DEVOPS

-- AN IT MINDSET --

If you're not writing software to manage them (Ops), you're not surviving.

AGENDA

- Context
- Pre-Agile/ Pre-DevOps Days
- Little History
- Waterfall, CI, CD, DevOps Nirvana
- Culture, Tools, Stories, Everything Else

SOFTWARE MOVES FASTER TODAY/ LIFE OF A CODE

- Startups can now take on giants with little to no funding ahead of time
- Getting your software into the hands of millions is a download away
- Your ability to move fast is paramount to your ability to fight off disruption

Software creation and distribution is easier and faster than ever

First, we need to understand a little bit about software release processes

RELEASE PROCESSES HAVE FOUR MAJOR PHASES

- **Source:** Create, review & check in the code.
- **Build:** Compile code, Run unit tests, Style checkers, Gather Code metrics
- **Test:** Integration tests with other systems, Load testing, UI tests, Penetration testing
- **Production:** Deployment to production environments

THE SOFTWARE DELIVERY MODEL HAS DRASTICALLY CHANGED..

Old software delivery model

New software delivery model

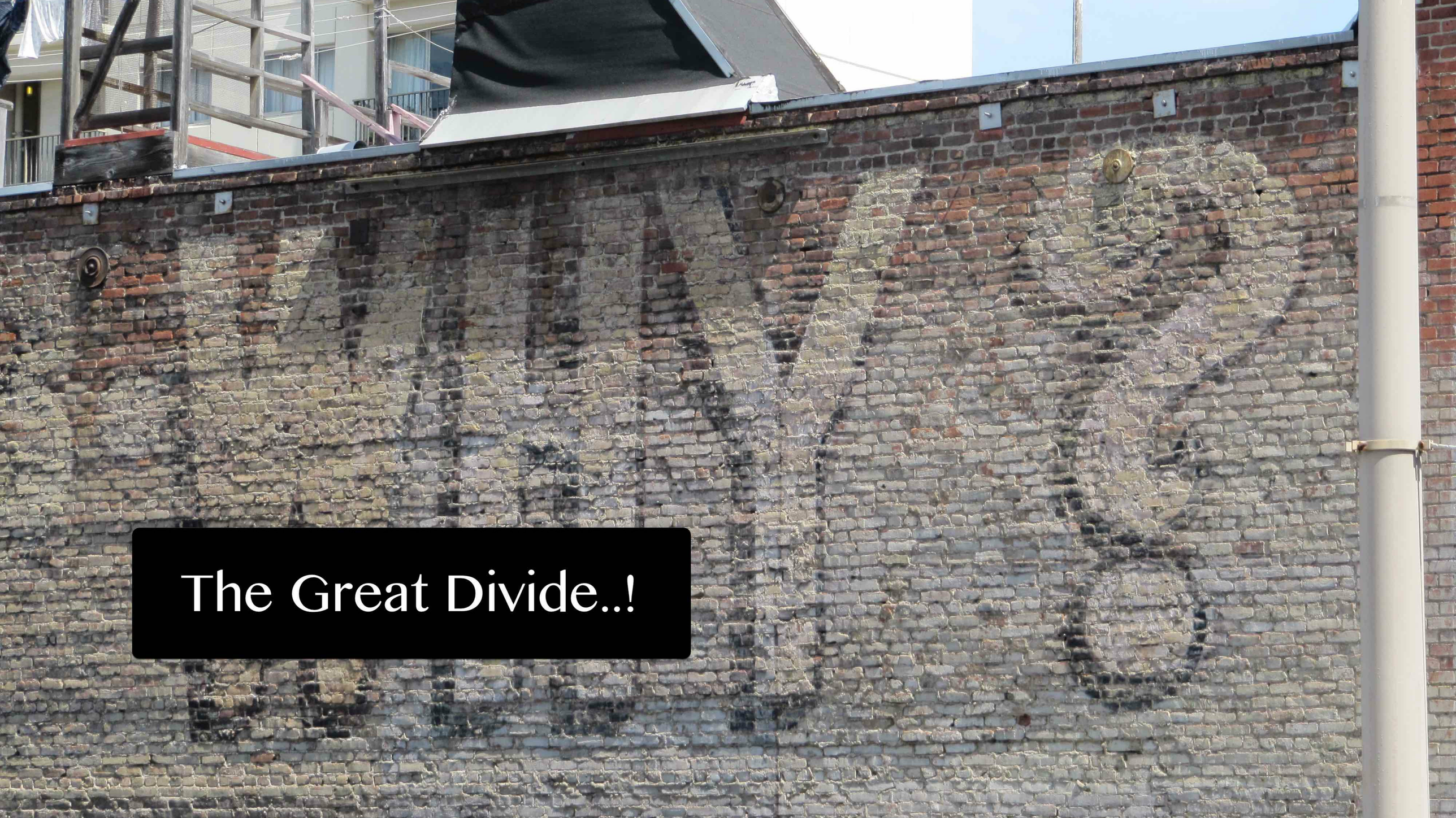
PRE-AGILE/ PRE - DEVOPS DAYS

Sequential
Development

Silo culture

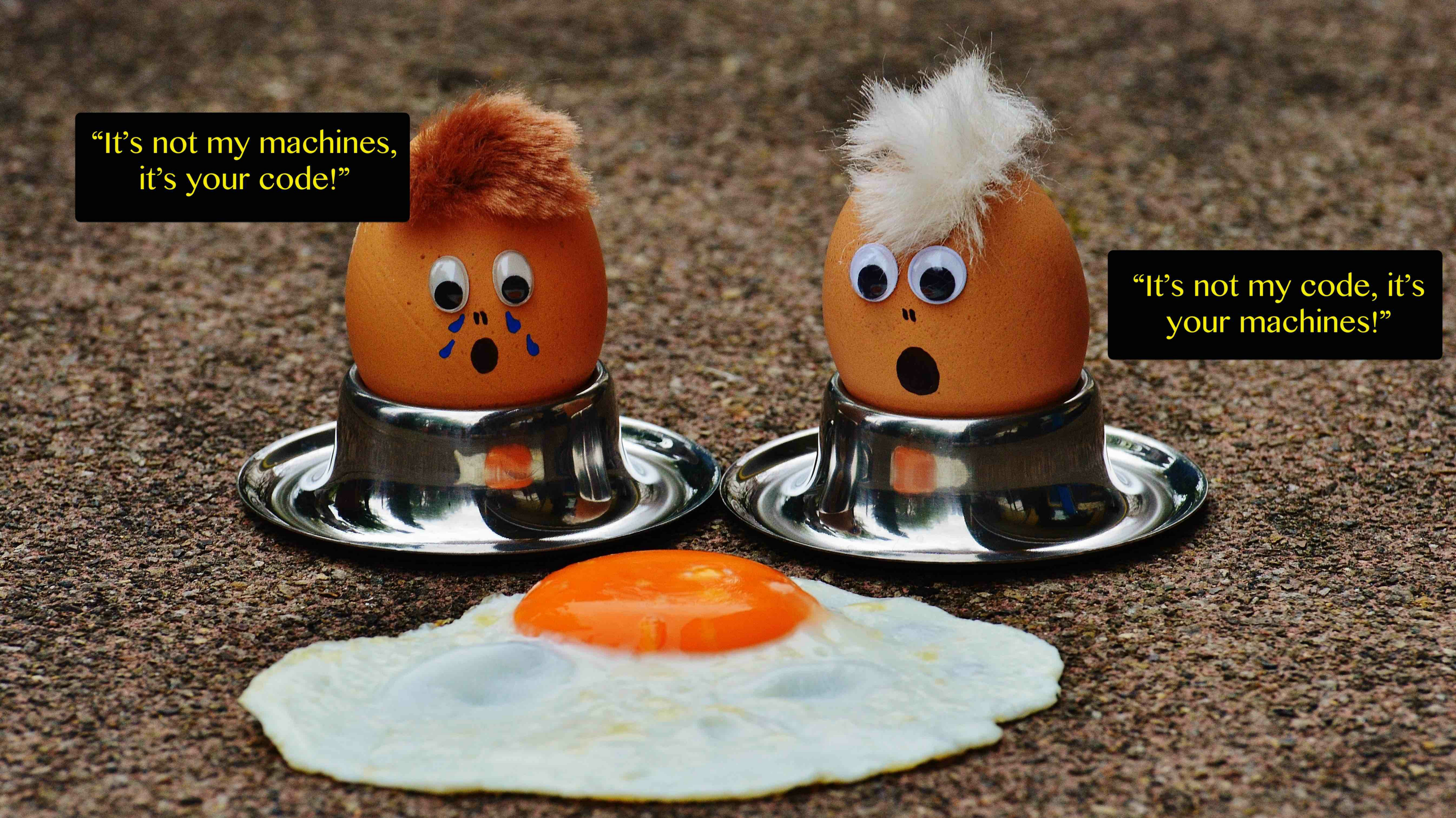
Communication Frustration

Complex/ Manual
Escalations


The Great Divide..!

Operations

Devlopers


"It's not my machines, it's your code!"
"It's not my code, it's your machines!"

$$LR = (GR/TH) \times I \times H$$

LR	GR	TH	I	H
Lost Revenue	Gross Yearly Revenue	Total yearly business hours	% impact	hours of outage

Unplanned downtime costs organizations an average of

$5,600/minute

$46,000,000/year

The point is that most people understand that DevOps is the art of speeding IT up through automation and strong communication. But the really effective DevOps organizations understand that in order to account for when things go wrong, they also need to automate the communication

“Fear is the path to the dark side. Fear leads to anger. Anger leads to hate. Hate leads to suffering.” – Yoda

LITTLE HISTORY

- **2007 -** Patrick Debois, a software development consultant, had a goal of learning all aspects of IT. Patrick had always been bothered by the differences between how Dev and Ops worked, but he became particularly frustrated with the challenges of managing work across the two groups on his projects.
- **2008 -** Andrew Shafer posted an idea for an agile infrastructure “birds of a feather” session at the Agile 2008 Conference.

LITTLE HISTORY CONTD..

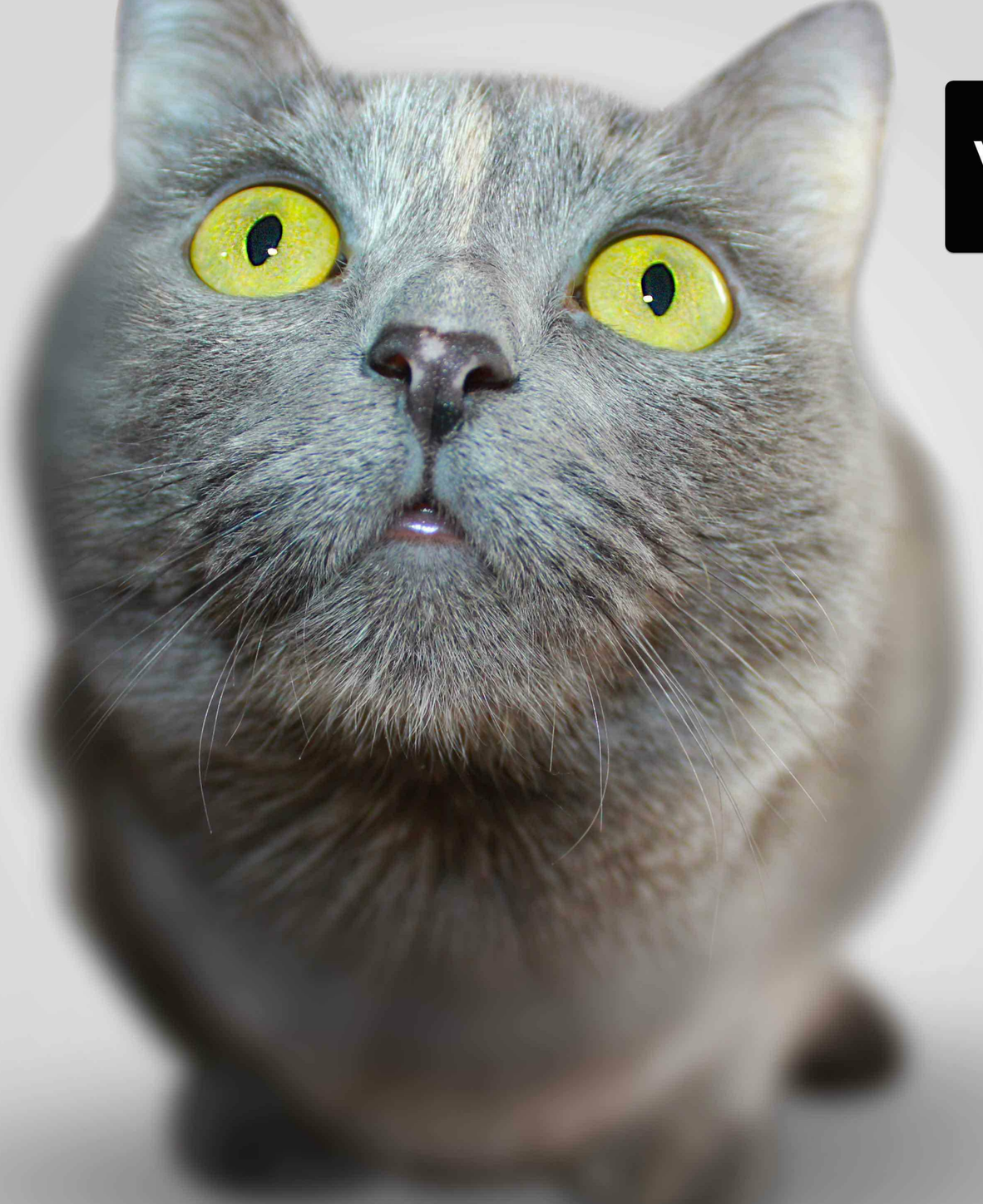
- **2009 -** John Allspaw, senior vice president of technical operations at Flickr, and Paul Hammond, director of engineering at Flickr, gave a presentation at the O'Reilly Velocity Conference in San Jose, "10+ Deploys per Day: Dev and Ops Cooperation at Flickr." The presentation laid the groundwork for how Dev and Ops can effectively work together to improve software deployment. #DevOpsDays
- **2010 -** DevOpsDays were held in Australia and the U.S. Over time, there were more and more DevOpsDays that were hosted in different countries and cities around the world.

LITTLE HISTORY CONTD..

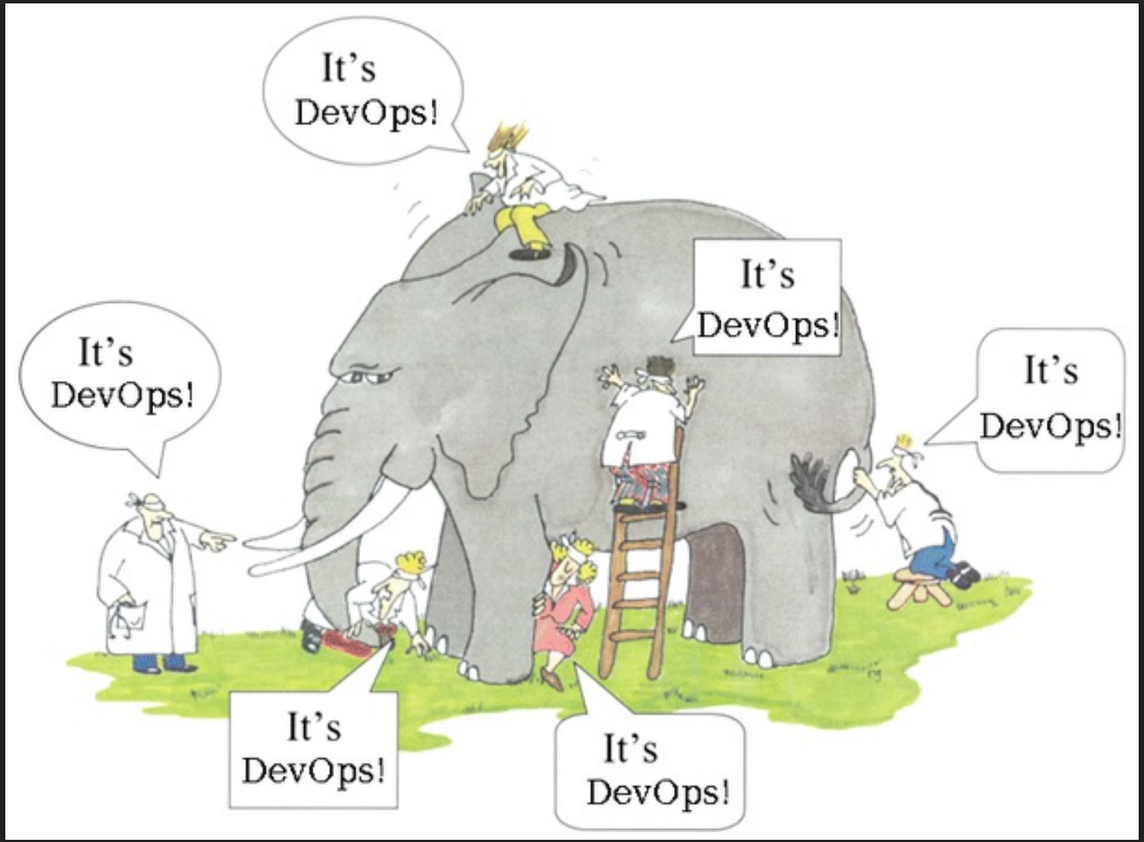
- **2011 -** Up until 2011, the DevOps movement has been fueled by individuals and open source tools with little attention from analysts or vendors.
- **2012 -** By 2012 DevOps was quickly turning into a buzzword and DevOpsDays continued to grow.
- **2014 -** Large companies such as Target, Nordstrom and LEGO became some of the first companies to bring DevOps into the enterprise.

WHAT IS DEVOPS NOT?

- It’s Not NoOps
- It’s Not (Just) Tools
- It’s Not (Just) Culture
- It’s Not (Just) Devs and Ops
- It’s Not (Just) A Job Title
- It’s Not Everything



What is DevOps?


It's DevOps!
It's DevOps!
It's DevOps!
It's DevOps!
It's DevOps!
It's DevOps!

Culture

Automation

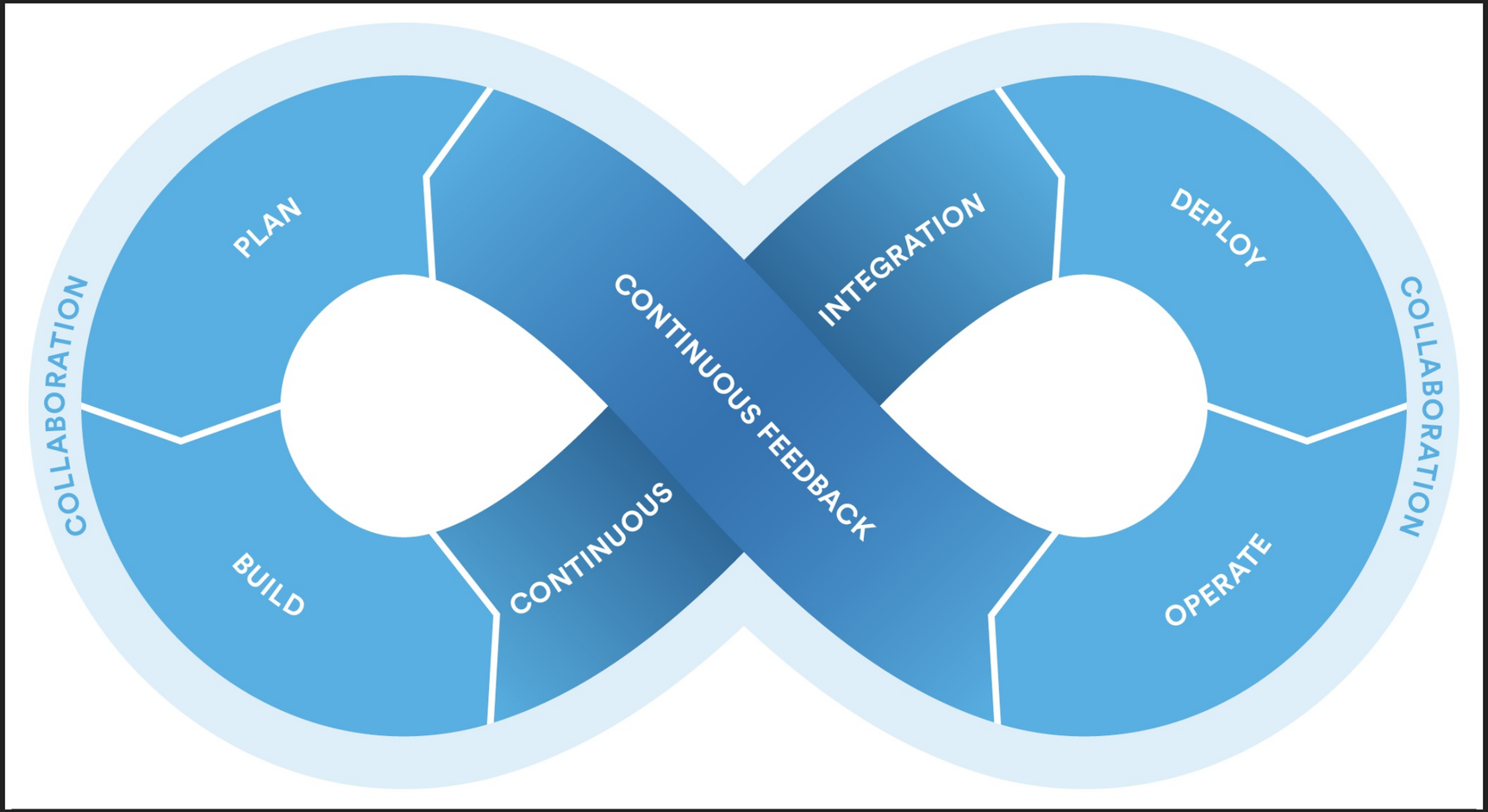
Lean

Measurement

Sharing

You

DEVOPS WORKFLOW



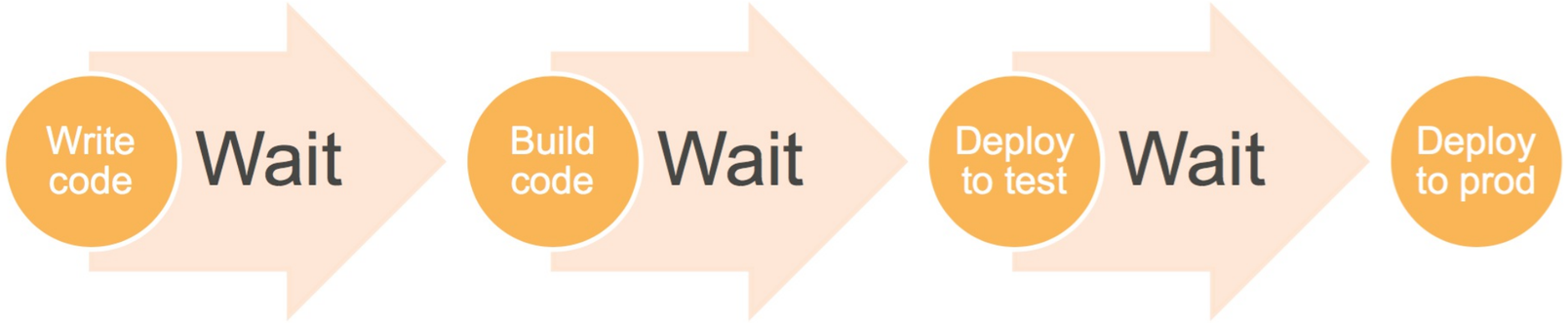
DEVOPS NIRVANA

Paint the wall with awareness

WATERFALL DEVELOPMENT

Development teams would write a bunch of code for months. Then those teams would merge their code in order to release it. Their are different versions of code and have so many changes that the actual integration step could take days.

WE WERE JUST WAITING..



CONTINUOUS INTEGRATION

Continuous integration is often the first step down the path toward DevOps maturity. It is the practice of quickly integrating newly developed code with the main body of code that is to be released.

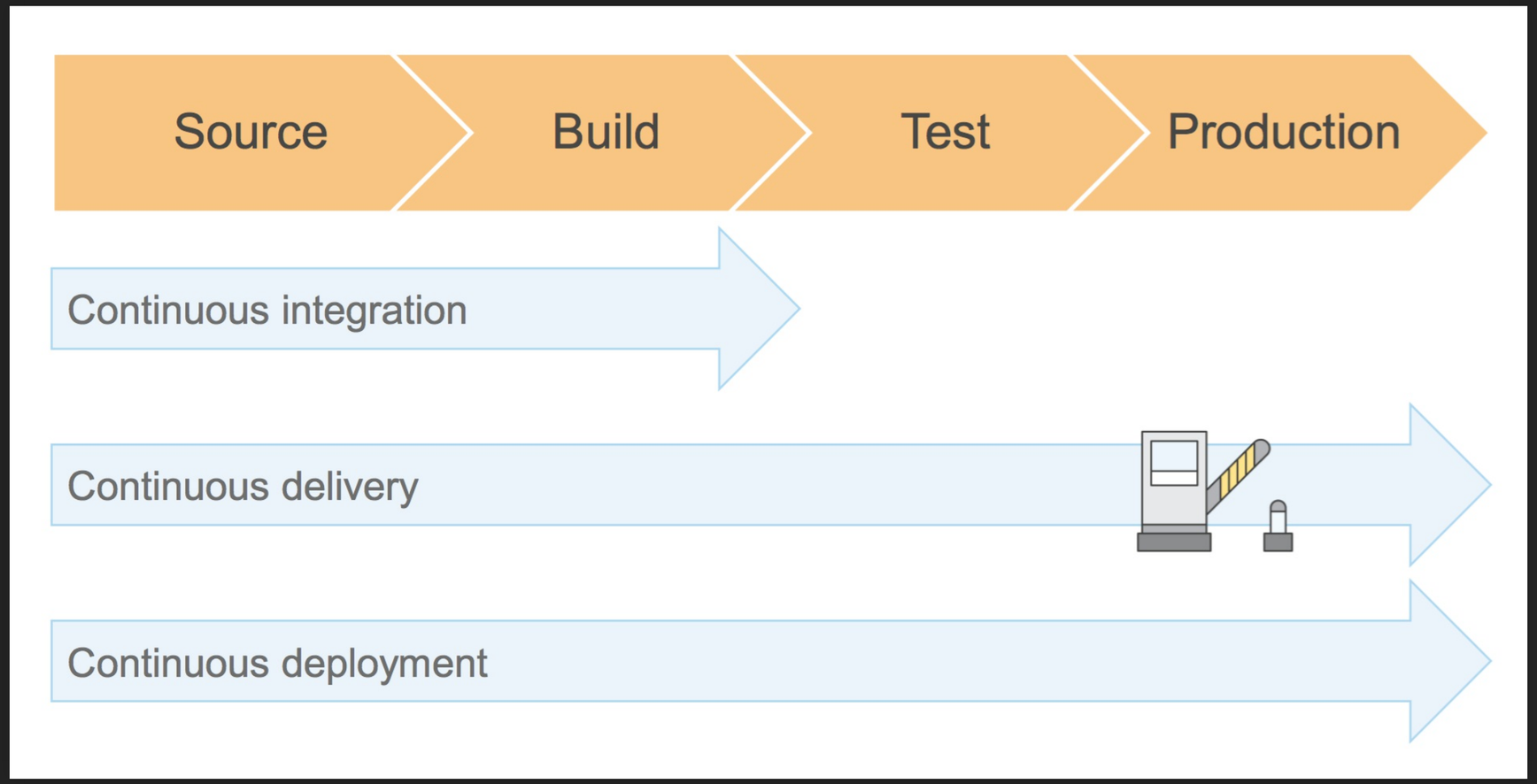
CONTINUOUS DELIVERY

It is an extension of continuous integration. It’s the practice of having the code base continuously in a ready-to-deploy state.

CONTINUOUS DEPLOYMENT

It is DevOps nirvana, is the most advanced evolution of continuous delivery. It’s the practice of deploying all the way into production without any human intervention.

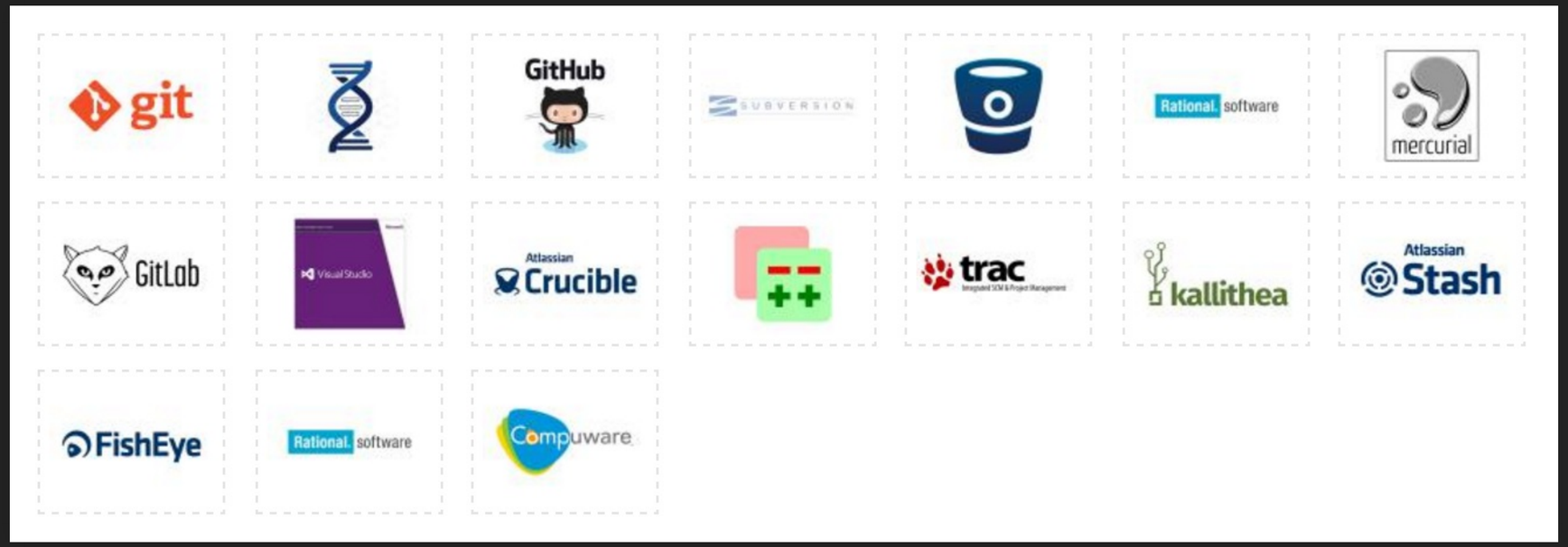
RELEASE PROCESSES LEVELS..



DEVOPS TOOLING

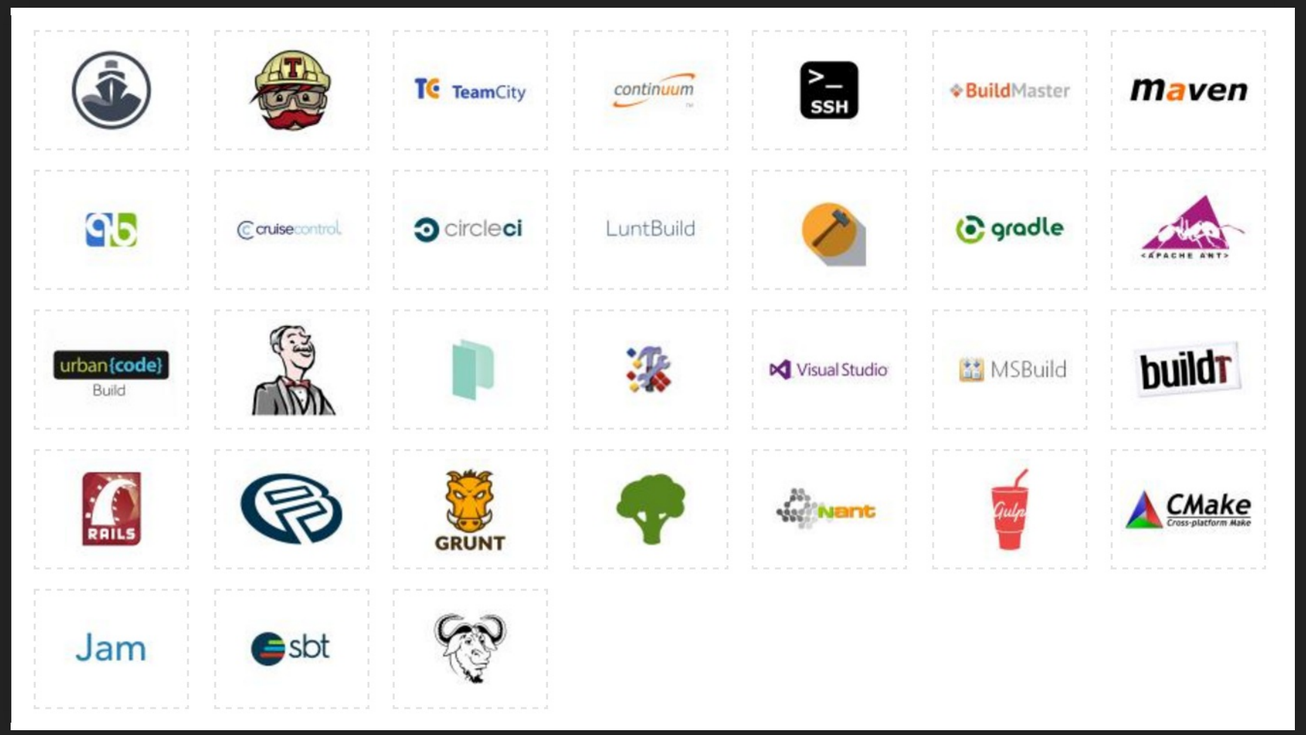
- Source Code Repository
- Build Server
- Configuration Management
- Virtual Infrastructure
- Test Automation
- Pipeline Orchestration
- Messaging / Collaboration
- Business Intelligence
- Security

SOURCE CODE REPOSITORY



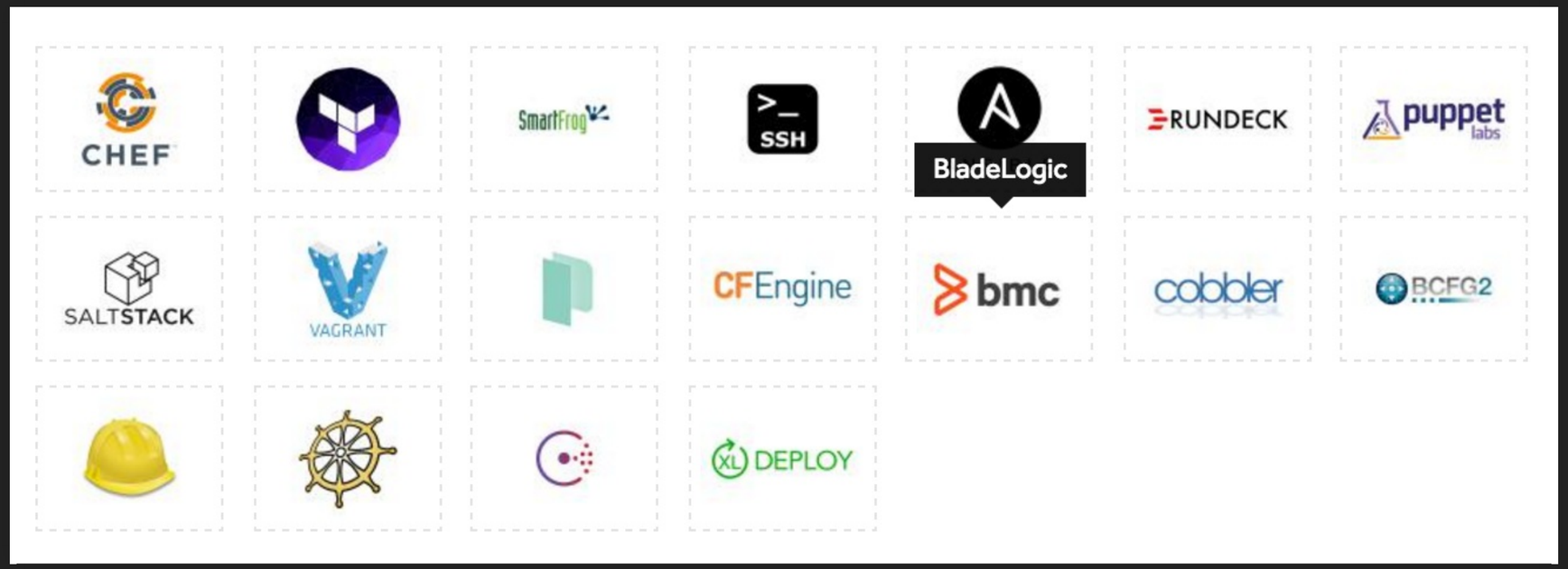
Source control is a major component of continuous integration.

BUILD SERVER



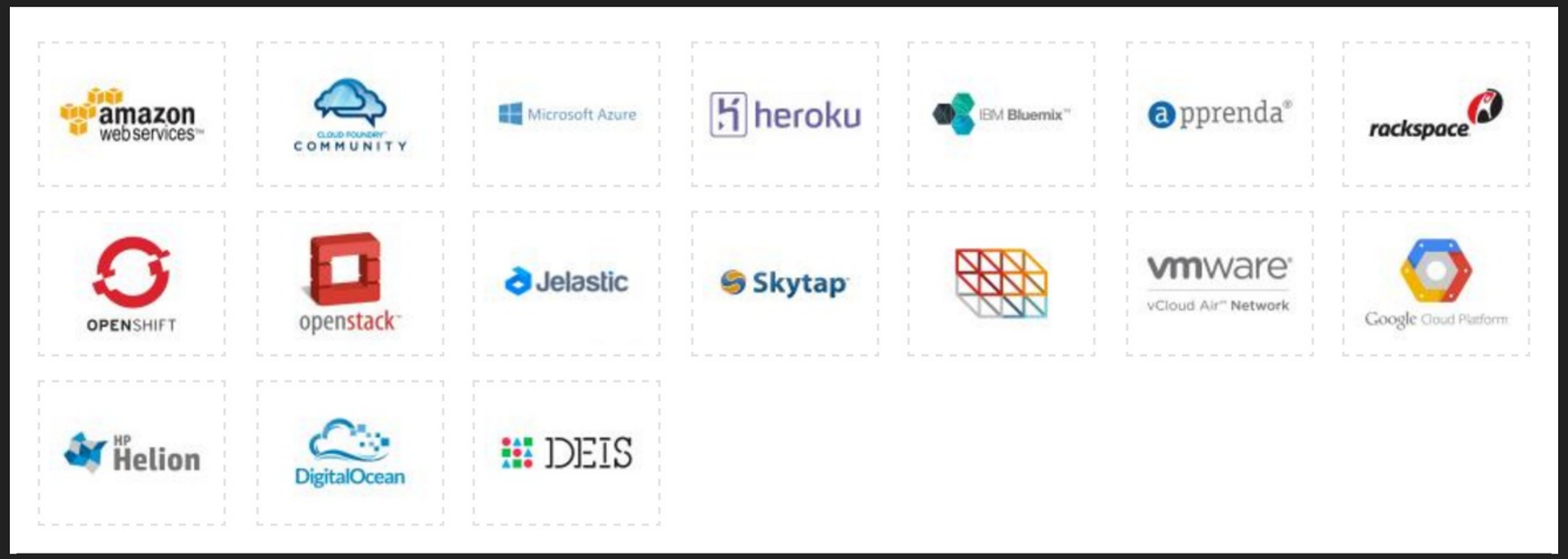
The build server is an automation tool that compiles the code in the source code repository into executable code base.

CONFIGURATION MANAGEMENT



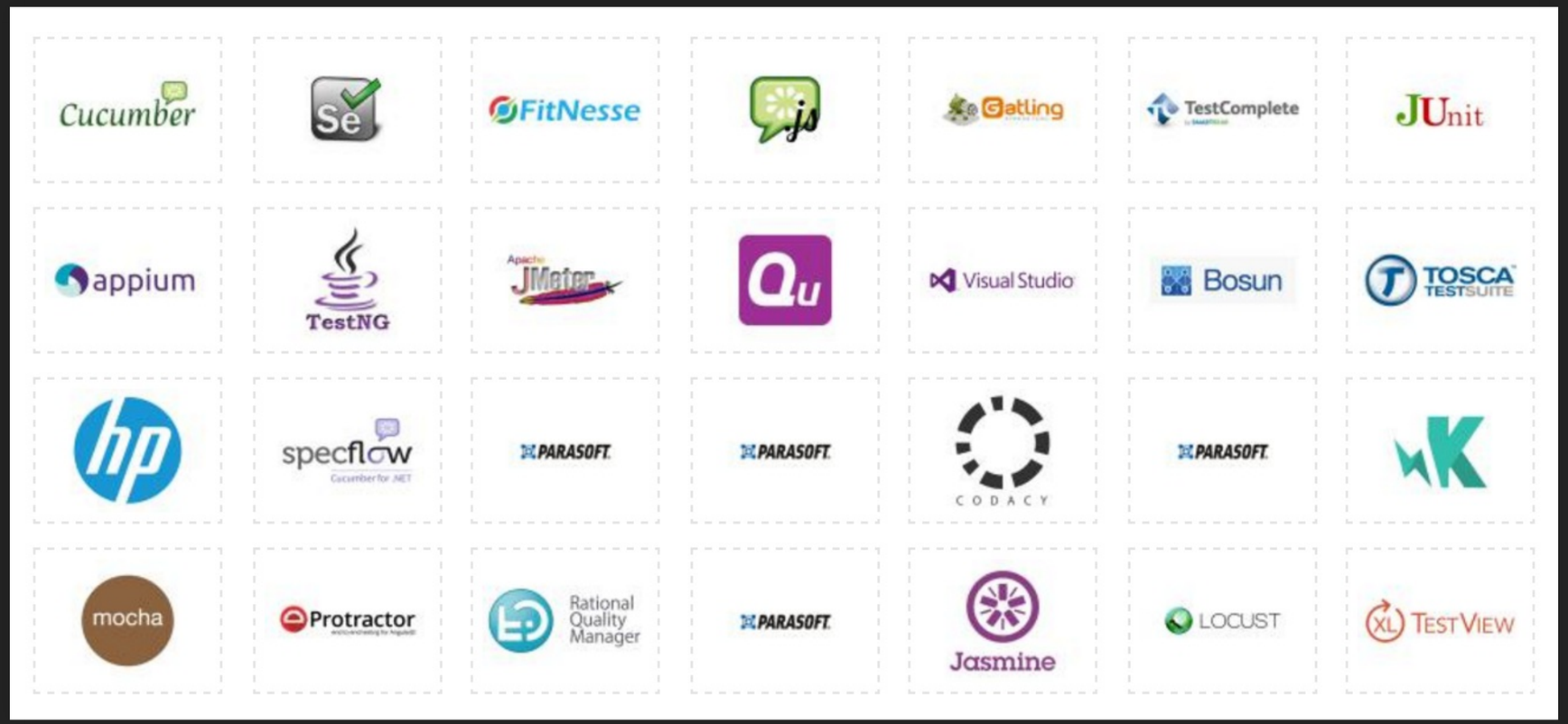
Configuration management defines the configuration of a server or an environment.

VIRTUAL INFRASTRUCTURE



Virtual infrastructures (Cloud / IaaS / PaaS) combined with automation tools to empower organizations practicing DevOps with the ability to configure a server without any fingers on the keyboard.

TEST AUTOMATION

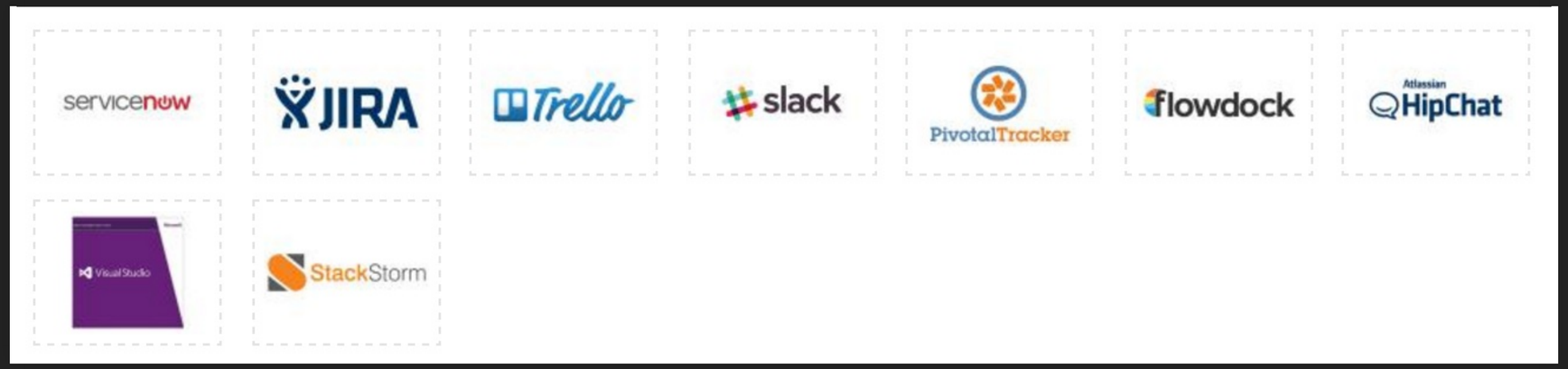


DevOps testing focuses on automated testing within your build pipeline to ensure that by the time that you have a deployable

PIPELINE ORCHESTRATION

Configuration management defines the configuration of a server or an environment.

MESSAGING / COLLABORATION



Configuration management defines the configuration of a server or an environment.

BUSINESS INTELLIGENCE

Configuration management defines the configuration of a server or an environment.

SECURITY

Configuration management defines the configuration of a server or an environment.

coffee

STORIES

Netflix, Etsy, Amazon, Pinterest, Flicker, IMVU and Google are popular examples of companies doing continuous deployment.

GOOGLE DEV & OPS

Google Dev And Ops (2013)

- 15,000 engineers, working on 4,000+ projects
- All code is checked into one source tree (billions of files!)
- 5,500 code commits/day
- 75 million test cases are run daily

"Automated tests transform fear into boredom."
-- Eran Messeri, Google

AMAZON

A bookstore in Seattle, deploys code to production every 11 seconds… *2012*

1 SECOND

NETFLIX - SIMIAN ARMY

- Chaos Monkey
- Chaos Gorilla
- Chaos Kon
- Latency Monkey
- Conformity Monkey
- Security Monkey
- Doctor Monkey
- Janitor Monkey

AMAZON, GOOGLE, NETFLIX..

COMPANY	DEPLOY FREQUENCY	DEPLOY LEAD TIME	RELIABILITY	CUSTOMER RESPONSIVENESS
Amazon	23,000/day	minutes	high	high
Google	5,500/day	minutes	high	high
Netflix	500/day	minutes	high	high
Facebook	1/day	minutes	high	high
Twitter	3/week	minutes	high	high
Typical enterprise	once every 9 months	months or quarters	low/medium	low/medium

REFERENCES

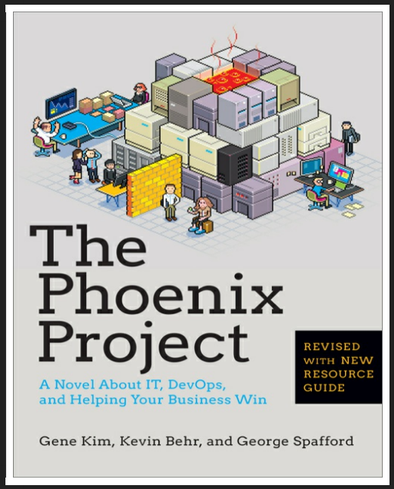
BLOGS

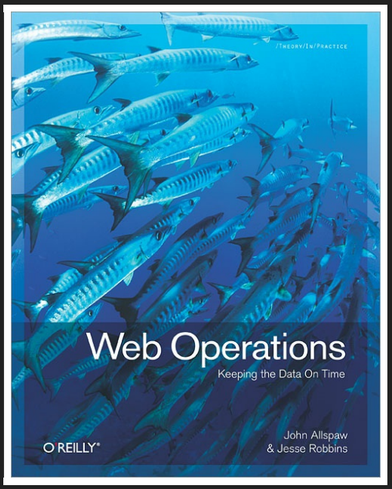
- It Revolution Press
- Chef
- Is your team ready for DevOps?
- DevOPs @ Netflix
- The Incredible True Story of How DevOps Got Its Name
- How Etsy Deploys More Than 50 Times a Day
- DevOps - Enabling DevOps on the Microsoft Stack
- DevOps 101 by Version One

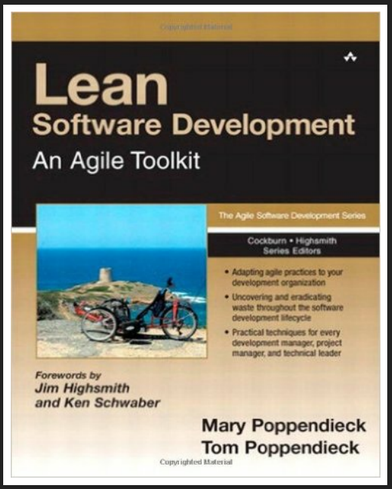
PODCASTS

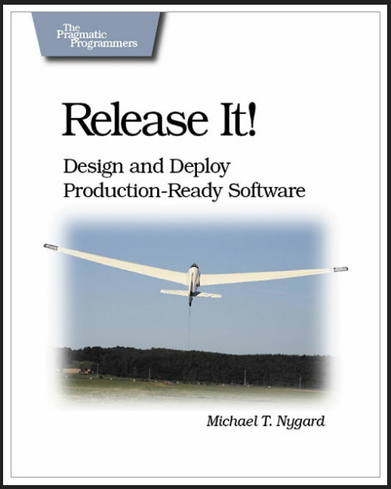
- The Ship Show
- DevOps Cafe
- Puppet Labs Podcast
- Arrested DevOps

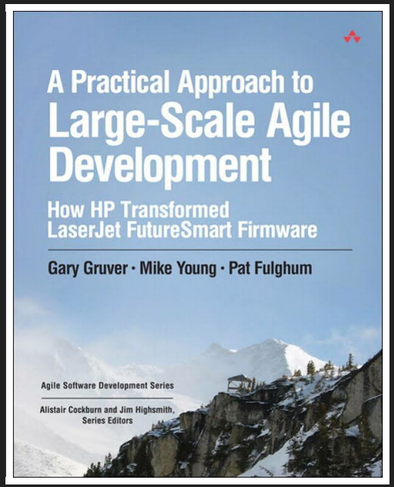
DEVOPS READING LIST

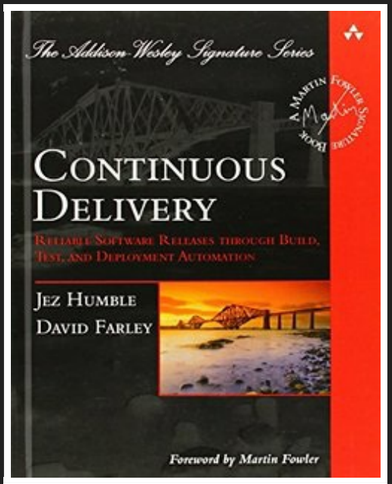


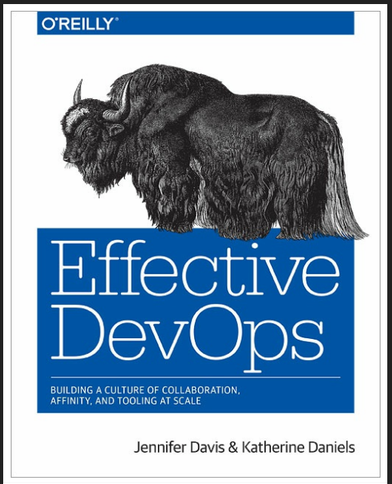


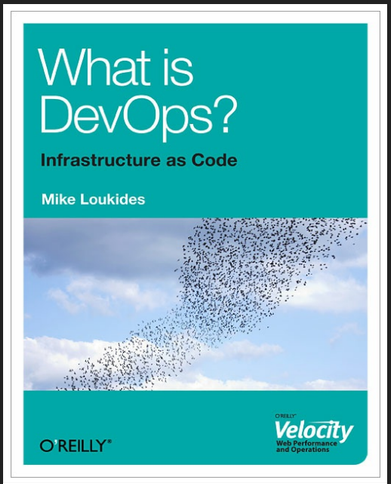












PERIODIC TABLE OF DEVOPS TOOLS (V2)

EMBED DOWNLOAD ADD

Os	Open Source
Fr	Free
Fm	Freemium
Pd	Paid
En	Enterprise

SCM	Database Mgmt	Build
CI	Repo Mgmt	Testing
Deployment	Config / Provisioning	Containerization
Cloud / Iaas / Paas	Release Mgmt	Collaboration
BI / Monitoring	Logging	Security

1 Fm Gh Github																			2 Fm Aws Amazon Web Services
3 Os Gt Git	4 En Dm DBmaestro											5 En Ch Chef	6 En Pu Puppet	7 Os An Ansible	8 Os Sl Salt	9 Os Dk Docker	10 Pd Az Azure
11 Fm Bb Bitbucket	12 Os Lb Liquibase											13 Os Ot Otto	14 En Bl BladeLogic	15 Os Va Vagrant	16 Fr Tf Terraform	17 Os Rk rkt	18 En Gc Google Cloud Platform
19 Os Gl GitLab	20 En Rg Redgate	21 Os Mv Maven	22 Os Gr Gradle	23 Os At ANT	24 Os Fn FitNesse	25 Fr Se Selenium	26 Os Ga Gatling	27 Fr Dh Docker Hub	28 Os Jn Jenkins	29 Pd Ba Bamboo	30 Os Tr Travis CI	31 Pd Gd Deployment Manager	32 Os Sf SmartFrog	33 Os Cn Consul	34 Os Bc Bcfg2	35 Os Mo Mesos	36 En Rs Rackspace
37 Os Sv Subversion	38 En Dt Datical	39 Os Gt Grunt	40 Os Gp Gulp	41 Os Br Broccoli	42 Fr Cu Cucumber	43 Os Cj Cucumber.js	44 Fr Qu Qunit	45 Os Npm npm	46 Fm Cs Codeship	47 Pd Vs Visual Studio	48 Fm Cr CircleCI	49 Fr Cp Capistrano	50 Fr Ju JuJu	51 Os Rd Rundeck	52 Os Cf CFEngine	53 Fr Ds Swarm	54 Os Op OpenStack
55 Os Hg Mercurial	56 En Dp Delphix	57 Fr Sb sbt	58 Os Mk Make	59 Os Ck CMake	60 Fr Jt JUnit	61 Fr Jm JMeter	62 Fr Tn TestNG	63 Os Ay Artifactory	64 Fm Tc TeamCity	65 Fm Sh Shippable	66 Os Cc CruiseControl	67 En Ry RapidDeploy	68 Fm Cy CodeDeploy	69 En Oc Octopus Deploy	70 En No CA Nolio	71 Os Kb Kubernetes	72 Fm Hr Heroku
73 En Cw ISPW	74 En Id Idera	75 Os Msb MSBuild	76 Os Rk Rake	77 Fr Pk Packer	78 Os Mc Mocha	79 En Xltv XL TestView	80 Os Jm Jasmine	81 Os Nx Nexus	82 Os Co Continuum	83 Fm Ca Continua CI	84 Pd So Solano CI	85 En Xld XL Deploy	86 En EB ElasticBox	87 Fm Dp Deploybot	88 En Ud UrbanCode Deploy	89 Os Nm Nomad	90 En Os OpenShift

XebiaLabs
Deliver Faster

Follow @xebialabs

91 En Xlr XL Release	92 En Ur UrbanCode Release	93 En Bm BMC Release Process	94 En Hp HP Codar	95 En Au Automic	96 En Pl Plutora Release	97 En Sr Serena Release	98 Pd Tfs Team Foundation	99 Fm Tr Trello	100 Pd Jr Jira	101 Fm Rf HipChat	102 Fm Sl Slack	103 Fm Fd Flowdock	104 Pd Pv Pivotal Tracker	105 En Sn ServiceNow
106 Os Ki Kibana	107 Fm Nr New Relic	108 Os Ni Nagios	109 Os Zb Zabbix	110 En Dd Datadog	111 Os El Elasticsearch	112 En St StackState	113 En Sp Splunk	114 Fm Le Logentries	115 Fm Sl Sumo Logic	116 Os Ls Logstash	117 Os Gr Graylog	118 Os Sn Snort	119 Os Tr Tripwire	120 En Ff Fortify

THANK YOU