

# Jenkins and Continuous Delivery Revolution

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## Time to Assemble a Model-T

**12.5 hrs**



**1.5 hrs**

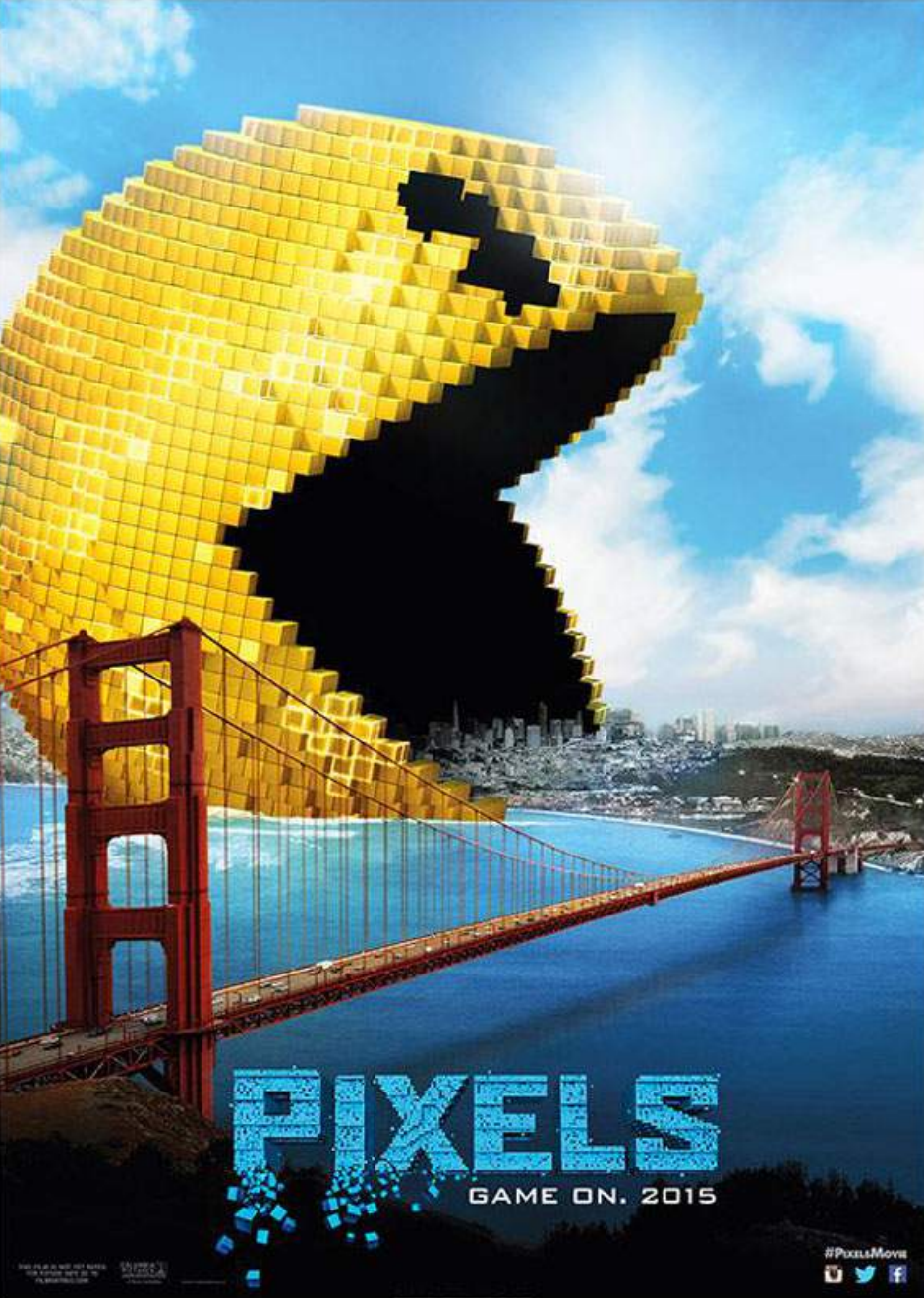


Incredible Efficiency of Assembly Line

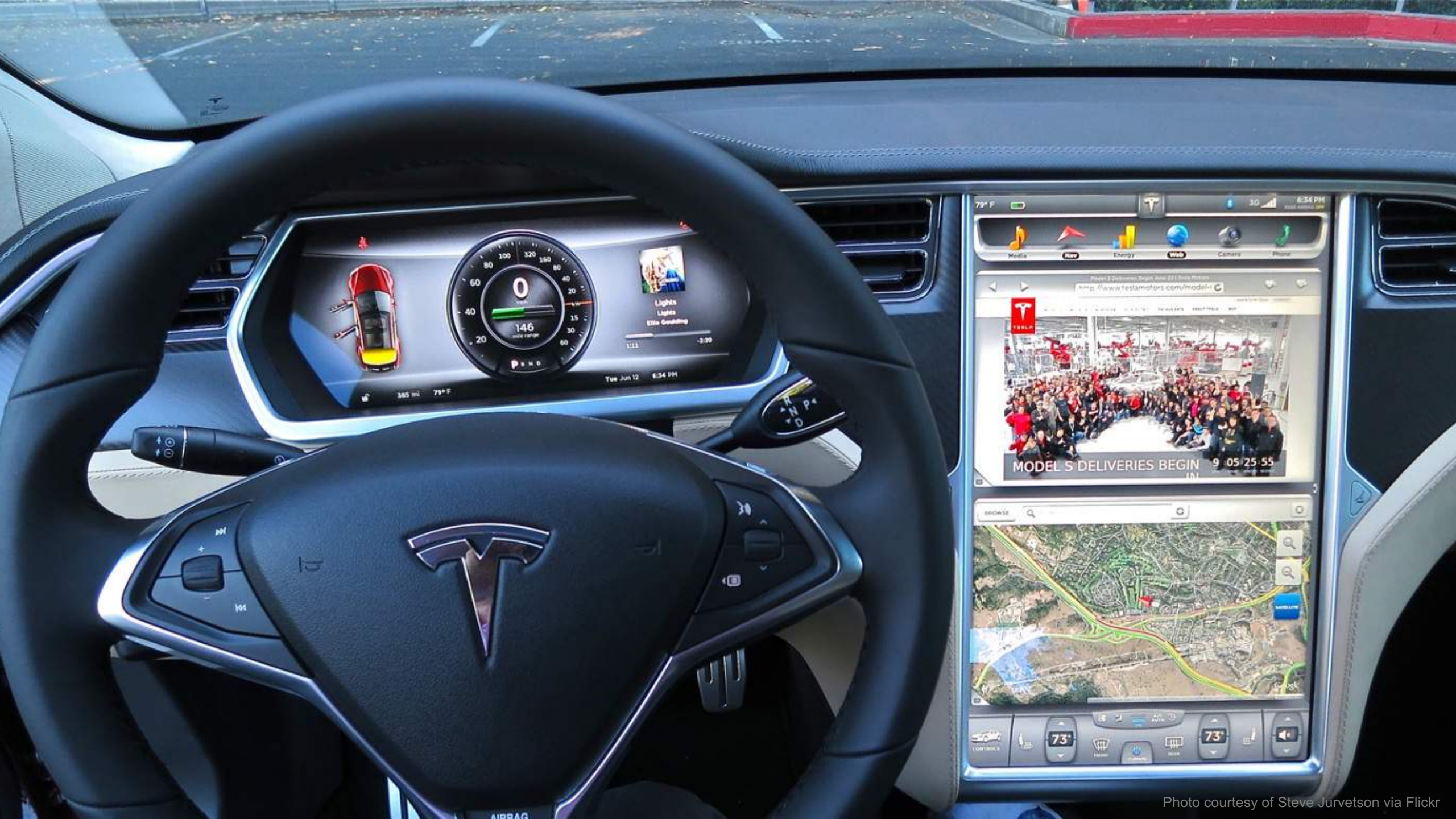
Ford built **300,000** cars with **13,000** employees

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





**Software is  
eating  
the world**



Instrument cluster display showing:

- Top-down view of a red Tesla Model S with yellow battery level.
- Speedometer: 0 mph, range 146 miles.
- Music player: "Lights" by Ellie Goulding.
- Temperature: 79°F.
- Range: 385 mi.
- Date and time: Tue Jun 12, 6:34 PM.

Center console touchscreen display showing:

- Top status bar: 79°F, 30% battery, 6:34 PM.
- Navigation menu: Media, News, Energy, Web, Camera, Phone.
- News article: "MODEL S DELIVERIES BEGIN" with a photo of a large group of people.
- Navigation map: Aerial view with green and yellow routes.
- Bottom control bar: Climate controls (73°F), Drive Mode (EPA), Work, and other settings.

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       | 00        |           |
| 1        | 10        |           |
| <b>2</b> | <b>20</b> | <b>AM</b> |
| 3        | 30        | PM        |
| 4        | 40        |           |

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

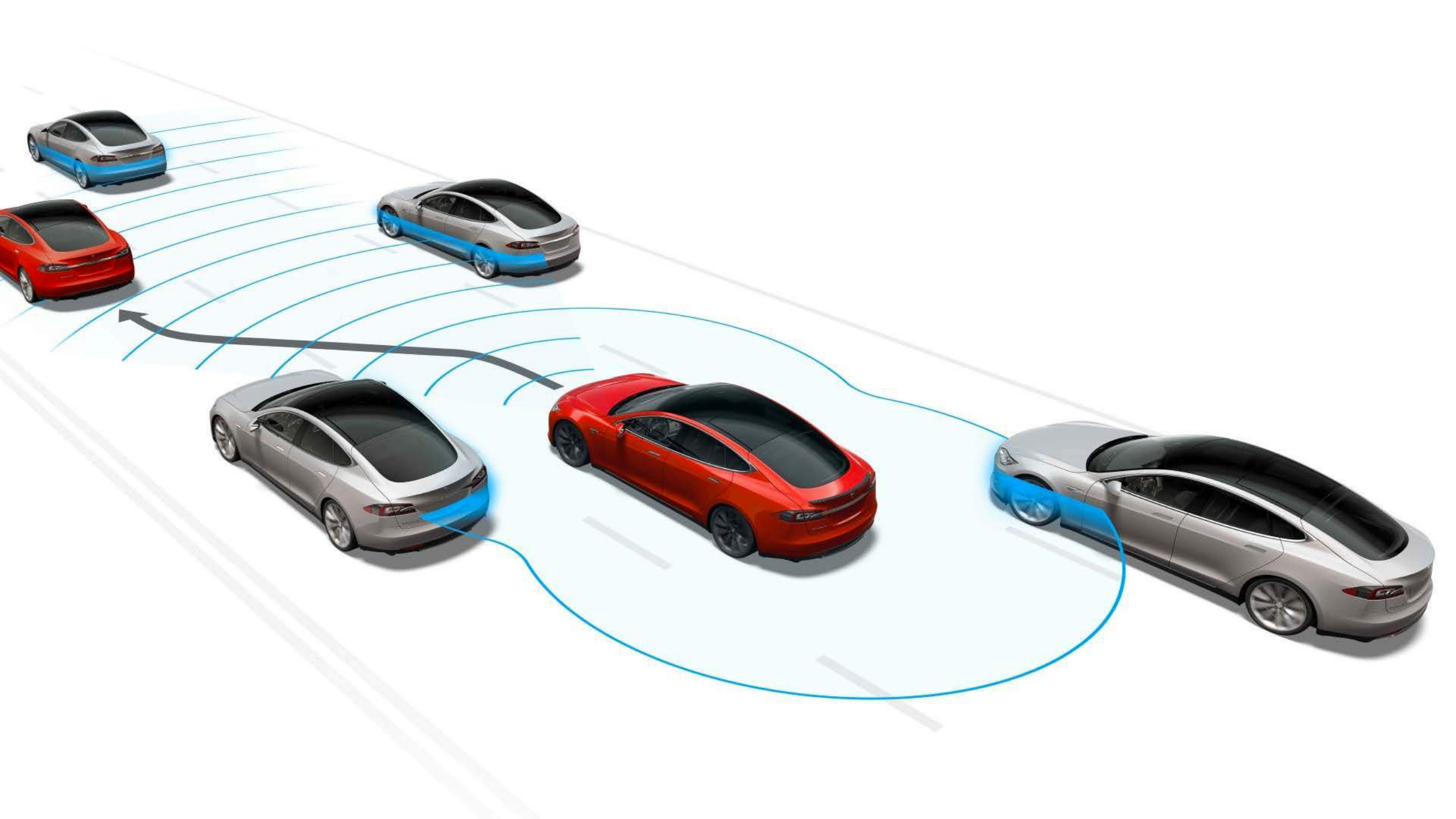


Most automakers typically respond to an investigation by government safety regulators by providing documents, and by approaching federal officials with a certain deference. Tesla, of course, is not a typical automaker.

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.

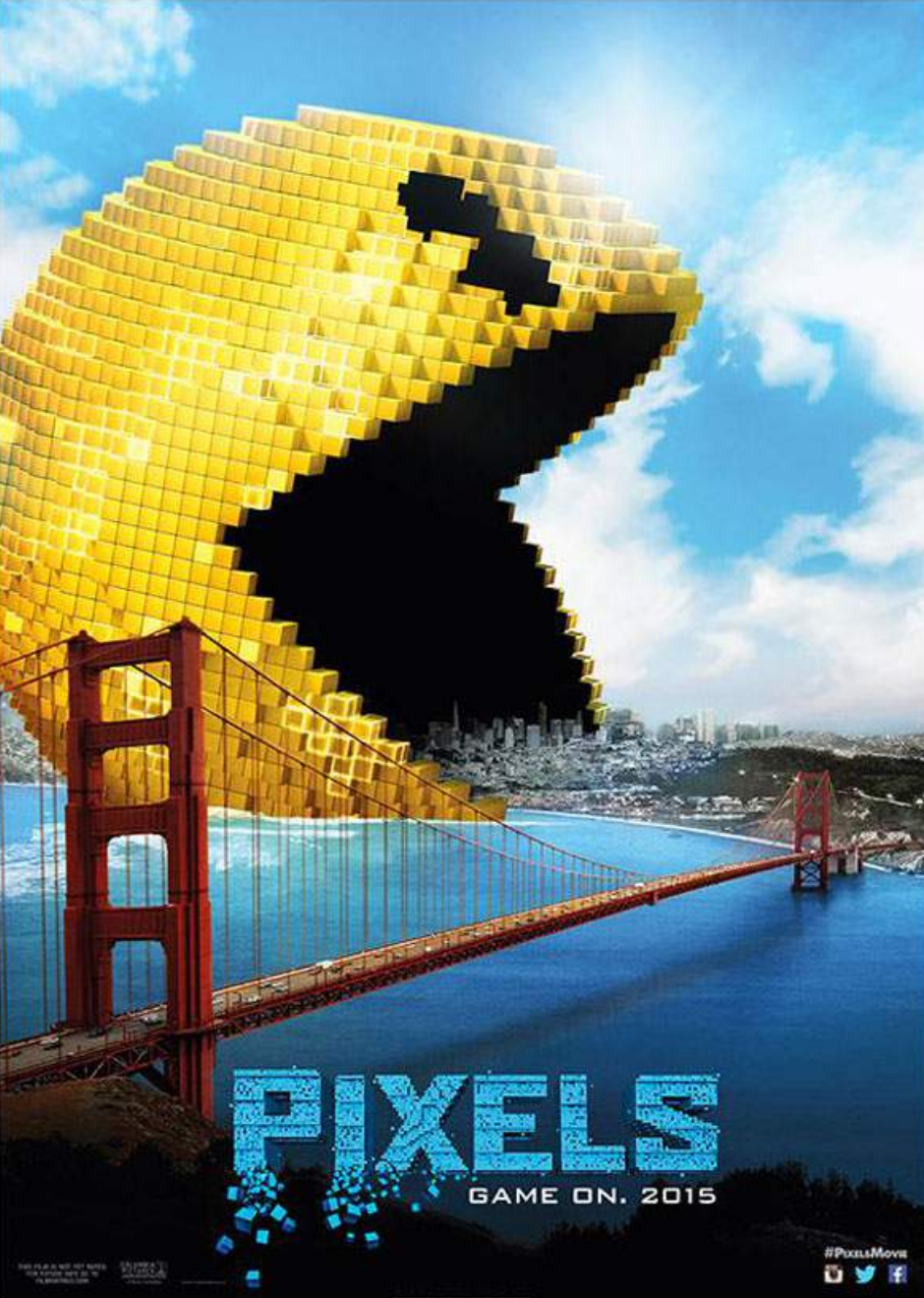
In a subsequent back and forth between Tesla and NHTSA, the media mainly focused on the Musk's role as a maverick raconteur. But little attention has been paid to an important subplot to the melodrama: the way Tesla has ostensibly addressed the issue through an over-the-air (OTA) software update rather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





Tomorrow is around the corner...





**Software is  
eating  
the world**

# Evolution is required. But it is hard.



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

General Eric Shinseki

Analog Digital

“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”

**Deloitte**  
“Real Time DevOps”

**IDC**  
Analyze the Future

“DevOps can accelerate delivery 15-20%”

**Forbes**  
“#3. Speed of IT Delivery”

**NAS CIO**  
Representing Chief Information Officers of the States

“Agile & Incremental Software Delivery”

**FORRESTER**

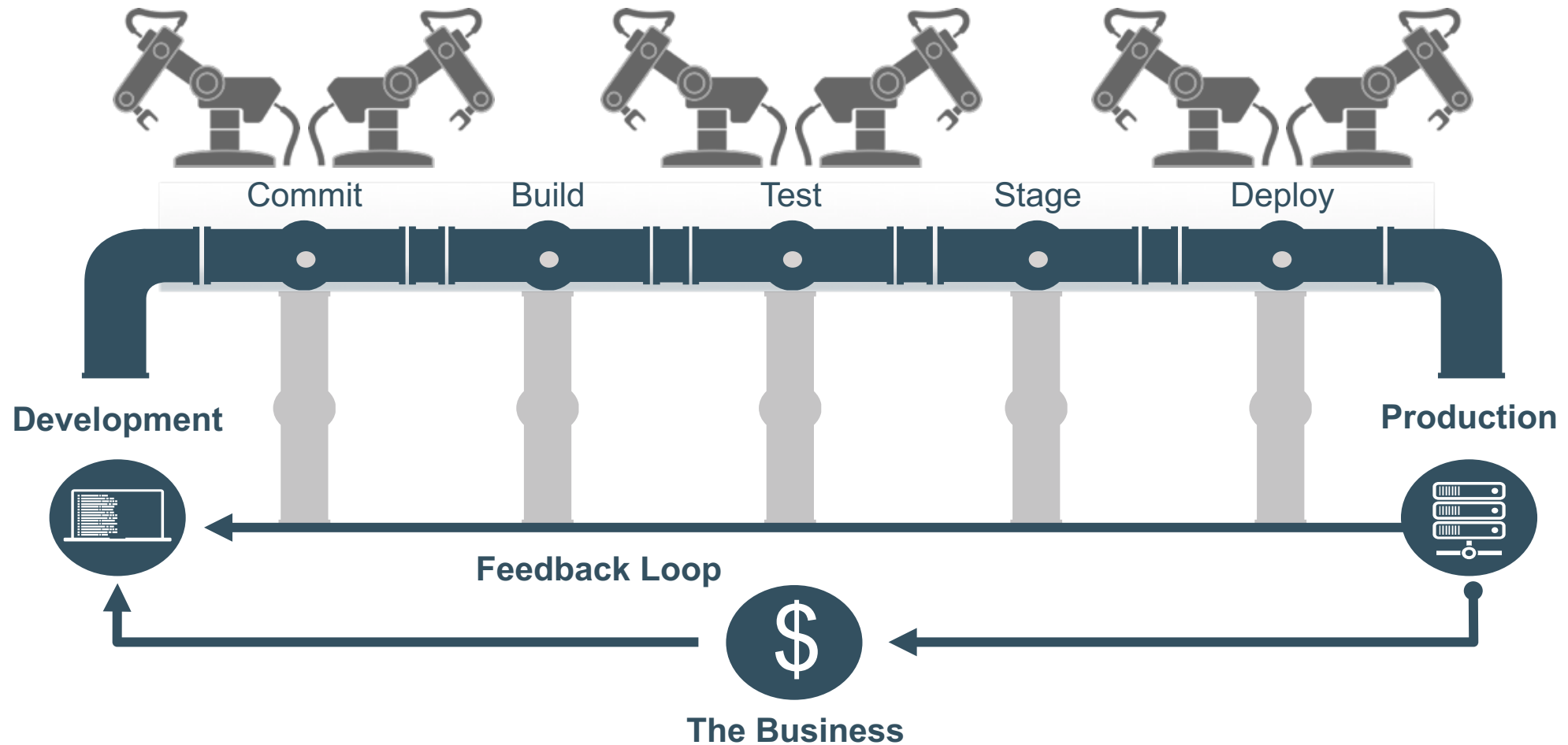
“Continuous delivery”

**Speed + Friction = Heat**

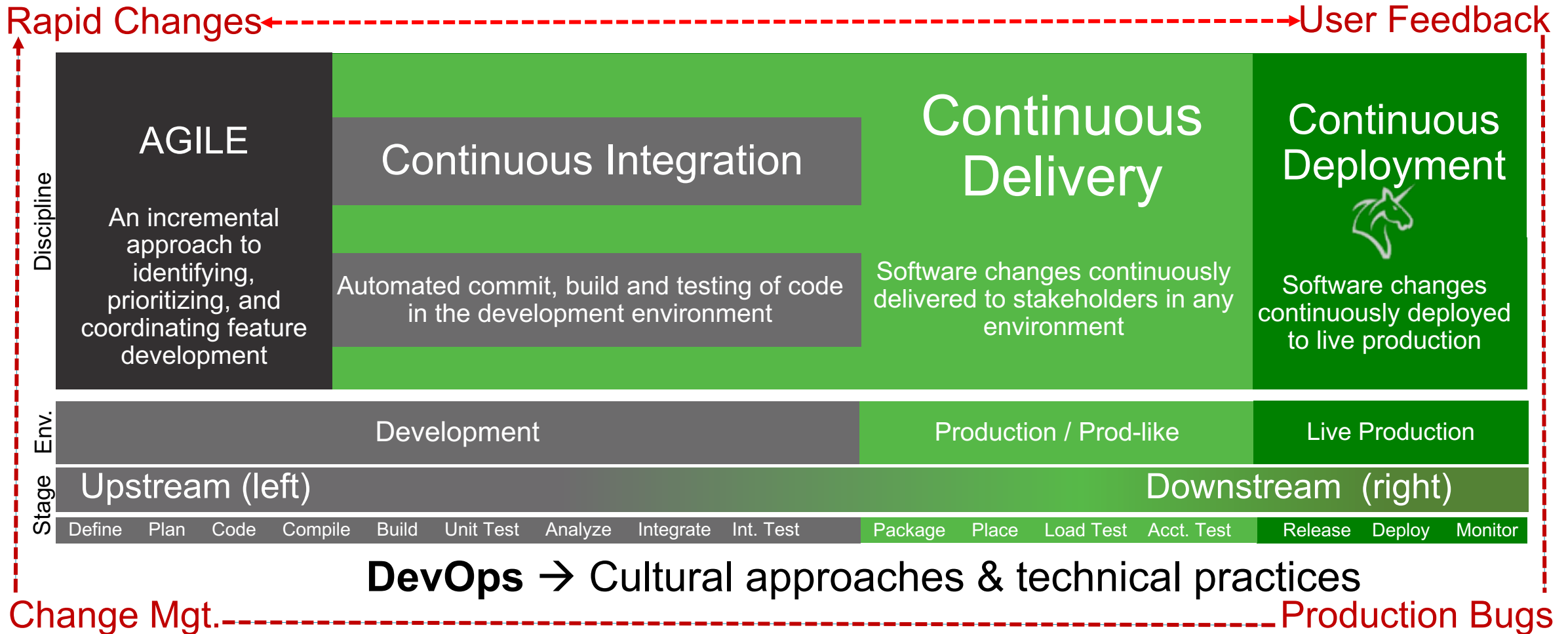




# Continuous Delivery and Automation are The Answer



# Continuous Delivery In Context





# Jenkins Installations

145,000

up 17%

# Jenkins Workload

12,600,000 jobs

up 53%

# of Computers

570,000

up 35%

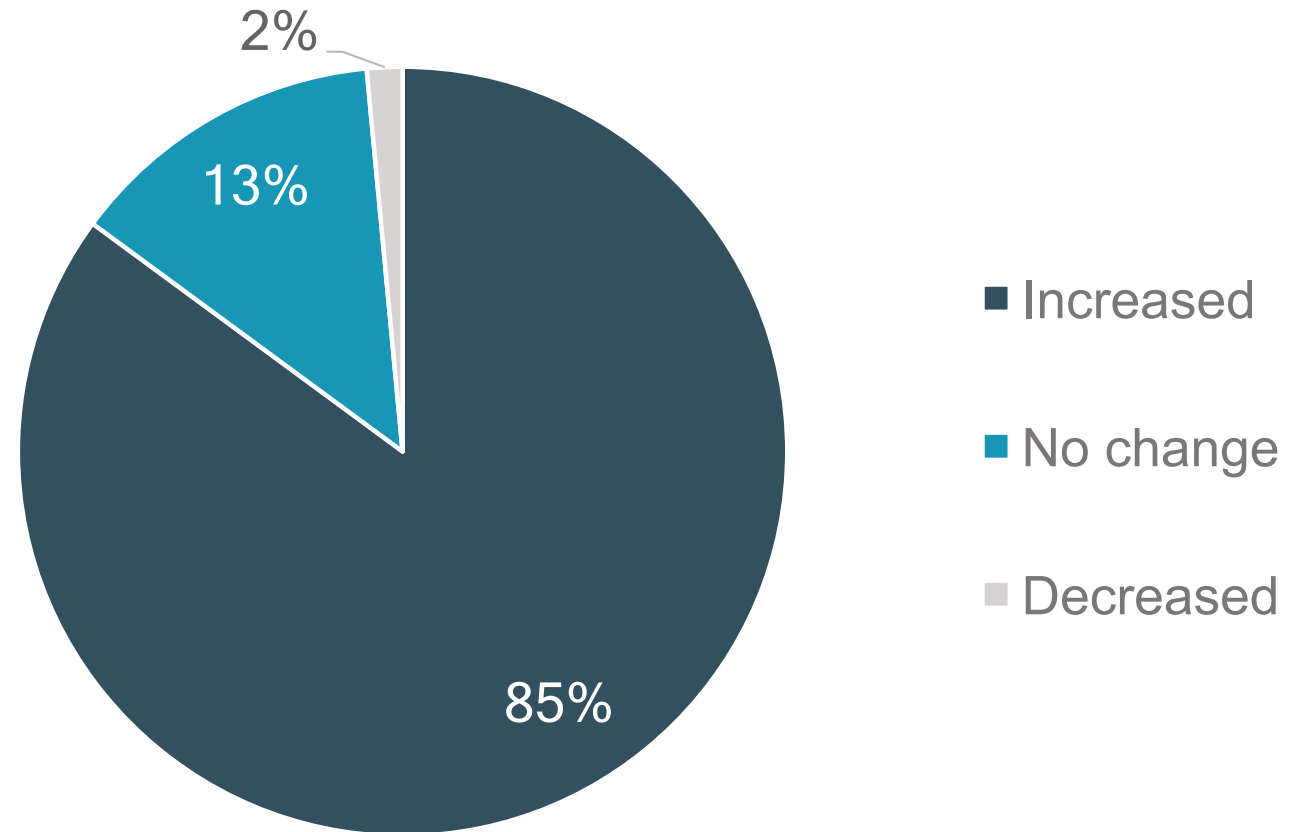
# of Plugins

1,350

up 250

# From Survey of OSS Jenkins Users (2016)

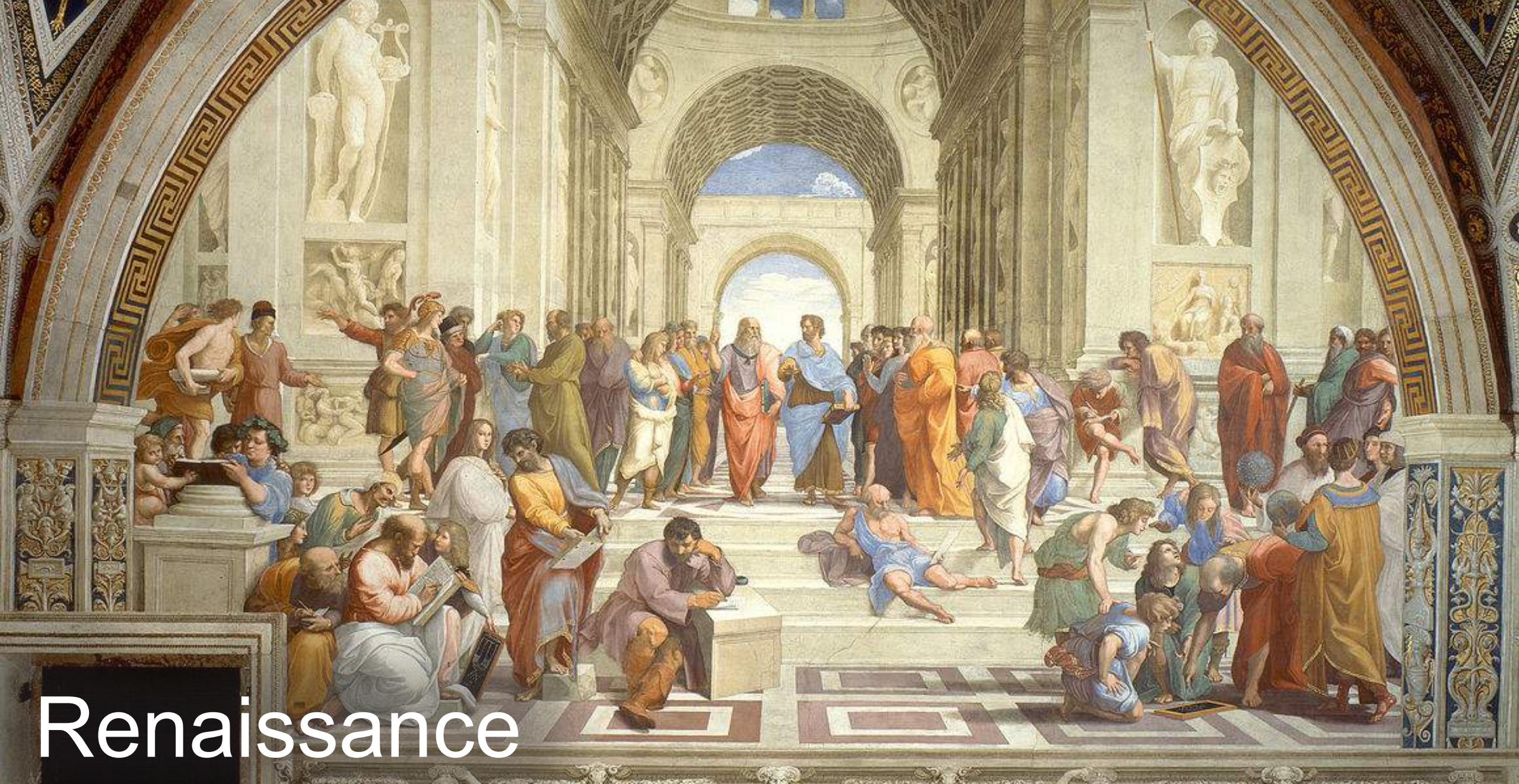
Steady push for more & more automation is continuing







# Demand for automation is strong



# Renaissance

# Pipeline



# Pipeline is a better way of configuring Jenkins

Jenkinsfile in your VCS that fits your code review process

What used to take 5 freestyle jobs is now 1 pipeline

Grows with you from simple to complex

Survives Jenkins restart

Brings next level of reuse to Jenkins

## Define a series of stages...

```
pipeline {  
  agent any  
  stages {  
    stage('Build') {  
      steps {  
        sh 'mvn'  
      }  
    }  
  }  
}
```

# Docker support is 1<sup>st</sup> class citizen

```
stage('Build') {  
    agent {  
        docker {  
            image 'maven:3-alpine'  
        }  
    }  
    /* .. */  
}
```

All the familiar parts of Jenkins are right there

```
stage('Build') {  
  agent ...  
  steps {  
    sh 'mvn clean install'  
    archiveArtifacts 'target/*.war'  
    junit 'target/surefire-reports/*.xml'  
  }  
}
```

... and made even simpler

```
stage('Build') {  
    /* .. */  
    steps {  
        withMaven {  
            sh 'mvn clean package'  
        }  
    }  
}
```



# You can abstract them & reuse them yourself

```
library 'mylib'  
pipeline {  
  ...  
  stage('Build') {  
    ...  
    steps {  
      myBuild 'clean package'  
    }  
  }  
}
```

vars/myBuild.groovy in Git repo

```
def call(v) {  
  withMaven { sh 'mvn ${v}' }  
}
```

## Pipeline Libraries

Library  
Name

mylib

Default version

master

Load implicitly



Allow default version to be overridden



## Source Code Management

Git

Project Repository

git@github.com:kohsuke/mylib.git

Need to do something a little complicated?

```
stage('Build') {  
  /* .. */  
  steps {  
    script {  
      ['test-a', 'test-b', 'test-c'].each { v ->  
        build v  
      }  
    }  
  }  
}
```