

**DEVOPS FOR DEVELOPERS  
... OR MAYBE AGAINST THEM?!**











r/devops

Posted by u/ThePoetWalsh57 38 minutes ago

Just got my first job in devops. What exactly is devops?



# BARUCH SADOGURSKY

CHIEF STICKER OFFICER

(ALSO 🎩 OF DEVELOPER ADVOCACY)



JBARUCH@JFROG.COM



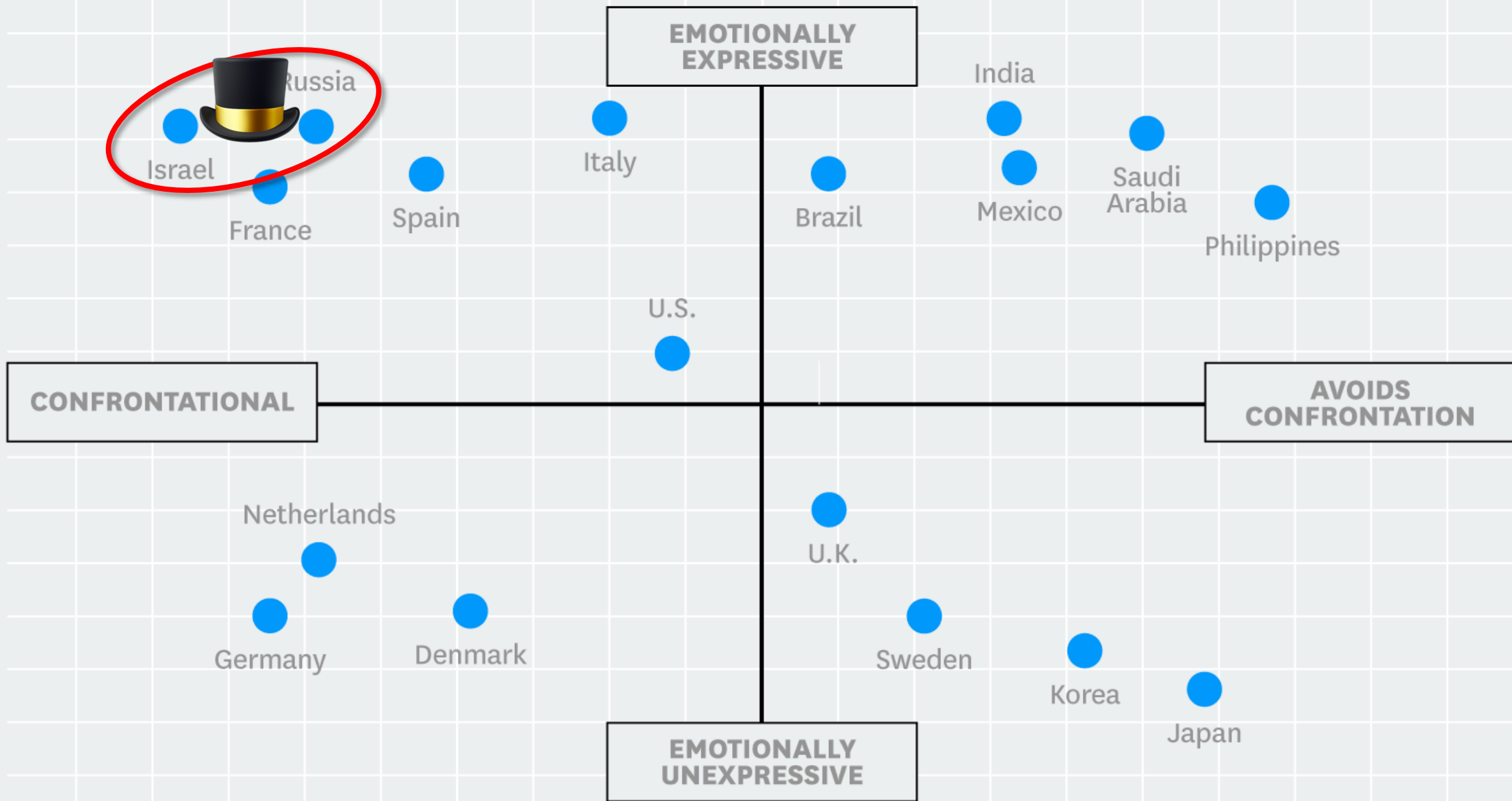
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# SHOWNOTES

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 Comments, Ratings

 Raffle





**Baruch** 🇮🇱 **Sadogursky**

Developer Advocacy at JFrog



## AlphaCSP

6 yrs 1 mo

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Jan 2007 – Oct 2010 · 3 yrs 10 mos

- Development and delivery of most of AlphaCSP courses on different Java-related topics and in different levels;

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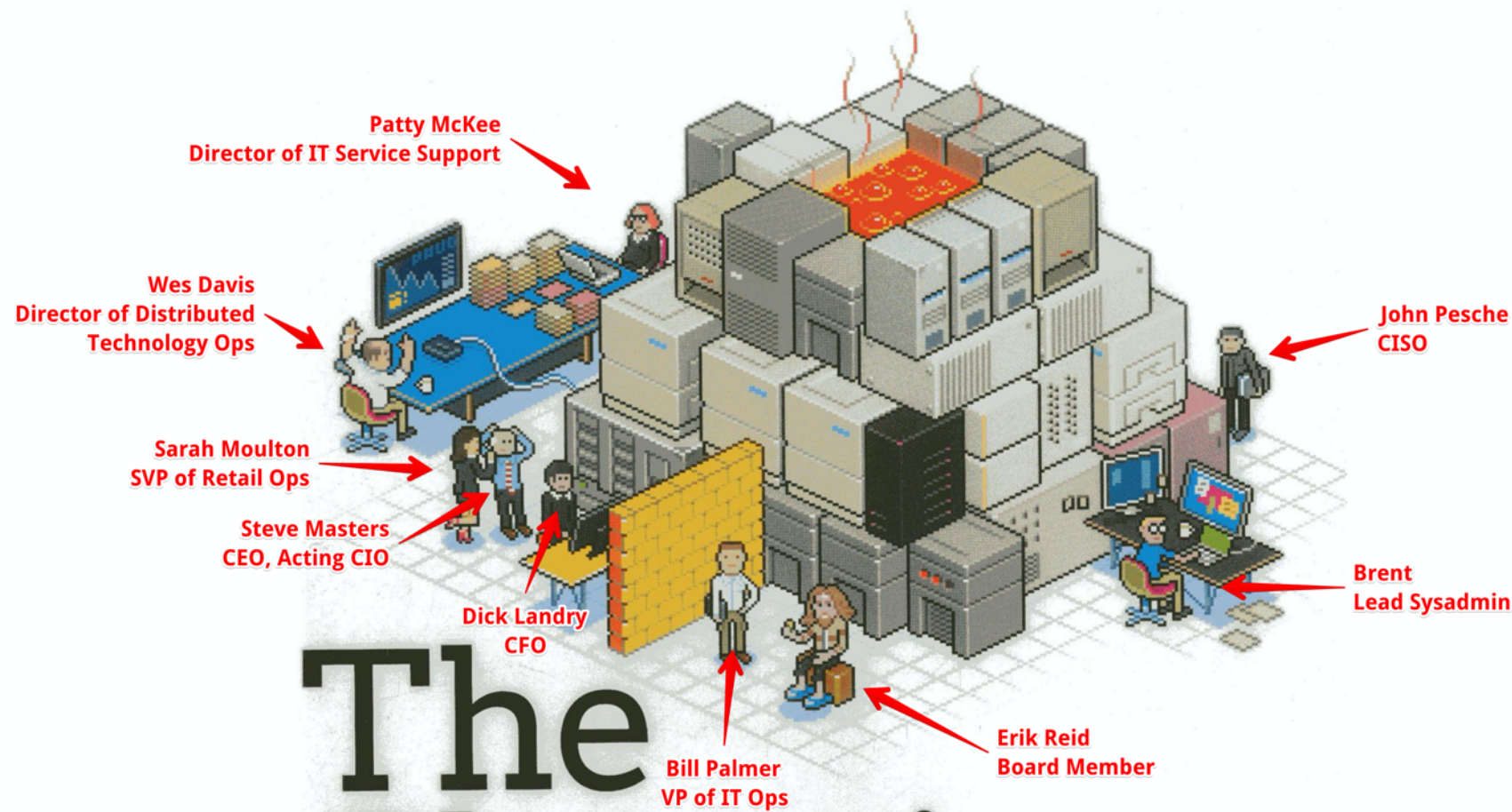
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### Senior Developer

Oct 2004 – Jan 2007 · 2 yrs 4 mos

Working on various projects in BMC Software Israel



# The Phoenix Project



A man wearing a blue beanie and a grey shirt is shown in profile, looking down and to the left with a thoughtful expression. He is resting his chin on his hand. The background is a wall with several framed pictures. Overlaid on the image is the text "NOT A SINGLE DEVELOPER!!!" in a bold, white, sans-serif font, tilted diagonally from the bottom left towards the top right.

**NOT A SINGLE DEVELOPER!!!**

# The DevOps Handbook

HOW TO CREATE WORLD-CLASS  
AGILITY, RELIABILITY, & SECURITY  
IN TECHNOLOGY ORGANIZATIONS



GENE KIM,  
JEZ HUMBLE,  
PATRICK DEBOIS,  
& JOHN WILLIS

FOREWORD BY JOHN ALLSPAUGH


@jbaruch

#DevOps


#QConLondon


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**Patrick Debois**  
Co-founder Zender


2012 – 2013 · 1 yr


**Project Manager**  
Synergics  
2010 · less than a year


**Multimedia Researcher**  
VRT  
Jan 2008 – Dec 2009 · 2 yrs  
Research on Multimedia Search  
  
\* In the past two year the VRT has been feeding a new media archive system with content it is producing. The purpose of this project is to make this data more 'searchable'.


**Researcher**  
VRT Medialab  
2008 – 2009 · 1 yr

**Technical Coordinator**  
Notary Federation Brussels  
2007 · less than a year  
  
\* Credoc technically runs the portal and mail environment used by every notary (more than 8000). As Trust is very important they have high security standards to implement. Audit which they successfully passed, the next step was to improve the reliability of the environment even more by implementing an Disaster Recovery Solution.... See more


**System Architect/Technical Consultant**  
Ministerie Van Financiën  
2005 – 2006 · 1 yr  
  
Identity and Access Management  
\* With an internal user population of more than 35.000 users, the organization is looking to automate the identity and access management of their IT environment.  
... See more


**System Architect/Technical Consultant/Technical Project Manager (IT)**  
swiTech  
Mar 2004 – Jan 2005 · 11 mos  
  
Intranet portal project  
\* With the ultimate goal to create a web-based desktop, an intranet portal was developed based upon Sun ONE Portal and Citrix.  
\* Via portal technology it became possible to work in the same personalized environment.


**System Architect/Technical Project Manager (ACA-IT)**  
Eurocontrol  
Jun 2004 – Oct 2004 · 5 mos  
  
Internet Portal Project  
\* For maintenance reasons the One Sky Extranet Stakeholders Portal infrastructure was upgraded.  
\* While doing the upgrade, a complete high availability design was done for further development.


**Jez Humble**  
Cloud advocate at Google Cloud Platform, Lecturer at UC Berkeley.


Experience


**Cloud Advocate**  
Google  
Dec 2018 – Present · 11 mos  
San Francisco, California


**Lecturer**  
UC Berkeley  
Jul 2013 – Present · 6 yrs 4 mos  
Berkeley, California  
  
I teach two 3-unit graduate classes at the School of Information. One class is on product management. The other is an experiential class in which students learn OO design in Java through solving problems.


**Founder and CTO**  
DevOps Research and Assessment LLC  
Dec 2015 – Dec 2018 · 3 yrs 1 mo  
Berkeley, California  
  
Co-founder of DORA and CTO up to its acquisition by Google


**Deputy Director of Delivery Architecture and Infrastructure Services**  
GSA  
Jan 2016 – Jan 2017 · 1 yr 1 mo  
San Francisco  
  
In this role I was responsible for managing production infrastructure for all services operated by the 18F (now Technology Transformation Services) team, part of the Government's General Services Administration. I also worked with teams at various agencies to help them adopt good practice designing, managing, and delivering services.


**Vice President**  
Chef (formerly Opscode)  
Aug 2014 – Sep 2015 · 1 yr 2 mos

**John Willis**  
Founder at Botchagalupe Technologies


**VP of DevOps and Digital Practices**  
SJ Technologies  
Jul 2017 – Dec 2018 · 1 yr 6 mos  
Greater Atlanta Area


**Director of Ecosystem Development**  
Docker, Inc  
Mar 2015 – Oct 2017 · 2 yrs 8 mos  
Greater Atlanta Area


**Founder and VP of Customer Enablement**  
SocketPlane  
Oct 2014 – Mar 2015 · 6 mos  
Greater Atlanta Area  
  
Socketplane was sold to Docker.


**Executive in Residence**  
Pacific Crest Securities  
Sep 2014 – Mar 2015 · 7 mos  
Portland, Oregon Area  
  
Currently working with the Mosaic group identify emerging technologies.

**VP of Customer Enablement**  
Stateless Networks  
Jan 2014 – Sep 2014 · 9 mos  
Greater Atlanta Area  
  
We are building the next generation of network automation and monitoring, bringing DevOps goodness to SDN and physical networking environments. We are hiring looking for network experienced people who want to join an exciting new startup.

**Director of DevOps Practices**  
enStratus/Dell  
Nov 2011 – Dec 2013 · 2 yrs 2 mos  
Greater Atlanta Area  
  
Cloud Management startup that was purchased by Dell.


**VP of Solutions**  
DTO Solutions  
May 2011 – Nov 2011 · 7 mos  
  
We do DevOps and SDLC as Infrastructure.

**VP of Services**  
Chef (formerly Opscode)  
Jan 2010 – May 2011 · 1 yr 5 mos

**Cloud Evangelist**  
Canonical Ltd.  
Jan 2009 – Jan 2010 · 1 yr 1 mo  
  
Introduced Ubuntu Enterprise Cloud (UEC). UEC was an OEM of Eucalyptus.

About 82,600,000 results (0.44 seconds)

## Videos



99.9% UP  
7:07

[What is DevOps? - In Simple English](#)

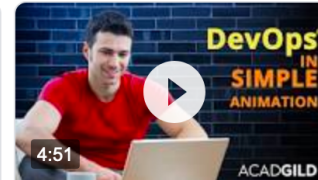
Rackspace  
YouTube - Dec 12, 2013



4:41

[What is DevOps? | Introduction To DevOps | Devops For ...](#)

Simplilearn  
YouTube - Nov 13, 2018



4:51

[What is DevOps? | DevOps Introduction in Simple Animation ...](#)

ACADGILD  
YouTube - Feb 20, 2017



## People also ask

What is meant by DevOps?



What is the role of DevOps?



What is DevOps and how it works?



What DevOps basics?



[Feedback](#)

newrelic.com › devops › what-is-devops ▼

## [What Is DevOps - Explained | New Relic](#)

Even as **DevOps** adoption continues to accelerate in both large enterprises and web-native organizations, confusion lingers about what exactly the term means.

[aws.amazon.com](#) › [devops](#) › [what-is-devops](#) ▼

## What is DevOps? - Amazon Web Services (AWS)

**DevOps** is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity: evolving and improving products at a faster pace than organizations using traditional software development and infrastructure management processes.

[Continuous Delivery](#) · [Microservices](#) · [Infrastructure as Code](#)

[resources.collab.net](#) › [devops-101](#) › [what-is-devops](#) ▼

## What is DevOps? The Ultimate Guide to DevOps

**What is DevOps?** Learn **DevOps** history and the methods companies use to evolve from continuous integration to continuous delivery and continuous ...

[theagileadmin.com](#) › [what-is-devops](#) ▼

## What Is DevOps? | the agile admin

**DevOps** is a term for a group of concepts that, while not all new, have catalyzed into a movement and are rapidly spreading throughout the technical community.

[en.wikipedia.org](#) › [wiki](#) › [DevOps](#) ▼

## DevOps - Wikipedia

**DevOps** is a set of practices that combines software development (Dev) and information-technology operations (Ops) which aims to shorten the systems development life cycle and provide continuous delivery with high software quality.

[www.atlassian.com](#) › [devops](#) ▼

## What is DevOps? | Atlassian

**DevOps** is a set of practices that automates the processes between software development and IT teams, in order that they can build, test, and release software faster and more reliably. The concept of **DevOps** is founded on building a culture of collaboration between teams that historically functioned in relative siloes.

[azure.microsoft.com](#) › [Home](#) › [Overview](#) ▼

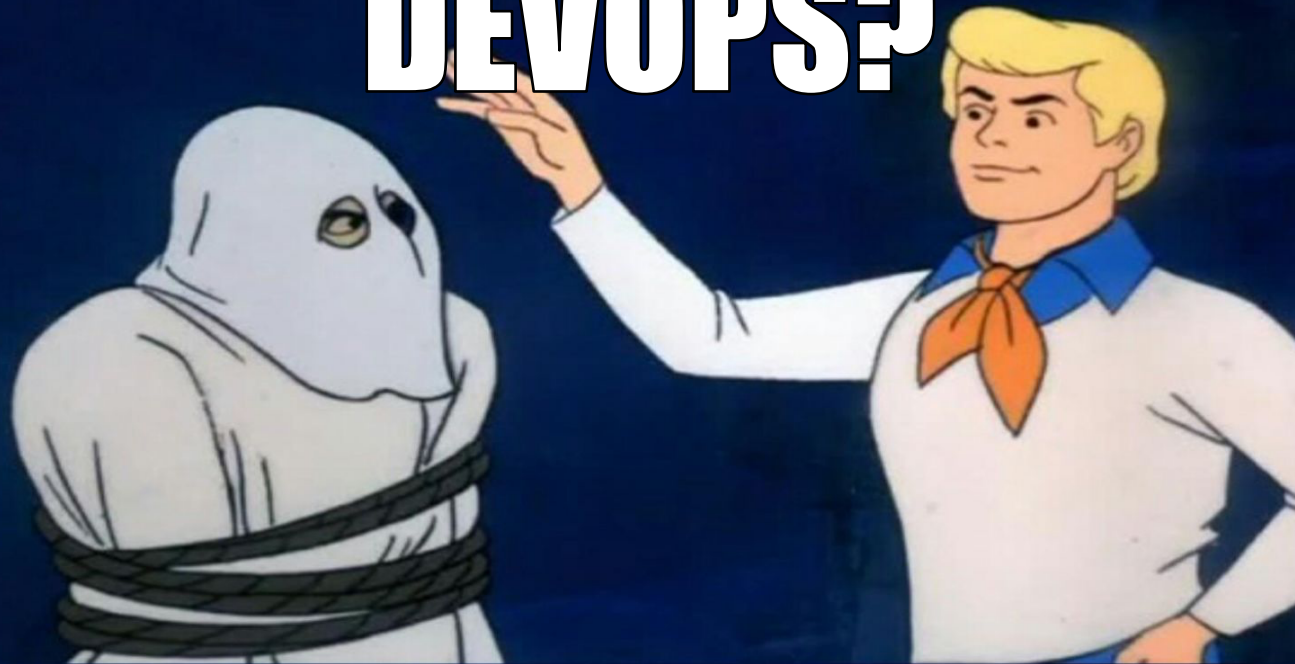
## What is DevOps? DevOps Explained | Microsoft Azure

Learn the definition of **DevOps** and see how **DevOps** practices and roles improve automation and collaboration to create better products for customers.

[logz.io](#) › [Guides](#) › [Learn](#) ▼

[What is DevOps? The Beginner's Guide from Logz.io](#)

# DEVOPS?



# OPS!





A man wearing a white surgical cap and a green surgical mask, looking off to the side with a questioning expression. The text "BUT WHY?" is overlaid in large white letters with a black outline.

**BUT WHY?**

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<https://jfrog.com/shownotes>

DevOps

System Administration

Career Transitions

+2



## How do I switch my job from system admin to devops?



Answer



Follow · 11



Request



### 4 Answers



Disha Rathod, DevOps Online Trainer (2013-present)

Answered Sep 14, 2017



Originally Answered: As a Linux system administrator, how do I shift my career to DevOps?

Hi,

Being a Linux administrator will help you to easily get started with DevOps because it starts with learning Linux fundamentals, DevOps also includes cloud computing concepts like AWS. More importantly DevOps is all about tools, it comes with hundreds of tools. Gits, Chef, Maven, Jenkins, Puppet, Docker are modern and most popular DevOps tools.

So in order to move into DevOps industries you should have prominent knowledge following concepts

1. Linux Fundamental; Shell Scripting
2. Cloud Computing (AWS)
3. DevOps Fundamentals
4. Software Development Life Cycle
5. Continuous Integration, Deployment, and Delivery.
6. DevOps Tools: Gits, Chef, Maven, Jenkins, Puppet, Docker etc.

# Systems Administrator Salaries

25,439 Salaries    Updated Feb 26, 2020

Industries ▾

Company Sizes ▾

Years of Experience ▾

Average Base Pay

\$64,892 /yr



Additional Cash Compensation ⓘ

Average                      \$3,807

Range                      \$932 - \$12,002

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How much does a Systems Administrator make?  
The national average salary for a Systems Administrator is \$64,892 in United States. Filter by location to... [More](#)

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# Devops Engineer Salaries

2,130 Salaries   Updated Feb 26, 2020

Industries ▼

Company Sizes ▼

Years of Experience ▼

Average Base Pay

\$99,604 /yr



Additional Cash Compensation (?)

Average \$8,714

Range \$2,236 - \$17,548

How much does a Devops Engineer make?  
The national average salary for a Devops Engineer is \$99,604 in United States. Filter by location to see... [More](#)





devops engineer

United States

Jobs ▼

Sort by ▼

Date Posted ▼

LinkedIn Features ▼

Devops engineer in United States

14,337 results

Job Alert Off



**DevOps Engineer** Promoted

Apple

Cupertino, CA, US

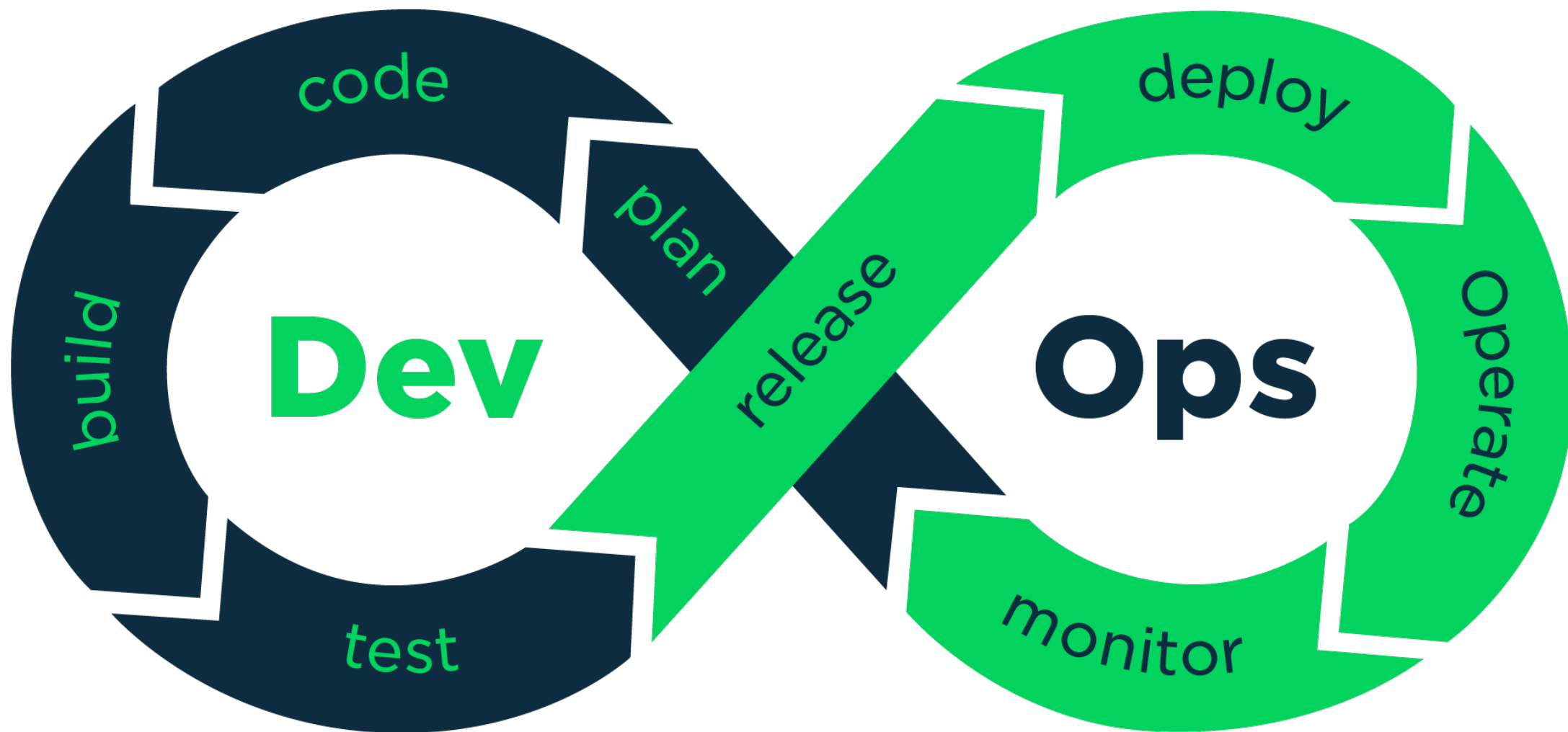
1 week ago

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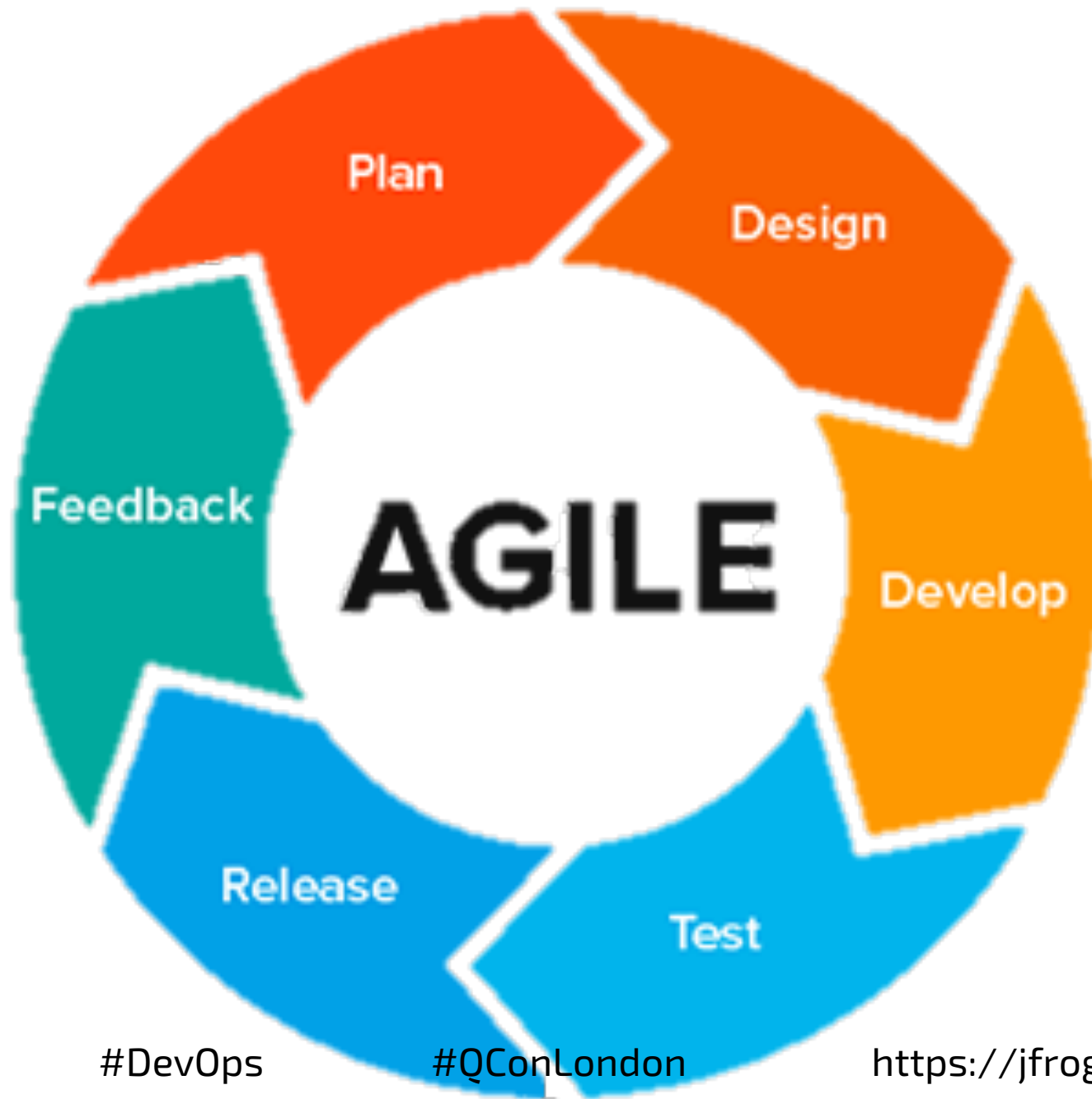
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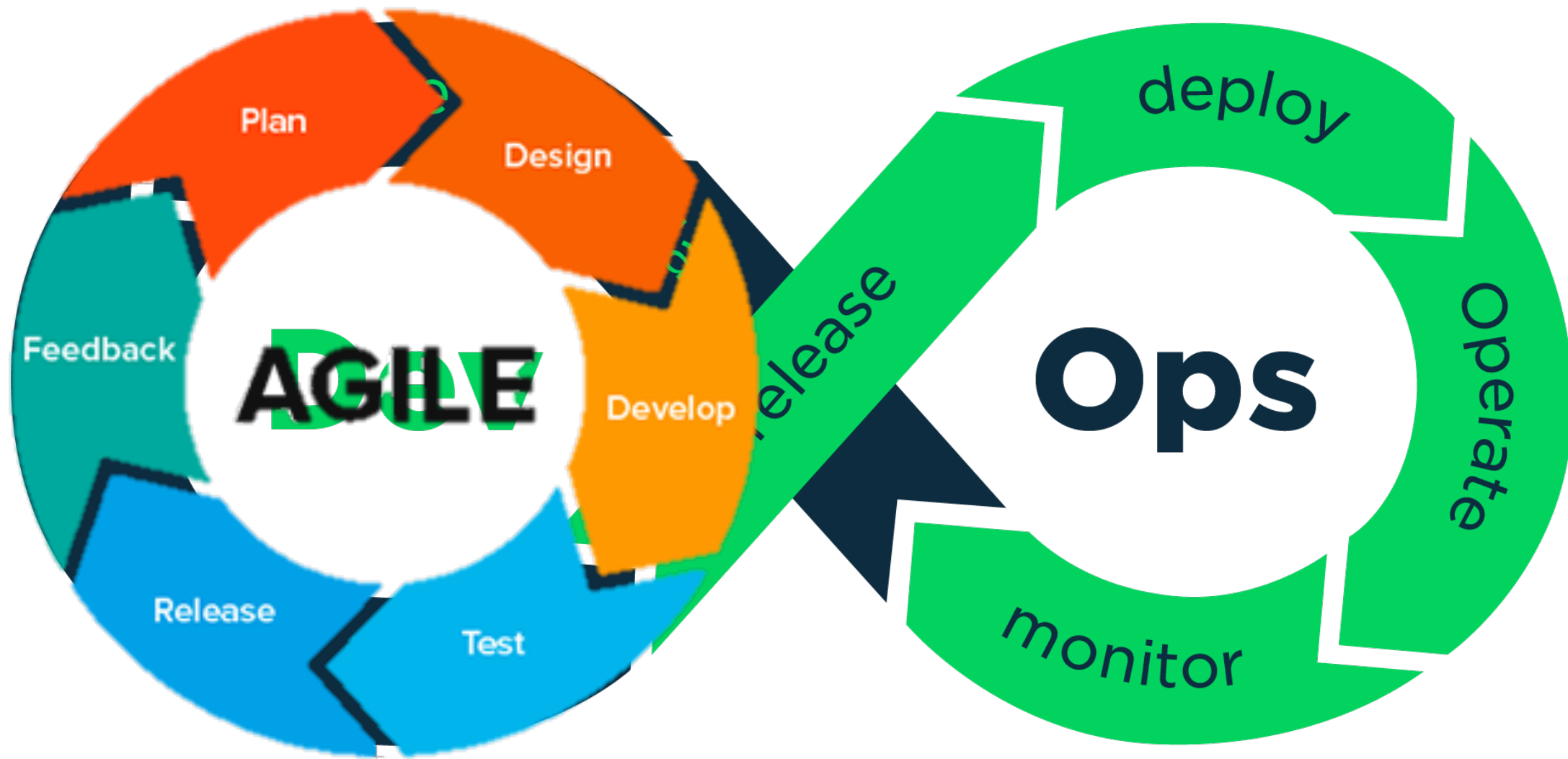


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2018

# *Accelerate:* **State of DevOps** Strategies for a New Economy

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**Deloitte.**



**Xebia Labs**  
Enterprise DevOps

**pagerduty**



**redgate**



**Datical**



**sumologic**



**TRICENTIS**





## Aspect of Software Delivery Performance

### Deployment frequency

For the primary application or service you work on, how often does your organization deploy code?

### Lead time for changes

For the primary application or service you work on, what is your lead time for changes (i.e., how long does it take to go from code commit to code successfully running in production)?

### Time to restore service

For the primary application or service you work on, how long does it generally take to restore service when a service incident occurs (e.g., unplanned outage, service impairment)?

### Change failure rate

For the primary application or service you work on, what percentage of changes results either in degraded service or subsequently requires remediation (e.g., leads to service impairment, service outage, requires a hotfix, rollback, fix forward, patch)?

Time Spent		Elite	High	Medium	Low
	NEW WORK	50%	50%	40%	30%
Unplanned work and rework		19.5%	20% <sup>a</sup>	20% <sup>a</sup>	20% <sup>a</sup>
Remediating security issues		5%	5% <sup>b</sup>	5% <sup>b</sup>	10%
Working on defects identified by end users		10%	10% <sup>c</sup>	10% <sup>c</sup>	20%
Customer support work		5%	10%	10%	15%

# TYPES OF WORK IN THE PHOENIX PROJECT AND DORA REPORT

Planned Work	Business projects or new features
Internal Projects	Server migrations, software updates and so on
Changes	Driven by feedback on completed work
Unplanned Work	Support escalations and emergency outages



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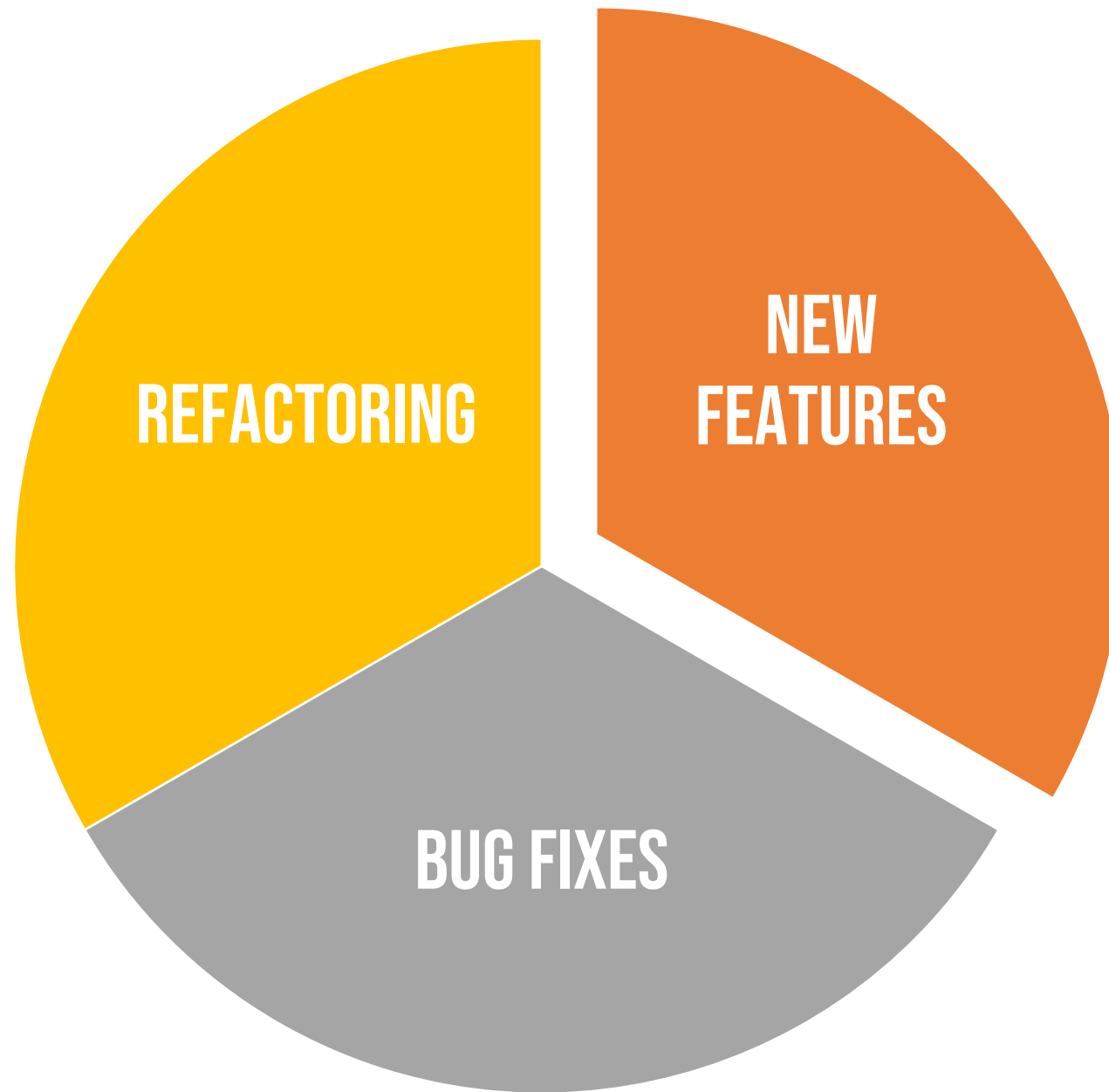
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littleanimalgifs





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# *Manifesto for Software Craftsmanship*

**Raising the bar.**

**A**s aspiring Software Craftsmen we are raising the bar of professional software development by practicing it and helping others learn the craft. Through this work we have come to value:

Not only working software,  
but also **well-crafted software**

Not only responding to change,  
but also **steadily adding value**

Not only individuals and interactions,  
but also **a community of professionals**

Not only customer collaboration,  
but also **productive partnerships**

That is, in pursuit of the items on the left we have found the items on the right to be indispensable.





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# Becoming a full-stack developer

“Full-stack” refers to the collection of technologies needed to complete your project

“Polyglot” developer

You learn the **essence** and can apply it in **any** language/technology

You still learn most needed parts **deeply** as you gain **experience**

Structuring, design, security, logging, auto testing, simplicity, etc

Also deployment - you don't want to be called during the night

# SOFTWARE CRAFTSMAN DEFINITION OF DONE

- ✓ We understand what needs to be done
- ✓ Our code is readable, simple, understandable
- ✓ Our code is easy to deploy
- ✓ Non-functional requirements are met
- ✓ We didn't incur any technical debt (and even reduced some)
- ✓ Our tests pass
- ✓ QA took a look and they are happy
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- ✓ Product owner took a look, and they are happy
- ✓ Client took a look, and they are happy



TODO FAKE NEWS



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**TRACTORMEN, IMPROVE THE QUALITY OF TRACTOR-TRAILER TRACKING!**



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Developer Advocacy at JFrog



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# WayBack Machine

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Access your account online

**Get a User ID**

GO

**Returning Users: Log On**

User ID:

Password:

☐ Remember my User ID

[Forgot User ID/Password?](#)

Log On

**Personal Banking**

- ▶ Checking
- ▶ Credit Cards
- ▶ Savings
- ▶ CDs
- ▶ Debit Cards
- ▶ Student Center
- ▶ Online Banking & Bill Pay

**Business**

- ▶ Business Banking  
Revenues up to \$10MM
- ▶ Commercial Banking  
Revenues over \$10MM
- ▶ Business Credit Cards

**Personal Lending**

- ▶ Home Equity Loans & Lines of Credit
- ▶ Mortgage
- ▶ Auto/Vehicle Loans
- ▶ Student Loans
- ▶ Personal Loans

**Insurance & Investing**

- ▶ Insurance
- ▶ Investing
- ▶ Retirement Planning

**Tell me about...**

- ▶ Chase Exclusives<sup>SM</sup>  
Special Benefits for checking customers

**News & Announcements**

- ▶ Hurricane Impacts: Customer Updates
- ▶ AVOIDING FORECLOSURES  
Several options are available if you need help.
- ▶ Planning for college? Visit the **NEW** Chase Student Center.
- ▶ Chase Private Student Loans  
A 0.50% interest rate reduction is available with a qualified student loan cosigner.
- ▶ Fair Lending & HMDA Data
- ▶ U.S. Armed Forces Overseas  
Please contact us if you need assistance with your Chase accounts.

**Security Center Highlights**

Chase helps keep you safe and informed.

- ▶ Report fraud and e-mail scams
- ▶ Learn how to protect yourself
- ▶ Find out how we protect you
- ▶ Learn more about online fraud
- ▶ Read tips for safe online shopping

Planning for college?  
Visit the New Chase Student Center.

GO

**MORTGAGE RATES ARE STILL AT HISTORIC LOWS**

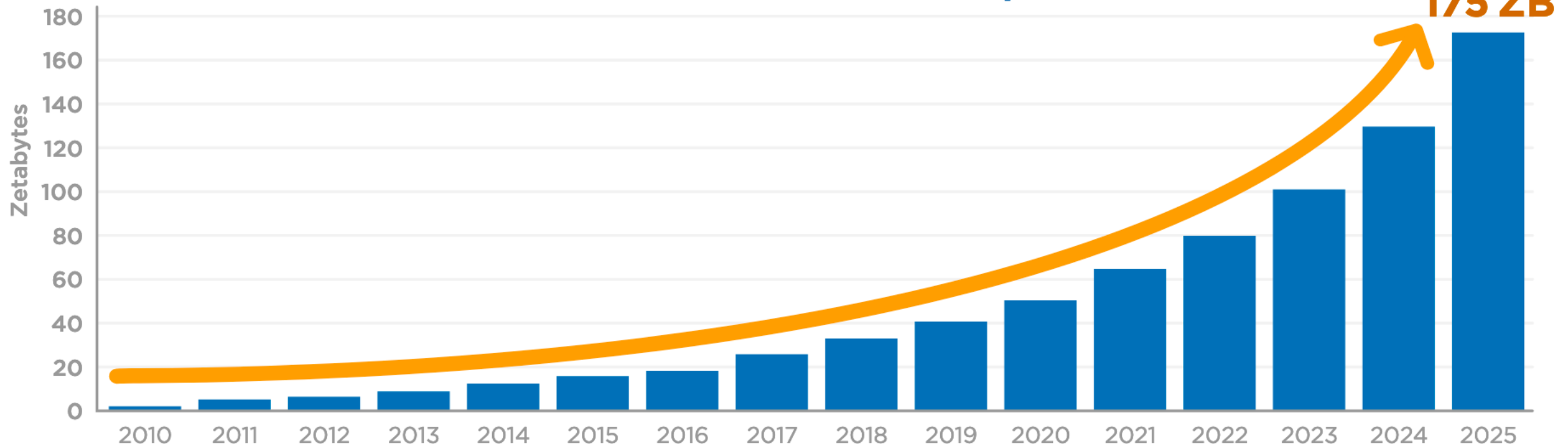
**12 HOURS MAINTENANCE  
FOR UPDATE (TO ENSURE  
QUALITY)**





# CODE QUALITY IS NOT ENOUGH

Annual Size of the Global Datasphere



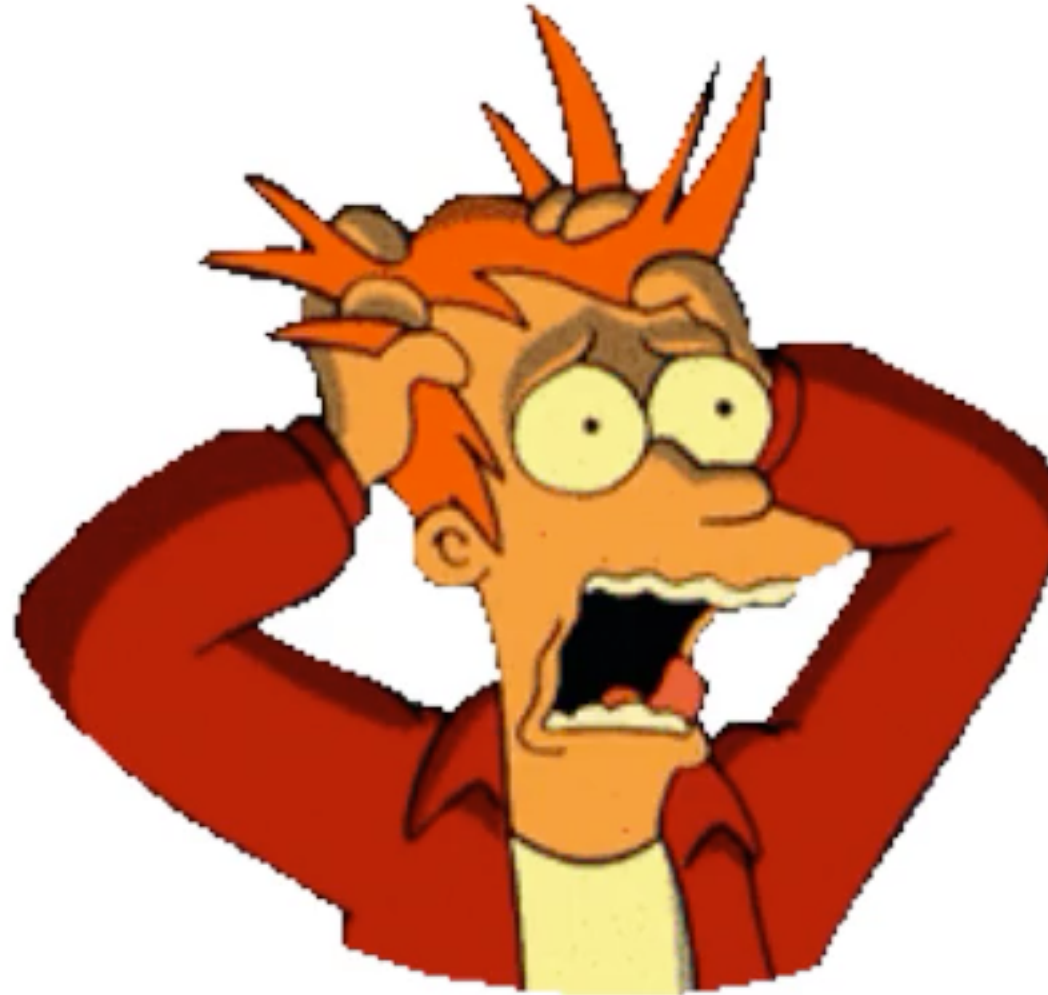
Source: Data Age 2025, sponsored by Seagate with data from IDC Global DataSphere, Nov 2018



# Staging Server

1985 - 2015

Jolly were the times when we  
could test everything before  
deploying to prod



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**PRODUCTION STEAMS ITS WAY TO THE DEVELOPERS!**





**WELCOME TO ON-CALL!**

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- ✓ Client took a look, and they are happy
- ✓ SRE took a look, and they are happy

# What is SRE?

SRE is what you get when you treat operations as if it's a software problem. Our mission is to protect, provide for, and progress the software and systems behind all of Google's public services — Google Search, Ads, Gmail, Android, YouTube, and App Engine, to name just a few — with an ever-watchful eye on their availability, latency, performance, and capacity.

# SRE TOOK A LOOK, AND THEY ARE HAPPY

- ✓ We understand how our code is going to be deployed
- ✓ The build is reliable, repeatable, and fast
- ✓ Our code is stateless, thus scalable
- ✓ Our code starts fast and dies fast
- ✓ Our code is observable
- ✓ Our code supports feature flags
- ✓ Our code backwards and forwards compatible
- ✓ Our code emits event streams







# THE TWELVE-FACTOR APP

## THE TWELVE FACTORS

### **I. Codebase**

One codebase tracked in revision control, many deploys

### **II. Dependencies**

Explicitly declare and isolate dependencies

### **III. Config**

Store config in the environment

### **IV. Backing services**

Treat backing services as attached resources

### **V. Build, release, run**

Strictly separate build and run stages

### **VI. Processes**

Execute the app as one or more stateless processes

### **VII. Port binding**

Export services via port binding

### **VIII. Concurrency**

Scale out via the process model

### **IX. Disposability**

Maximize robustness with fast startup and graceful shutdown

### **X. Dev/prod parity**

Keep development, staging, and production as similar as possible

### **XI. Logs**

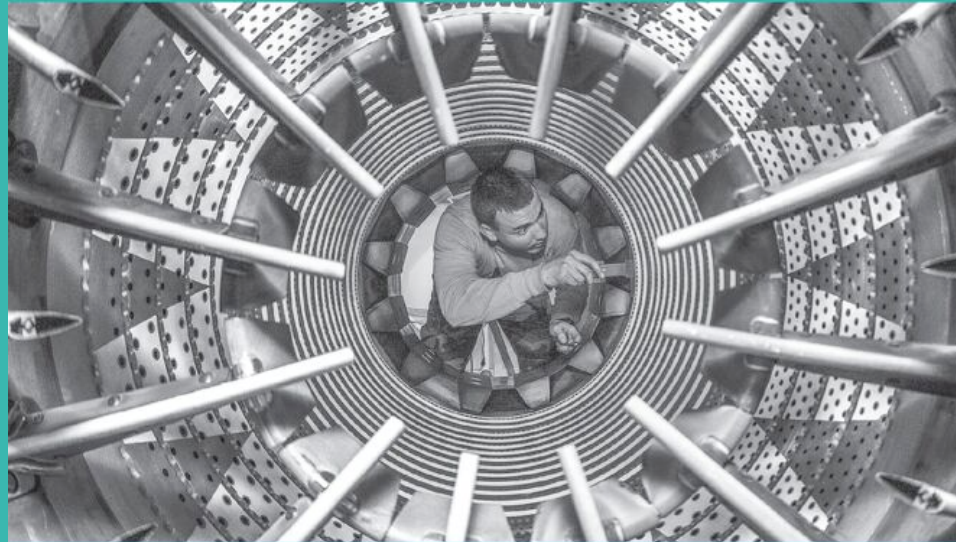
Treat logs as event streams

### **XII. Admin processes**

Run admin/management tasks as one-off processes

# Beyond the Twelve-Factor App

Exploring the DNA of Highly Scalable,  
Resilient Cloud Applications



Kevin Hoffman

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- ✓ Our code backwards and forwards compatible
- ✓ Our code emits event streams
- ✓ Our code is lean





Save  
MORE  
by wasting  
LESS

AWS Service Charges

+ Expand All

Details

AWS Service Charges

CloudTrail

CloudWatch

US East (Northern Virginia) Region

AmazonCloudWatch TimedStorage-ByteHrs

\$0.0393545848 per GB-mo of log storage - US East (Northern Virginia) (blended price)\*

0.000051 GB-Mo

Data Pipeline

Data Transfer

Directory Service

Elastic Compute Cloud

ElastiCache

Key Management Service

Lambda

RDS Service

Route 53

Simple Notification Service

Simple Queue Service

Simple Storage Service

SimpleDB

Support (Developer)

Virtual Private Cloud

Taxes

CT to be collected

GST to be collected

US Sales Tax to be collected

VAT to be collected



# KAFKA SUMMIT SF 2019

September 30 – October 1, 2019 | San Francisco

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## Achieving a 50% Reduction in Cross-AZ Network Costs from Kafka

Session Level: Intermediate

October 1, 2019, 11:25 am – 12:05 pm , Core Kafka,



Uday Sagar Shiramshetty  
Software Engineer, SignalFx



**BUSINESS STEAMS ITS WAY TO THE DEVELOPERS!**





We have to  
cut costs!

We can layoff  
20% of the  
developers



@jbaruch

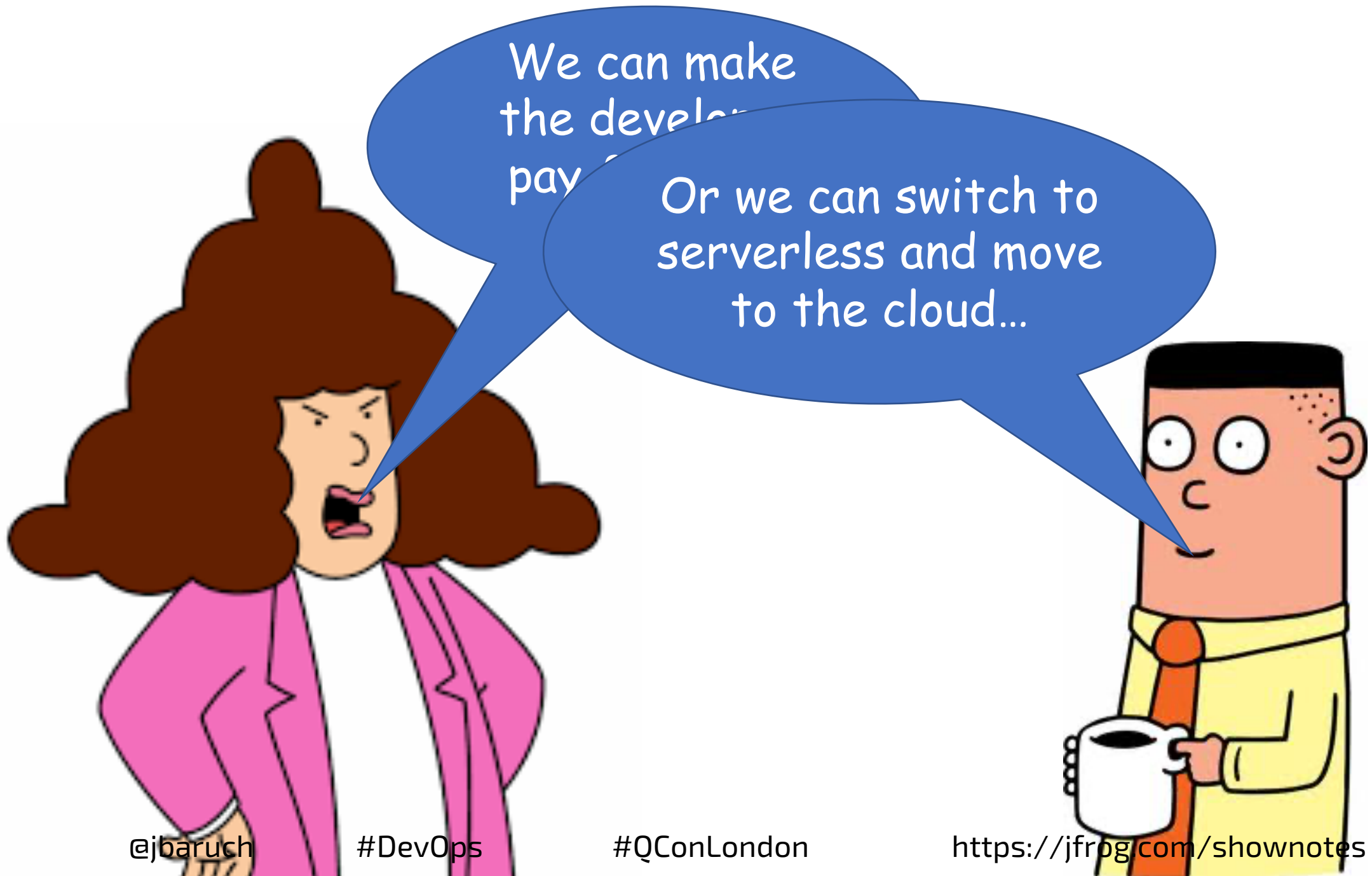
#DevOps

#QConLondon

We can make  
the developer  
pay for their  
coffee



<https://jfrog.com/shownotes>



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#DevOps

#QConLondon

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Google how to  
pronounce  
'kubectl'!

Layoffs?!

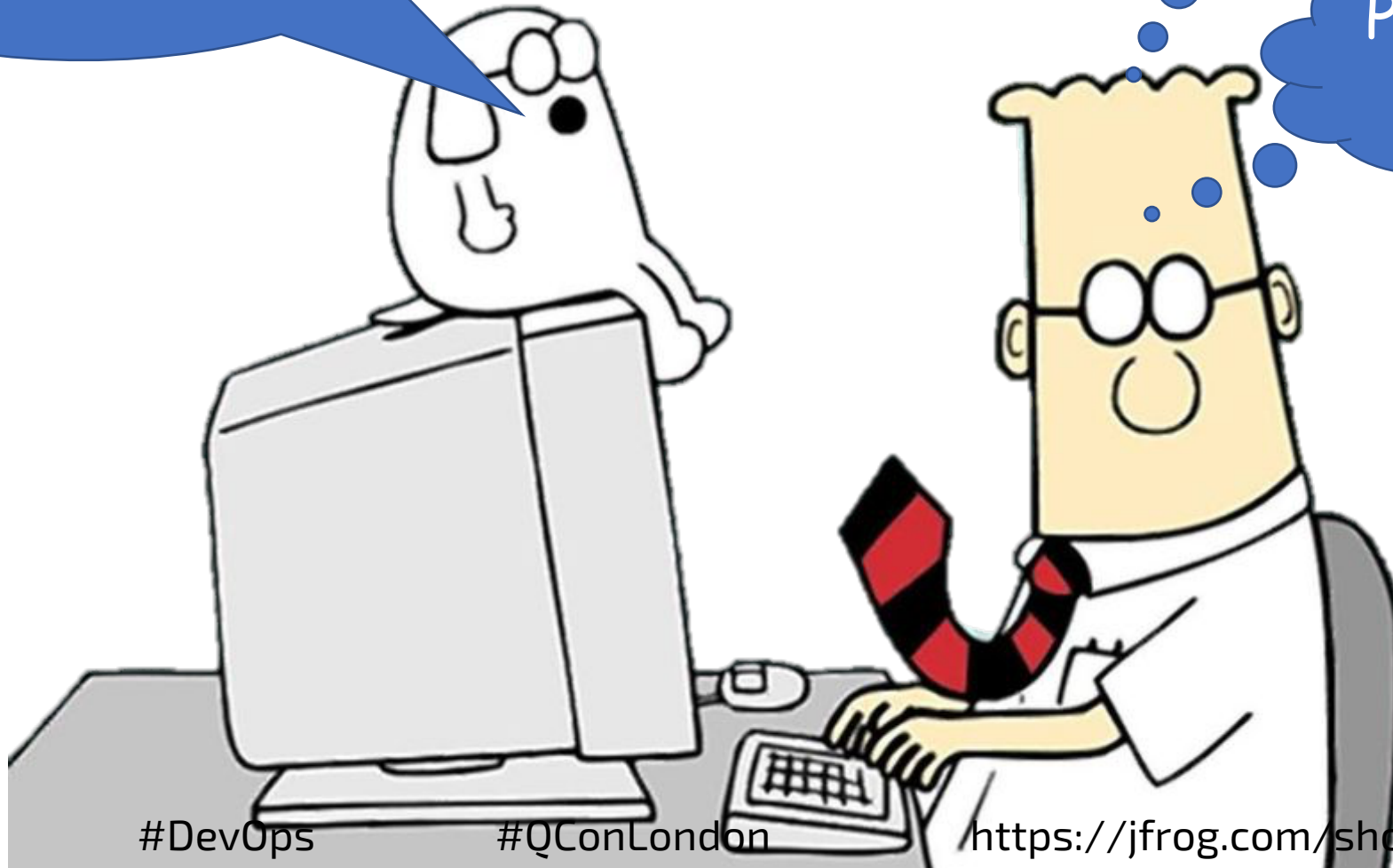
Paying for  
coffee?!

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We need more  
happy  
customer!

WHAT DO WE WANT



NEW FEATURES!



WHEN DO WE THEM?



YESTERDAY!



# ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have...



**208**  
**TIMES MORE**  
frequent code deployments

**106**  
**TIMES FASTER**  
lead time from  
commit to deploy



**2,604**  
**TIMES FASTER**  
time to recover from incidents

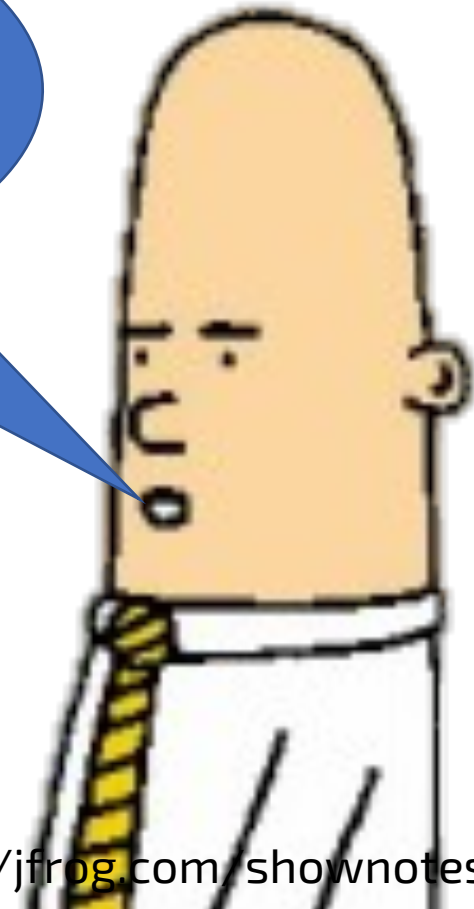
**7**  
**TIMES LOWER**  
change failure rate  
(changes are  $\frac{1}{7}$  as likely to fail)





We need to  
improve our  
security!

Hire CISO, so  
you have someone  
to blame!





**20**  
MPH - 6m - - 6m -  
12m (40 Feet)

**30**  
MPH ---- 9m ---- - - - - 14m ----  
23m (75 Feet)

**40**  
MPH ----- 12m ----- - - - - 24m -----  
36m (118 Feet)

**50**  
MPH ----- 15m ----- - - - - 38m -----  
53m (174 Feet)

**60**  
MPH ----- 18m ----- - - - - 55m -----  
73m (240 Feet)

**70**  
MPH ----- 21m ----- - - - - 75m -----  
96m (315 Feet)

## Stopping Distances

### Key



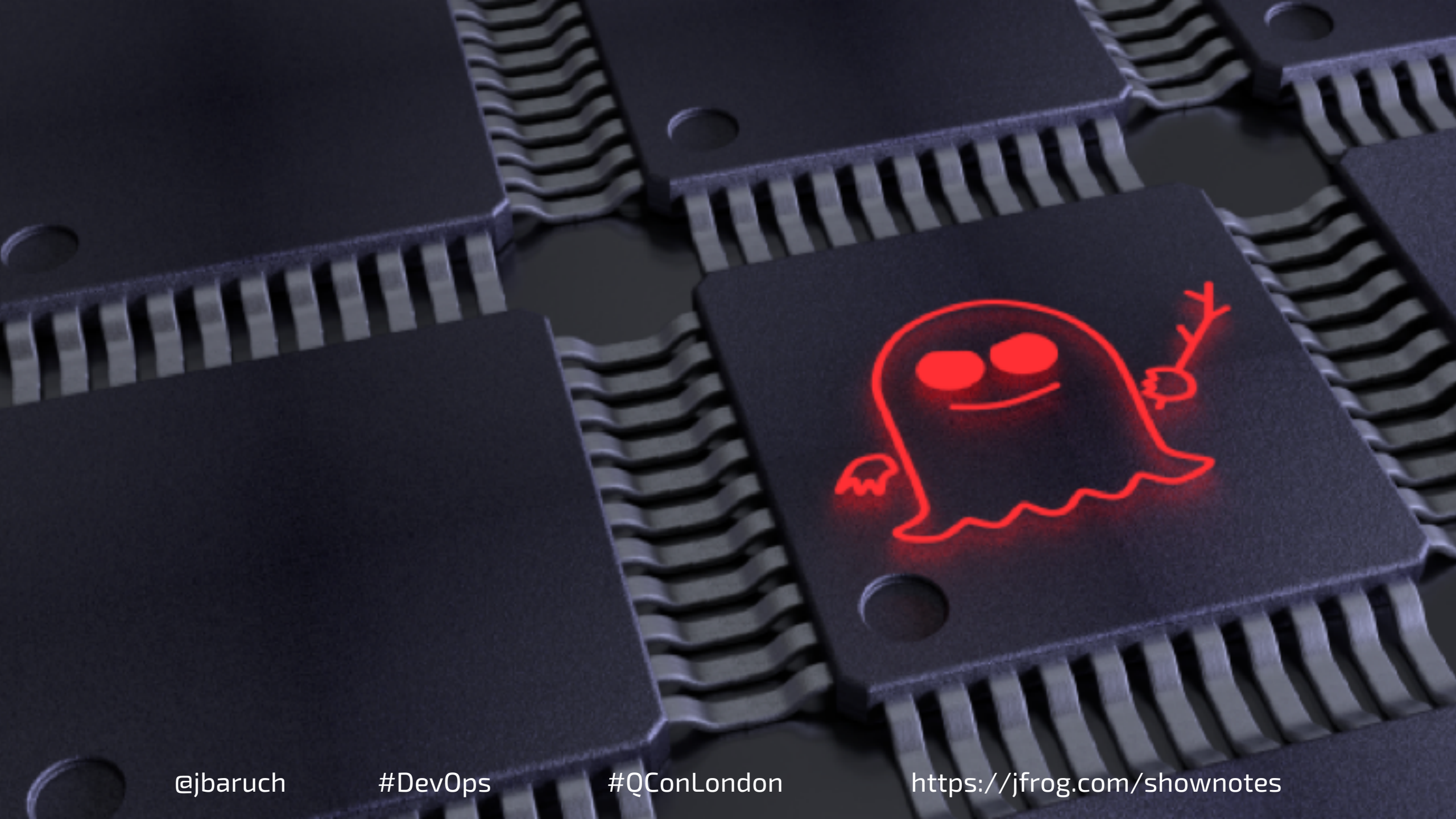
Thinking  
Distance

Braking  
Distance

### Formula

Thinking Distance + Braking Distance = Stopping Distance





# Chips may be inherently vulnerable to Spectre and Meltdown attacks

Most malware exploits coding errors and poor design. But Google security researchers say a fundamental flaw in the nature of computing could make some threats impossible to defeat.

by **Emerging Technology from the arXiv**

Feb 25, 2019



# ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have...



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**TIMES MORE**  
frequent code deployments

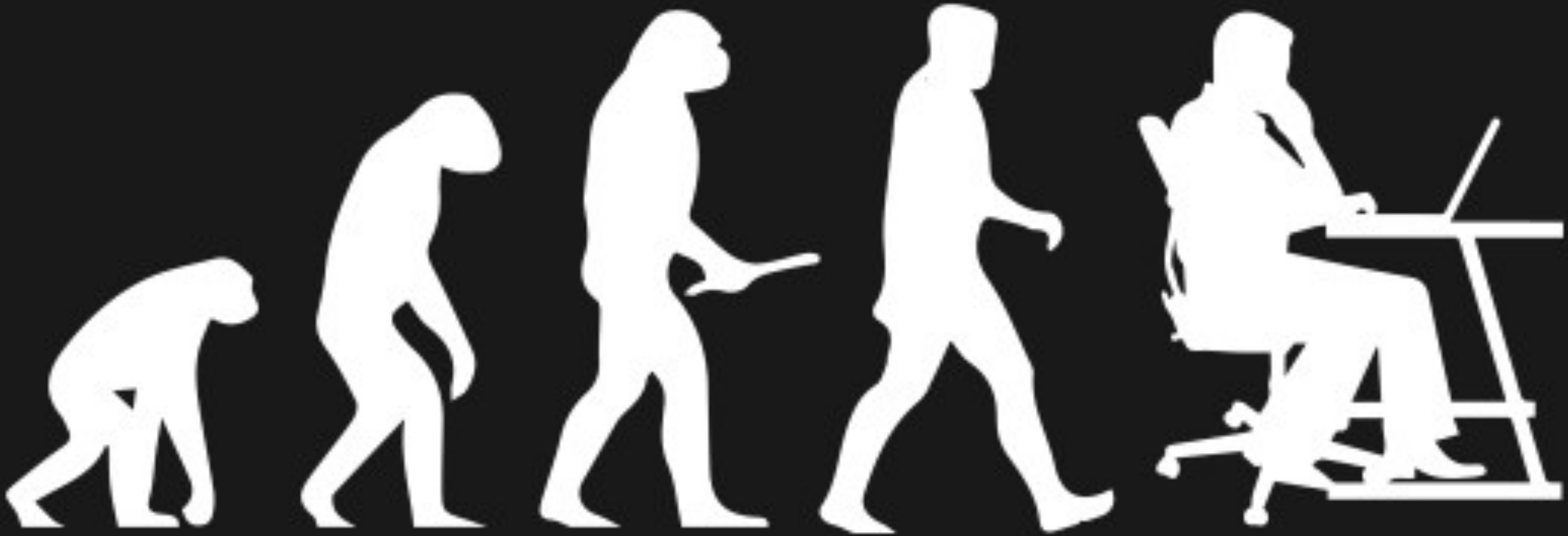
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# DEVOPS IS A MEAN TO AN END



Quality



Lean software



New Features



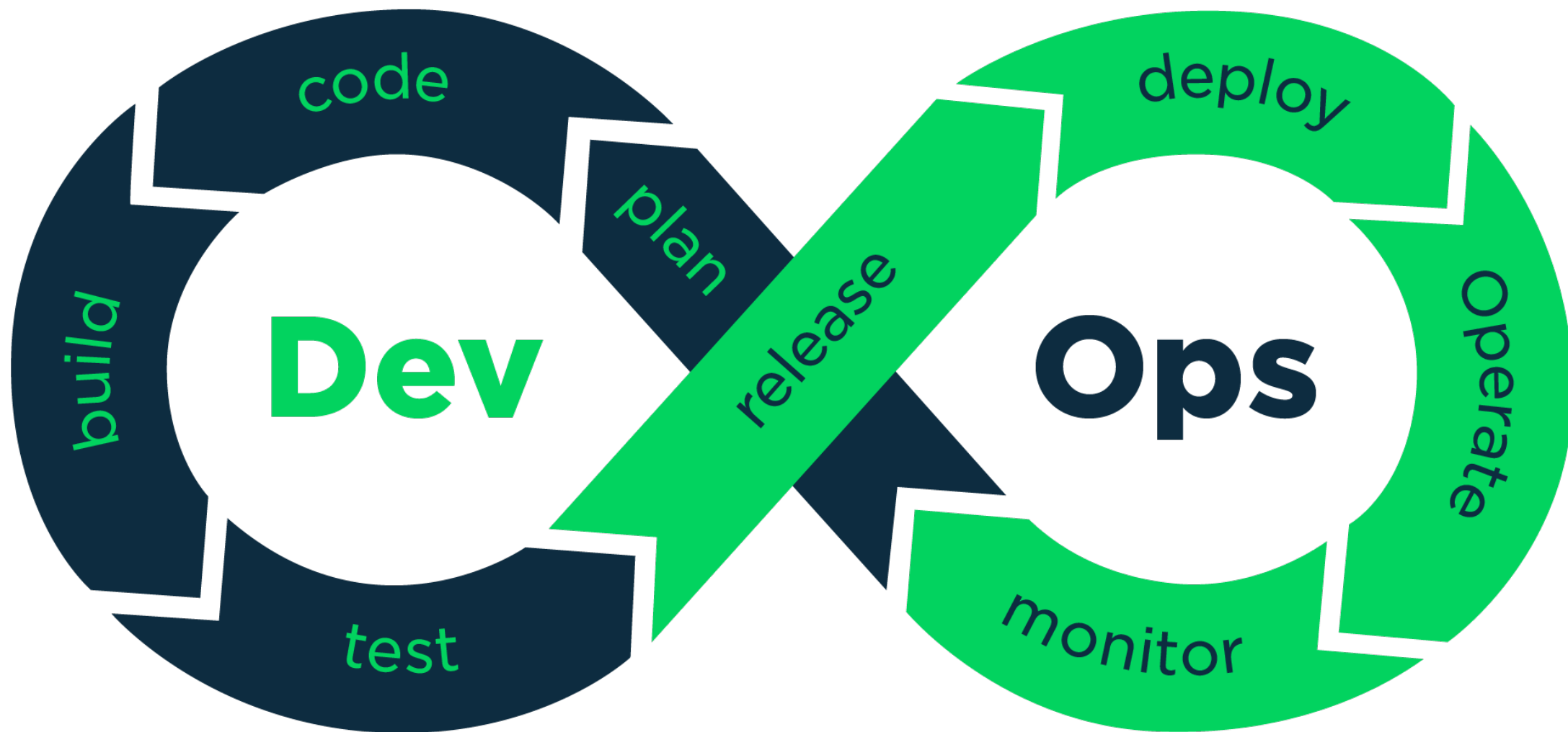
Security

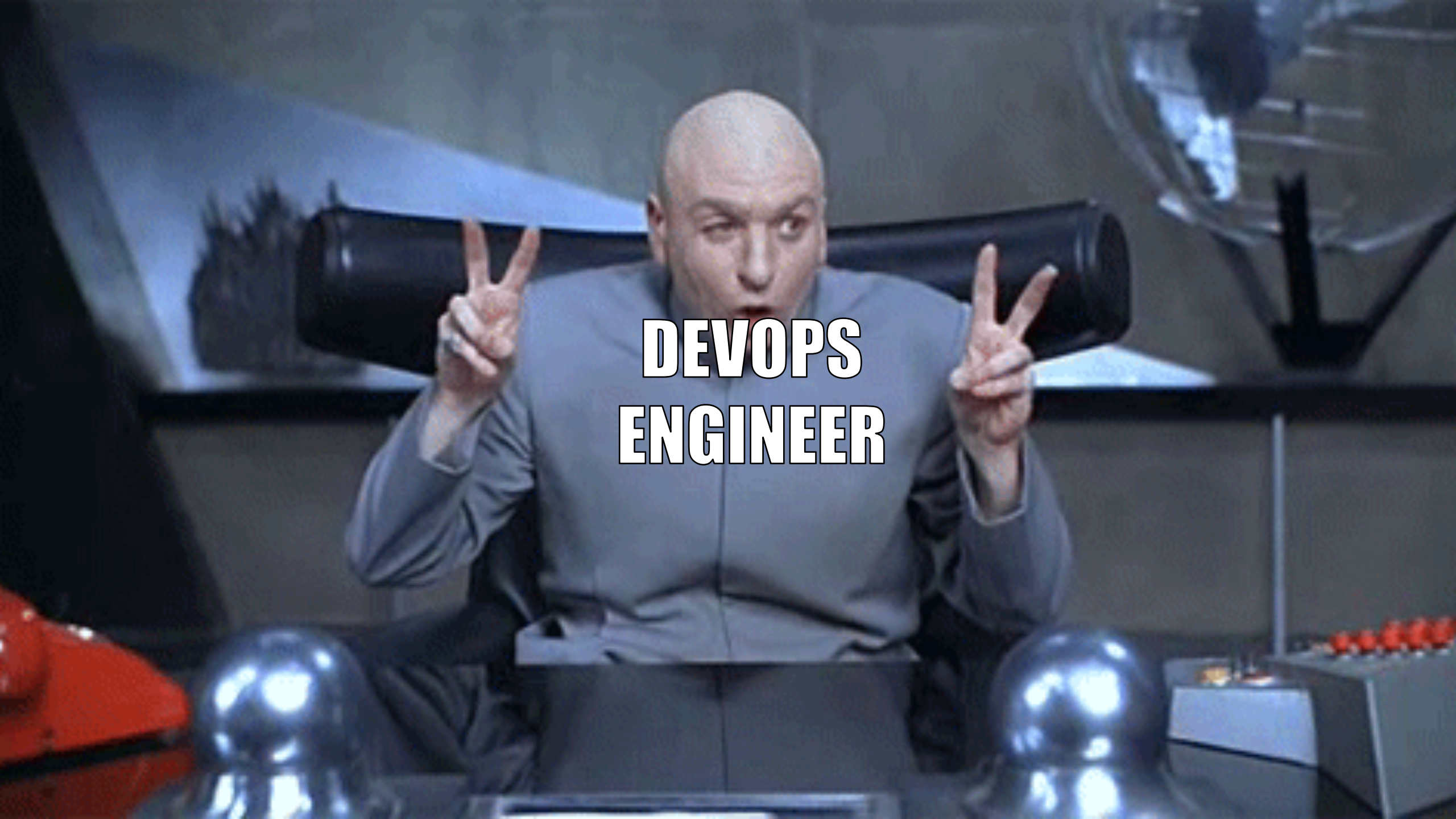




**WELCOME TO DEVOPS!**

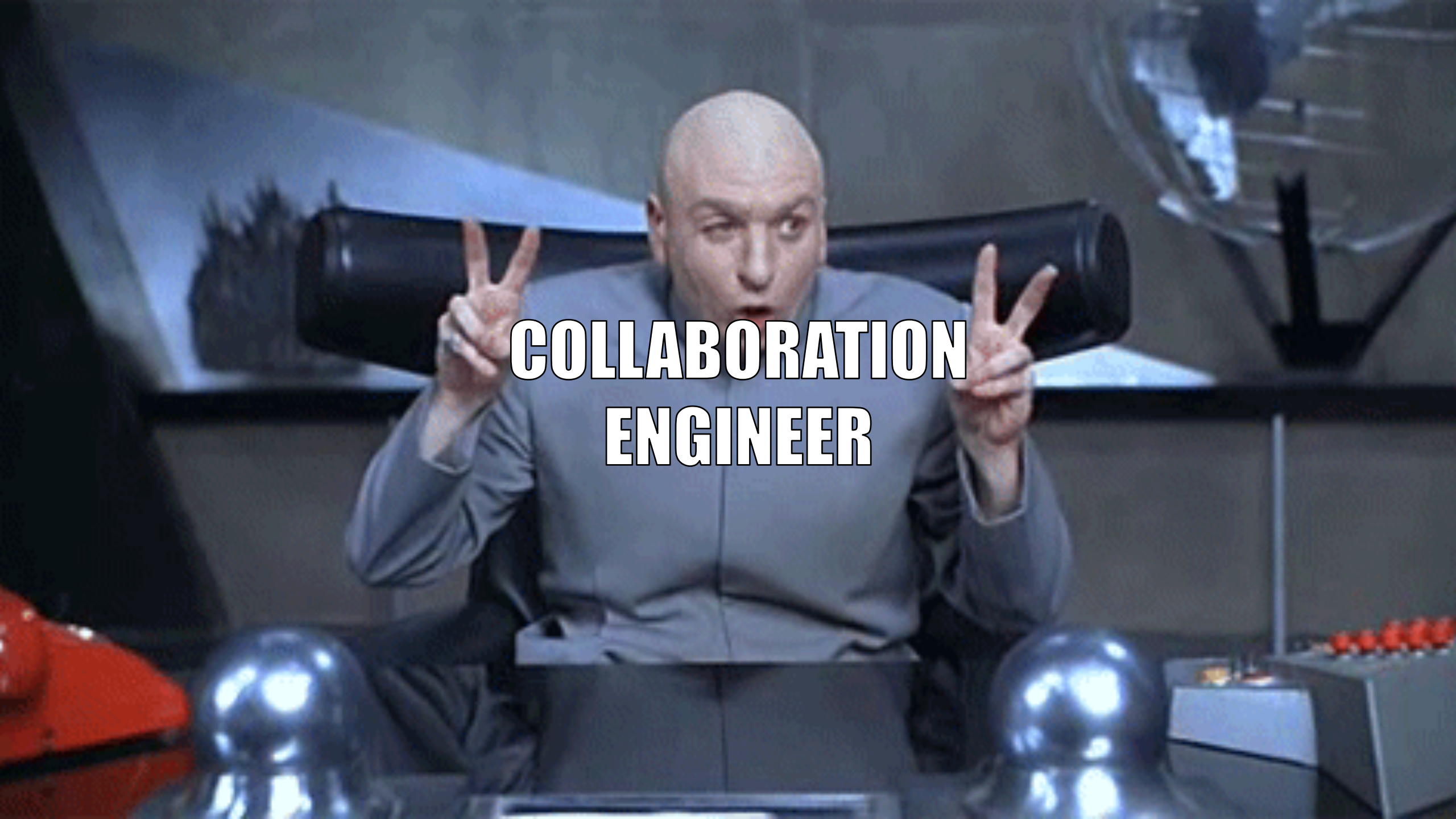




A meme featuring a man in a grey jumpsuit, bald, holding a large black cylinder over his shoulders and making peace signs with both hands. The background is a dark, industrial setting with metallic structures and a red object on the left. The text "DEVOPS ENGINEER" is overlaid in the center.

**DEVOPS  
ENGINEER**



A meme featuring Gene Wilder as Dr. Strangelove. He is bald, has a wide-eyed, crazed expression, and is wearing a grey military uniform. A large black nuclear missile is balanced horizontally across his shoulders. He is making peace signs with both hands. The background is a dimly lit control room with various dials and equipment. The text "COLLABORATION ENGINEER" is overlaid in the center in a bold, white, sans-serif font with a black outline.

**COLLABORATION  
ENGINEER**

Good News,  
Everyone!







# ACCELERATE State of DevOps 2019

Sponsored by



Pivotal

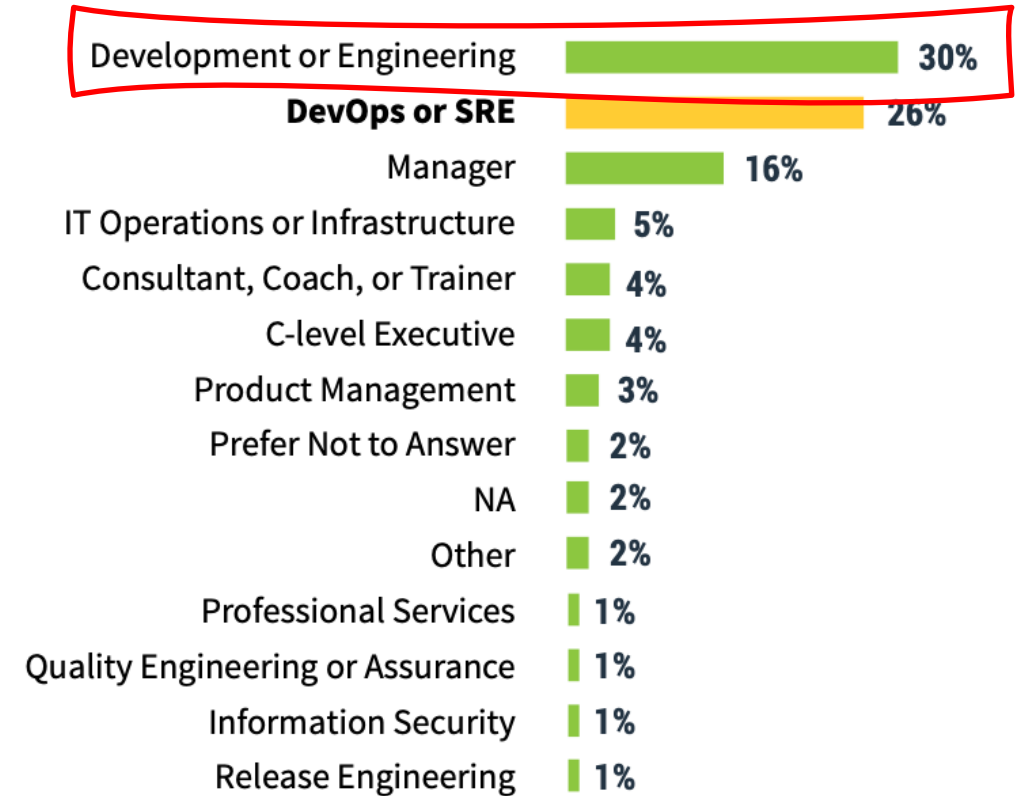
Deloitte

sumo logic



# DEPARTMENTS

Participants who work in DevOps teams have increased since we began our study, reporting 16% in 2014, 19% in 2015, 22% in 2016, and holding steady around 27% for the past three years. (Note this is within the margin of error.)



# PERFORMANCE METRICS



Lead Time

Deployment Frequency



**SOFTWARE DEPLOYMENT**

Change Fail



**SERVICE OPERATION**

Availability

Time to Restore

FOUR KEY METRICS

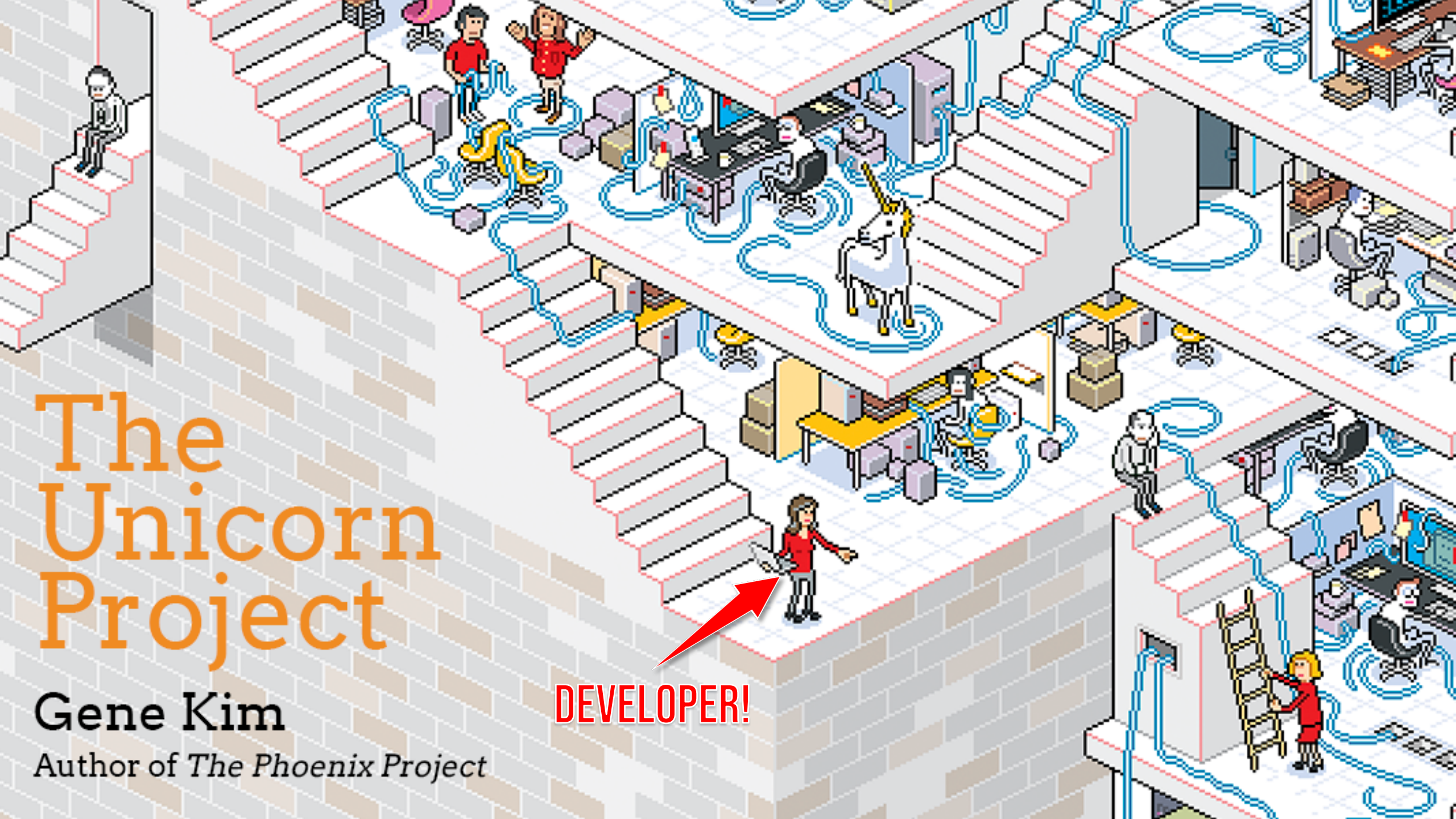
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# The Unicorn Project

Gene Kim

Author of *The Phoenix Project*

**DEVELOPER!**



# What is SRE?

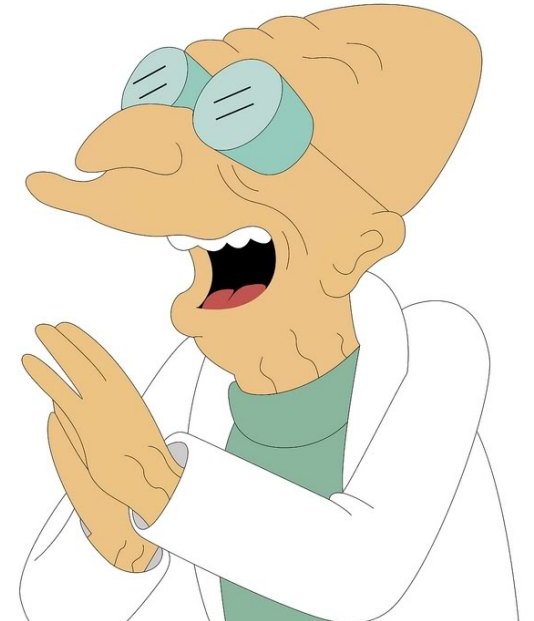
SRE is what you get when you treat operations as if it's a software problem. Our mission is to protect, provide for, and progress the software and systems behind all of Google's public services — Google Search, Ads, Gmail, Android, YouTube, and App Engine, to name just a few — with an ever-watchful eye on their availability, latency, performance, and capacity.



- ✓ Yes, DevOps is an Ops idea
- ✓ But the business liked it!
- ✓ It's quality, it's lean, it's competitive advantage, it's security
- ✓ It's not as bad as it sounds.

Now everything is code, and we love code!

- ✓ All we need to do is follow principles and practices, and that we know how to do!







**DEVOPS – OK!**



# **TWITTER ADS AND Q&A**

@jbaruch

#QConLondon

#DevOps

<https://jfrog.com/shownotes>