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
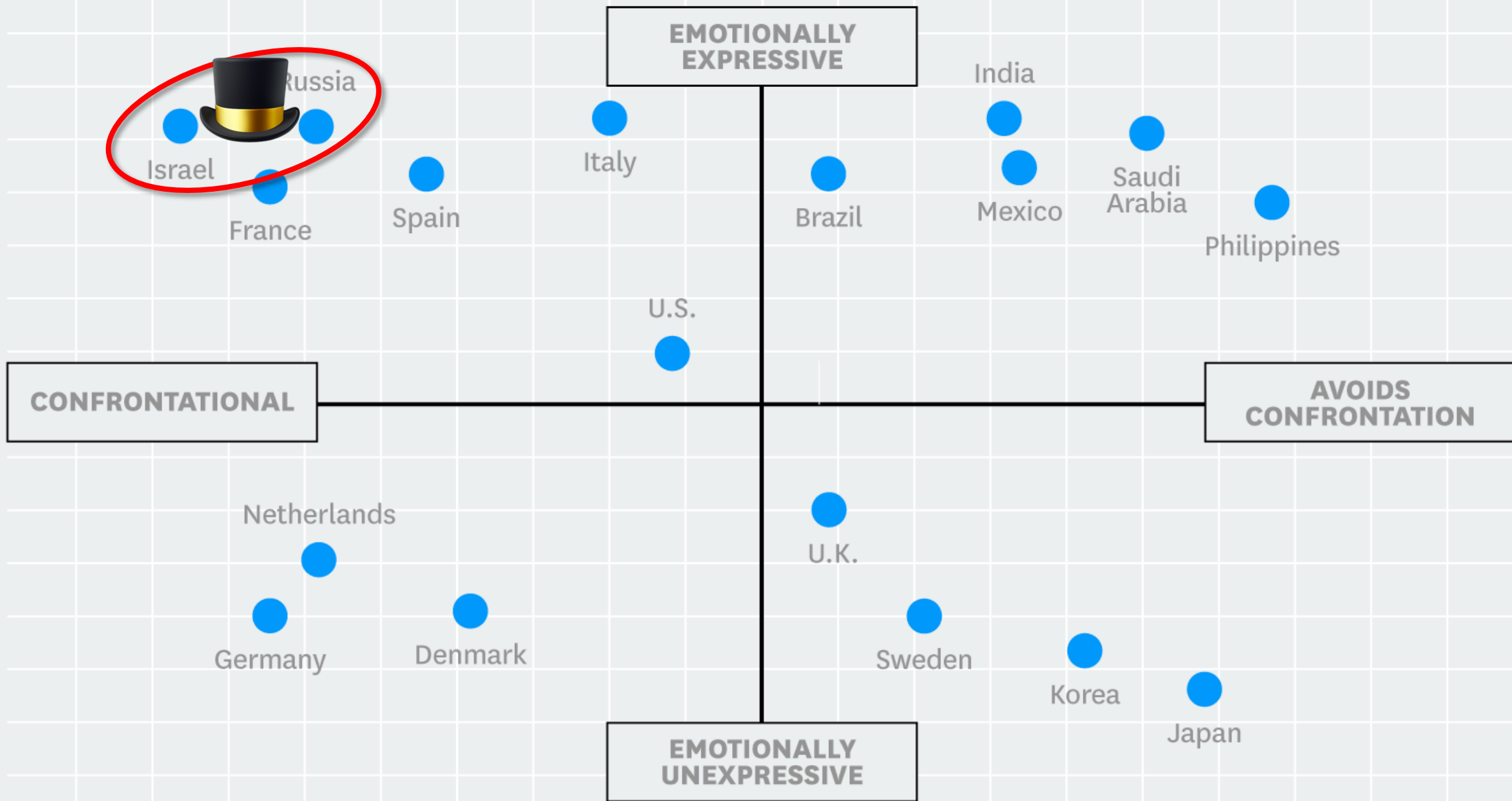
(ALSO 🎩 OF DEVELOPER ADVOCACY)

✉ JBARUCH@JFROG.COM

🐦 @JBARUCH

🎩 +1(408)890-9281

JFrog

EMOTIONALLY EXPRESSIVE

CONFRONTATIONAL

AVOIDS CONFRONTATION

EMOTIONALLY UNEXPRESSIVE

Israel
Russia
France
Spain
Italy
Brazil
India
Mexico
Saudi Arabia
Philippines
U.S.
Netherlands
Germany
Denmark
U.K.
Sweden
Korea
Japan

@ErinMeyerINSEAD's "Culture Map"

# SHOWNOTES

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    ☐ Comments, Ratings

    ☐ Raffle

## AlphaCSP

6 yrs 1 mo

### Training Division Manager

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;
Among the customers: IDF, Cisco, IDI direct insurance, Rafael, PayPal, Opal, BMC, Malam, Checkpoint, HP Software and others.... See more

### Consultant & Architect

Jan 2007 – Oct 2010 · 3 yrs 10 mos

Consulting, building architectures and design, mentoring, and developing in various Java-related projects on the topics, described in Specialties section above;
Among the customers: BMC, Logia, IDF, Starhome (Comverse), Malam, Cisco, IDI, IDIT, Isracard, Virtual Tweens, Amobee, SolarEdge, Checkpoint, Cadence, Evolven, ExLibris, Retalix, ... See more

### Senior Developer

Oct 2004 – Jan 2007 · 2 yrs 4 mos

Working on various projects in BMC Software Israel
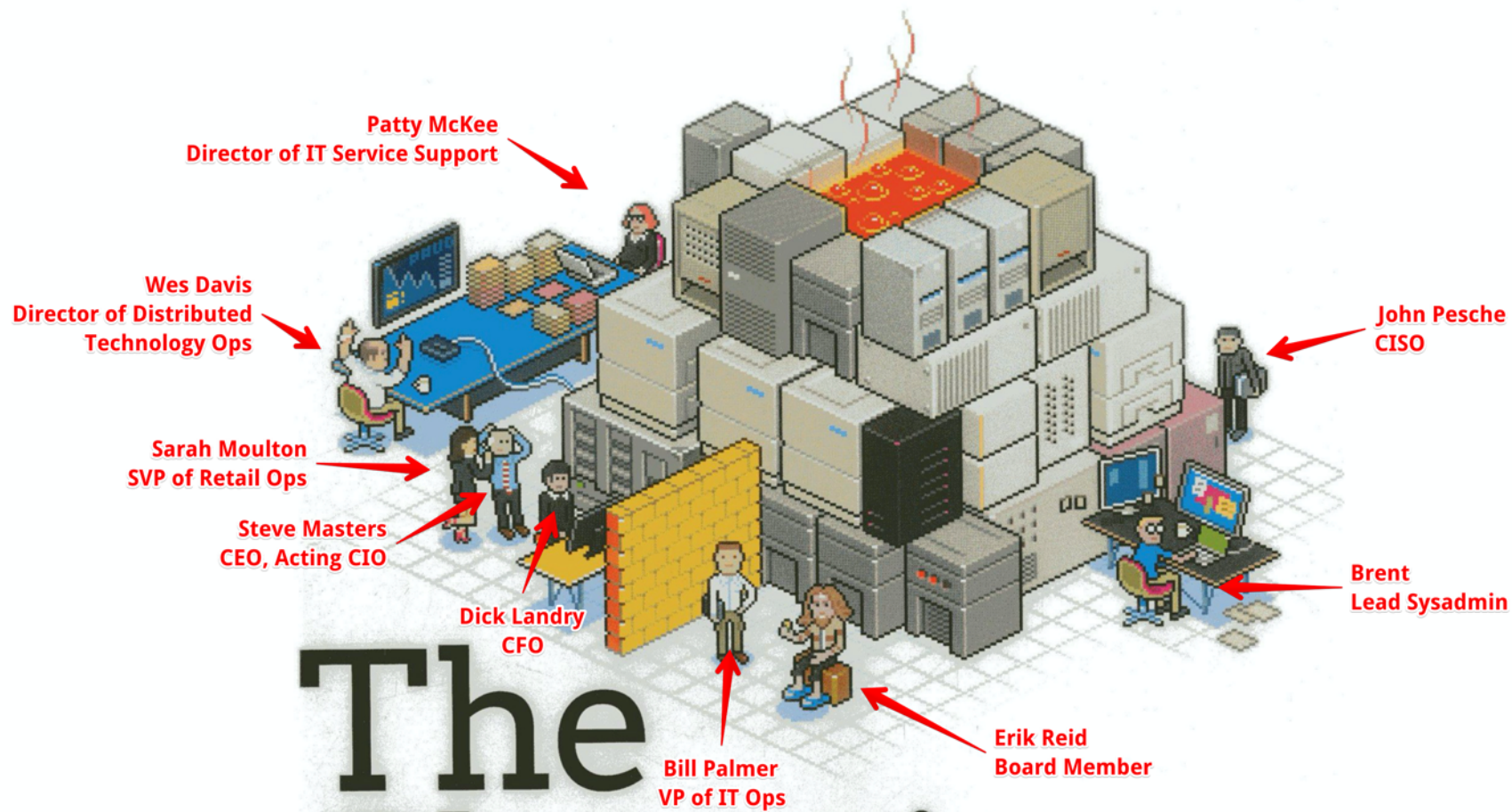
NOT A SINGLE DEVELOPER!!!

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# 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 ALLSPAW

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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 wit
content it is producing. The purpose of this project is to make this data more 'se

**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 i
8000). As Trust is very important they have high security standards to implemer
Audit which they successfully past, the next step was to improve the reliability o
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 then 35.000 users, the organization is
automate the identity and access management of their IT environment.
... See more

**System Architect/Technical Consultant/Technical Project Manager (**
swITch
Mar 2004 – Jan 2005 · 11 mos

Intranet portal project
* With the ultimate goal to create a web-based desktop, an intranet portal was d
based upon Sun ONE Portal and Citrix.
* Via portal technology it became possible to work in the same personalized env

**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 infrastructu
upgraded.
* While doing the upgrade, a complete high availability design was done for furth

---

## 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
product management. The other is an experiential class in which students
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 Ser**
GSA
Jan 2016 – Jan 2017 · 1 yr 1 mo
San Francisco

In this role I was responsible for managing production infrastructure for all
operated by the 18F (now Technology Transformation Services) team, part
Government's General Services Administration. I also worked with teams a
agencies to help them adopt good practice designing, managing, and deliv

**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 Pracitices**
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.

what is devops

Q Search

All ▶ Videos 🖼 Images 📰 News 📖 Books ⋮ More          Settings    Tools

About 82,600,000 results (0.44 seconds)

## Videos


**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**
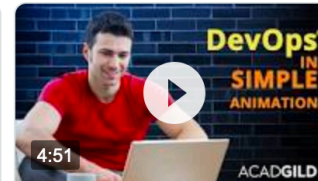
**What is DevOps? | DevOps Introduction in Simple Animation ...**

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 ▾
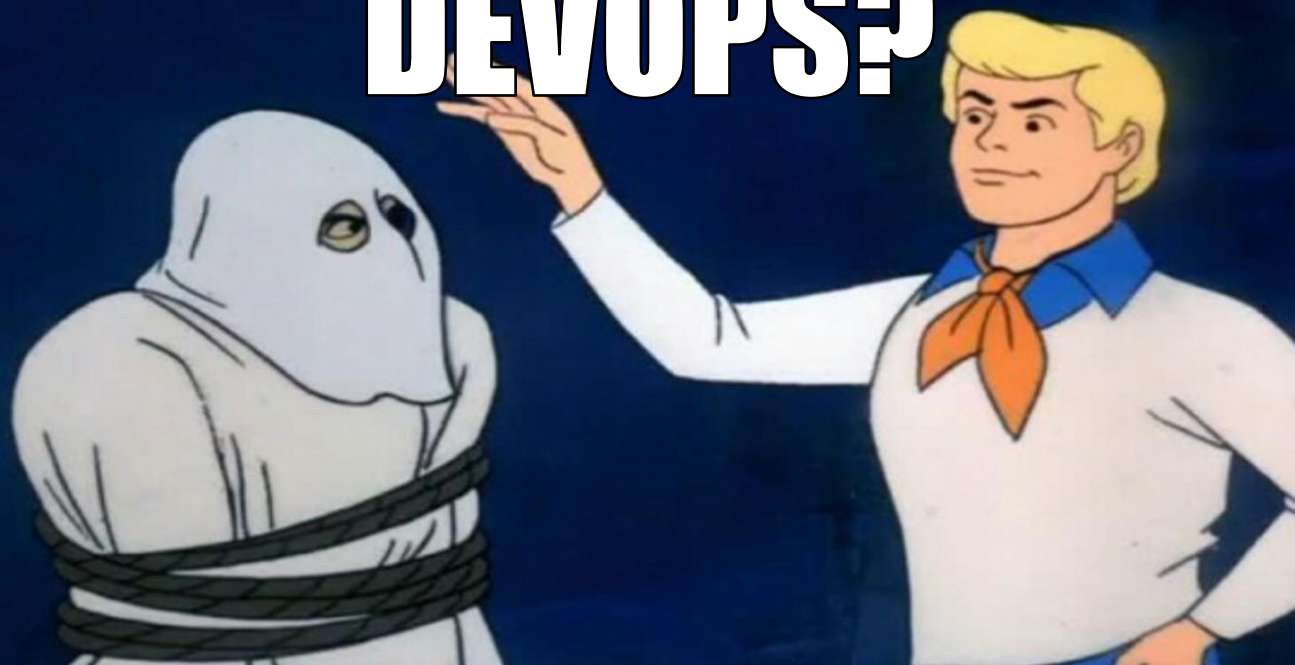
### What is DevOps? DevOps Explained | Microsoft Azure

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!

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BUT WHY?

DevOps    System Administration    Career Transitions    +2    ✏

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

✏ Answer    🔊 Follow · 11    →○ Request    💬  ⤓  f  🐦  ↱  ⚬⚬⚬

## 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



$43K
Low

$65K
Average

$93K
High

## Additional Cash Compensation ⓘ

| Average | $3,807 |
|---|---|
| Range | $932 - $12,002 |

**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



$72K
Low

$100K
Average

$146K
High

## 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

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LinkedIn search interface

**Search bar:** devops engineer | United States

**Filters:** 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

# AWS Certified DevOps Engineer – Professional

**Issued by [Amazon Web Services Training and Certification](#)**

Earners of this certification have an extensive understanding of implementing continuous delivery systems and methodologies on the AWS Cloud. They demonstrated the ability to automate resilient applications and infrastructure deployments using AWS services. Badge owners are able to enforce policies, implement automated monitoring, and configure event management of an environment.

**Type:** Certification

---

**Level:** Advanced

[Additional Details](#)

## Skills

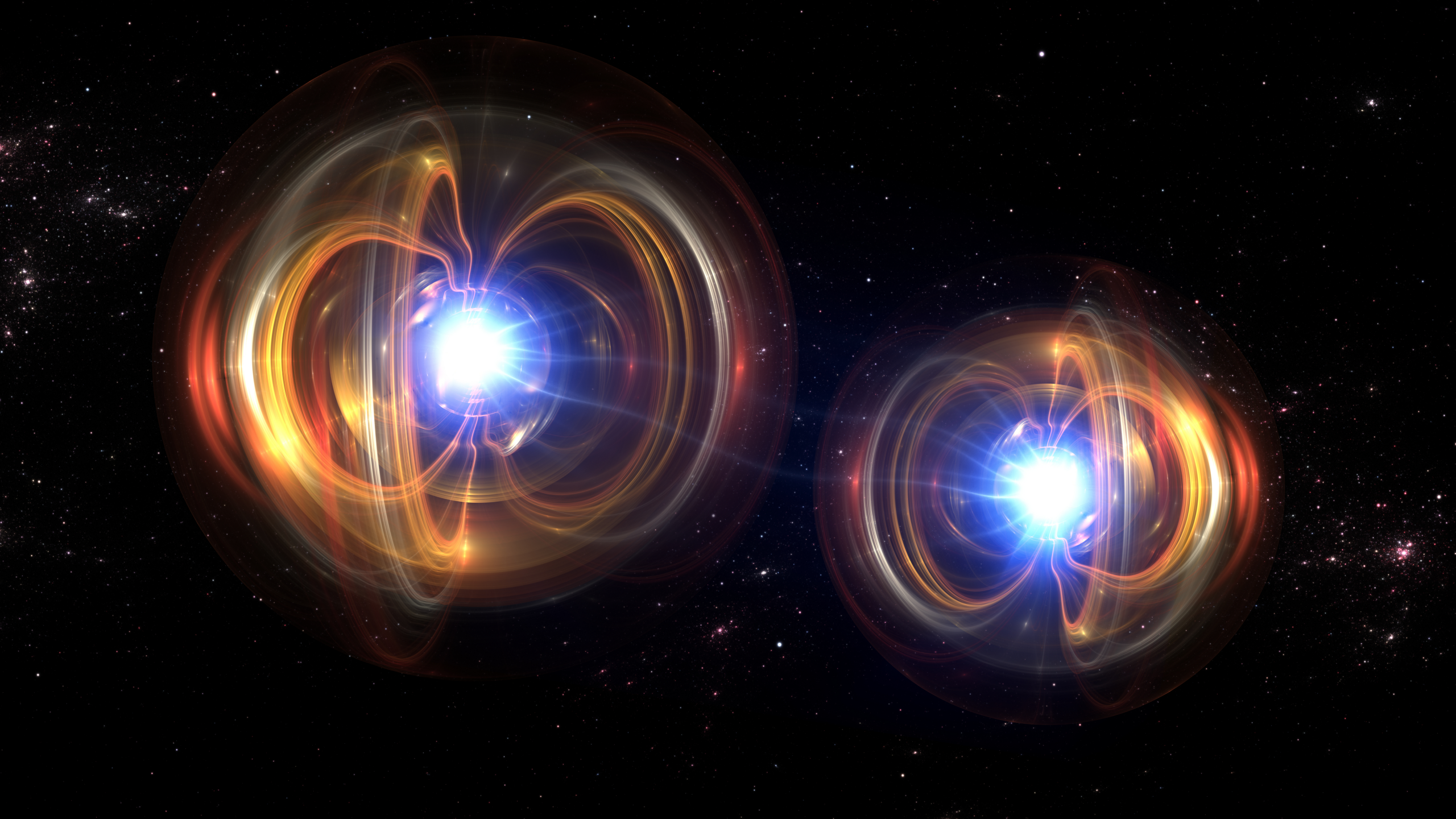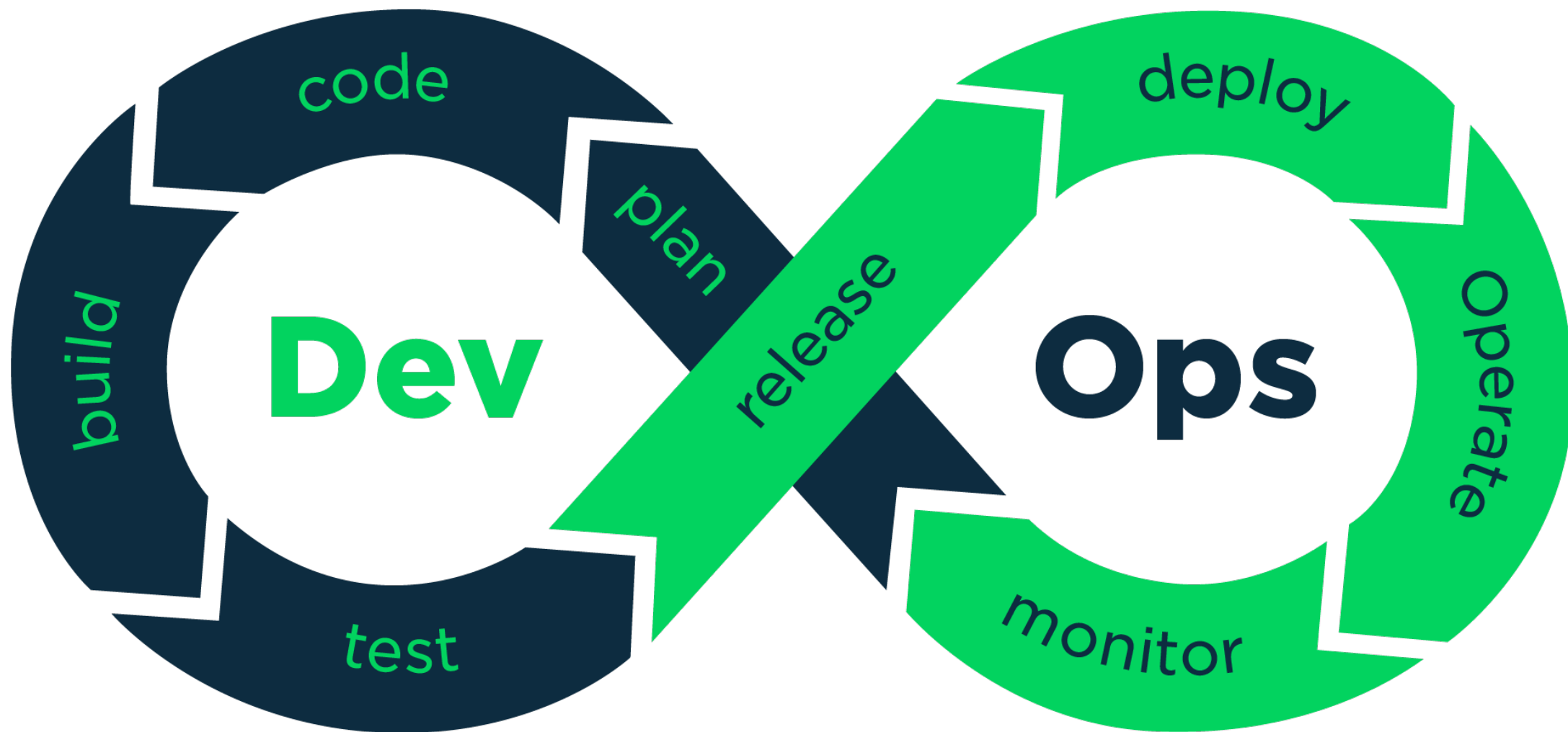| Amazon Web Services | AWS | AWS Certification | AWS Cloud | Cloud Certification | DevOps |
|---|---|---|---|---|---|

| DevOps And Automation |
|---|

## Earning Criteria

☑ Successfully passed the AWS Certified DevOps Engineer – Professional exam.

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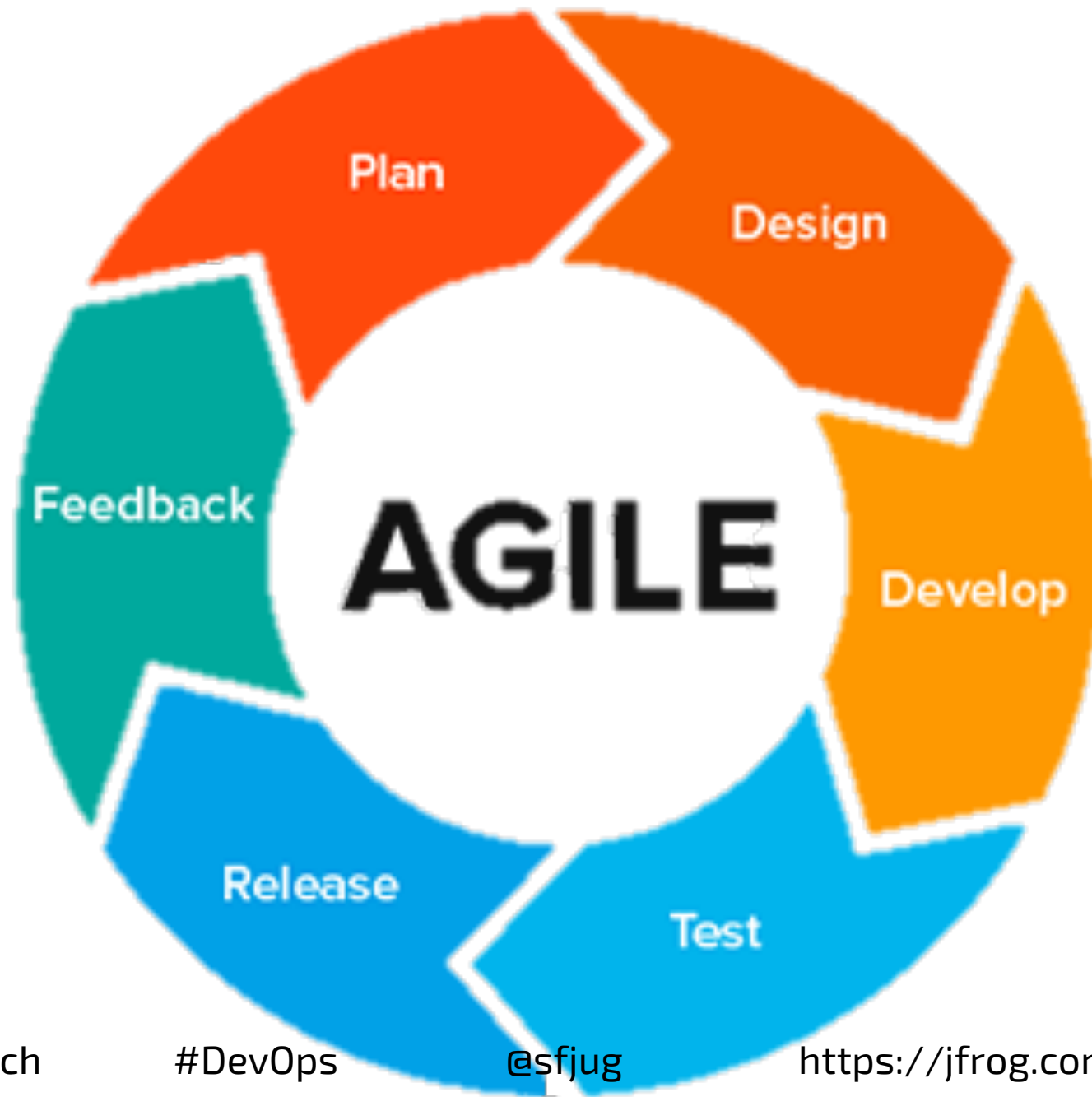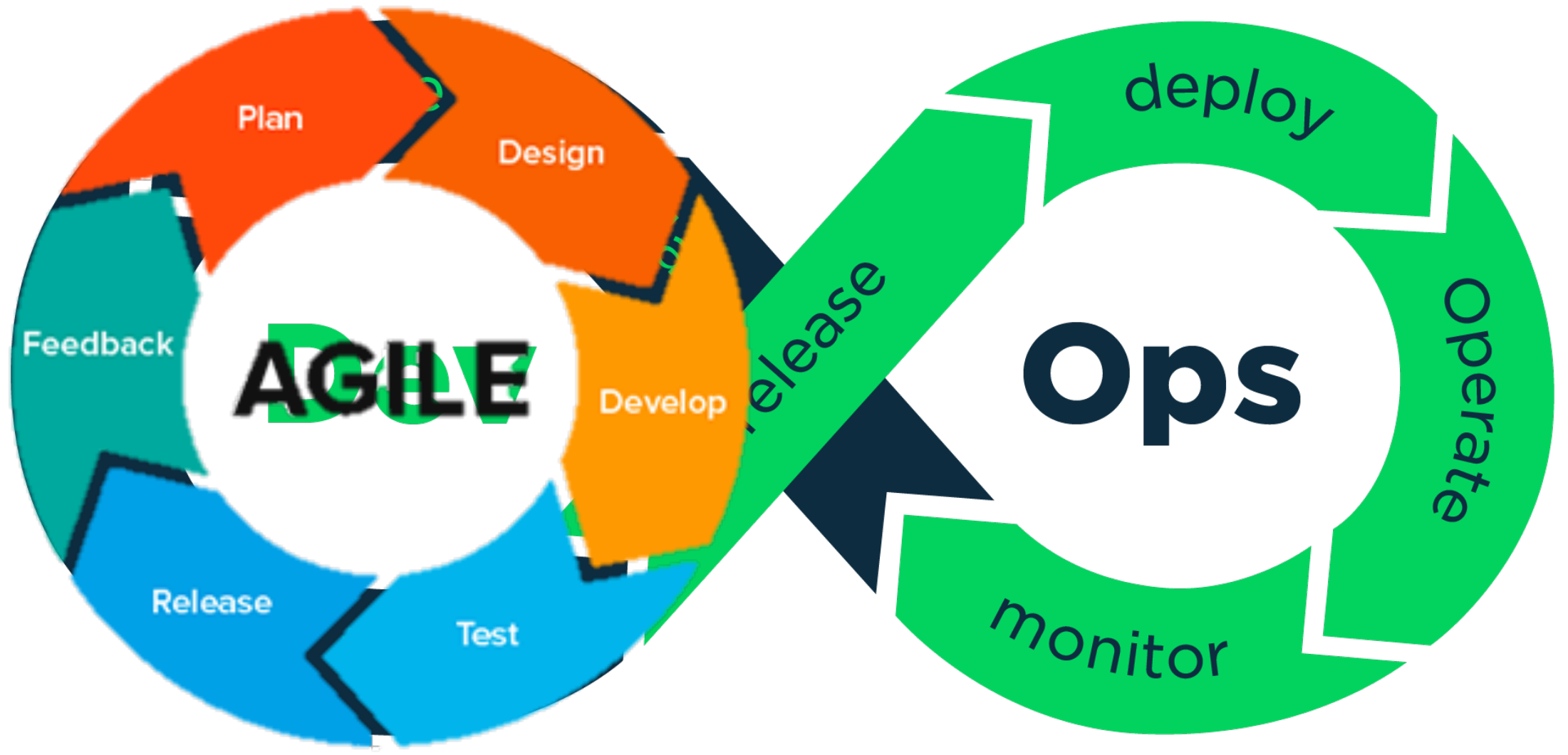
**2018**

*Accelerate:*
# State of DevOps

Strategies for a New Economy

## 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)?

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

# TYPES OF WORK IN THE PHOENIX PROJECT AND DORA REPORT

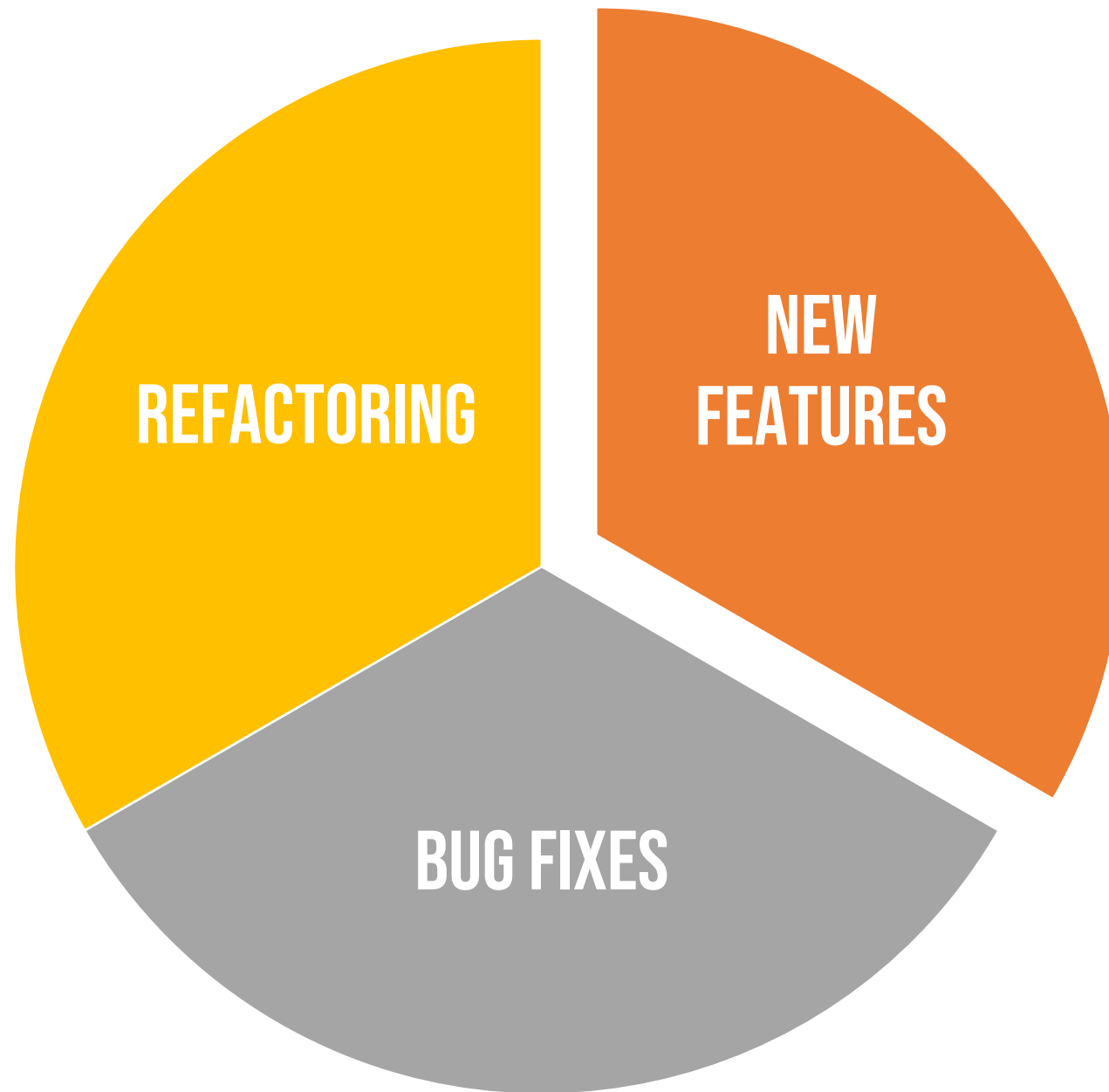| | |
|---|---|
| Planned Work | Business projects or new features |
| Internal Projects | Server migrations, software updates and so on |
| Changes | Driven by feedback on completed work |
| Unplanned Work | Support escalations and emergency outages |

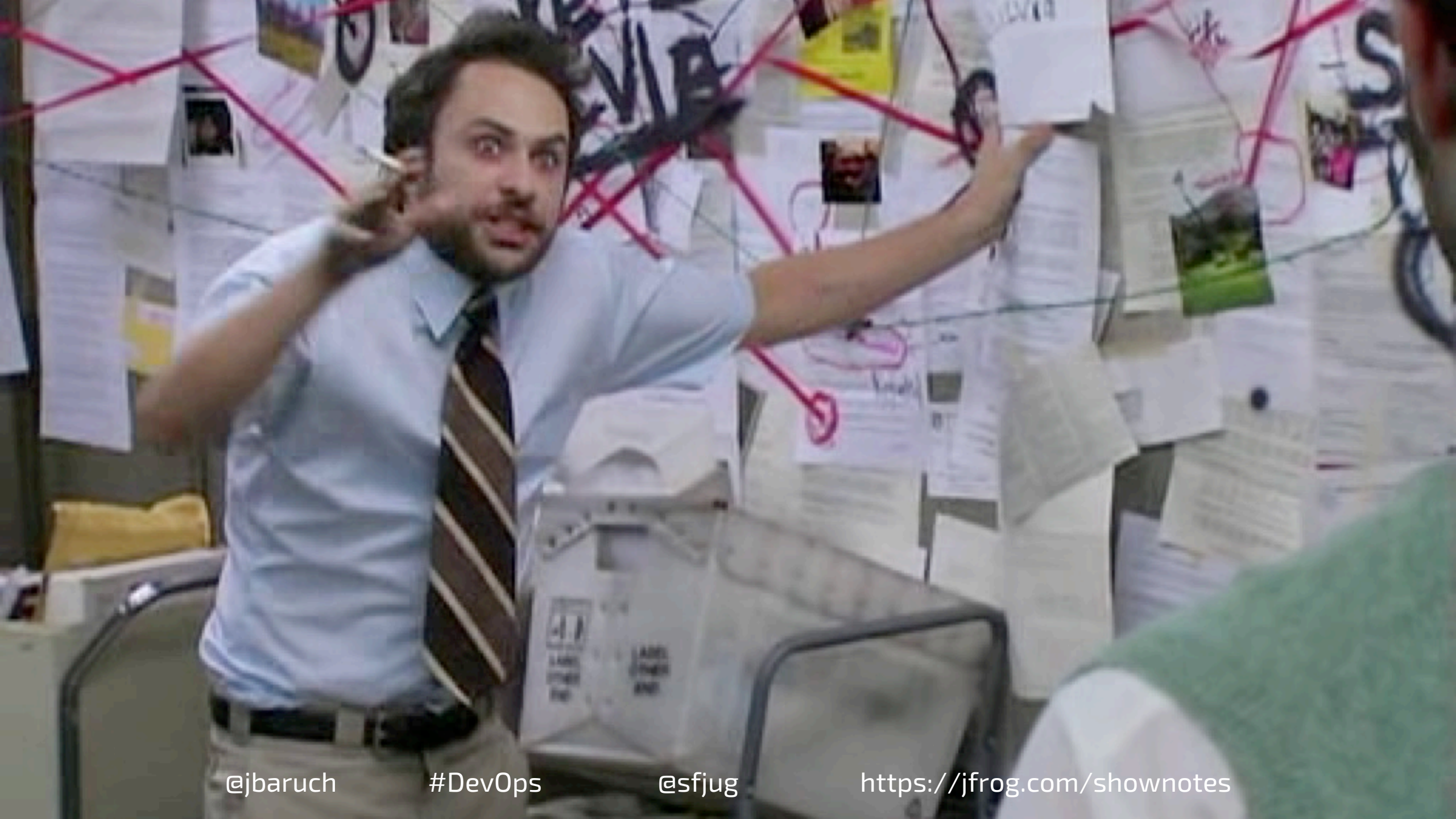@jbaruch          #DevOps          @sfjug          https://jfrog.com/shownotes

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# Manifesto for Software Craftsmanship

**Raising the bar.**

As 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.

# 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, understanable

✓Our code is easy to deploy

✓Non-functional requirements are met

✓We didn't incur any technical dept (and even reduced some)

✓Our tests pass

✓QA took a look and they are happy

✓Team lead took a look, and they are happy

✓Product owner took a look, and they are happy

✓Client took a look, and they are happy

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TRACTORMEN, IMPROVE THE QUALITY OF TRACTOR-TRAILER TRACKING!

WayBackMachine

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12 HOURS MAINTENANCE FOR UPDATE (TO ENSURE QUALITY)

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# CODE QUALITY IS NOT ENOUGH

**Annual Size of the Global Datasphere**

175 ZB

Zetabytes: 180, 160, 140, 120, 100, 80, 60, 40, 20, 0

Years: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
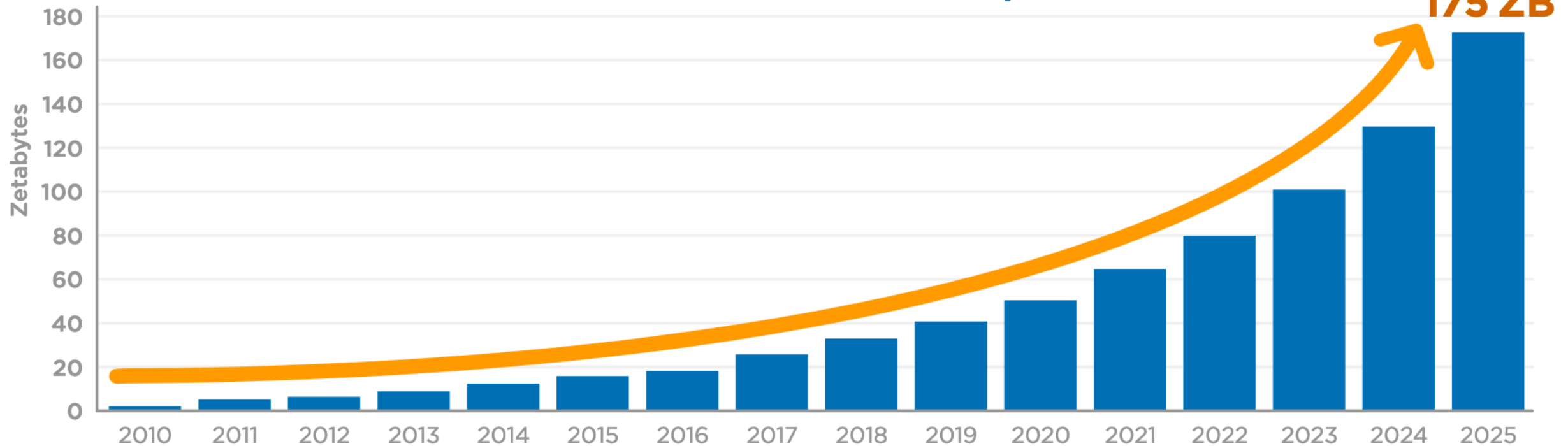
Source: Data Age 2025, sponsored by Seagate with data from IDC Global DataSphere, Nov 2018

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PRODUCTION STEAMS ITS WAY TO THE DEVELOPERS!

WELCOME TO ON-CALL!

# SOFTWARE CRAFTSMAN DEFINITION OF DONE

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

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# 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
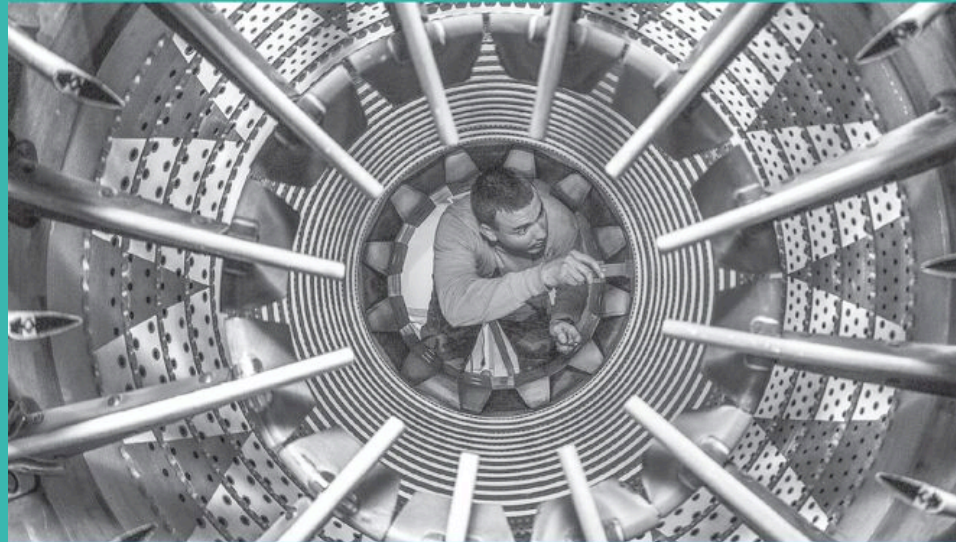Keep development, staging, and production as similar as possible

### XI. Logs
Treat logs as event streams

### XII. Admin processes
Run admin/management tasks as one-off processes

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# SRE TOOK A LOOK, AND THEY ARE HAPPY

✓We understand how are code is going to be deployed

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✓Our code starts fast and dies fast

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✓Our code supports feature flags

✓Our code backwards and forwards compatible

✓Our code emits event streams

✓Our code is lean

Save MORE by wasting LESS

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| Summary | USD |
|---|---|
| **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 | ▓▓ |

ABOUT  **SCHEDULE**  SPEAKERS  SPONSORS  VENUE  **TRAINING & CERTIFICATION**

# 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!

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# 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 ¹/₇ as likely to fail)

Throughput Stability

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# Stopping Distances

## Key

**Thinking Distance**          **Braking Distance**

## Formula

Thinking Distance + **Braking Distance** = Stopping Distance

**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)

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IDENTIFY → FIX → UPDATE
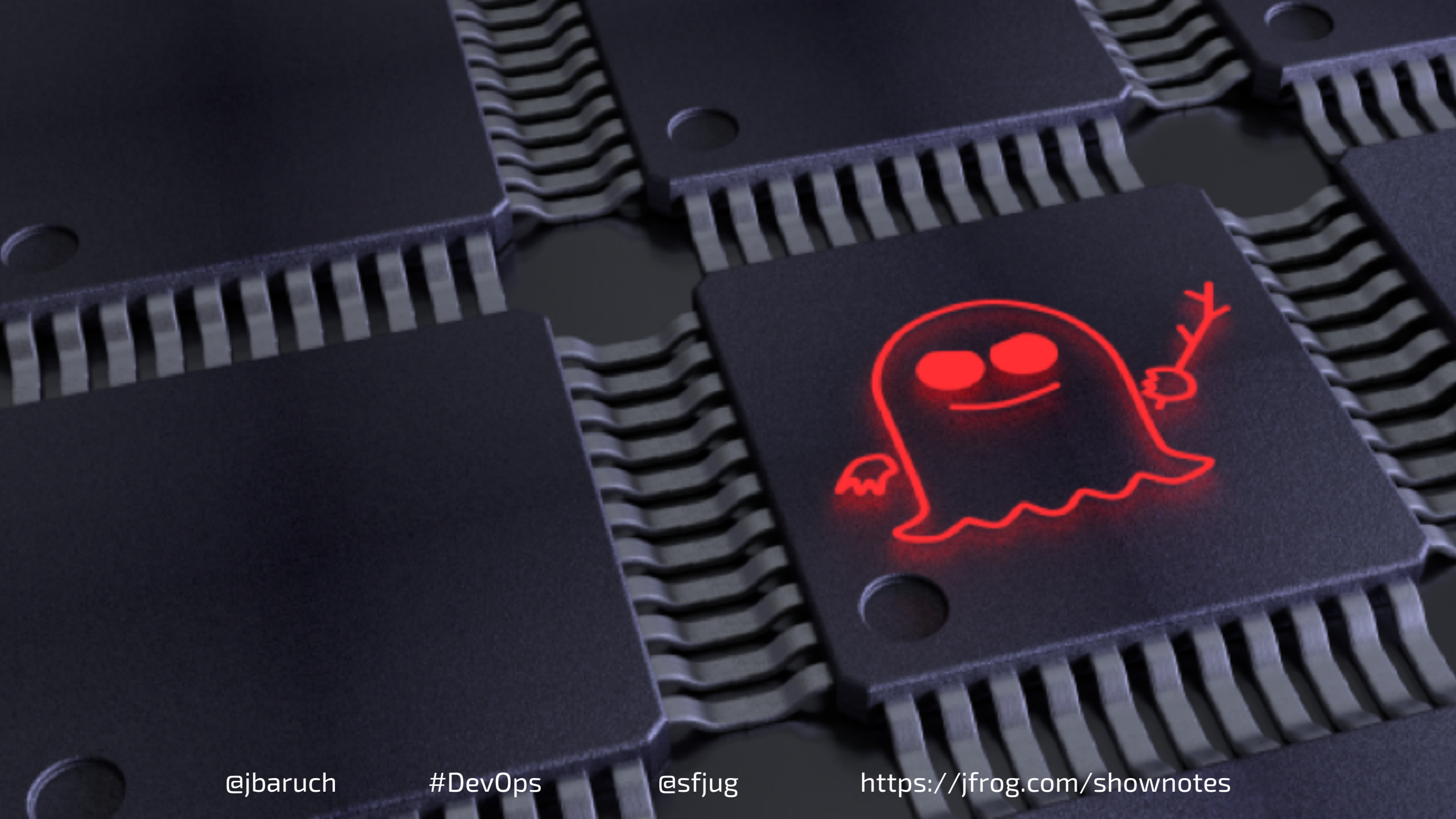
# Chips may be inherently vulnerable to Spectre and Meltdown attacks

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…

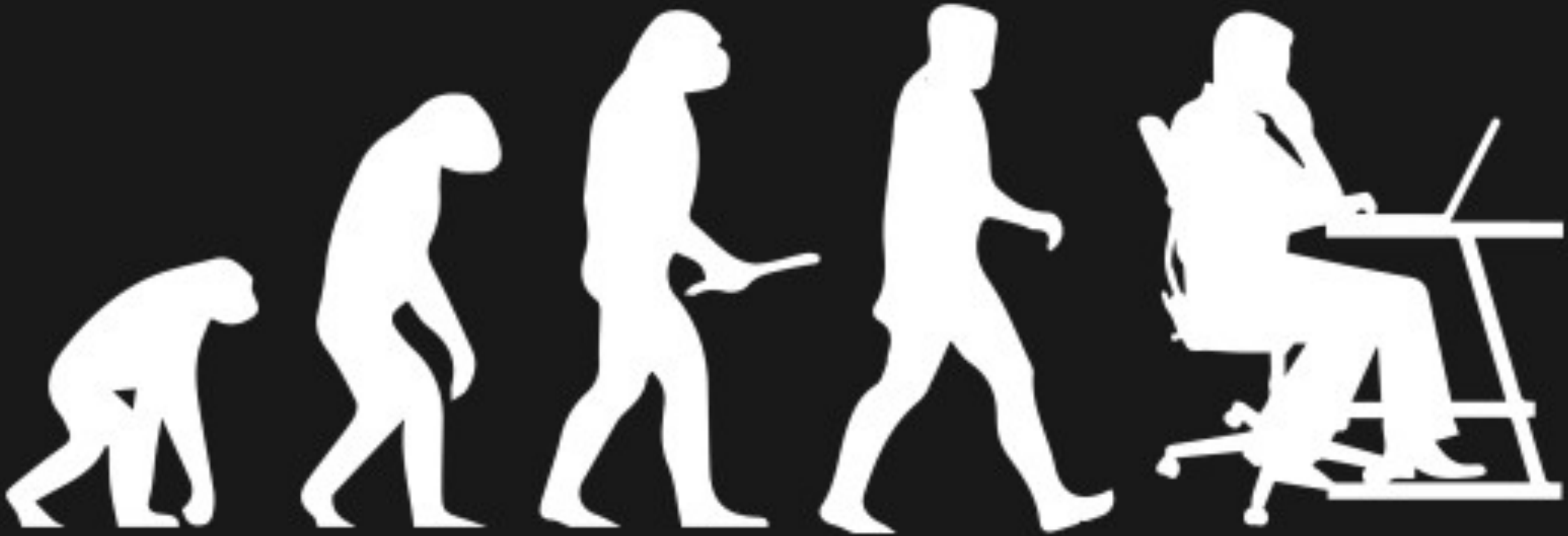**208 TIMES MORE** frequent code deployments

**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 $^1/_7$ as likely to fail)

@jbaruch   Stability #DevOps   @sfjug   https://jfrog.com/shownotes

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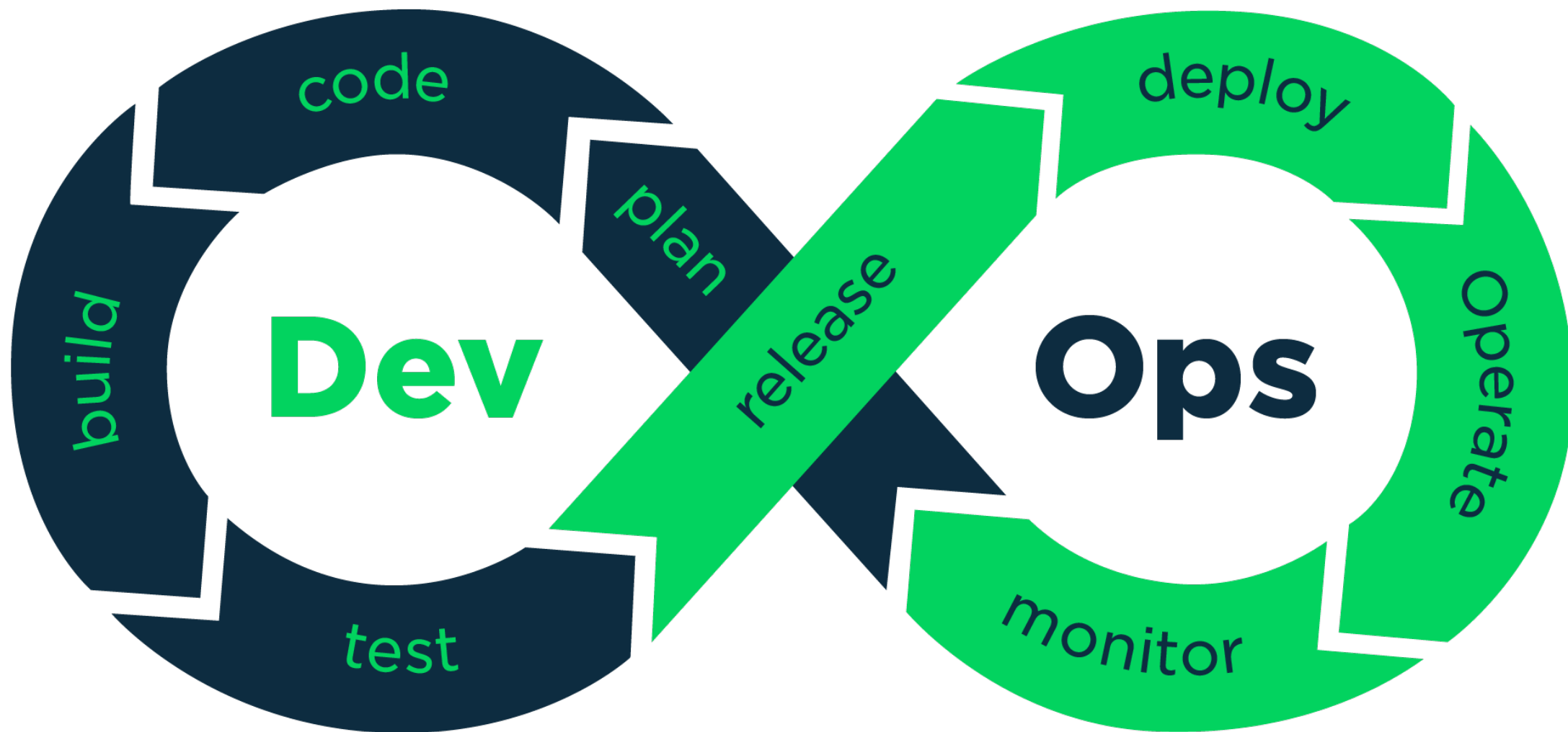
# DEVOPS IS A MEAN TO AN END

Quality

Lean software

New Features

Security

WELCOME TO DEVOPS!
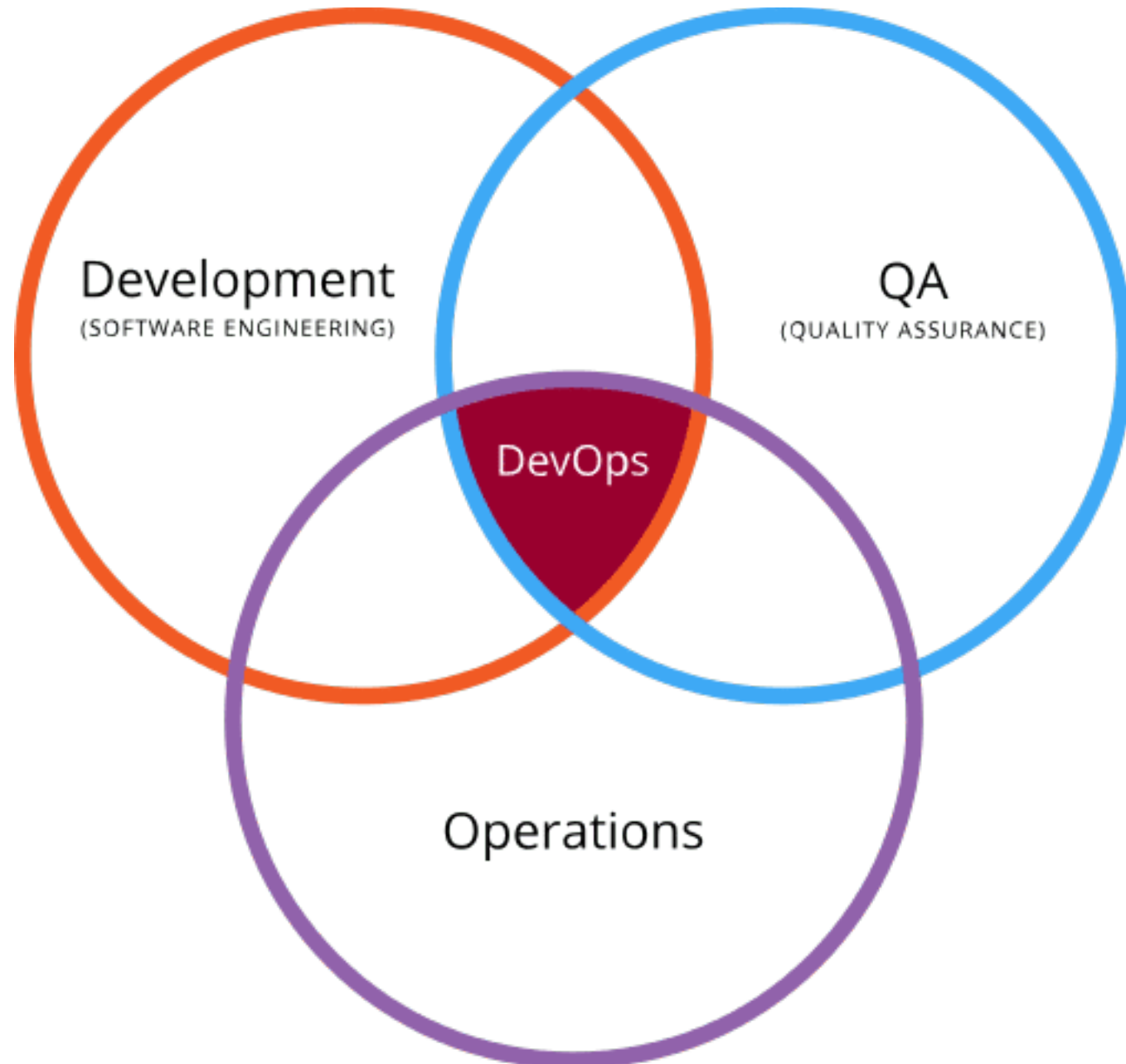
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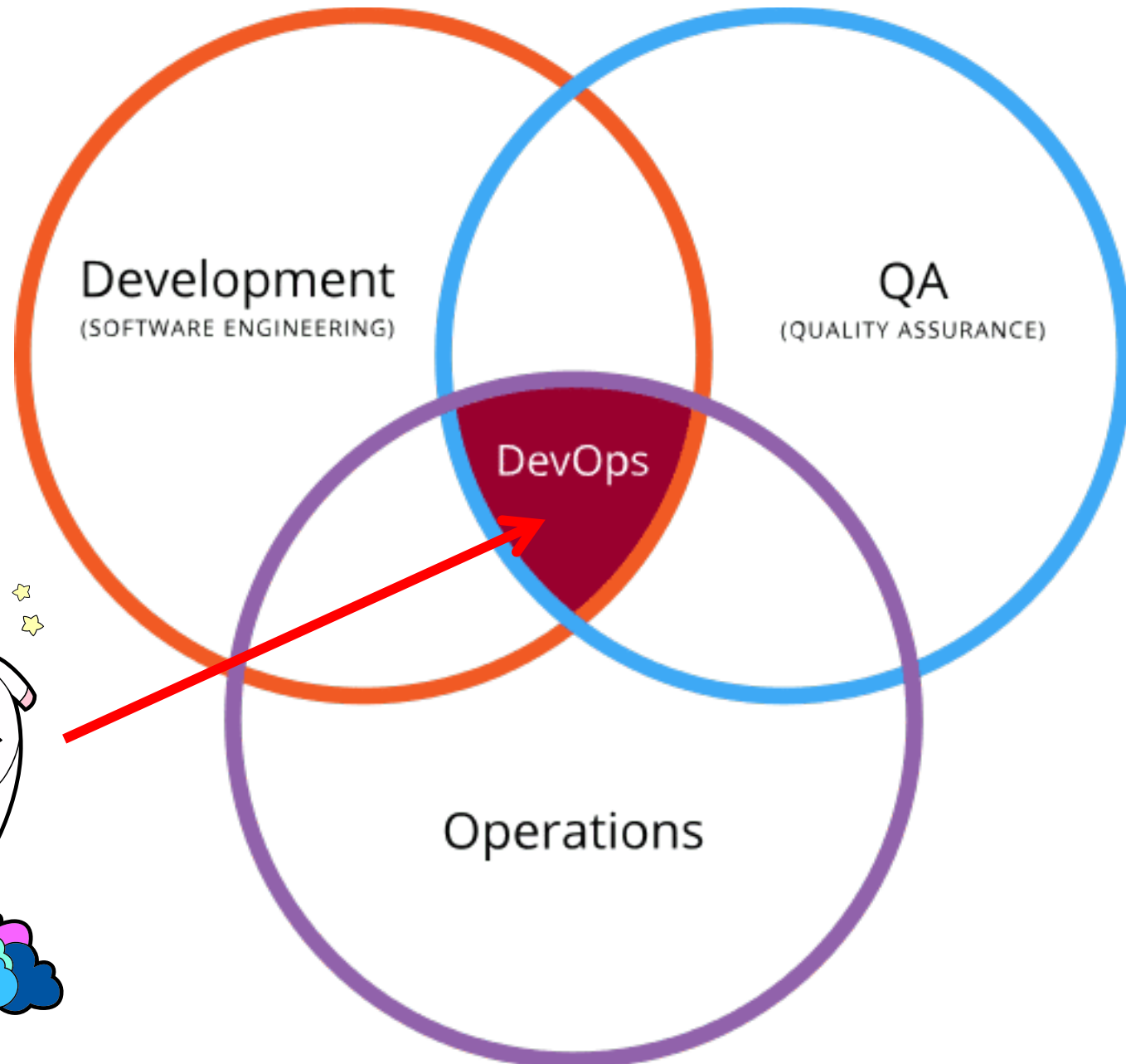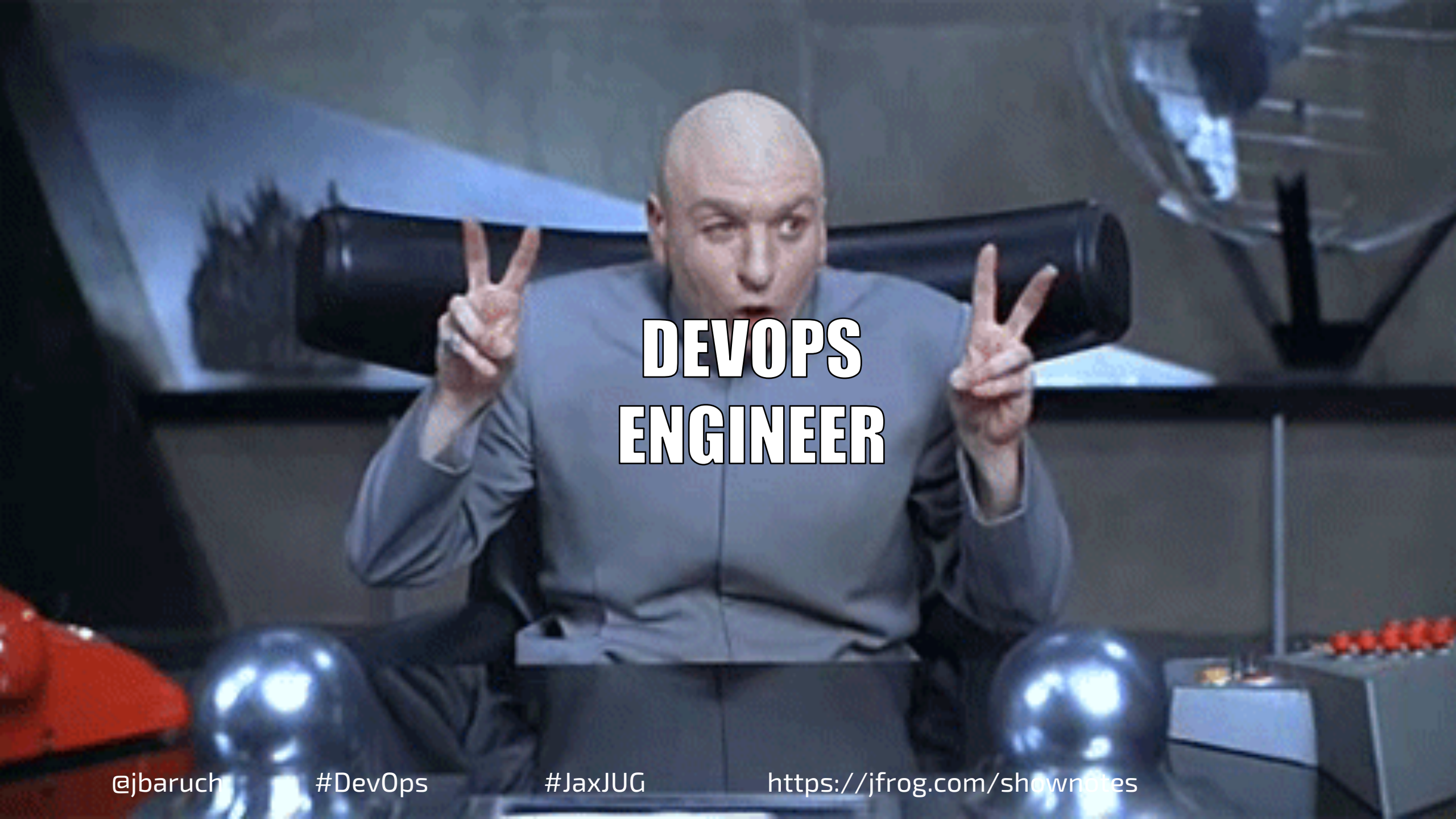
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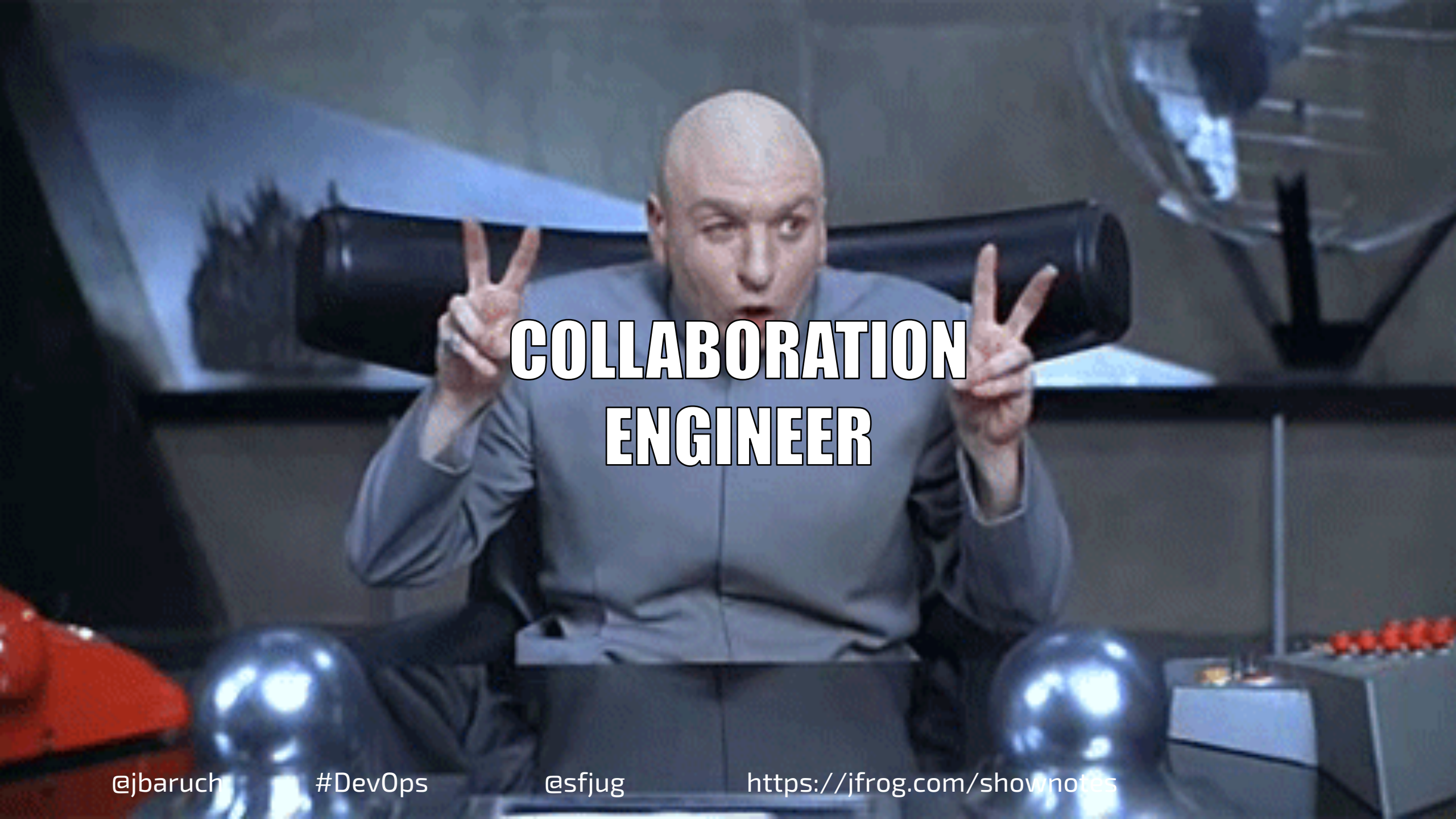
**DEVOPS ENGINEER**

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COLLABORATION ENGINEER

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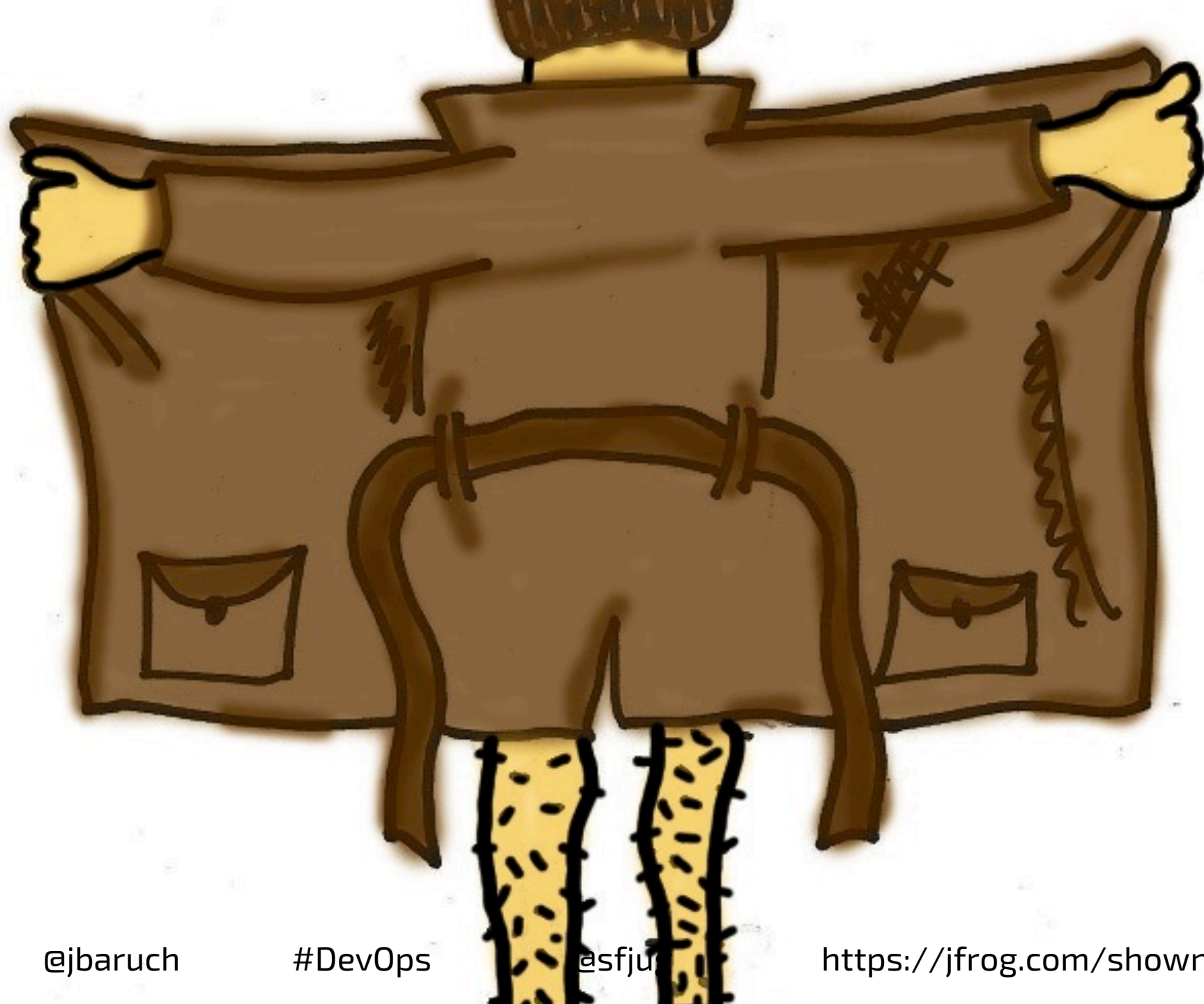
ACCELERATE

# State of DevOps

# 2019

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# 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.)

| Department | Percentage |
|---|---|
| Development or Engineering | 30% |
| DevOps or SRE | 26% |
| Manager | 16% |
| IT Operations or Infrastructure | 5% |
| Consultant, Coach, or Trainer | 4% |
| C-level Executive | 4% |
| Product Management | 3% |
| Prefer Not to Answer | 2% |
| NA | 2% |
| Other | 2% |
| Professional Services | 1% |
| Quality Engineering or Assurance | 1% |
| Information Security | 1% |
| Release Engineering | 1% |

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# PERFORMANCE METRICS

**SOFTWARE DEVELOPMENT**

**SOFTWARE DEPLOYMENT**

**SERVICE OPERATION**

| Lead Time | Change Fail | Availability |

| Deployment Frequency | Time to Restore |

FOUR KEY METRICS

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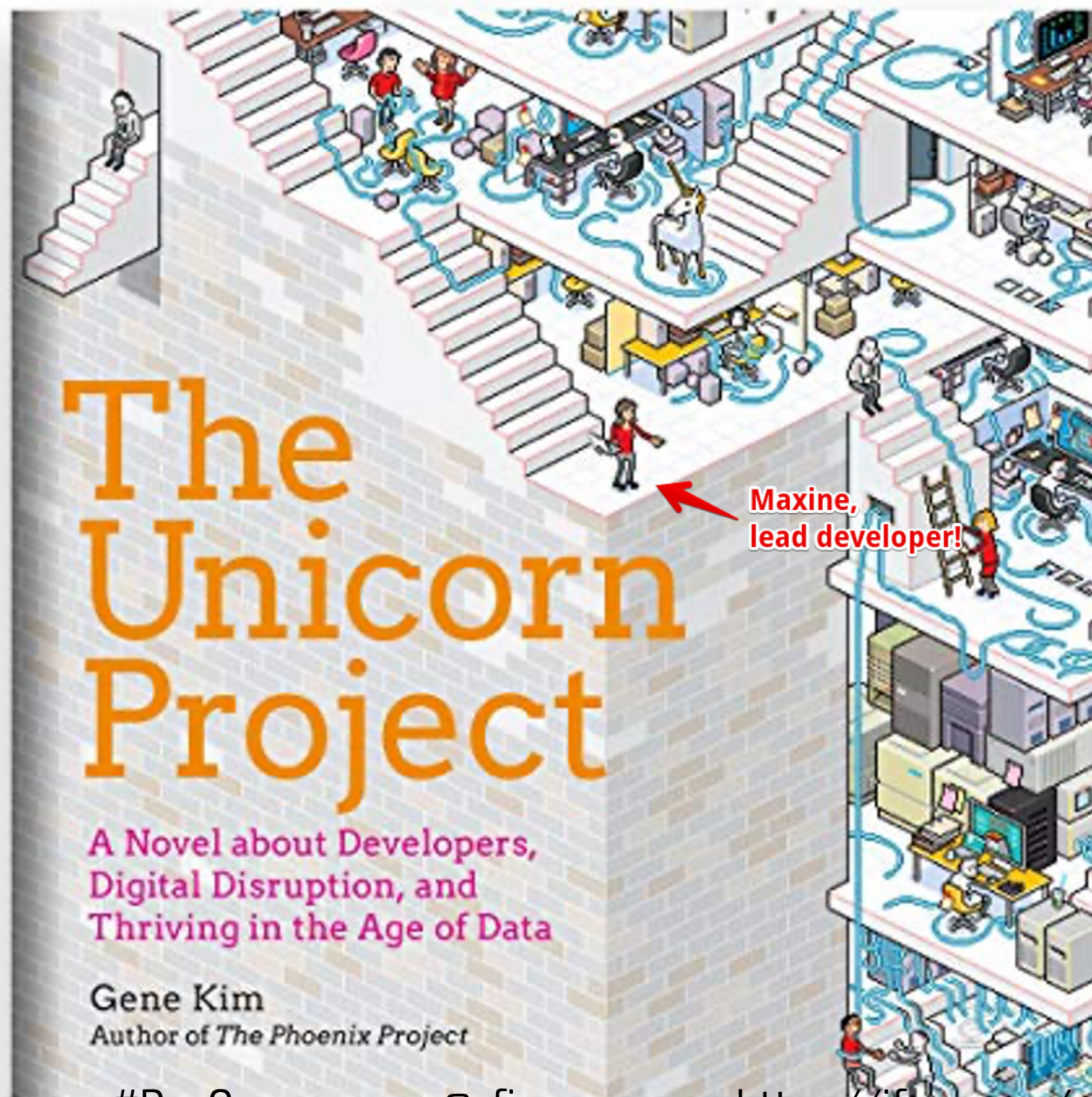
The Unicorn Project

A Novel about Developers, Digital Disruption, and Thriving in the Age of Data

Gene Kim
Author of *The Phoenix Project*

Maxine, lead developer!

**Google**

What is SRE?   In Conversation   Resources

Read SRE Books

# 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.

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✓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!

# TWITTER ADS AND Q&A

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#DevOps

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