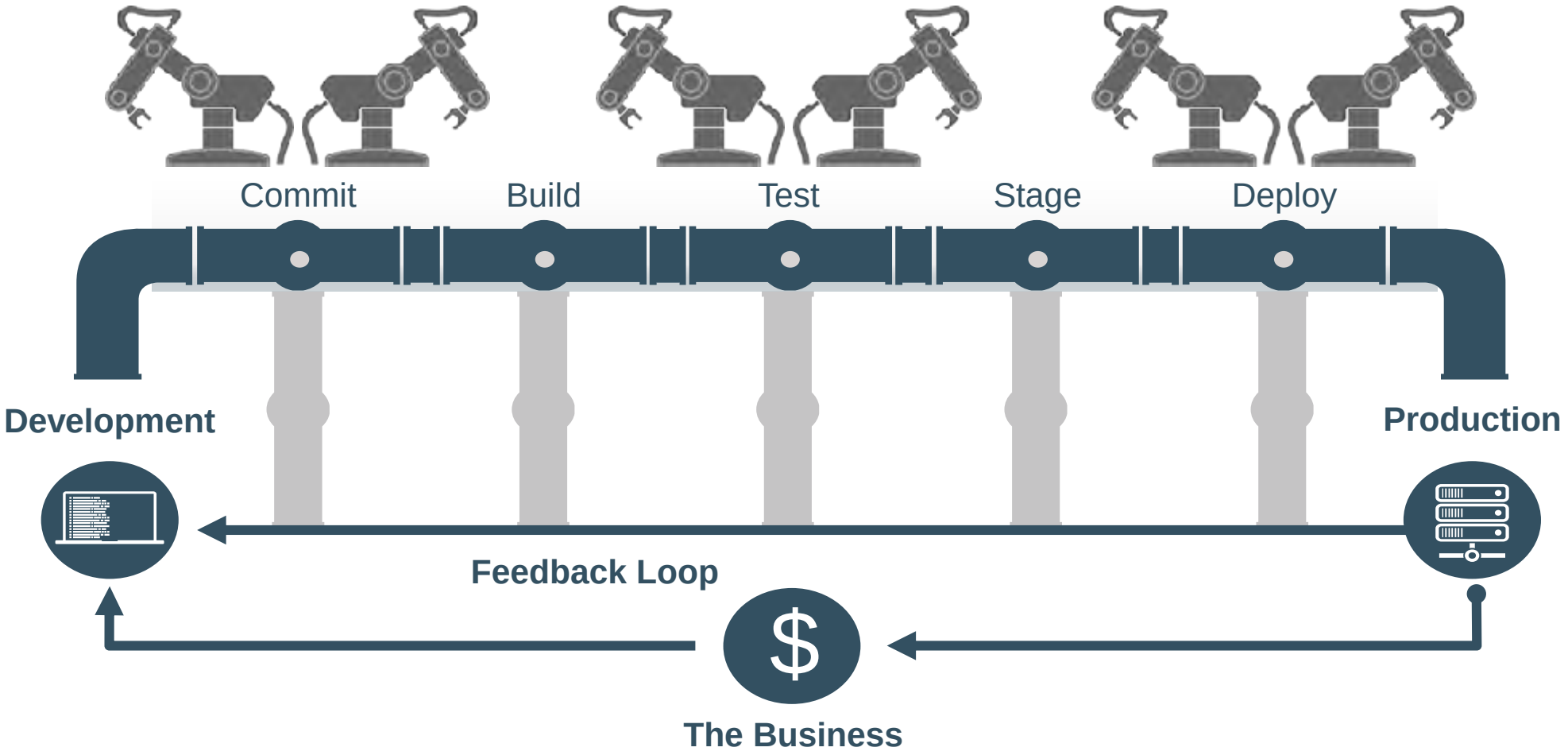
Speed + Friction = Heat

Continuous Delivery and Automation are The Answer



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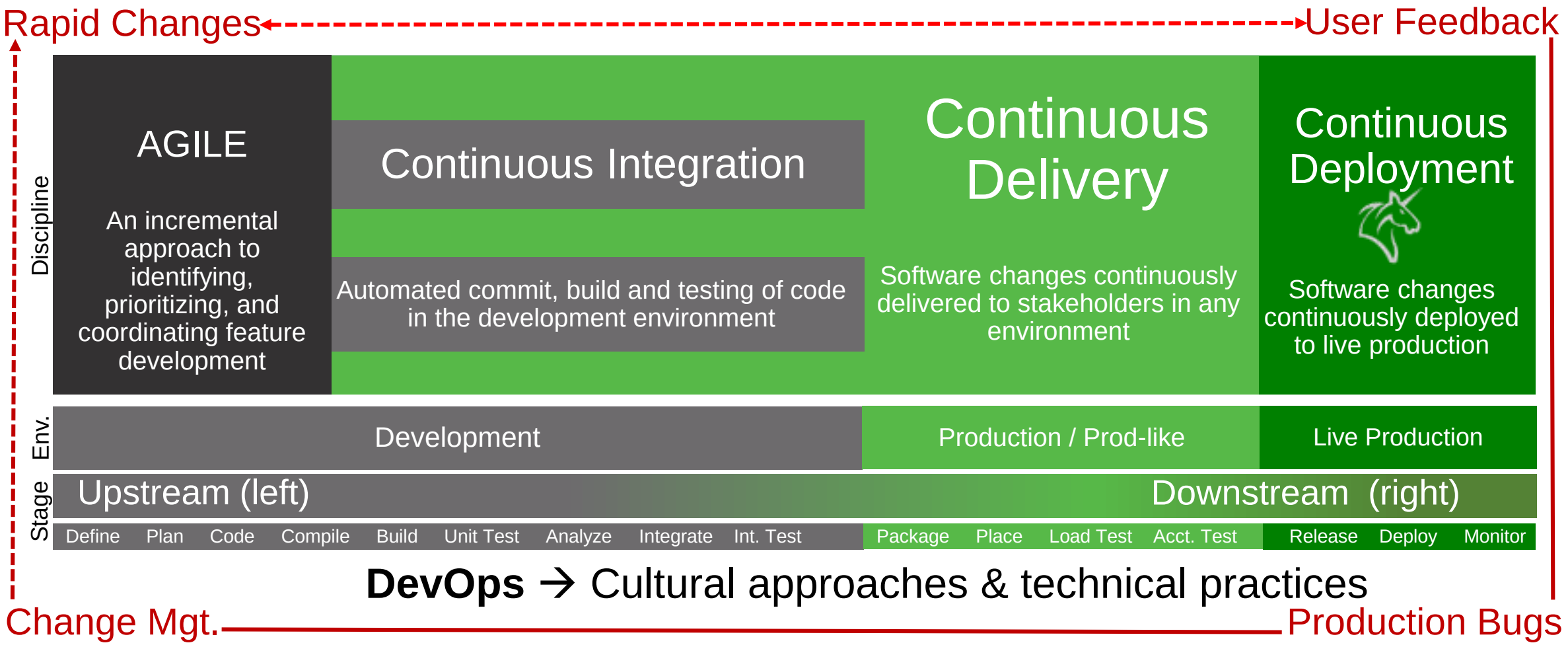
Continuous Delivery In Context



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Who You Wanna Be

“Netflix deploys a hundred times per day”

“Amazon deploys every 11.6 seconds”

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Who You ACTUALLY Are

Google Doc driven deployment

Ops guy work through the night

Deployment every once in 2 weeks

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DevOps Word Soup

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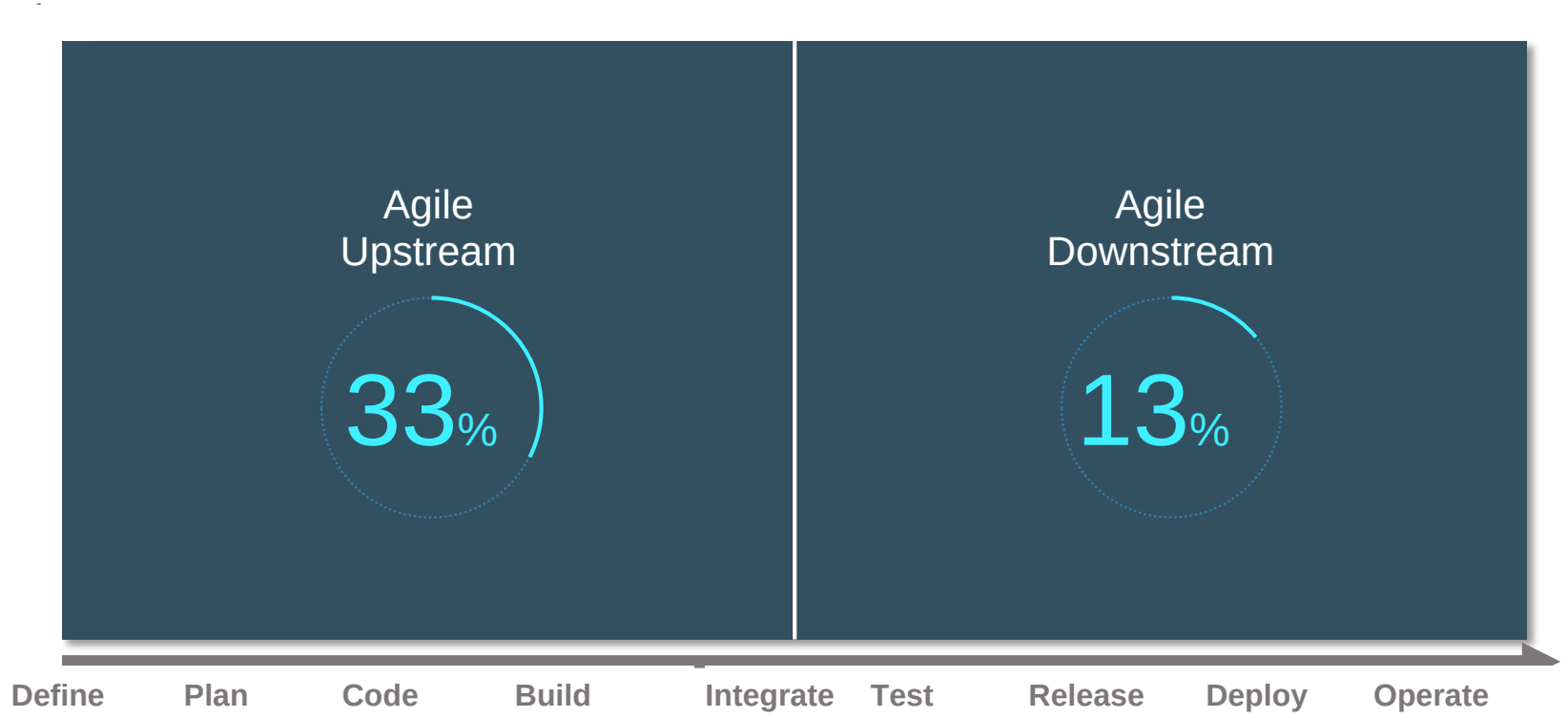
SIMPLIFY

Maturing Organization & Culture

X-Axis: SDLC Phases



Source: February 5, 2014, "How Can You Scale Your Agile Adoption?" Forrester report

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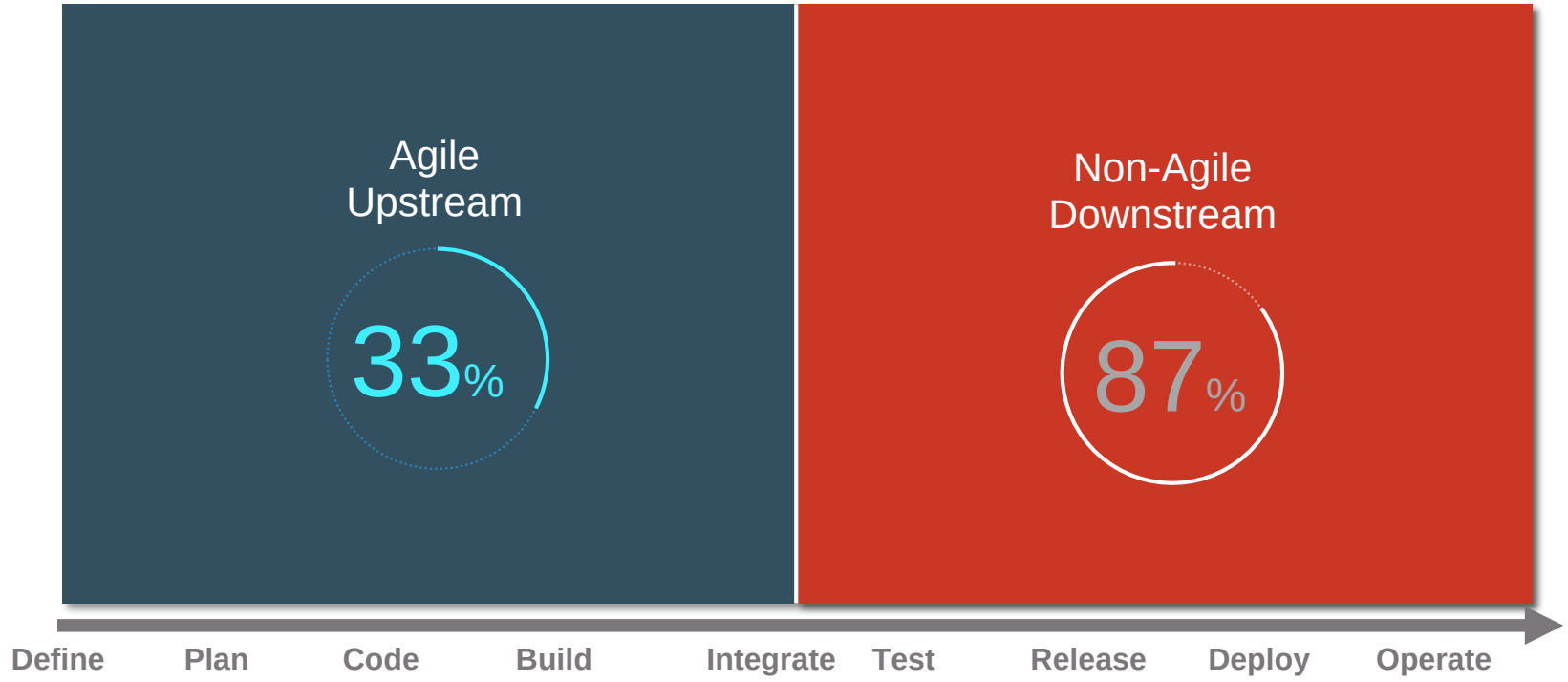
Cycle Times: Mixed Streams



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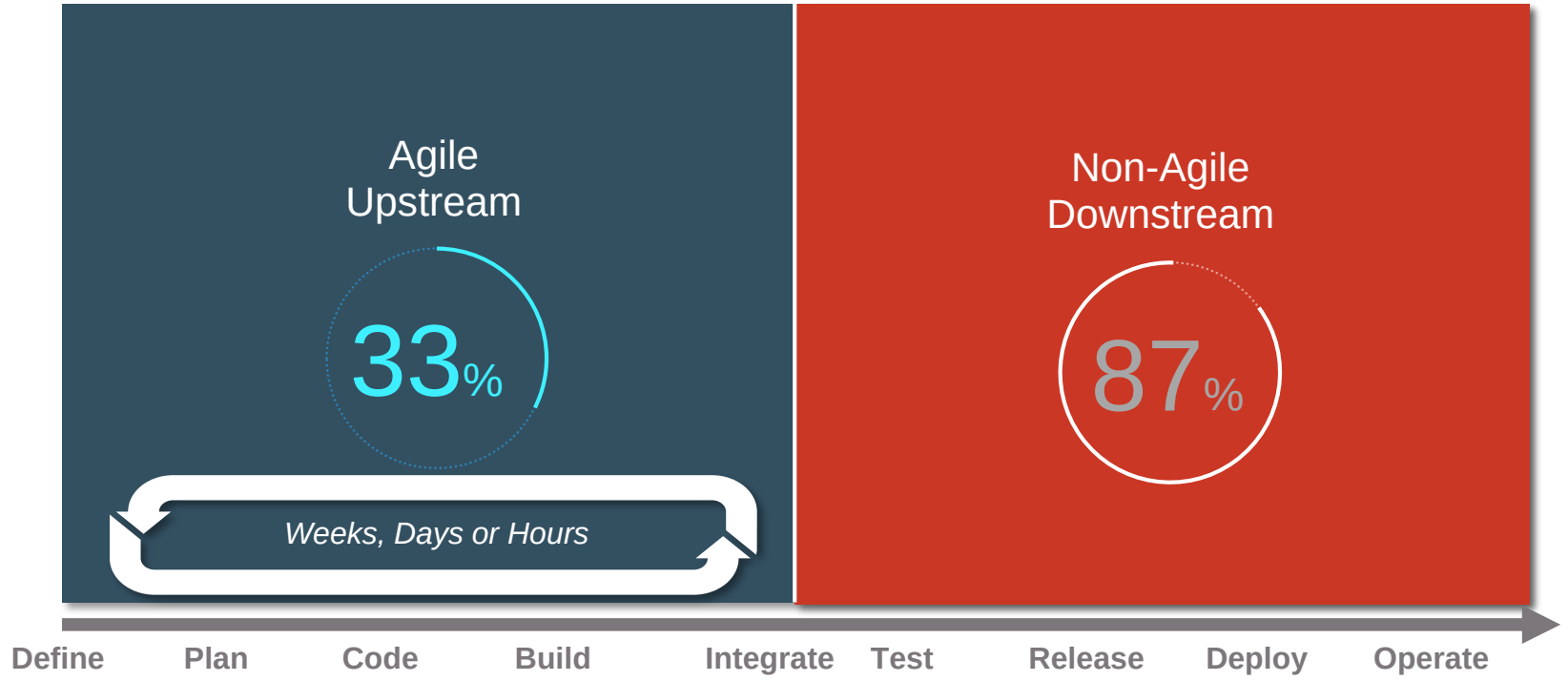
Cycle Times: Mixed Streams



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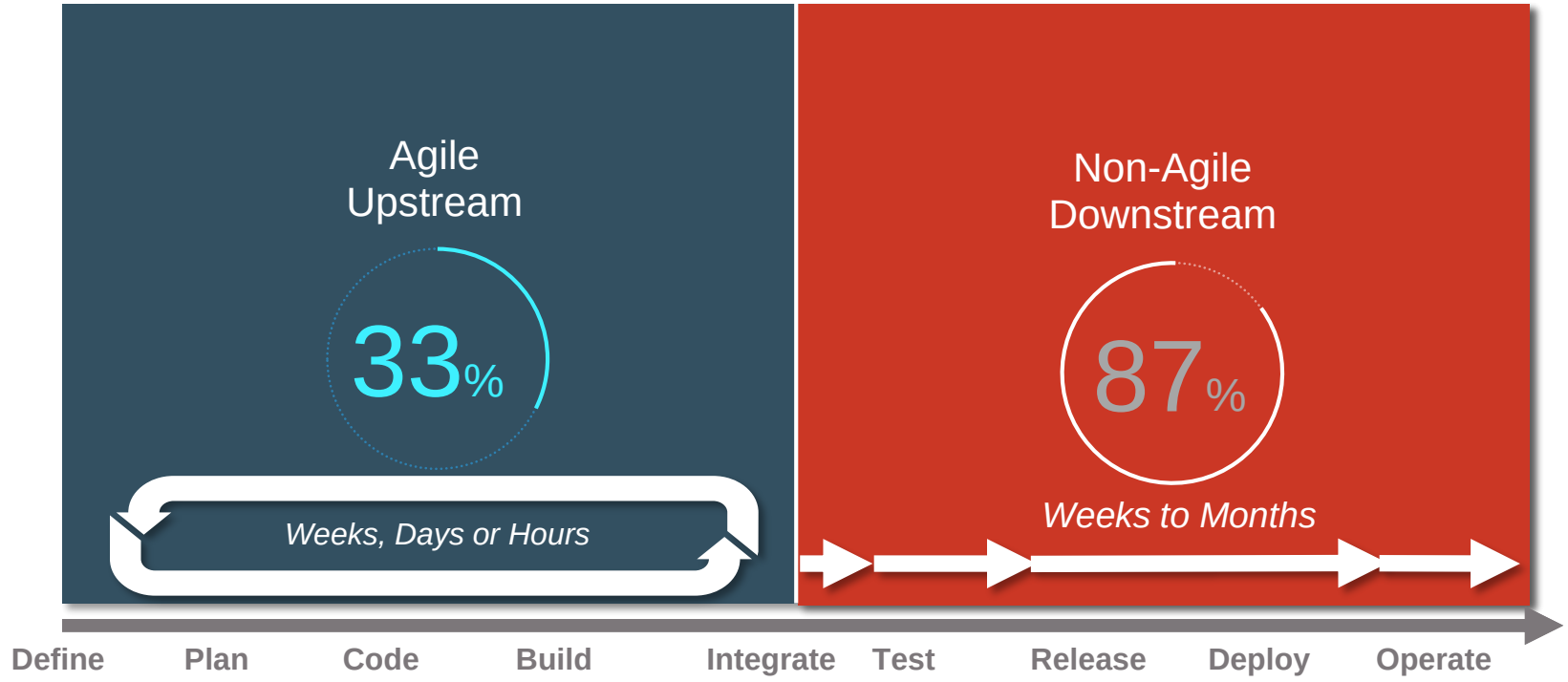
Cycle Times: Mixed Streams



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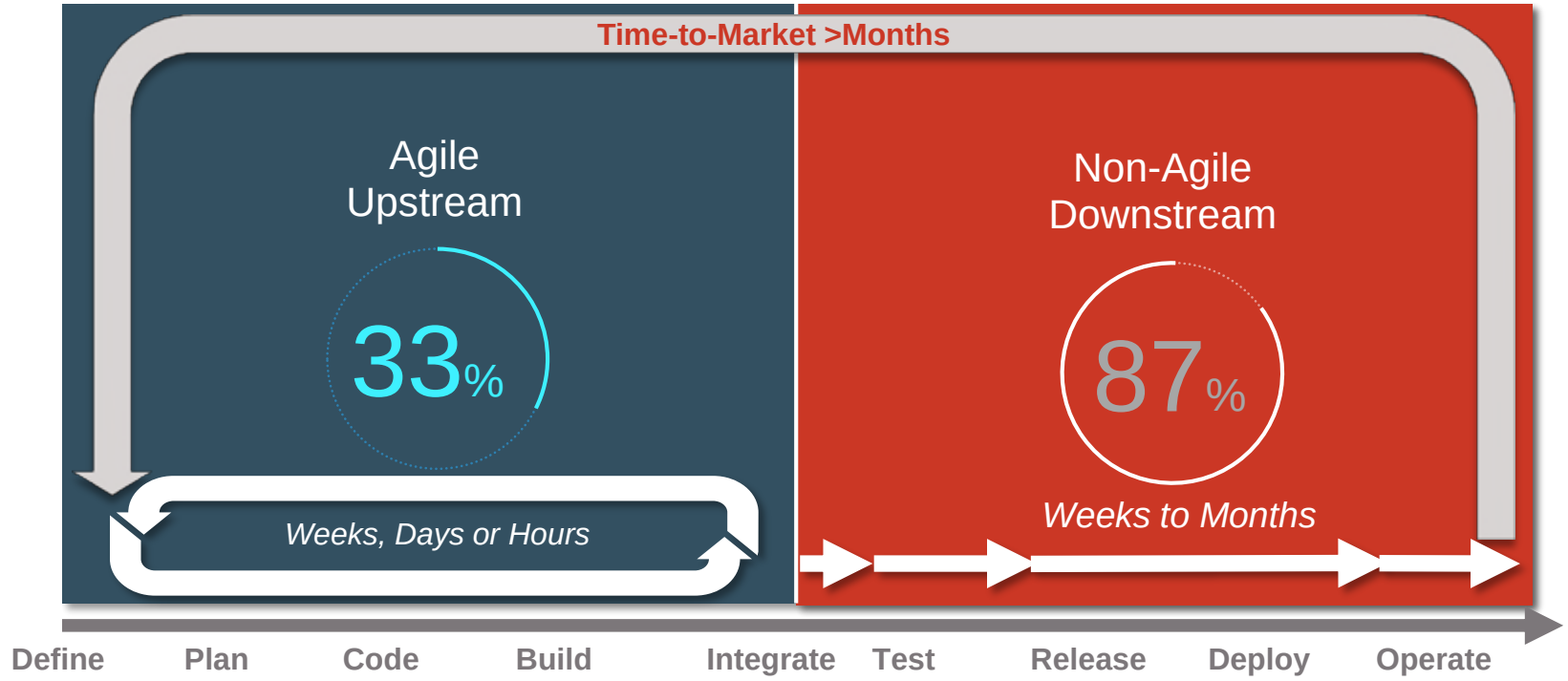
Cycle Times: Mixed Streams



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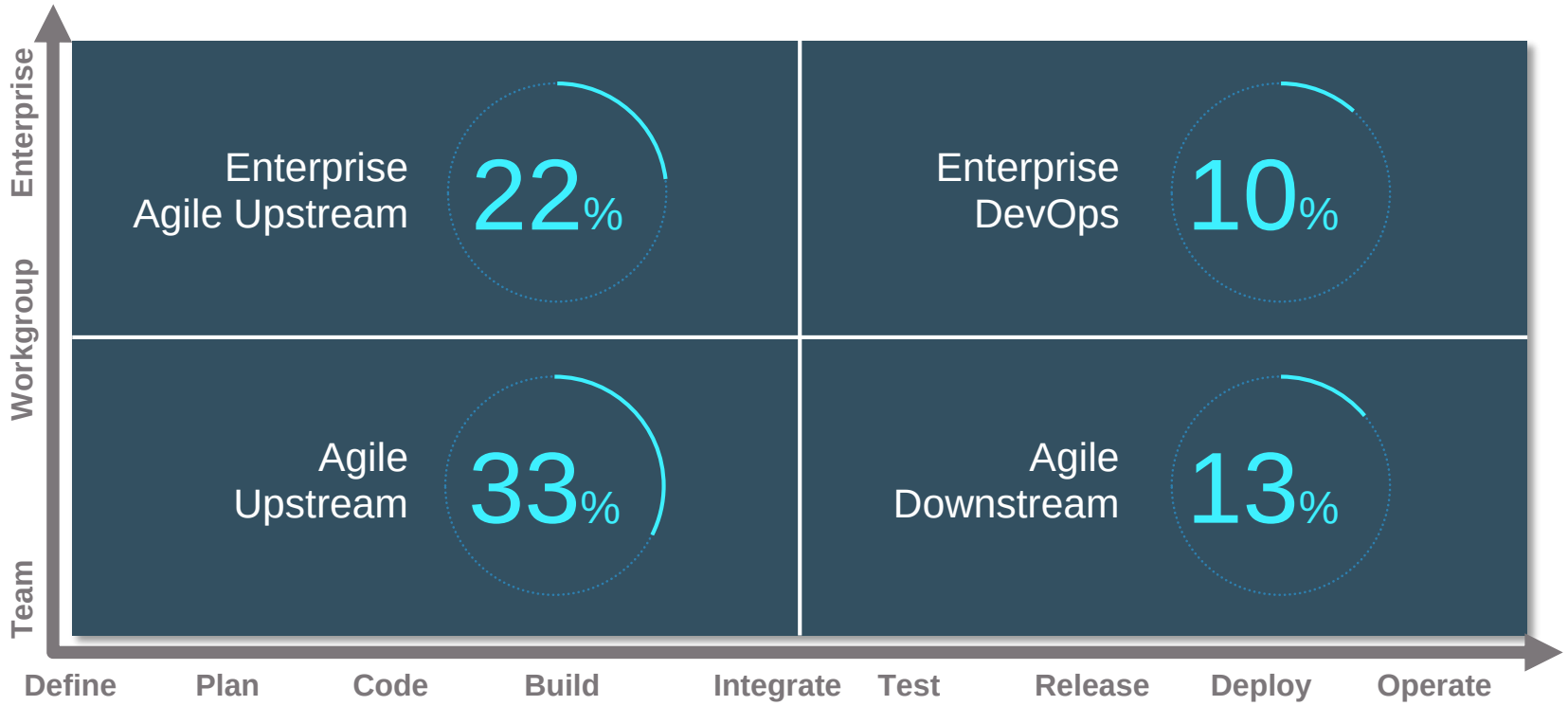
Y-Axis: Levels of Adoption



Source: February 5, 2014, "How Can You Scale Your Agile Adoption?" Forrester report

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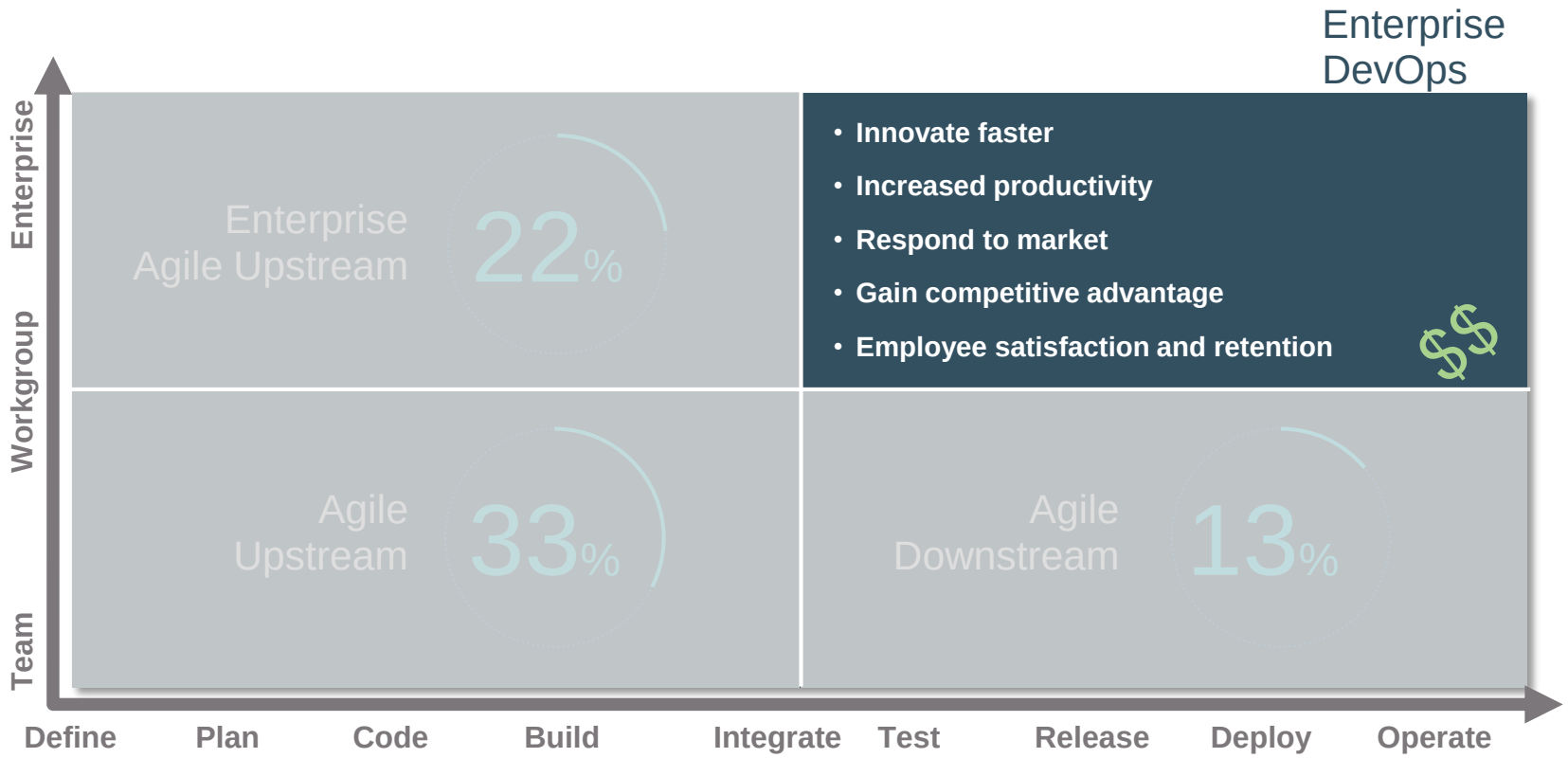
The Destination



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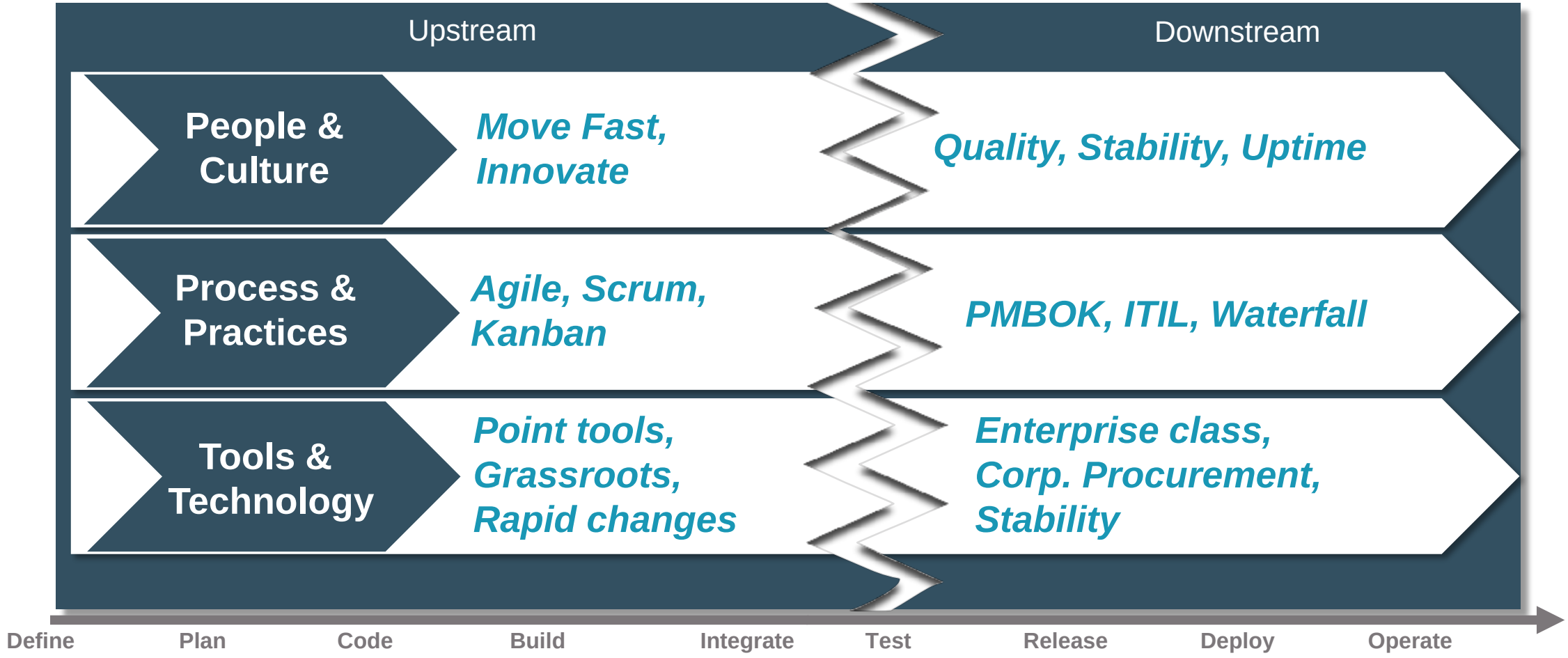
The Chasms



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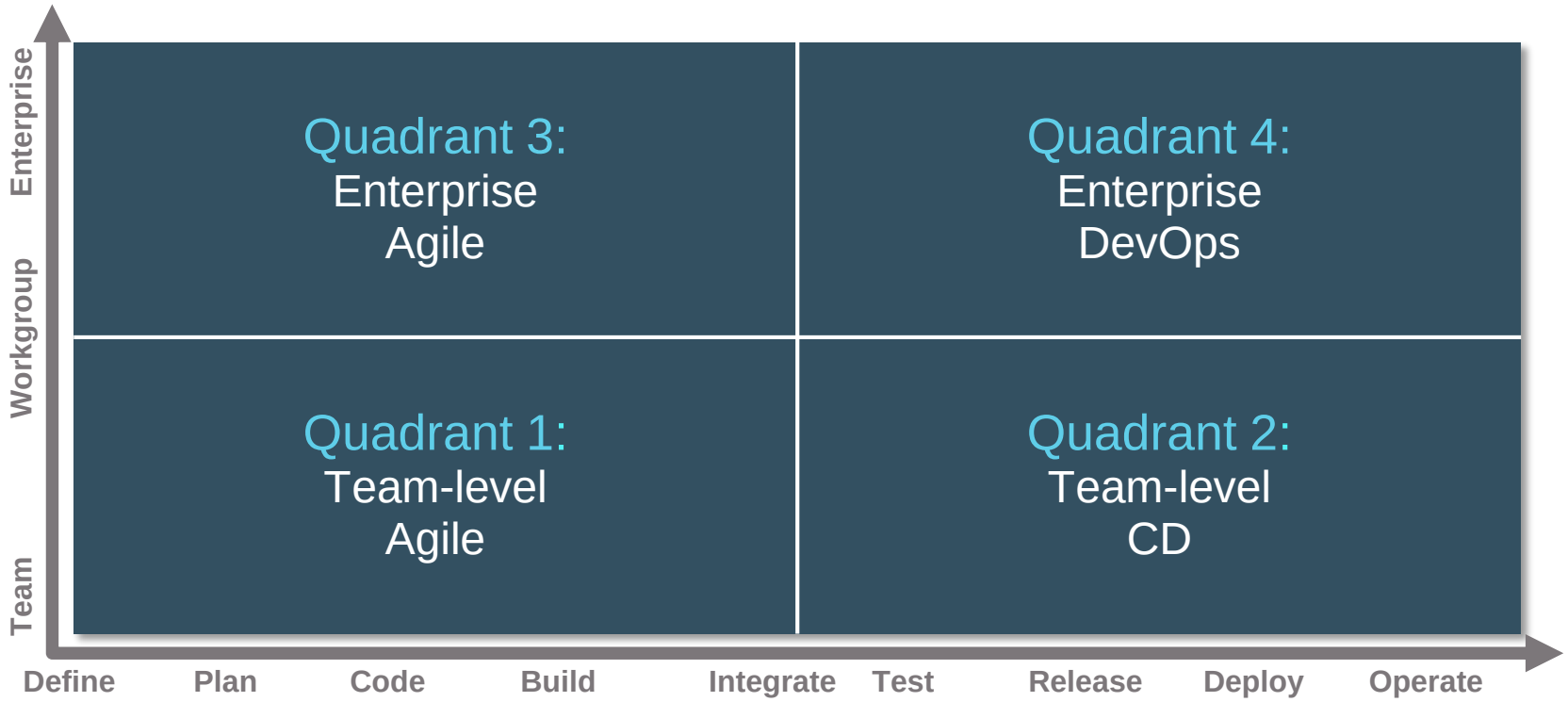
The Quadrants



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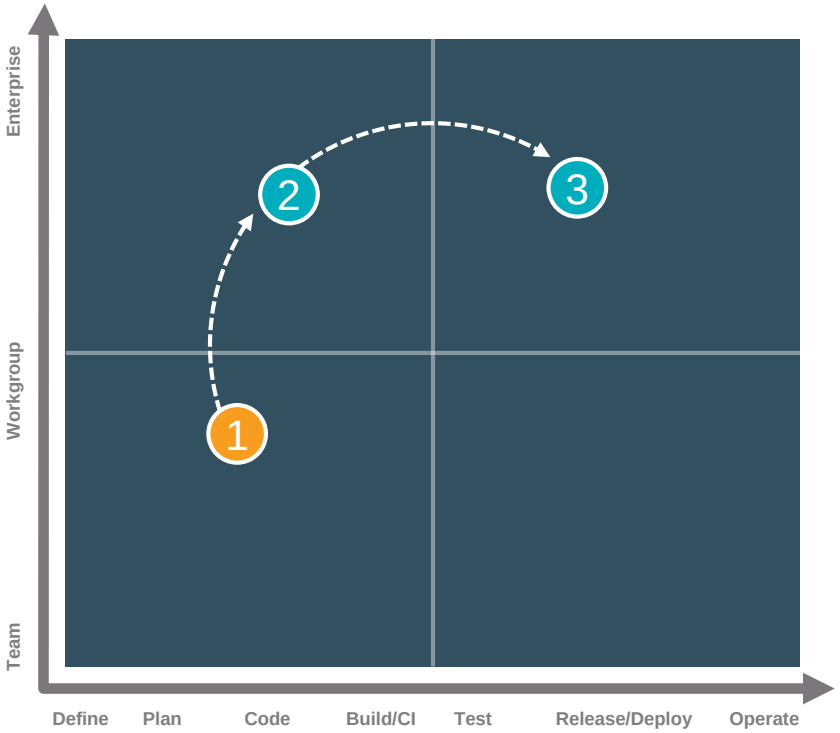
The Quadrants and Adoption Patterns

Adoption Pattern #1

Team Agile > Ent. Agile > Ent. DevOps

1. Team(s) adopt agile planning and project management
2. Organization implements agile definition, planning, and project management
3. Organization aligns on DevOps strategy with teams using common CI/CD process and tools



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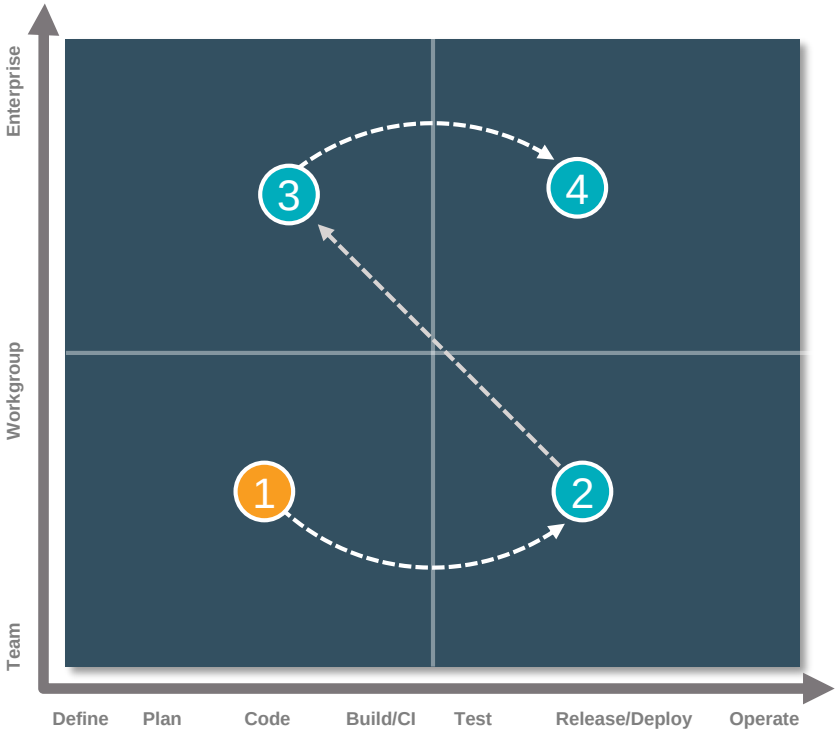
Adoption Pattern #2

Agile > CD > Enterprise Agile > DevOps

1. Team(s) adopt agile planning and project management
2. Team(s) extend CI to Continuous Delivery
3. Organization implements agile
4. Organization aligns on DevOps strategy with teams using common CI/CD process and tools



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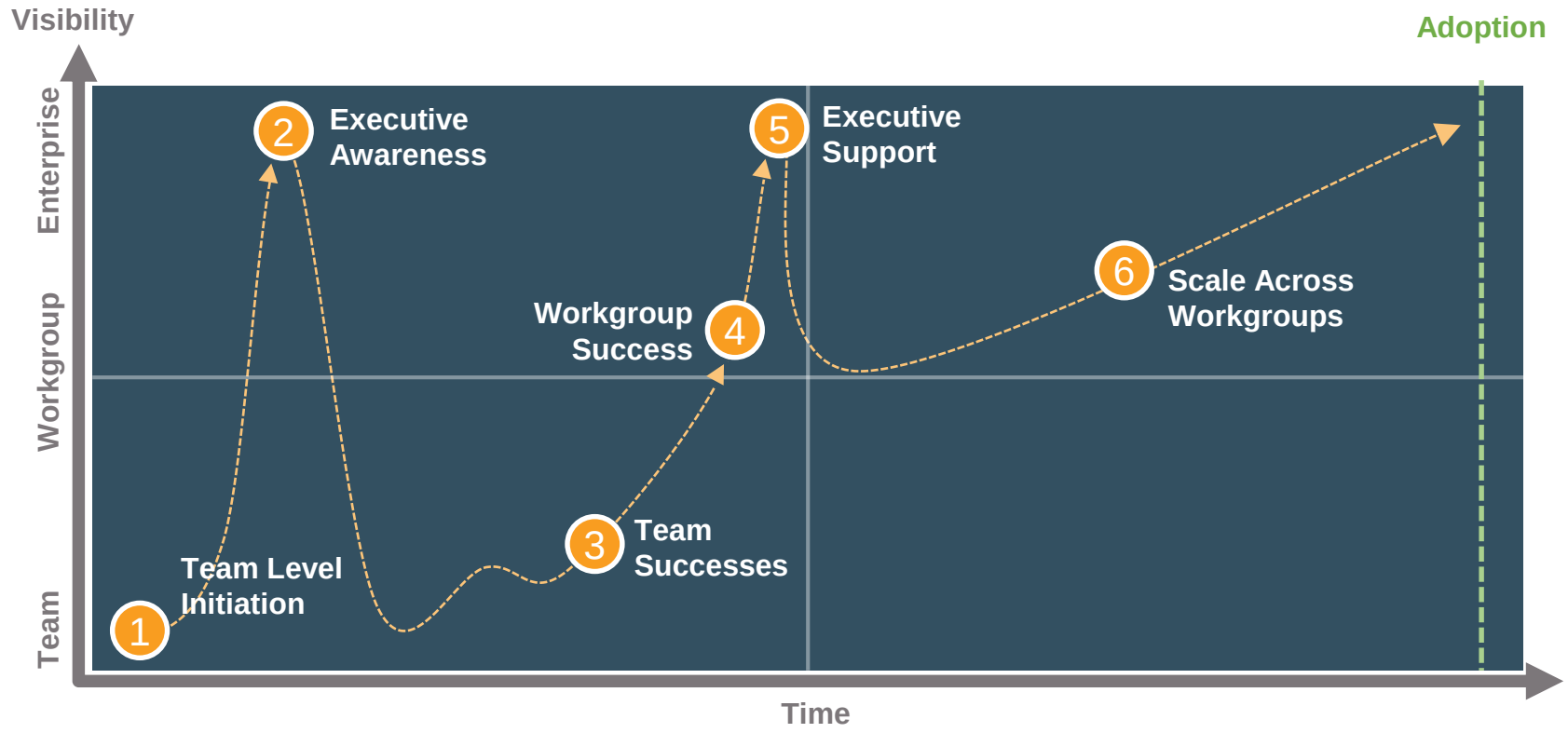
Adoption Cycles: Bottom-Up



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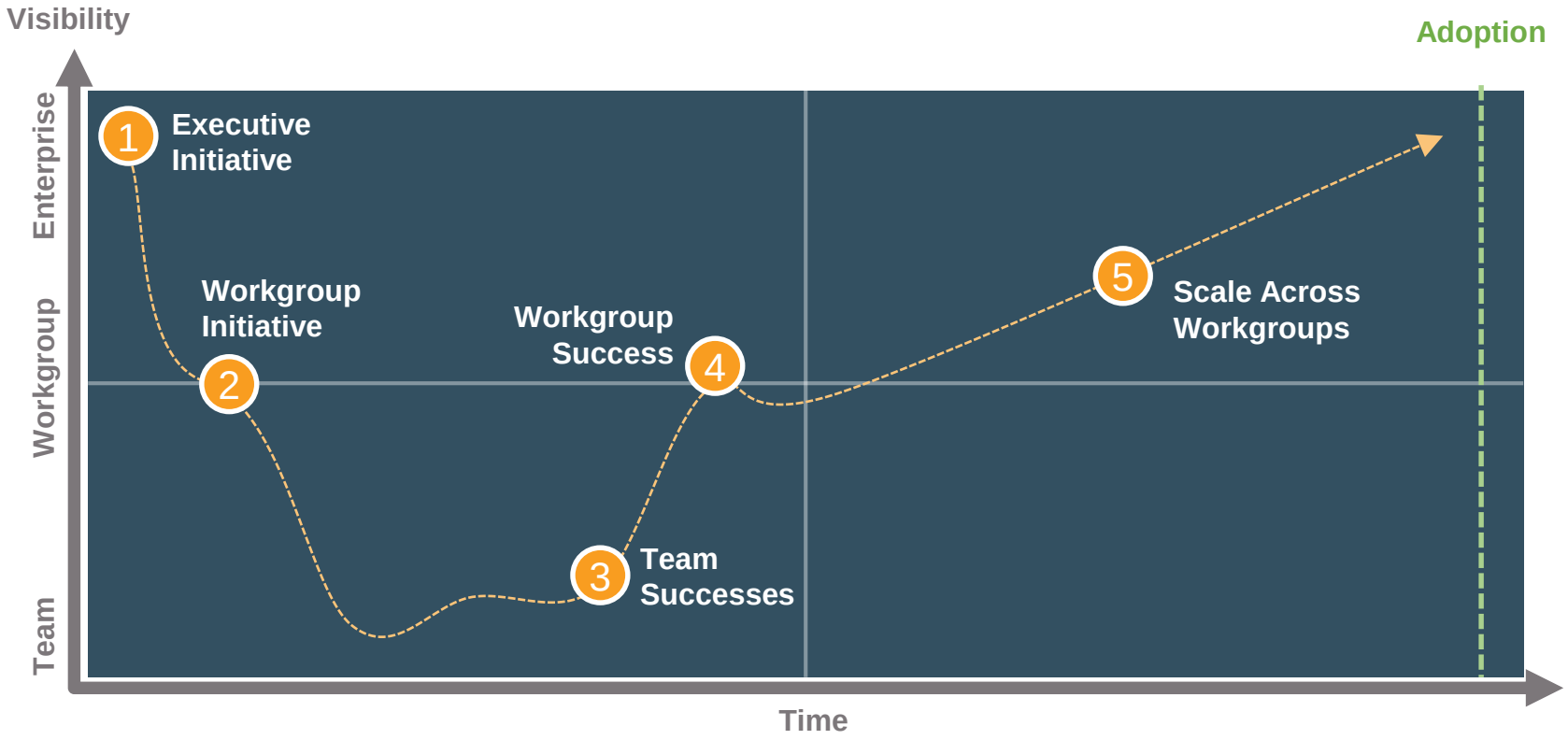
Adoption Cycles: Top-Down



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DevOps Transformation Strategies

1. Identify pilot project
2. Form cross-functional “red” team
3. Adopt unifying technologies
4. Establish plan with measurable KPIs and milestones
5. Go!
6. Measure, document, refine
7. Scale and onboard

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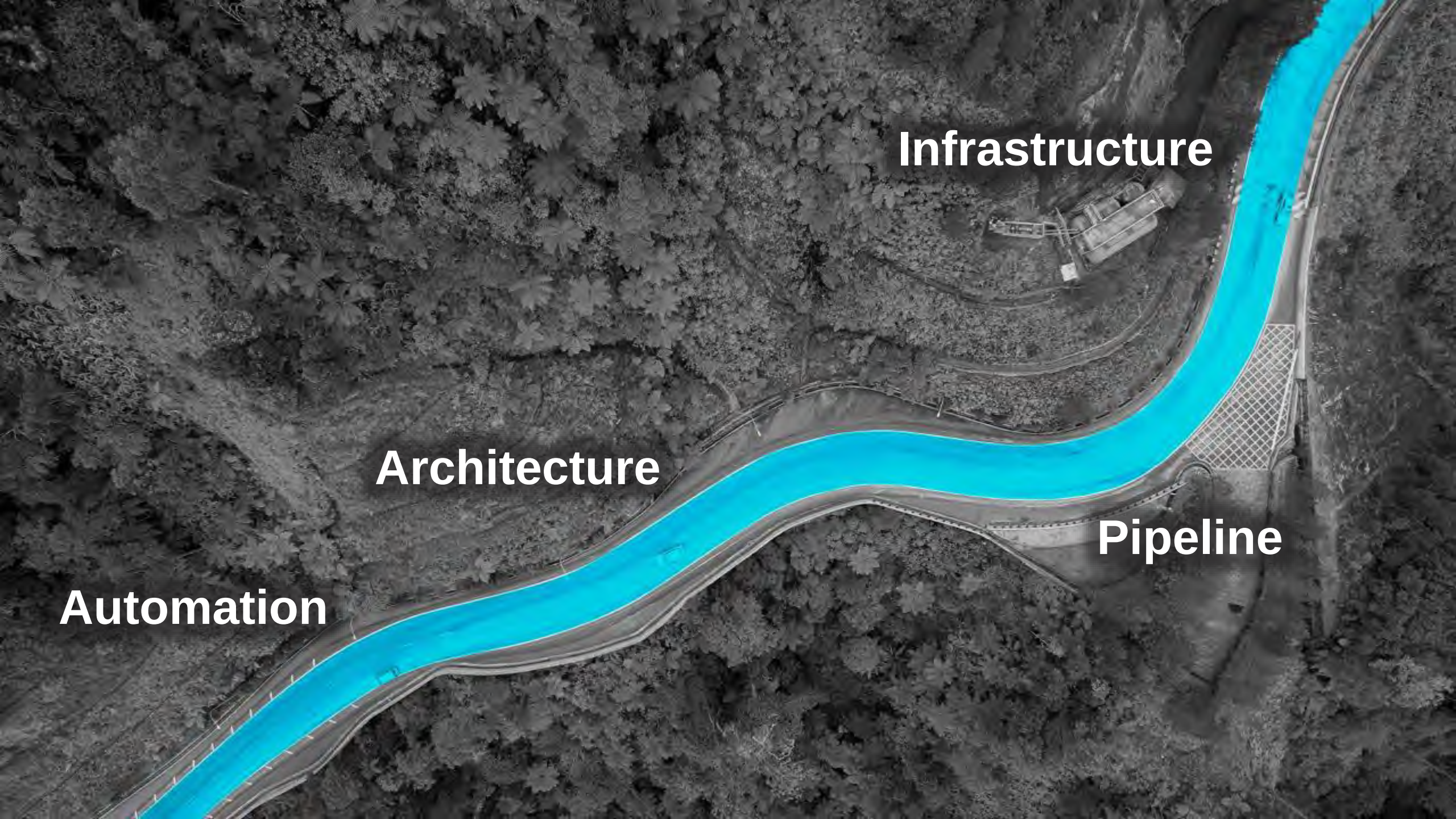
Maturing Engineering Practice


Infrastructure
Architecture
Pipeline
Automation

Automation is the foundation for everything

Continuous delivery (CD) is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time.[1] It aims at building, testing, and releasing software faster and more frequently. The approach helps reduce the cost, time, and risk of delivering changes by allowing for more incremental updates to applications in production. **A straightforward and repeatable deployment process is important for continuous delivery.**

from Wikipedia “Continuous delivery”

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Architecture / Implementation techniques

- Feature flags
  - Activate/kill code at runtime
- Dark launches
  - Put production workload without users seeing them
  - Ease in new things
- Microservices
  - Deploy different parts independently
  - Reduce coupling

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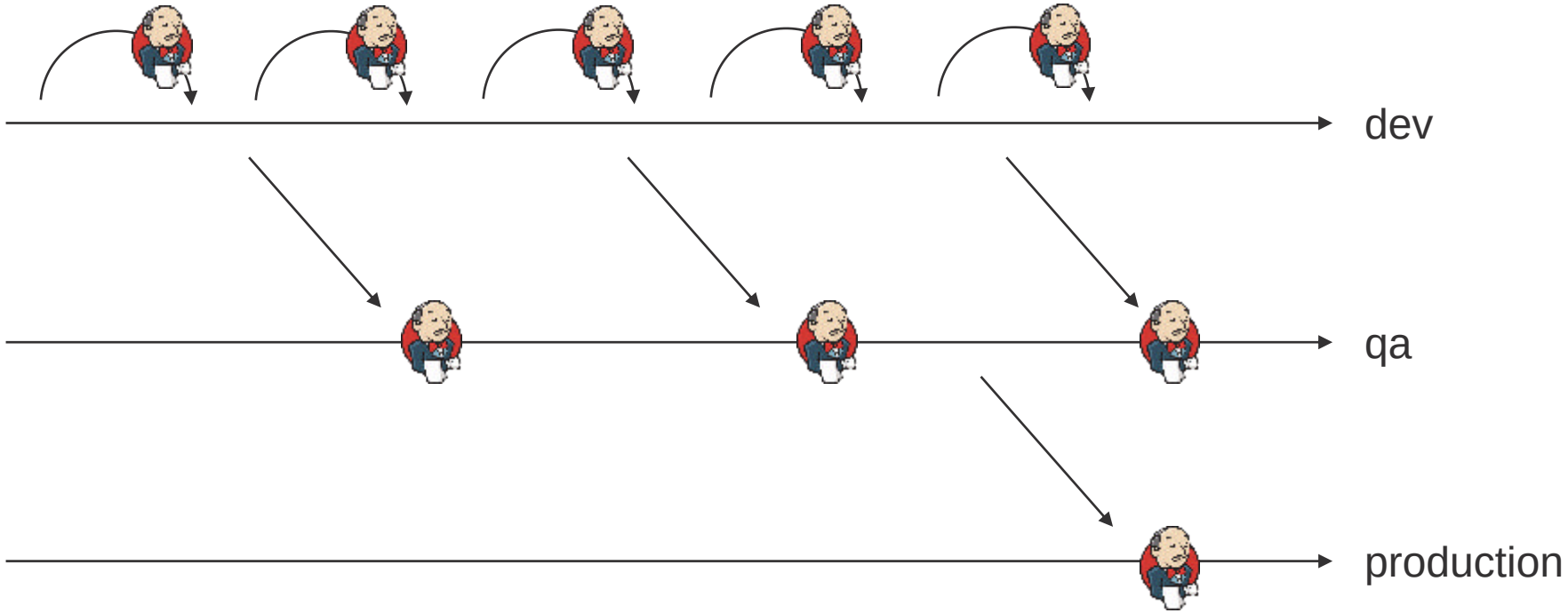
CD Pipelines that detect & reject problems



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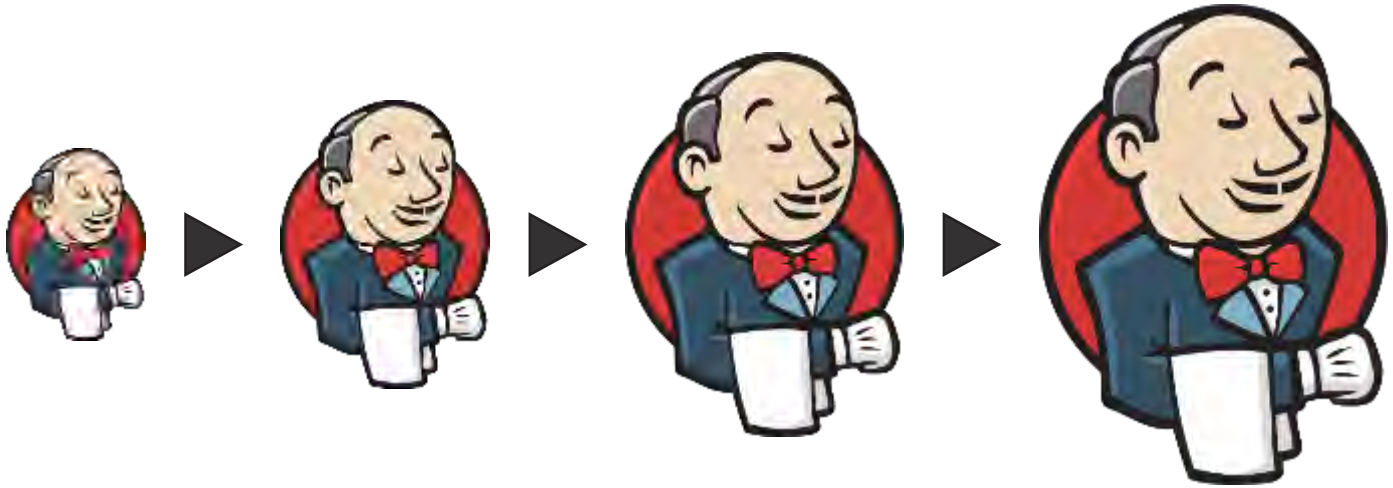
Well-placed control points that “filter out” bad changes

Automated validation as exit criteria from code review

Reliable tests

Control points that trade speed vs thoroughness in proper order



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Infrastructure that enables

Tolerate problems & contain damages

- Blue/green deployment
- Canary release

Prevent errors

- Phoenix servers
- Immutable infrastructure

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Crawl, Walk, Run

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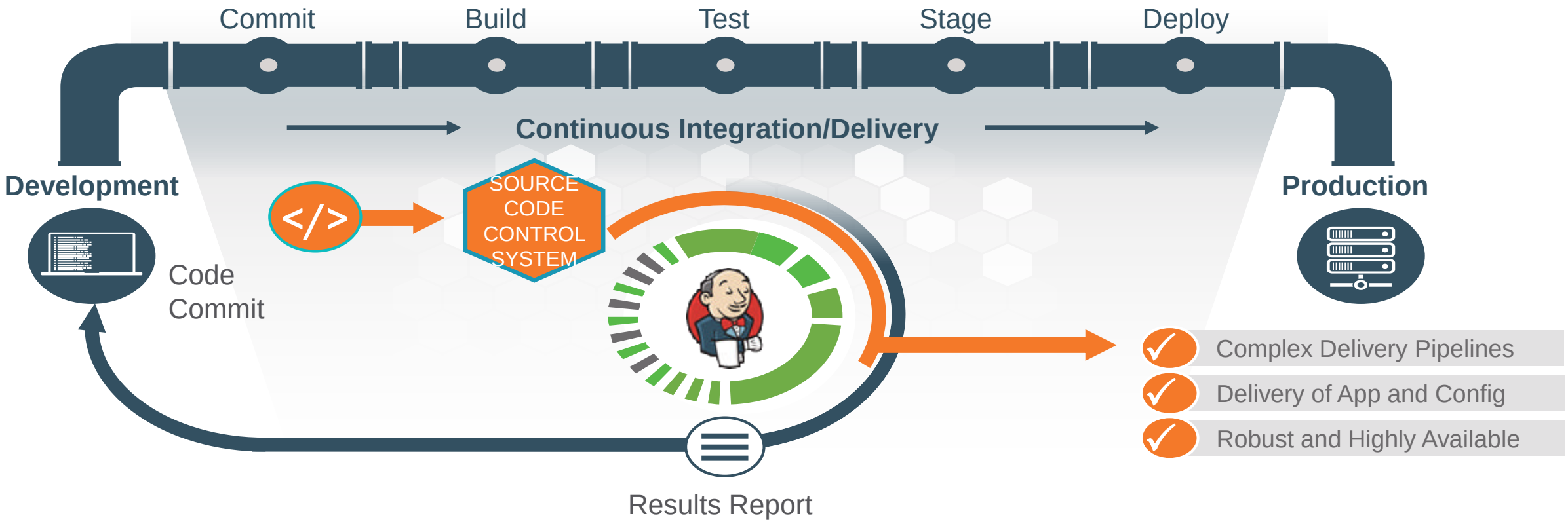
Jenkins – the #1 Automation Platform for CI/CD



Deliver Better Software Faster

with CloudBees Jenkins Platform

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Jenkins is the Hub of CD/DevOps Ecosystem

Over 1000 Jenkins Plugins

Integration with over 100 DevOps Tools

Orchestration of the DevOps Toolchain

End-to-End CD Pipeline Management

Code & Commit

git, GitHub, Stash, Subversion, Perforce, mercurial, Visual Studio, IBM Rational, ca technologies, SERENA, Borland StarTeam, artifactory, Nexus, eclipse

Build & Config

maven, gradle, Apache Ant, Gant, Visual Studio, IBM Rational, docker, CHEF, puppet labs, ANSIBLE, VAGRANT, amazon web services, SALTSTACK

Scan & Test

gerrit, Sauce Labs, sonar, BlazeMeter, SOASTA, Gatling, RedLine13.com, Selenium WebDriver, Loadrunner, FitNesse, JUnit, cucumber

Release

uDeploy, SERENA, ca technologies, CollabNet, MidVision, XL RELEASE

Deploy

amazon web services, Pivotal, Azure, docker, vmware, OPENSHIFT, JBoss, Google Compute Engine, Google app engine, Microsoft .net, openstack, WebSphere

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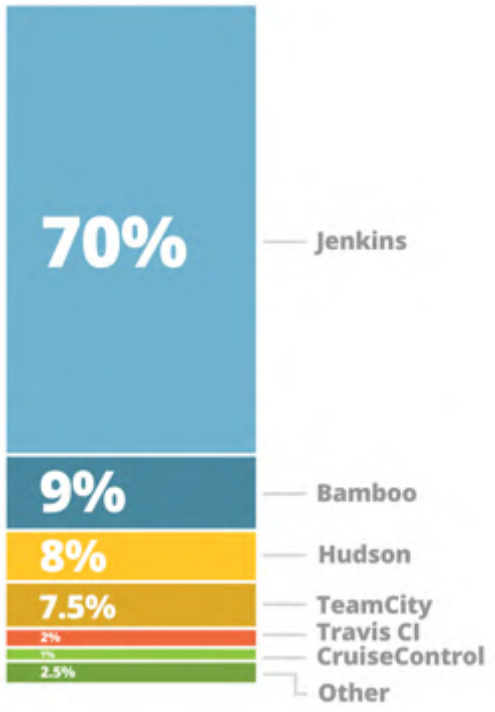
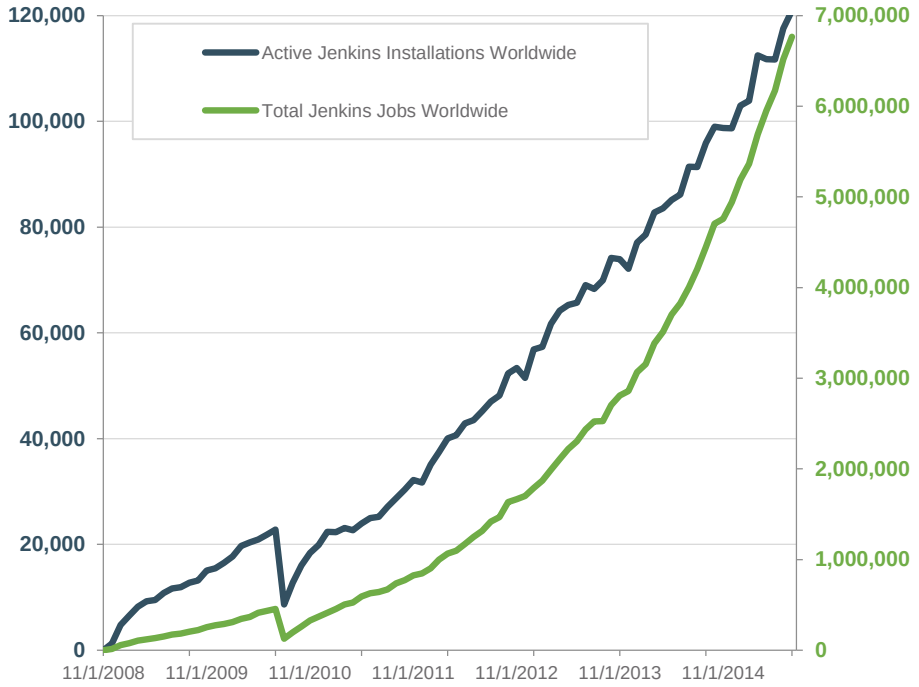
Jenkins Popularity is Through The Roof



RebelLabs 2014 Java tools & technologies survey



http://stats.jenkins-ci.org/jenkins-stats

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Jenkins Installations

150,000

▲37%

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Jenkins Workload

12,300,000 jobs

▲54%

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of Computers

570,000

▲41%

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why?

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It connects all the things

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10 of the
Fortune 100
financial services
companies bank on
CloudBees

7 of the
Fortune 100
technology
companies deliver
innovation on
CloudBees

2/3 of the **Fortune 100** telecom companies speed up delivery with **CloudBees**

3 of the **4**
US credit card
networks speed
transactions with
CloudBees

Let’s Eat The World

And let Jenkins & CloudBees help you

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THANK YOU!

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Software at the speed of ideas

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