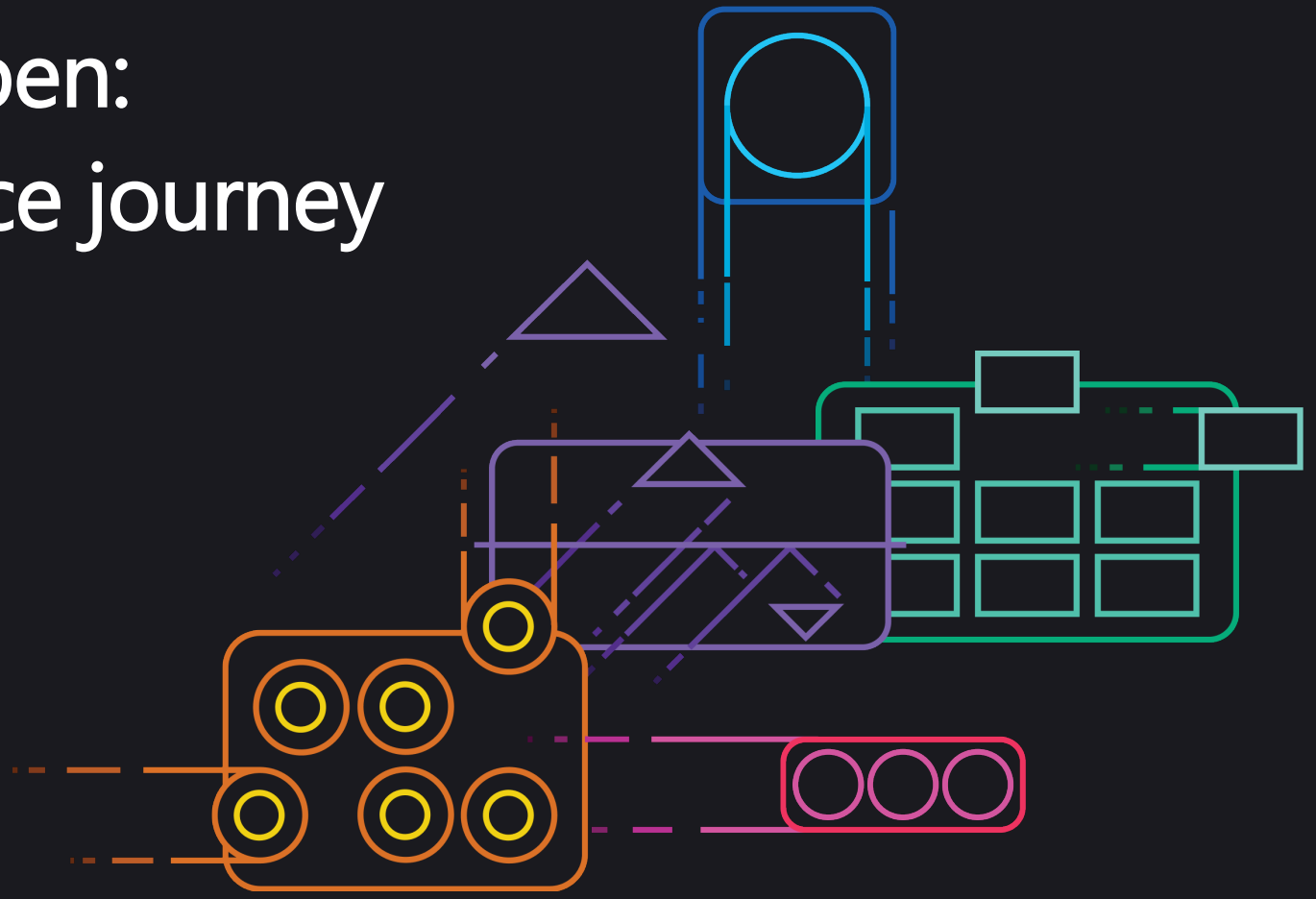
Survival of the most open: Microsoft's Open Source journey

Sasha Rosenbaum
@DivineOps



~7 years in dev…

~3 years in ops…

~5 years in cloud architecture / product management

Microsoft => GitHub

@DivineOps

Microsoft

MICROSOFT

MICROSOFT
WINDOWS
Version 3.1
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Microsoft

MICROSOFT

INTE
PROT
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SINGLE STEP
EXAMINE
EXAMINE NEXT
DEPOSIT
DEPOSIT NEXT
RESET
CLR
PROTECT
UNPROTECT
AUX
AUX
MITS
ALTAIR 8800 COMPUTER

“As the majority of hobbyists must be aware,

most of you steal your software.”

Bill Gates, “An Open Letter to Hobbyists”
February 3, 1976

“There is this thing
called the GPL,
which „
we disagree with˙
- Bill Gates

“Linux is a Cancer.”

- Steve Ballmer

Microsoft
Linux

“Judge us by the actions we have taken in the recent past, our actions today and in the future”
—Satya Nadella, CEO
Microsoft

2019

Microsoft ❤ Open Source

2014

Satya "Microsoft loves Linux"

Microsoft org on GitHub created

.NET Foundation created

2015

Visual Studio Code released

HDInsight (Hadoop/ Ubuntu) announced

Microsoft jointly forms Node.js foundation

2016

.NET Core 1.0

PowerShell Core

Windows Subsystem for Linux in Windows 10

Microsoft joins Linux Foundation

GitHub recognizes Microsoft as a top open source contributor

2017

Microsoft Azure Kubernetes Service launched

Draft, Brigade, Kashti projects submitted to Kubernetes community

Microsoft joins Cloud Native Computing & Cloud Foundry Foundations

SQL 2017 on Linux

Windows source code moved to Git

2018

Visual Studio Code ranked #1 developer tool

FHIR Server for Azure Released

Azure Sphere with Linux kernel

GitHub acquisition

~5,000 Microsoft employees committing to open source projects on GitHub

Azure trending to 50% Linux

2019

~25k Microsoft employees committing to open source projects on GitHub

>8.8k open source projects in Microsoft organizations

Edge moved to Chromium

Windows Terminal

GitHub Sponsors (with matching)

2014 2015 2016 2017 2018 2019

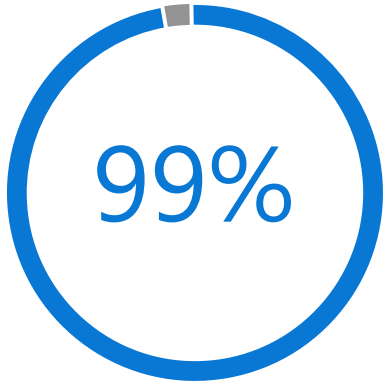
Microsoft’s Open Source Journey

7 Steps to becoming an Open Source Enterprise

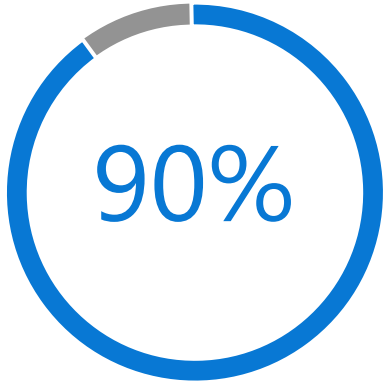
Step One: Consume Responsibly

Do you use open source?

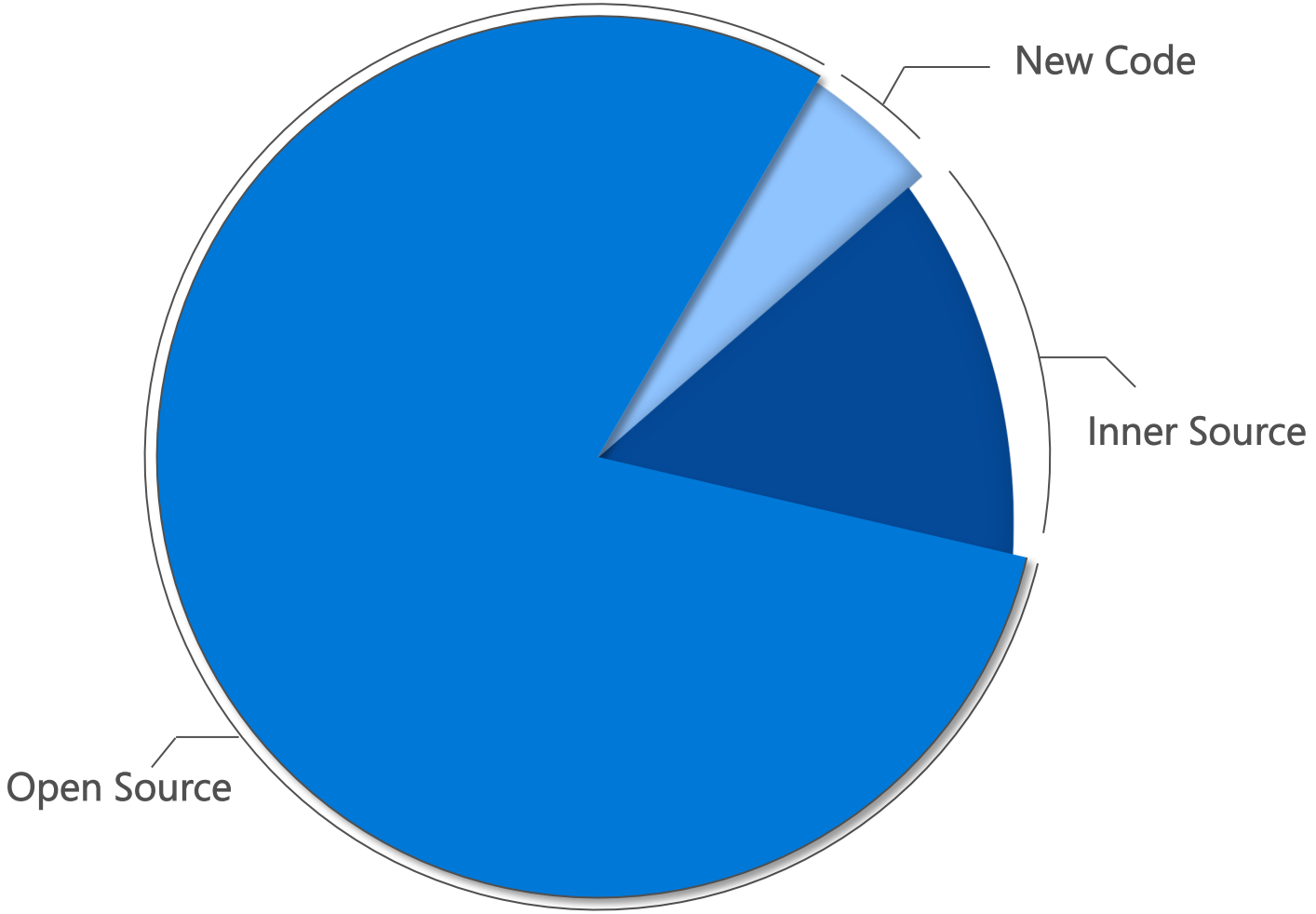
Open source software in the Enterprise



of organizations make extensive use of open source



of new application development leverages open source software.

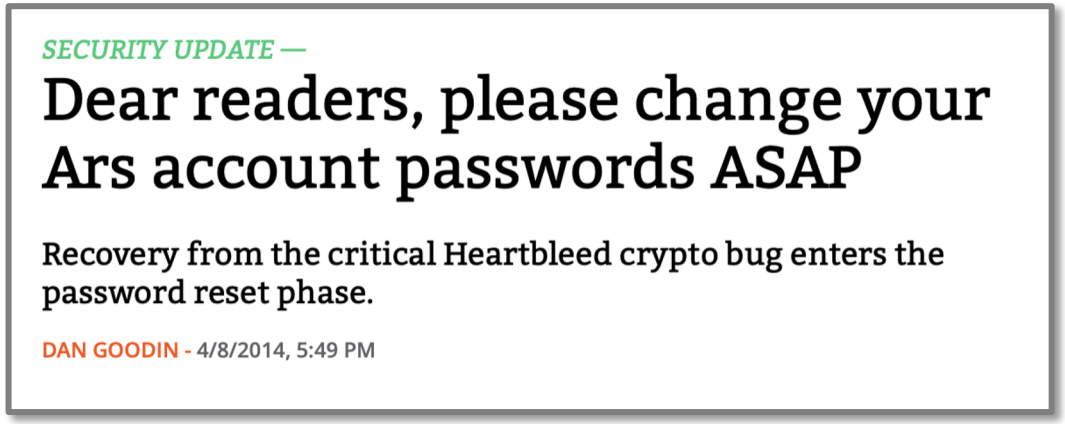


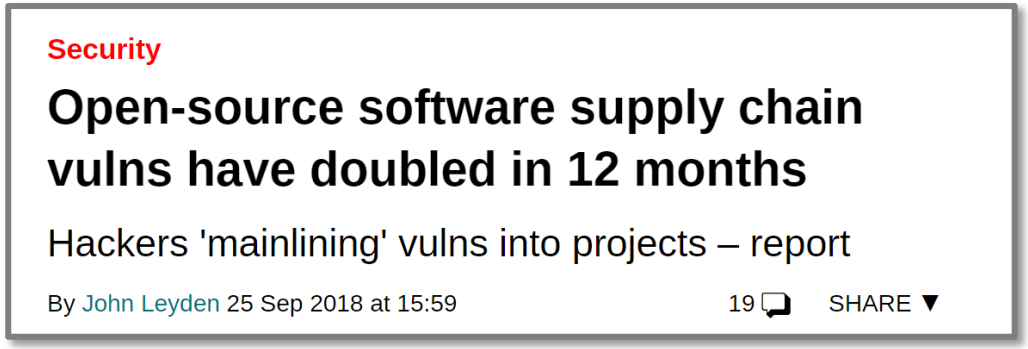
New Application Code

Source: Forrester Wave Software Composition Analysis 2017

The Open Source Challenge

Using open source allows you to focus on your app but introduces new challenges, including security and compliance risks.





GitHub Advanced Security

Securing the software supply chain

Securing the usage of open source

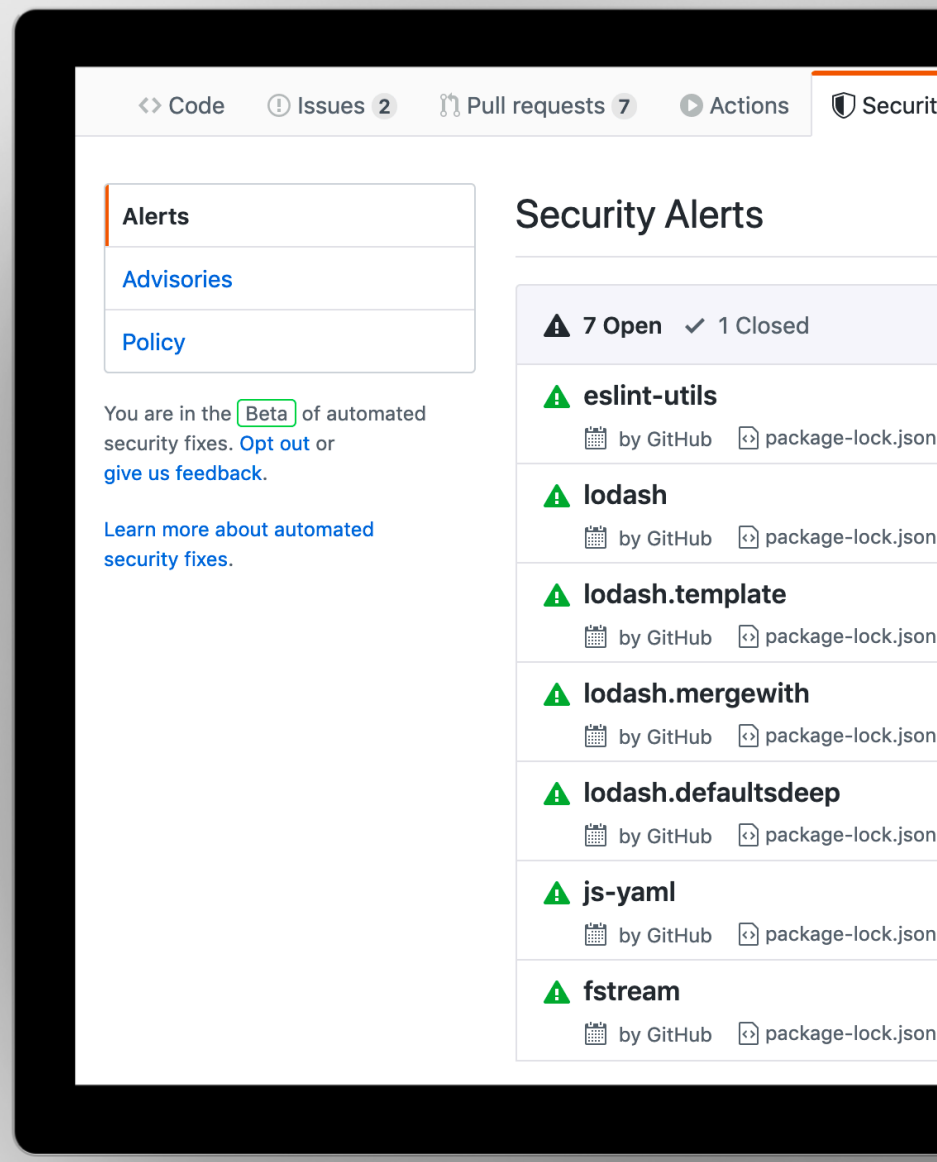
Vulnerability Dependency Insights and automated security fixes with Dependabot

Pattern based security analysis

Always on security analysis with GitHub advanced security scanning both open source repositories and enterprise code

Global community for security

Integrated into the National Vulnerability Database, MITRE, and WhiteSource for up-to-date security information

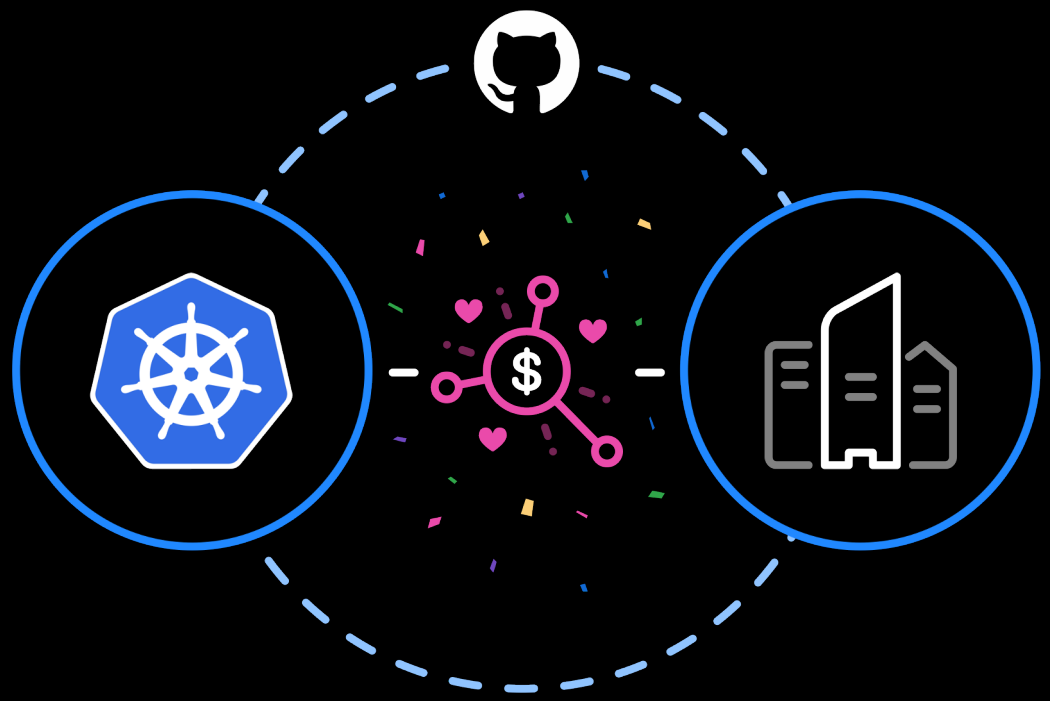


Don’t be a jerk

Open source maintainers don’t owe you anything

GitHub Sponsors

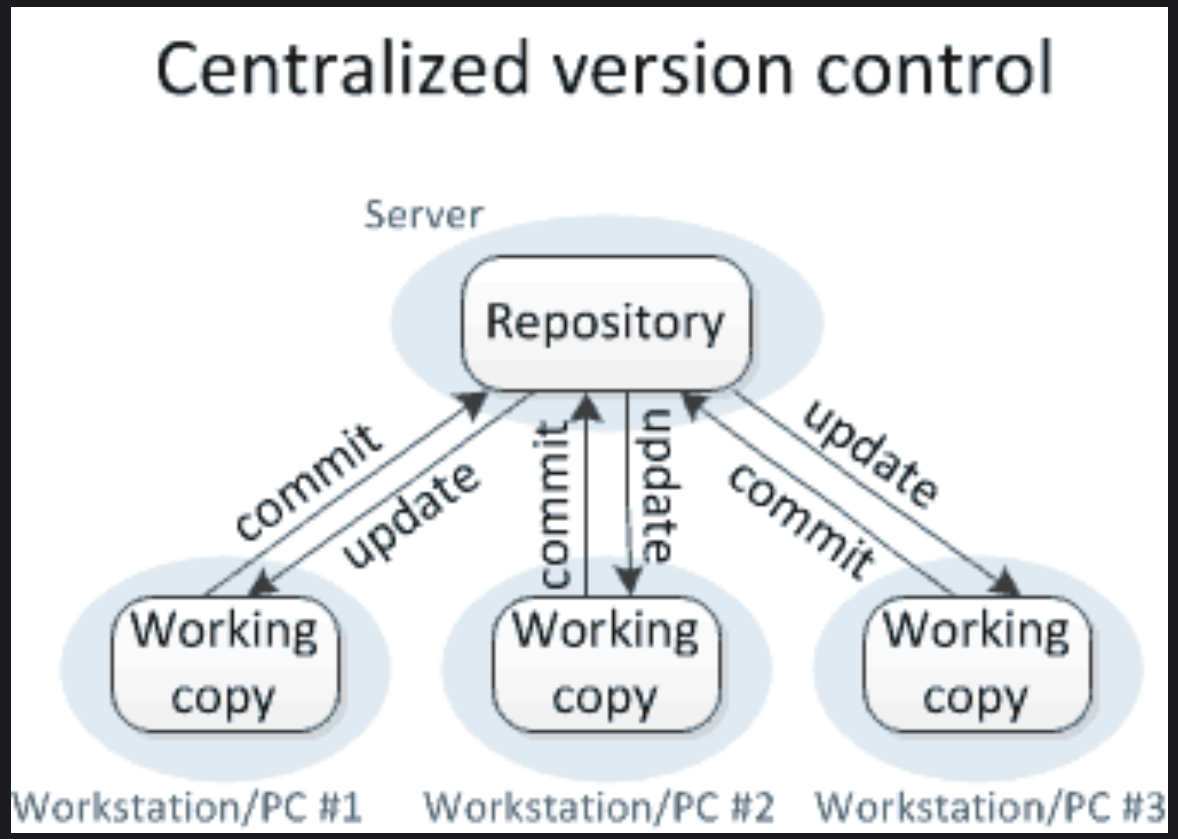
Directly help fund the success of the projects in your supply chain



Step One: Consume Responsibly

Step Two: Understand the Business Need to Contribute

TFVC – Team Foundation Version Control

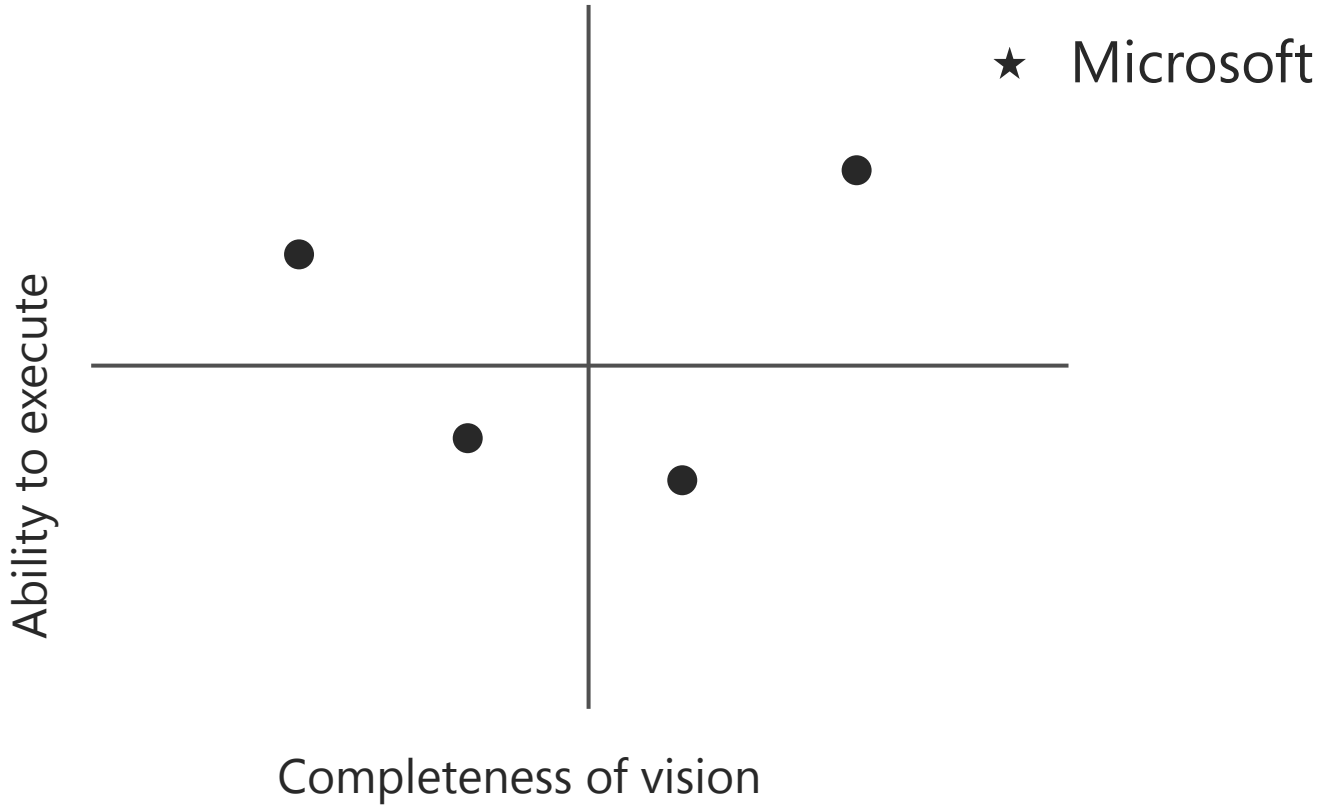


Software developers have used centralized version control systems since 1970s

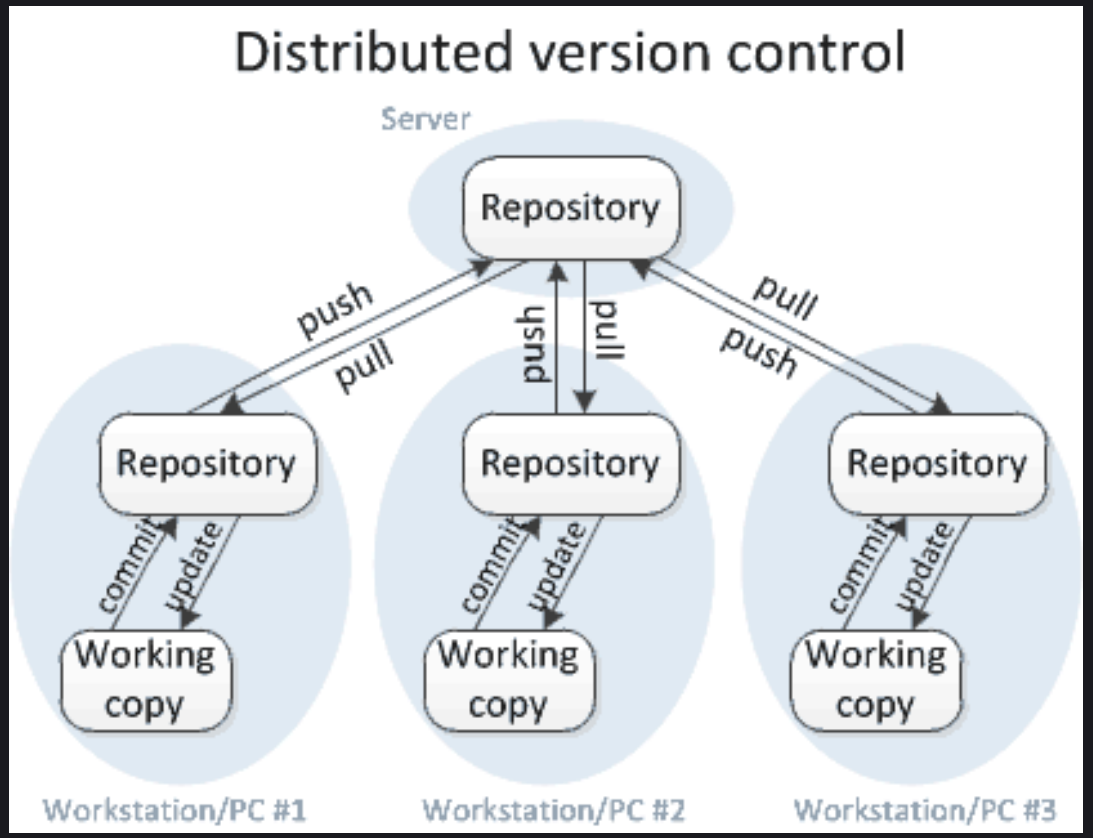
Image Source: Michael Ernst, https://homes.cs.washington.edu/~mernst/advice/version-control.html

In the year 2012…

Team Foundation Server leads the Gartner “Magic Quadrant” report for ALM



Distributed version control systems (DVCS)

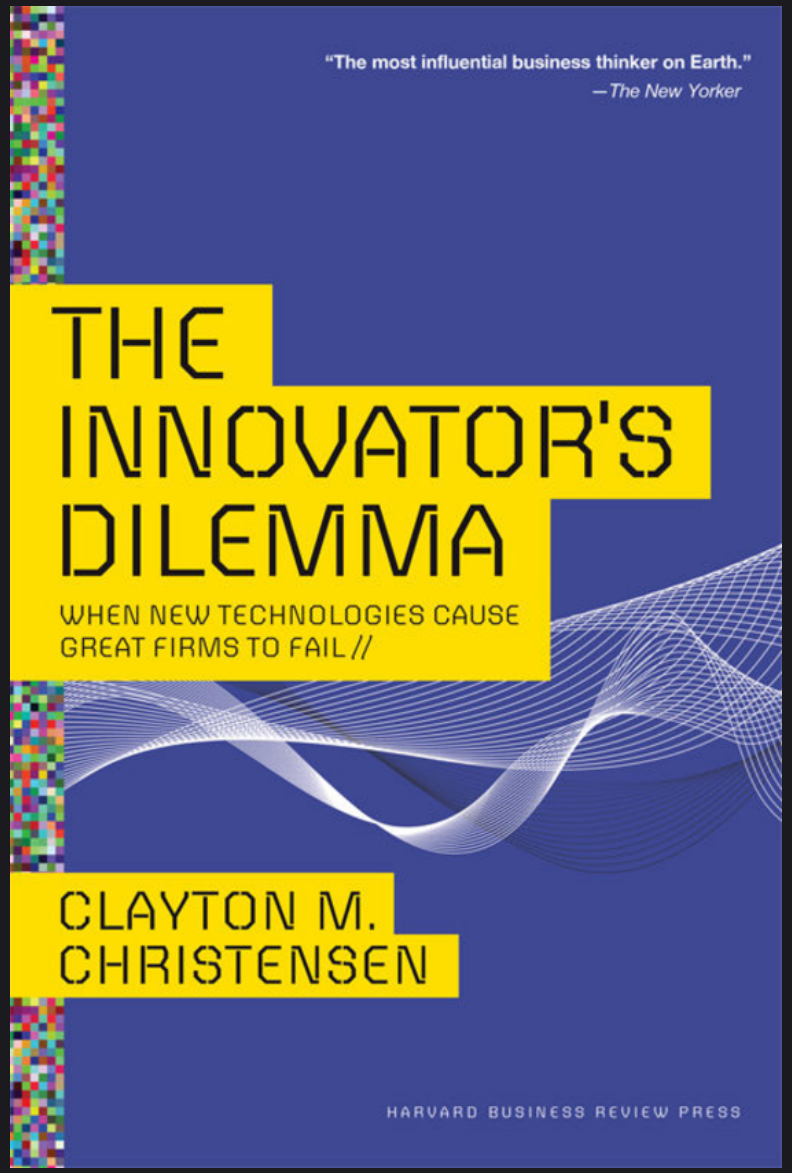


In 2011-2012, distributed version control started gaining traction, with Git and Mercurial at the lead.

Image Source: Michael Ernst, https://homes.cs.washington.edu/~mernst/advice/version-control.html

Microsoft Options (2012):

- Ignore Git & Mercurial
- Create our own DVCS
- Back Mercurial
- Back Git

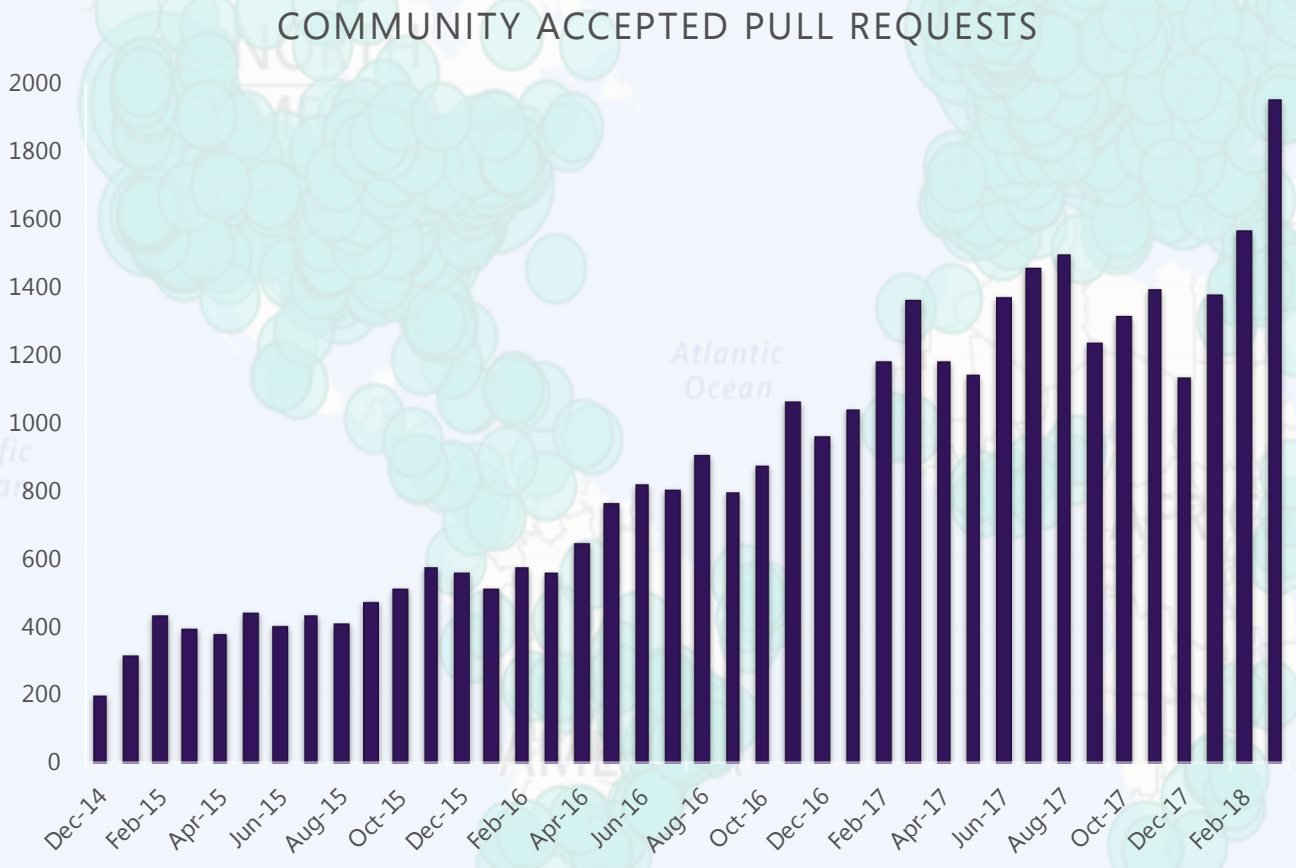


"This is one of the innovator's dilemmas: Blindly following the maxim that good managers should keep close to their customers can sometimes be a fatal mistake."

- Clayton Christensen

Git at Microsoft

.NET Open Source



redhat

unity

Google

JET BRAINS

SAMSUNG

Microsoft

aws

20,000+ Community Contributions from 3700+ Companies outside Microsoft

Don’t Fork

A fork is just an integration credit card

Business reasons to Open Source software

Collaboration

Being agile in the open

.NET

TypeScript

Windows Console

Distribution

Access a broad user base

VS Code SDK's

Docs

Compatibility

Work with existing OSS markets

Git

Linux

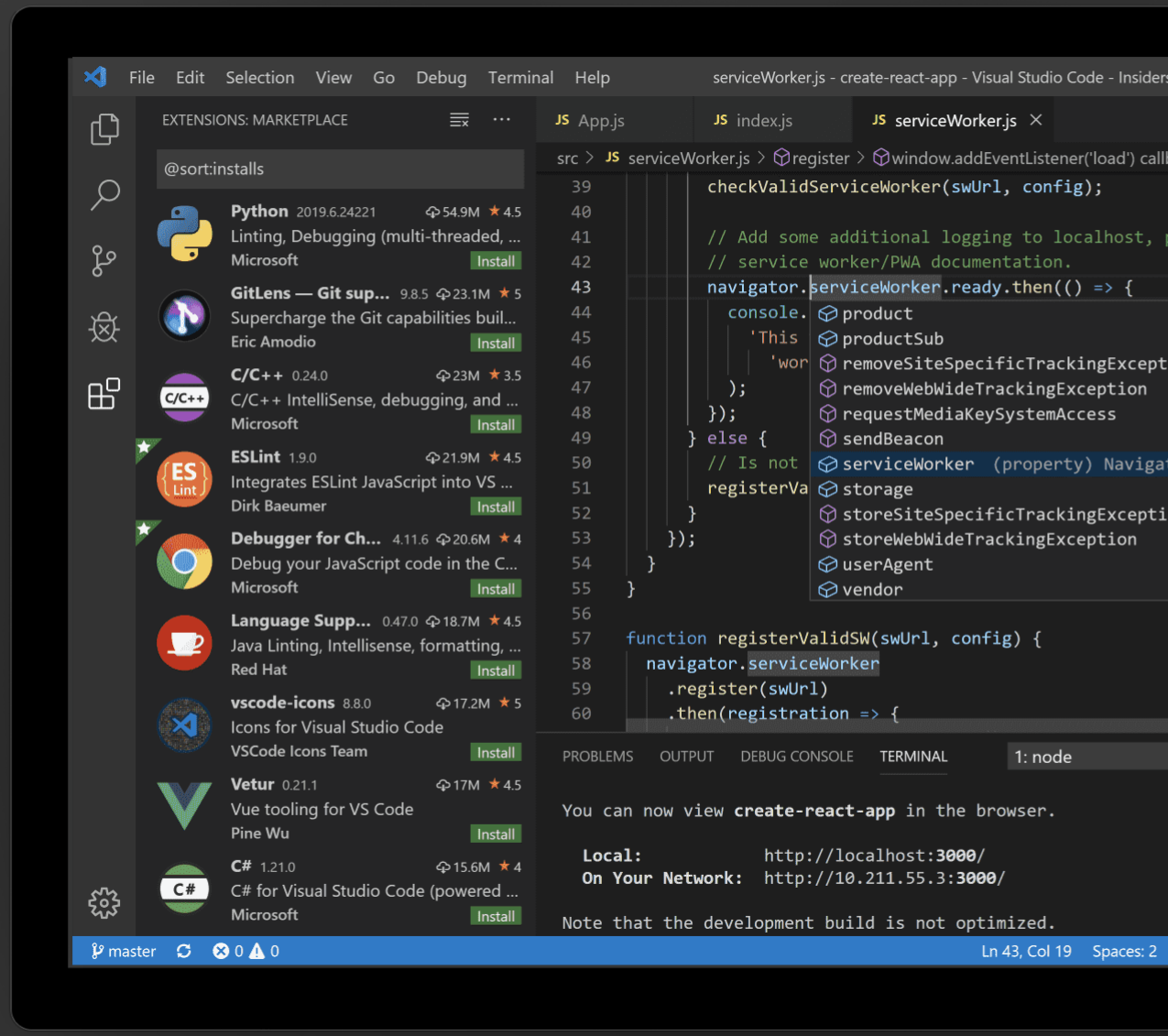
Kubernetes

Visual Studio Code

Code editing.
Redefined.

Free. Built on open source.
Runs everywhere.

Over 19k Contributors



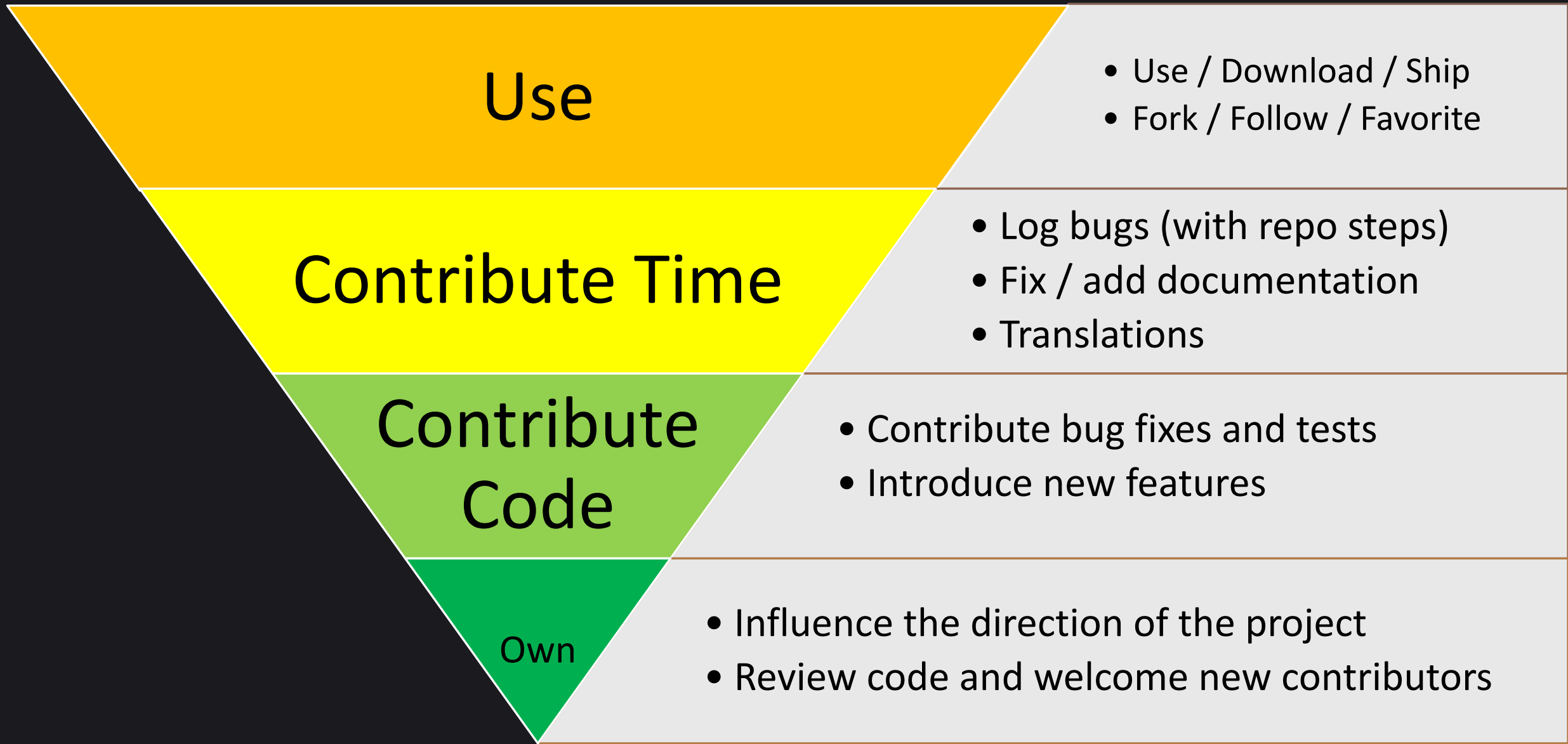
Dubious OSS “Business Goals”

Rarely good / sustainable reasons to open source a project or sacrifice IP - on their own

- Public Relations
- Recruitment
- Maintenance

Martin, to open source a program just click on it
To see the programs in this room hold down the F1 key
Other Options
EXIT

The Contribution Funnel



Talk is cheap

Open source communities value code over everything else

Step Two: Understand the Business Need to Contribute

Step Three: Convince your Stakeholders

Convince your Stakeholders

Co-workers

Convince your Stakeholders

Co-workers

Management

Lawyers

GitHub

Convince your Stakeholders

Co-workers

Management

Lawyers

Senior Leadership

Microsoft
Linux

Convince your Stakeholders

Co-workers

Management

Lawyers

Senior Leadership

Customers

Step Three: Convince your Stakeholders

Step Four: Keep it Legal

Keep it Legal

Understand the different types of Open Source licenses

- Different licenses have different responsibilities
- Ignorance is no excuse for non-compliance

Educate your legal team… **and** let them educate you

Automate your compliance scanning

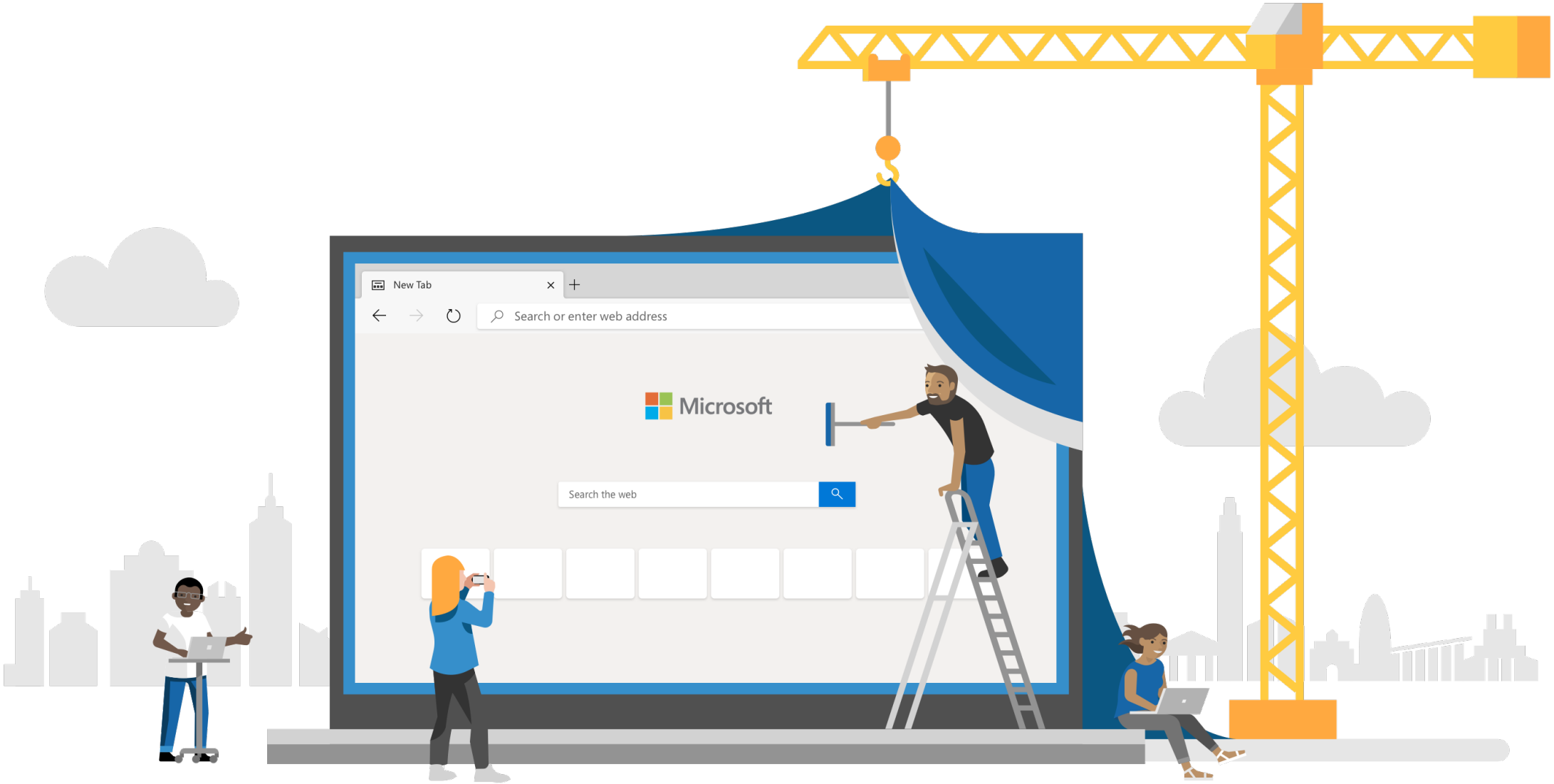
Don't be afraid of Open Source

- Open Source contributors **want you** to use their software!

Step Four: Keep it Legal

Step Five: Be the Community

Microsoft Edge adopting Chromium



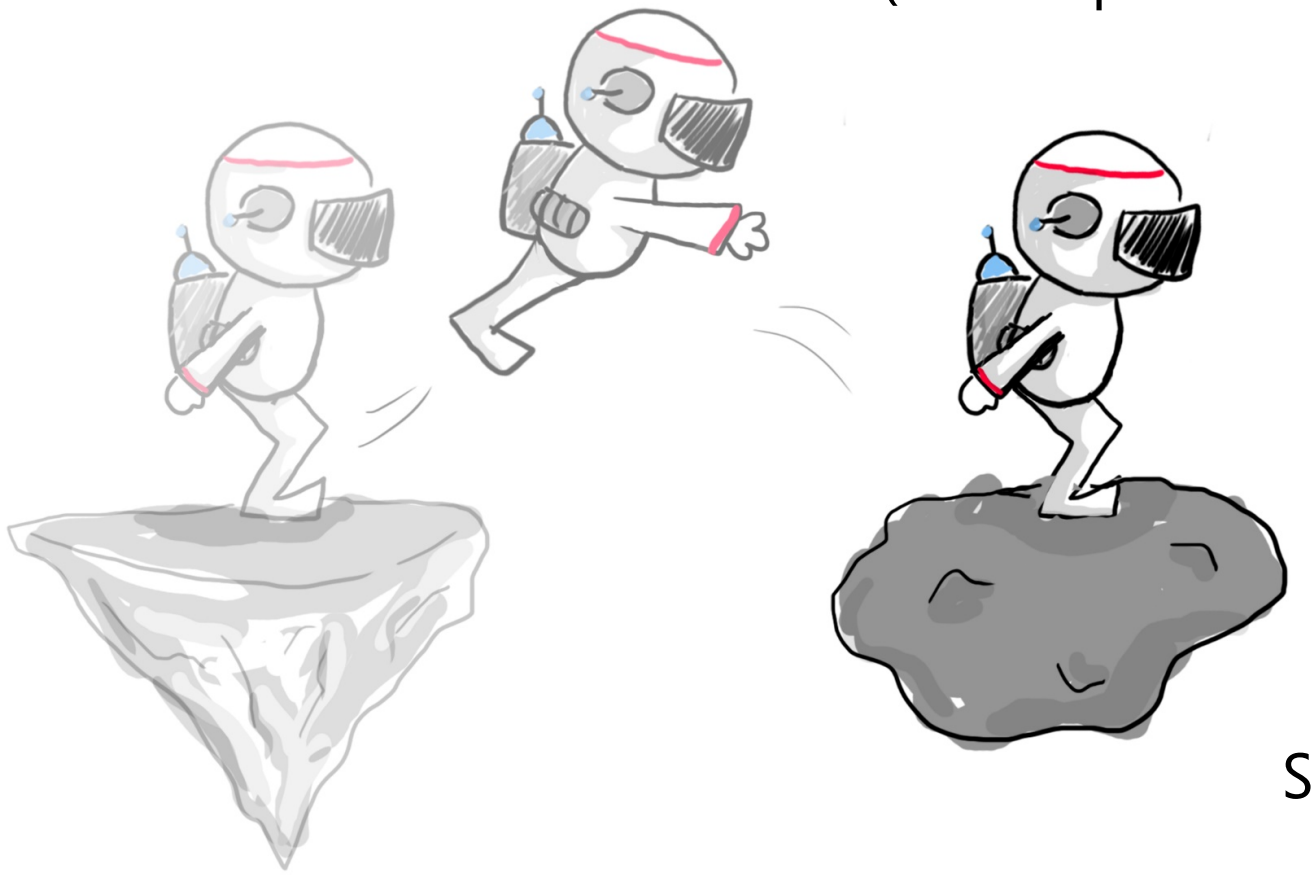
Open Source is **not** a Zero-Sum Game

.NET – One small step for a software company

Source Open +
Limited Contributions

Adopt Community Workflow
("true open source")

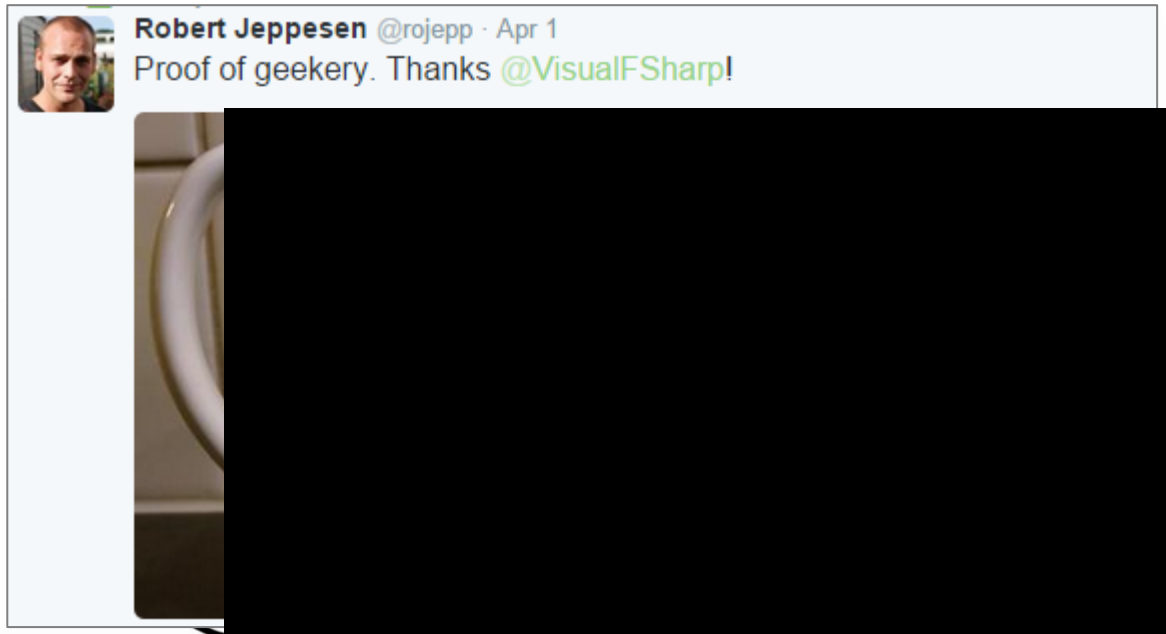
Open Design
Notes



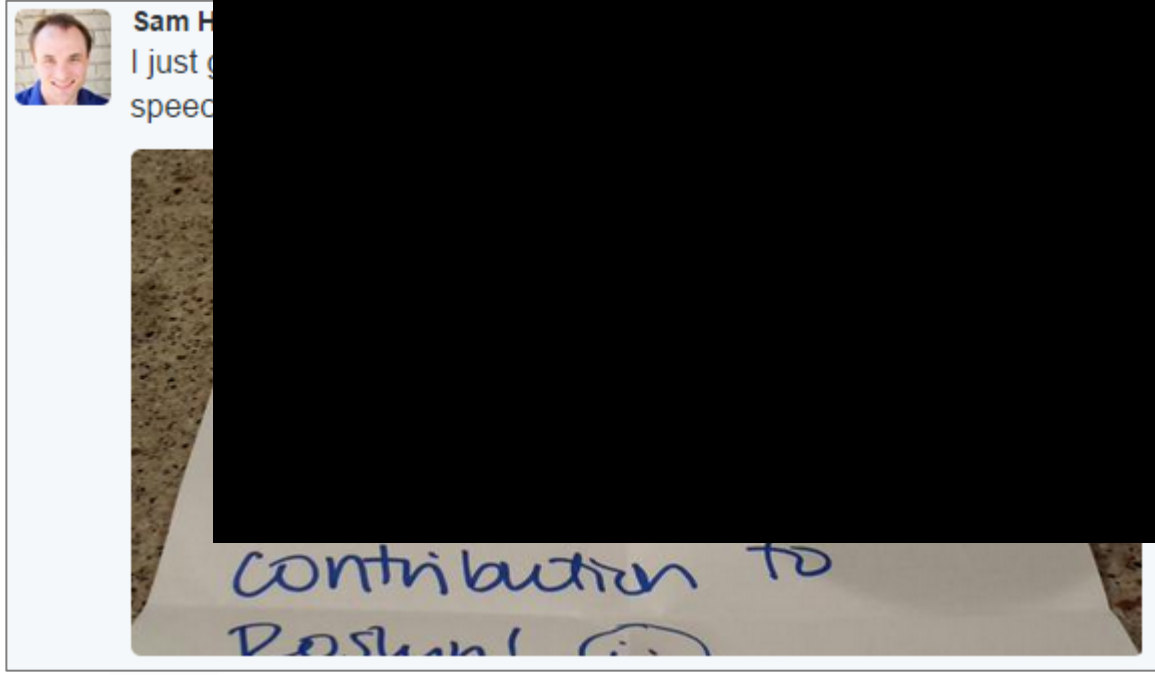
Improve
Documentation

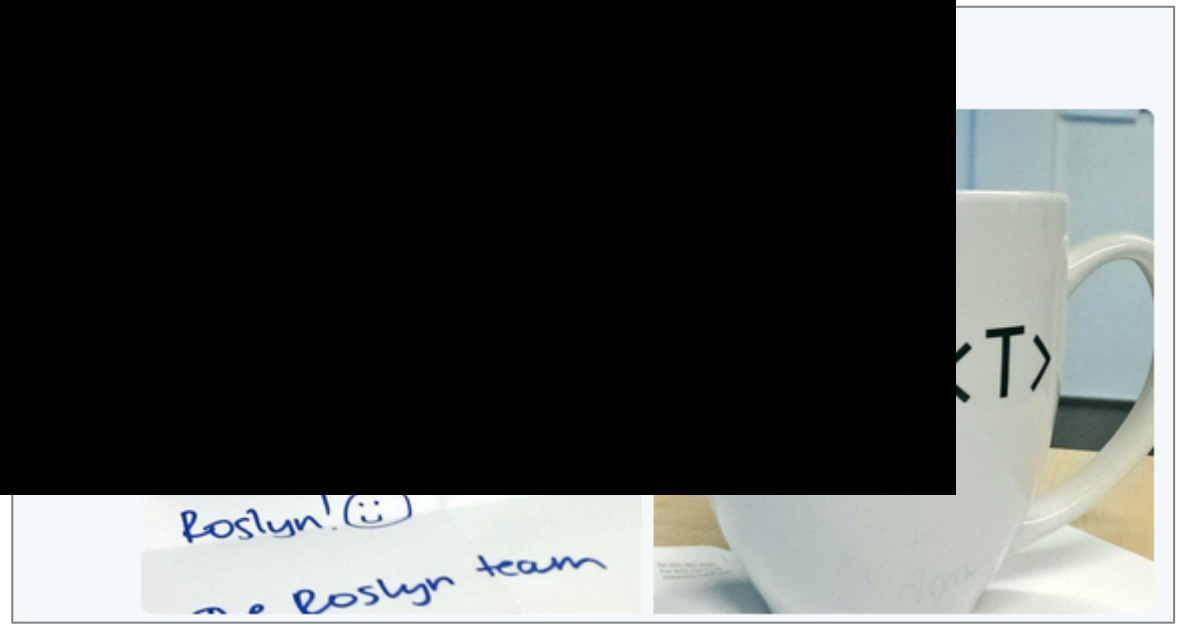
Source Open

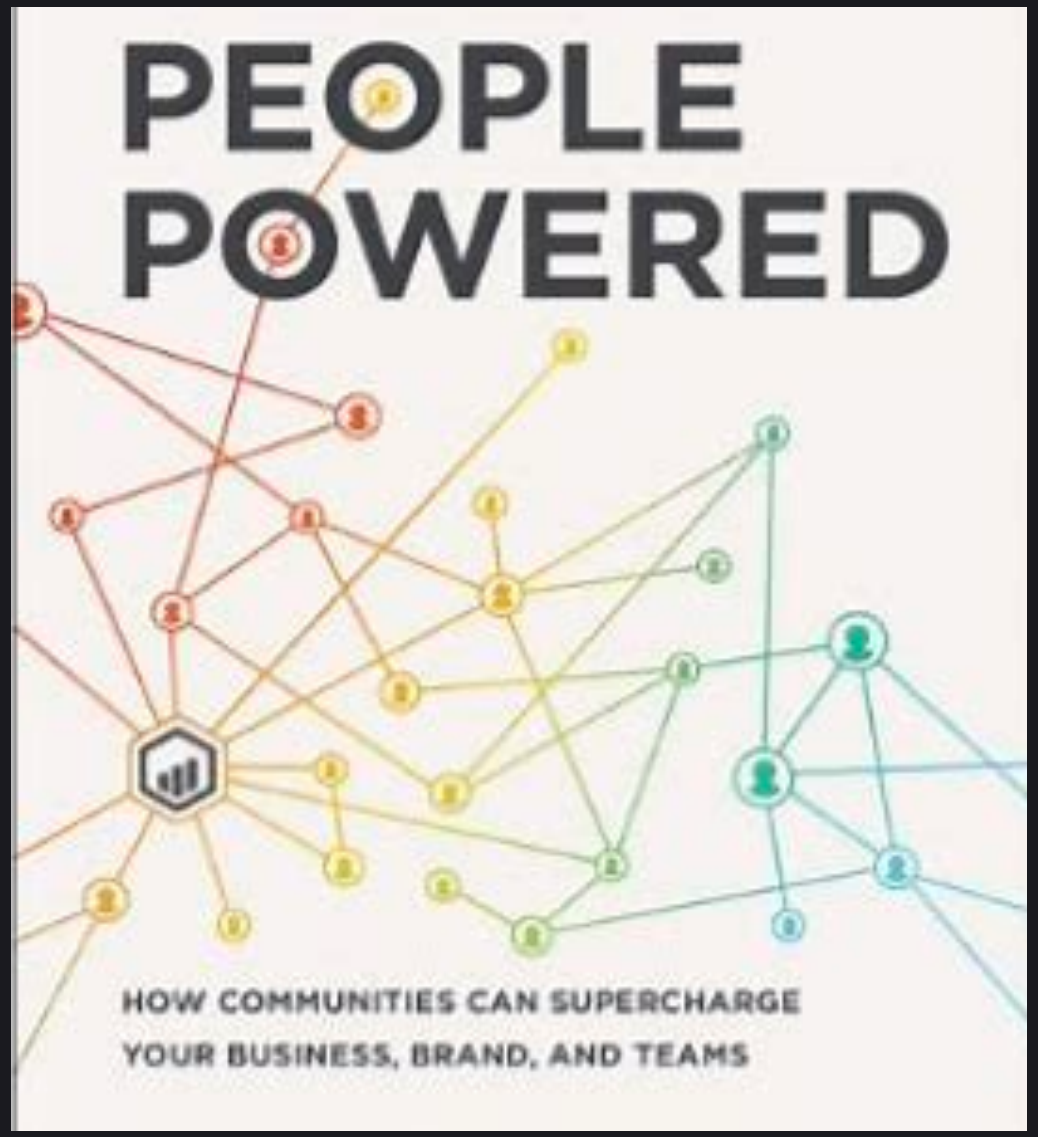
Shared Ownership


Robert Jeppesen @rojepp · Apr 1
Proof of geekery. Thanks @VisualFSharp!

Richard Dalton @richardadalton · May 10
Quite chuffed with this.Very nice touch. Thanks.@LincolnAtkinson


contribution to


Roslyn!
Roslyn team

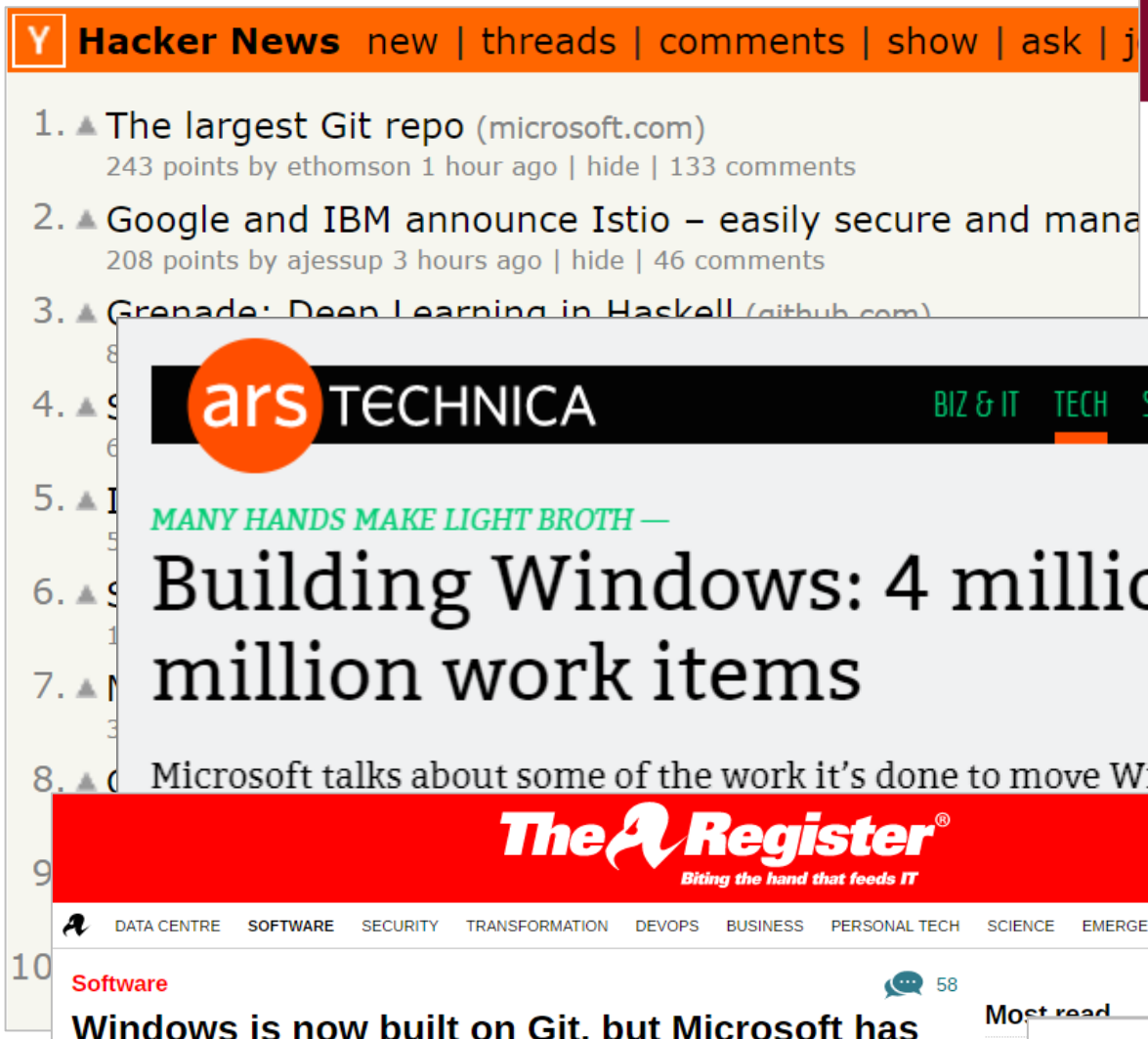


"People are initially attracted to communities for the tangible value, but the intangible value keeps them coming back for more"

- Jono Bacon

Step Five: Be the Community

Step Six: Have Success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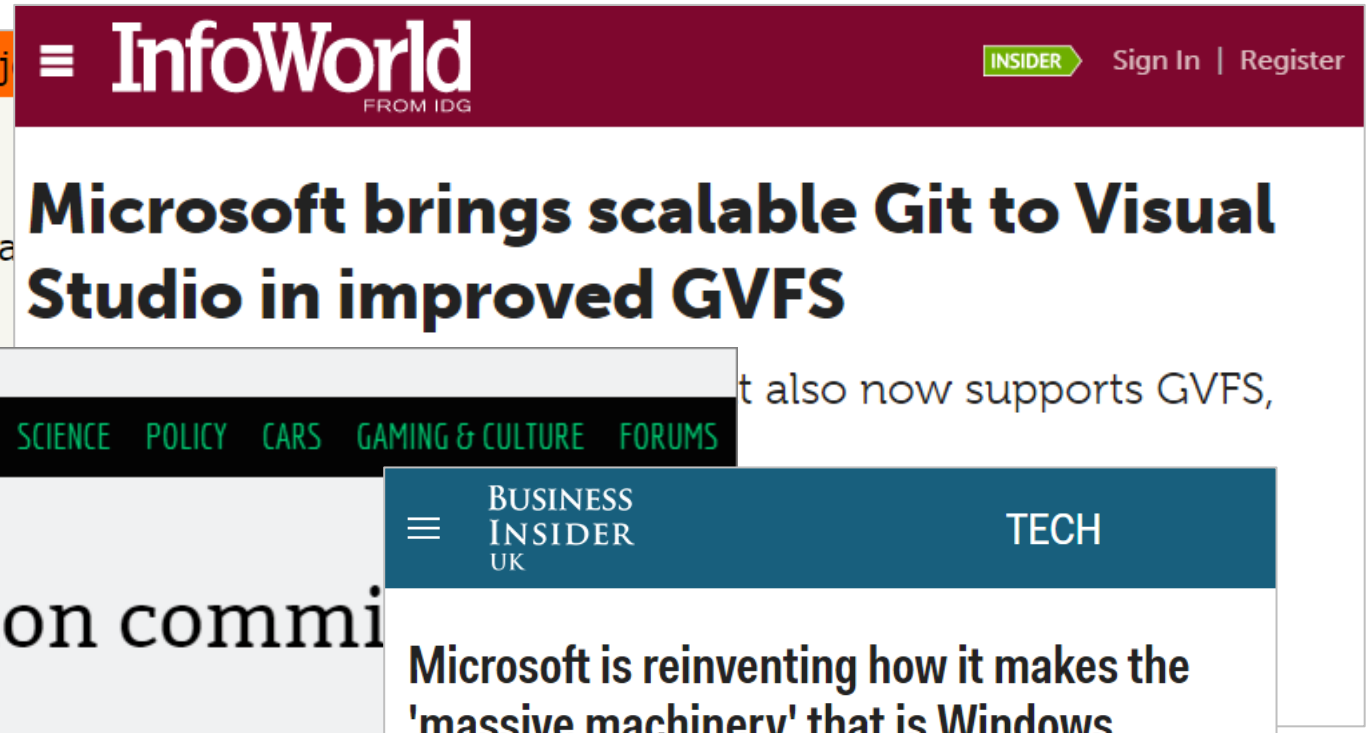
208 points by ajessup 3 hours ago | hide | 46 comments
3. Grenade: Deep Learning in Haskell (github.com)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Microsoft brings scalable Git to Visual Studio in improved GVFS
t also now supports GVFS,

ars TECHNICA
BIZ & IT TECH SCIENCE POLICY CARS GAMING & CULTURE FORUMS
MANY HANDS MAKE LIGHT BROTH —
Building Windows: 4 million commi
million work items
Microsoft talks about some of the work it's done to move Windows development

BUSINESS INSIDER UK
TECH
Microsoft is reinventing how it makes the 'massive machinery' that is Windows
Matt Weinberger
22h
351

The Register
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Software
58
Windows is now built on Git, but Microsoft has found some bottlenecks
300 GB repo handles 8,421 pulls and 1,760 official builds a day, more once GVFS fix is in
25 May 2017 at 04:00, Richard Chirgwin
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Microsoft now uses Git and GVFS to develop Windows
Posted 22 hours ago by Frederic Lardinois (@fredericl)
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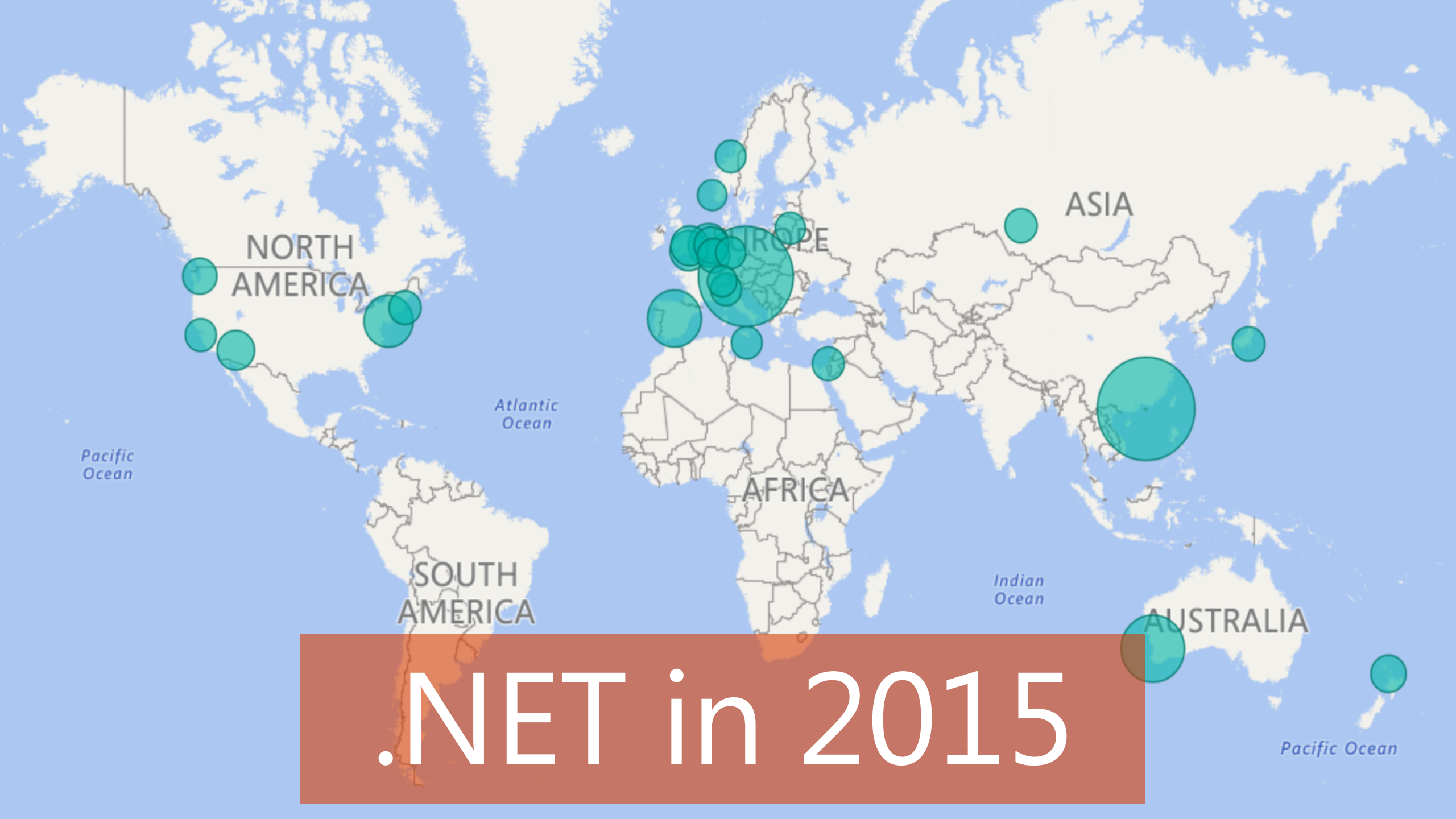
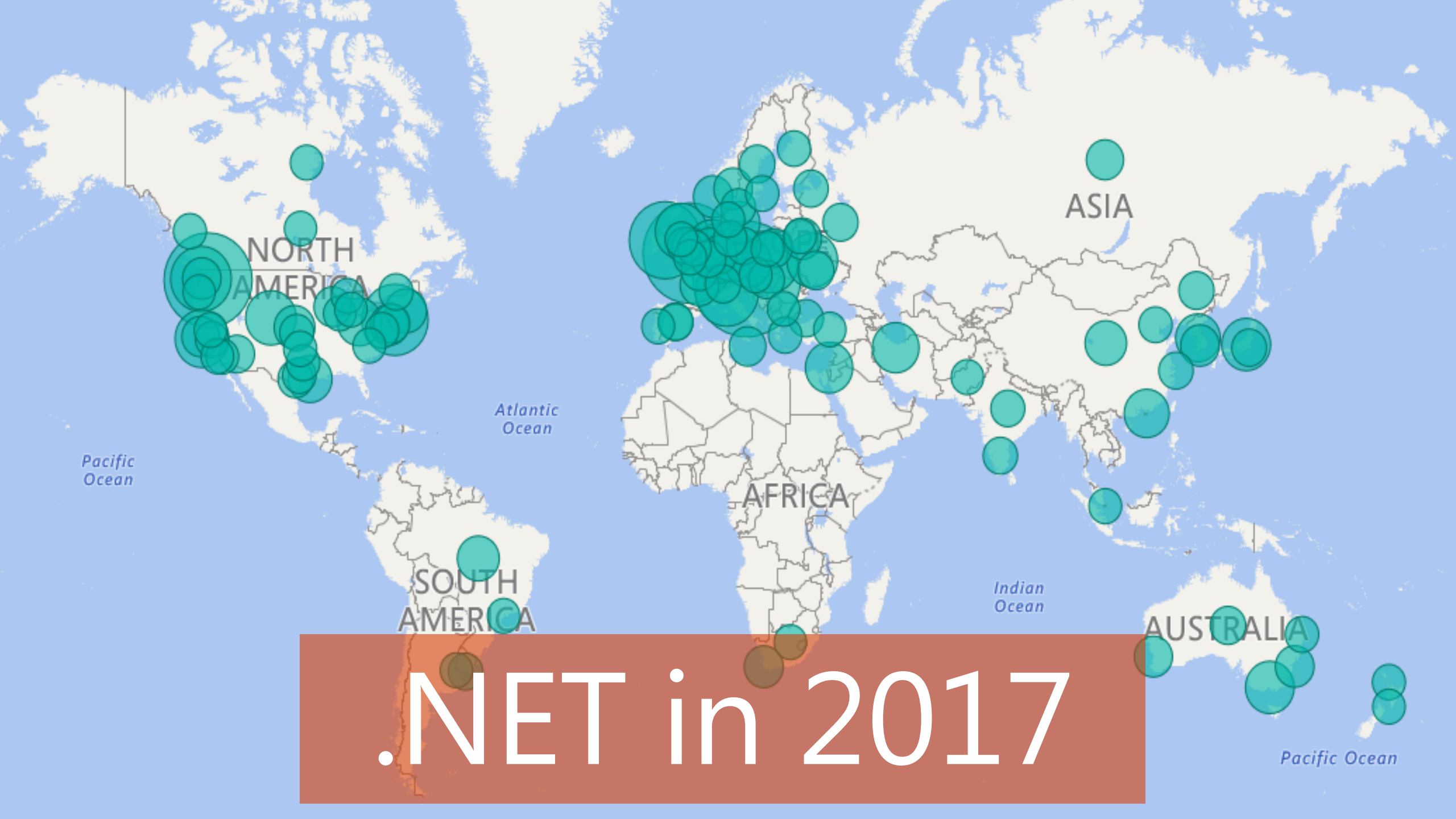

NORTH AMERICA
EUROPE
ASIA
Atlantic Ocean
Pacific Ocean
AFRICA
SOUTH AMERICA
Indian Ocean
AUSTRALIA
Pacific Ocean

.NET in 2015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AFRICA
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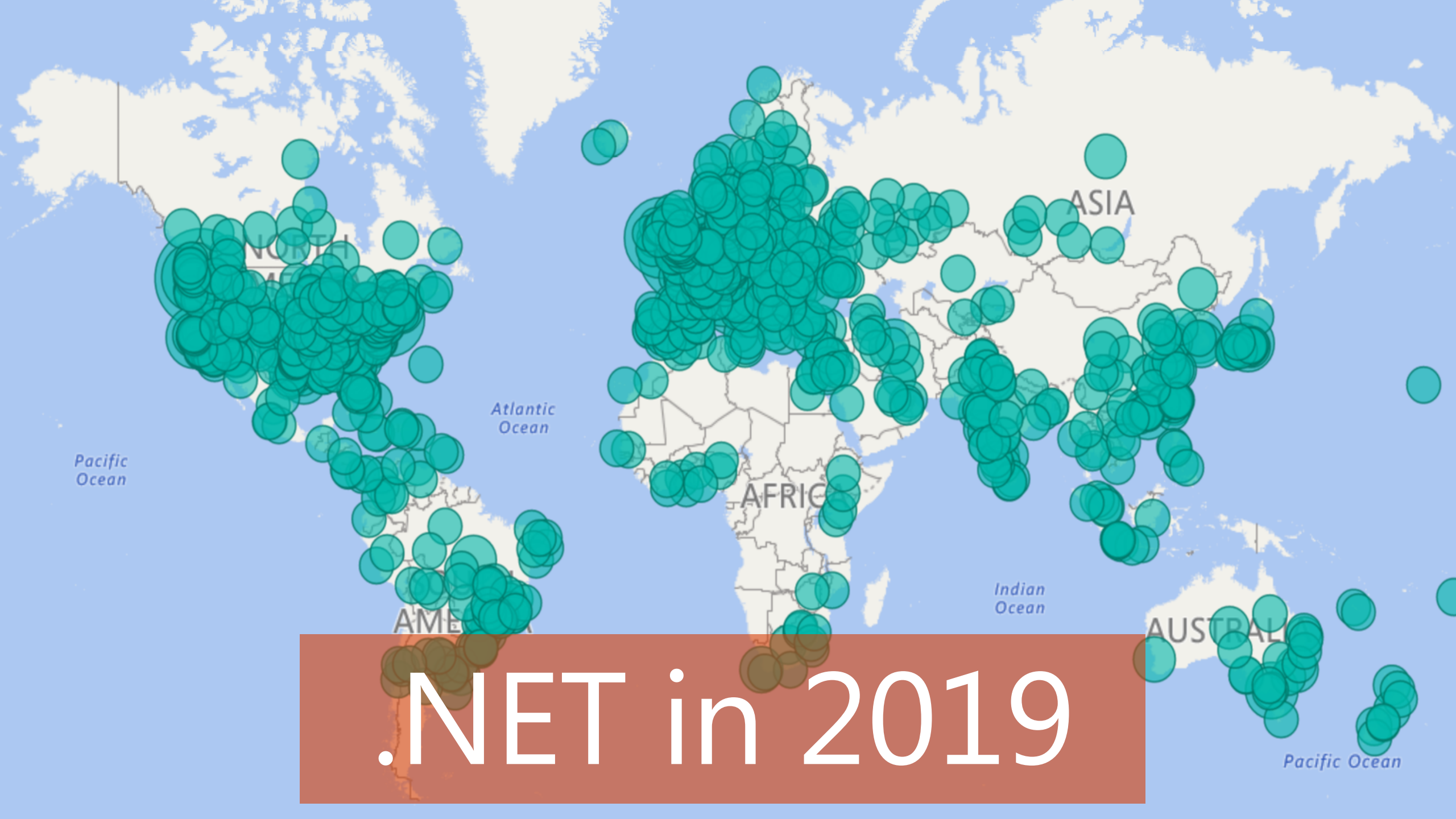
Indian Ocean
AUSTRALIA
Pacific Ocean

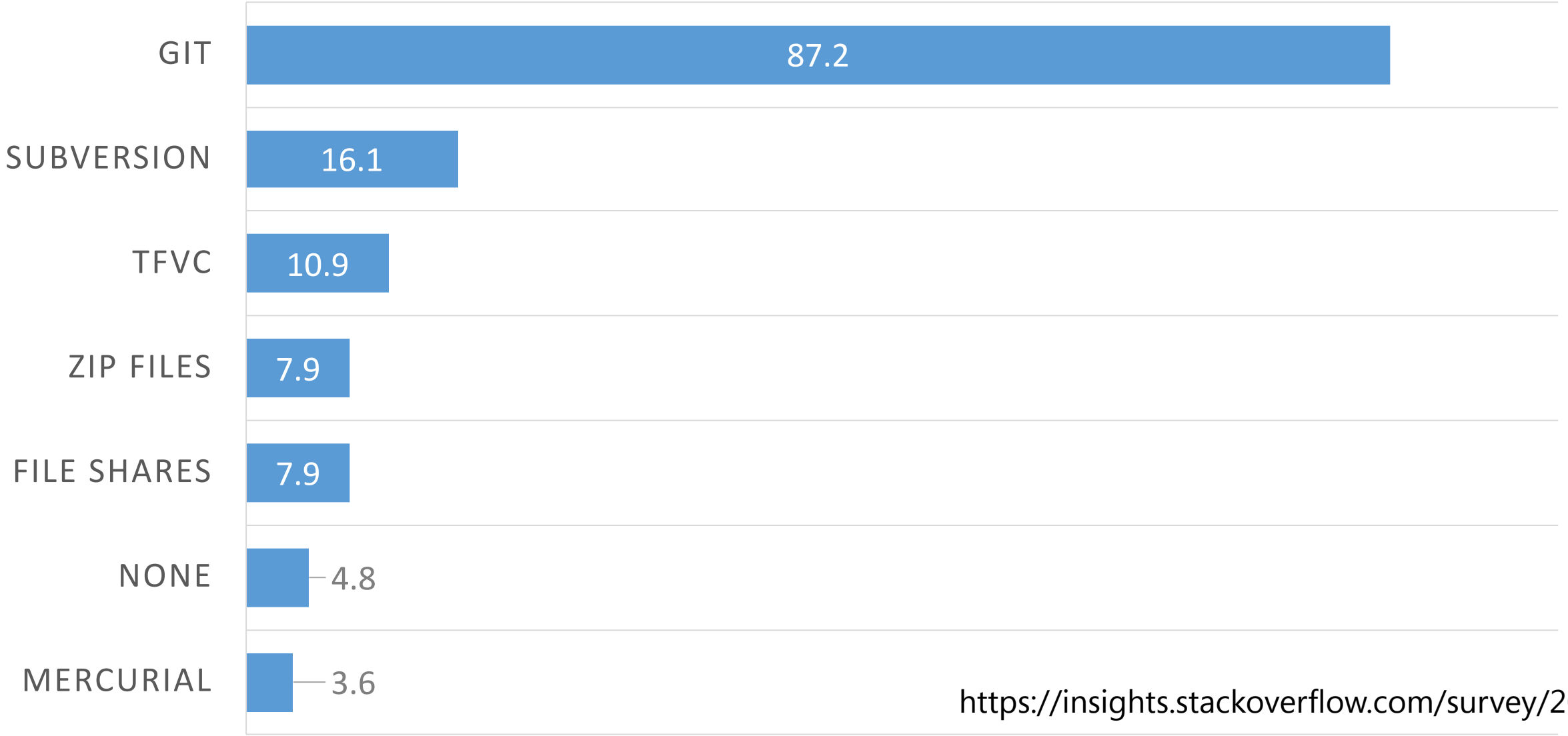
.NET in 2017


ASIA
Atlantic Ocean
Pacific Ocean
Indian Ocean
Pacific Ocean

.NET in 2019

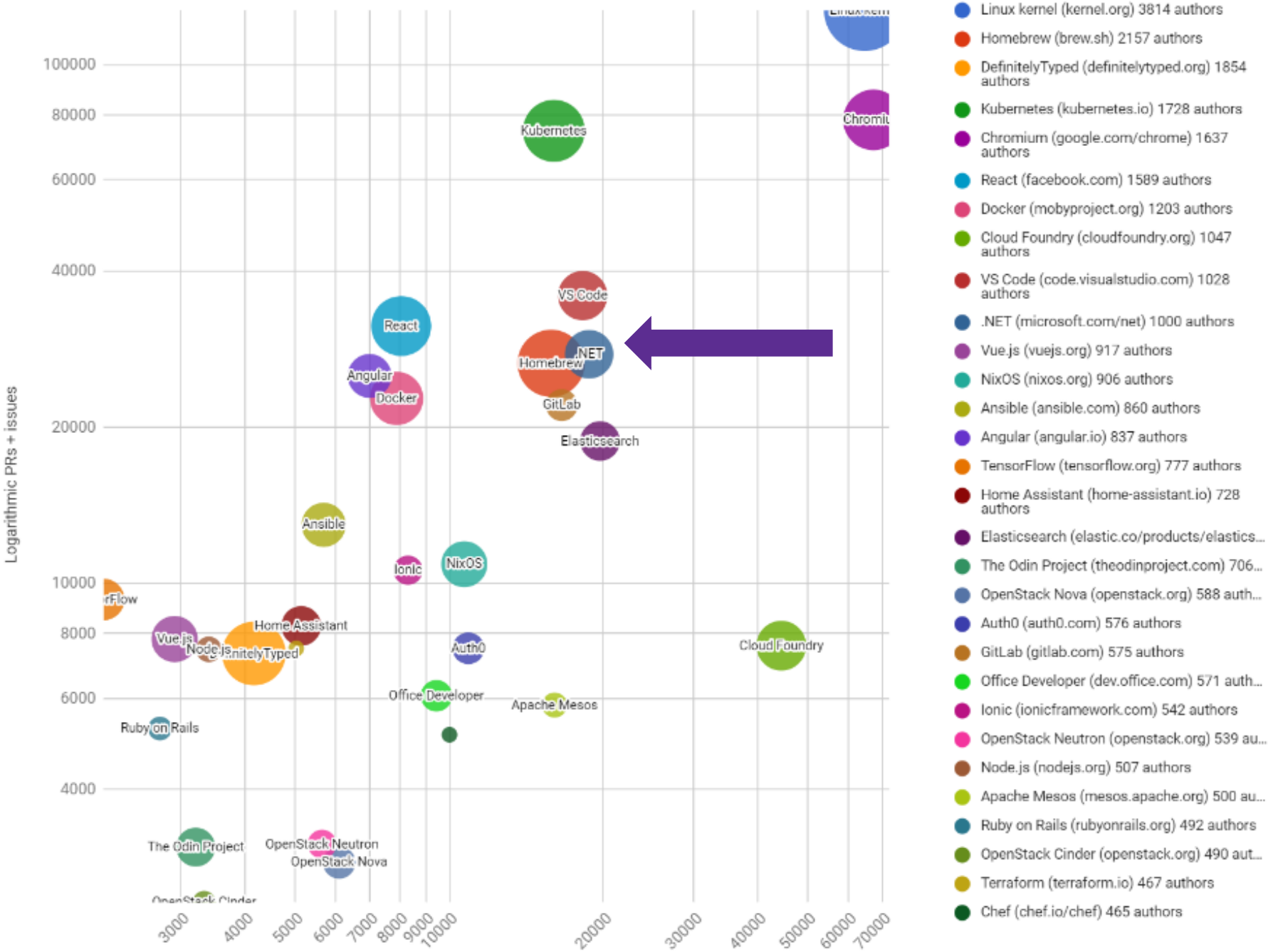
stackoverflow

Version Control in use



https://insights.stackoverflow.com/survey/2018

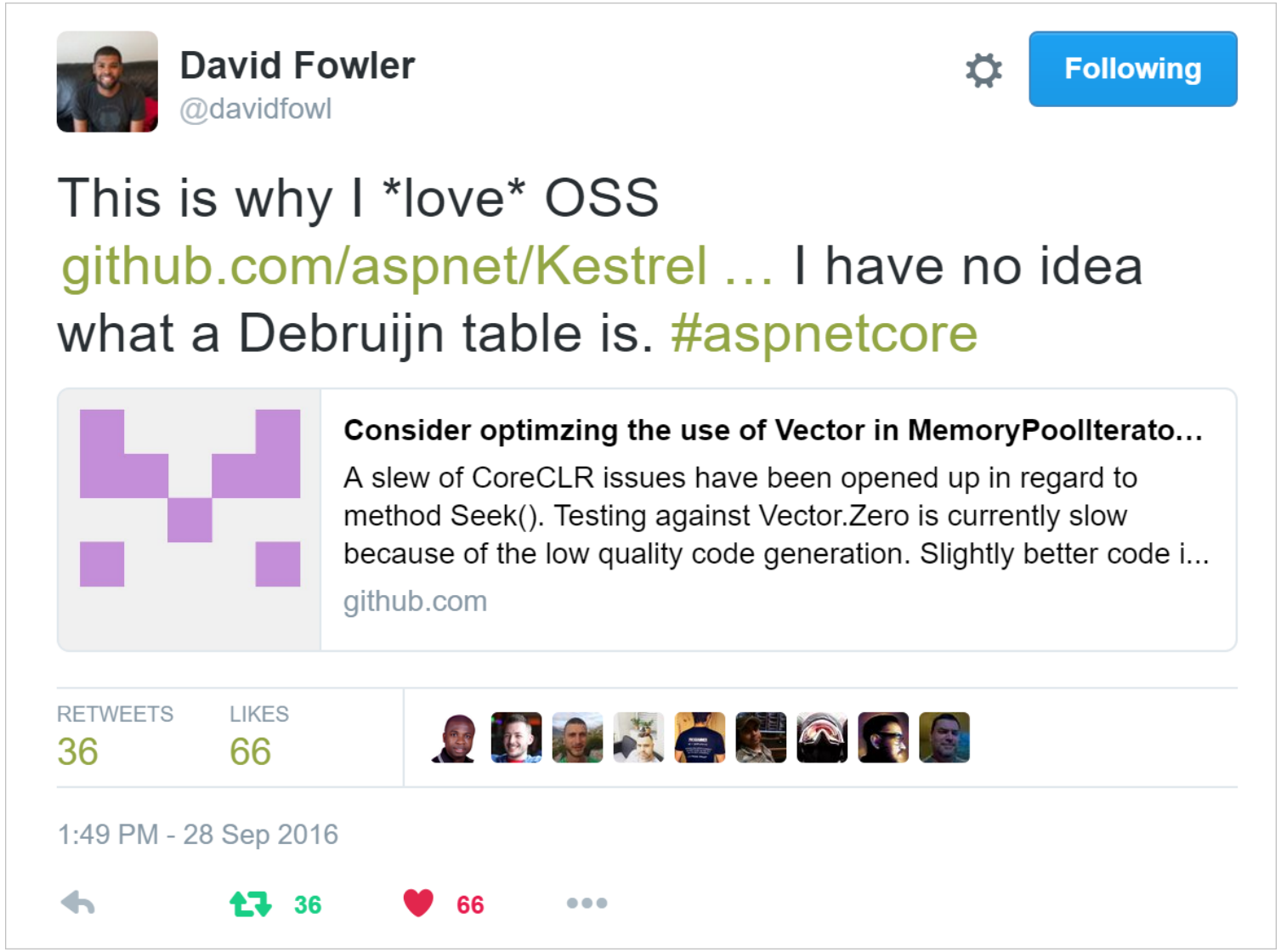
Top 30 Highest Velocity OSS Projects



CLOUD NATIVE COMPUTING FOUNDATION

https://www.cncf.io/blog/2017/06/05/30-highest-velocity-open-source-projects/

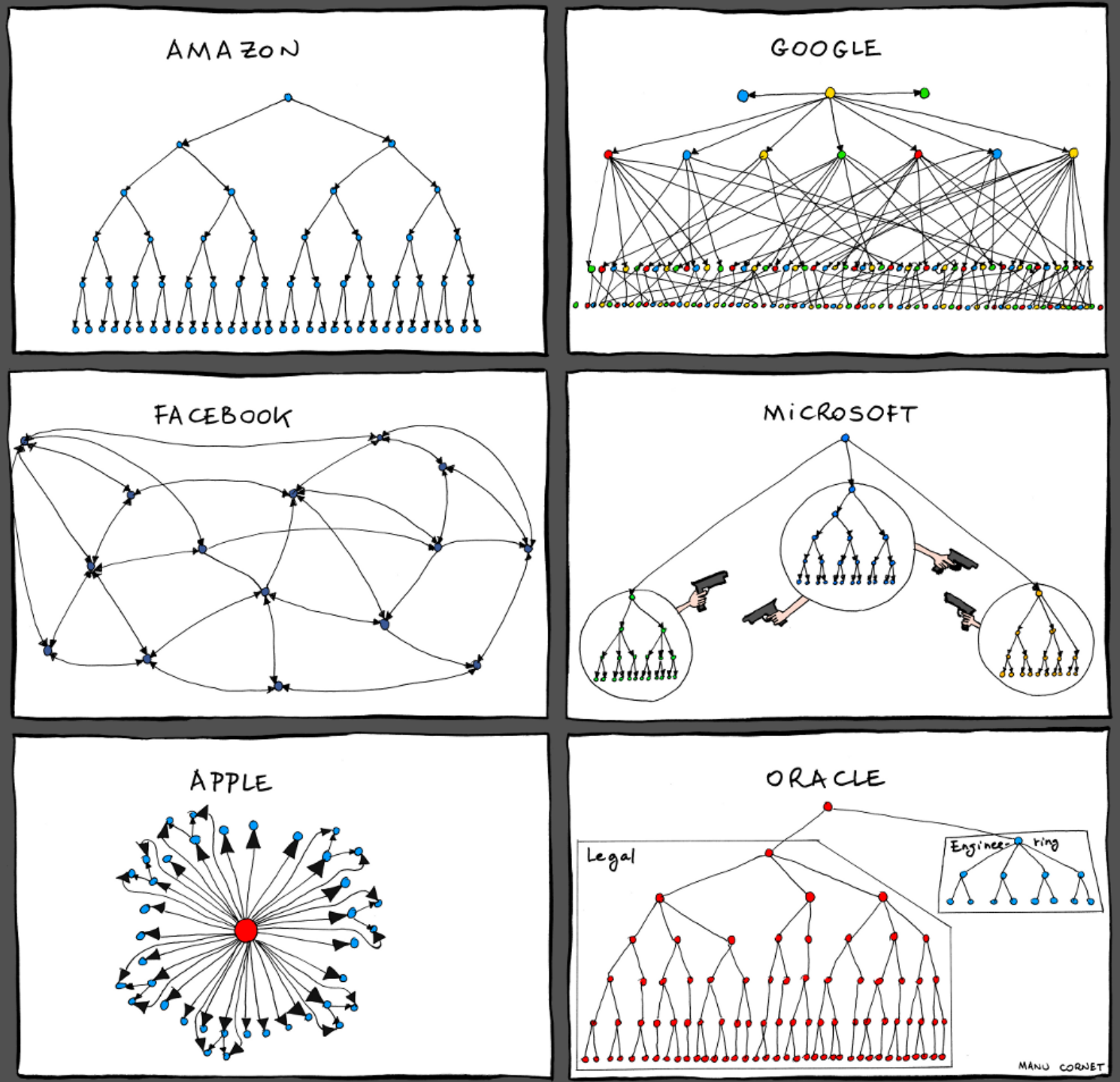
The Great Unexpected

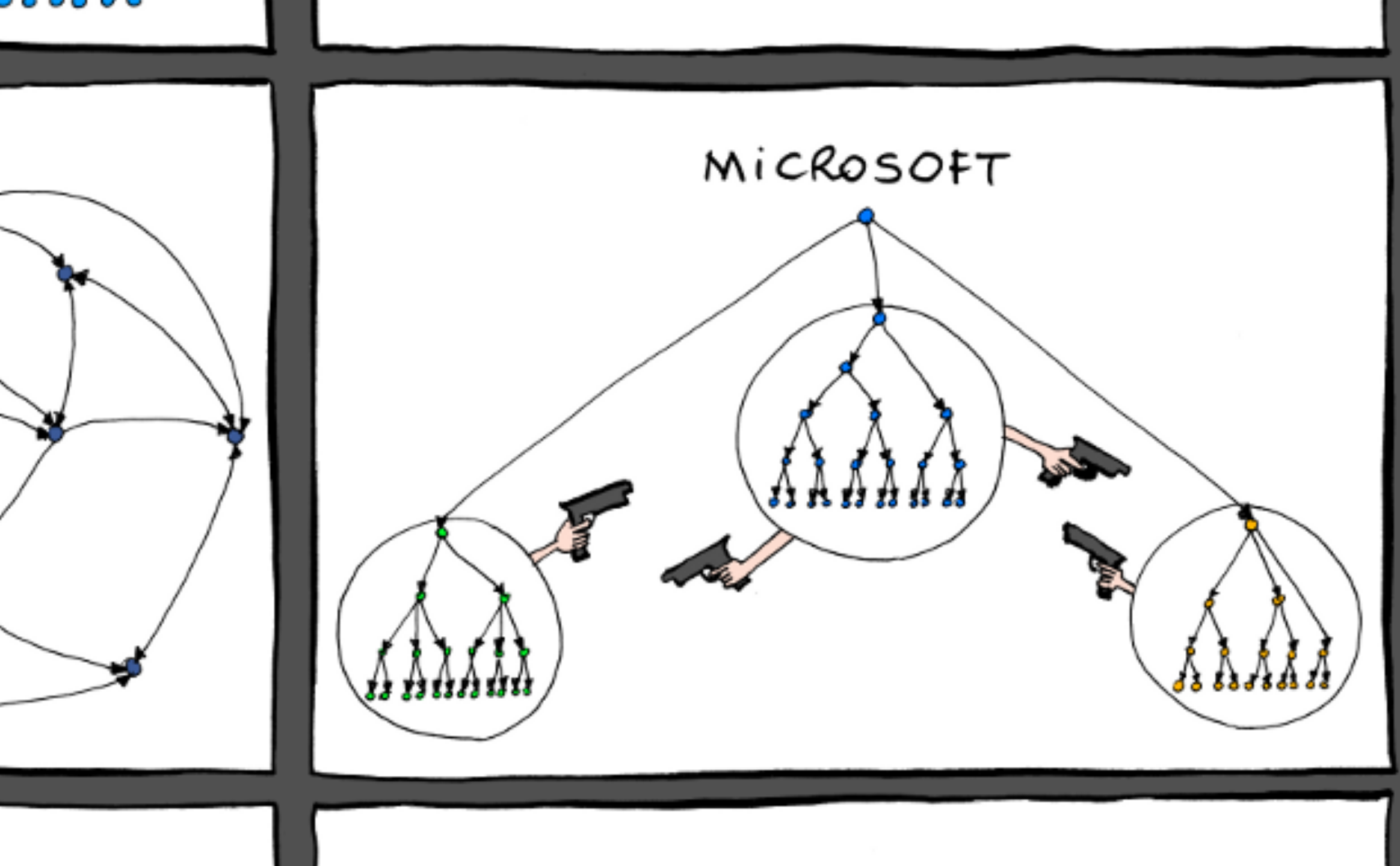


Step Six: Have Success

Step Seven: Inner Source

Before Inner Source




MICROSOFT

The trouble with incentives
is that they work

-Leonard Sherman

Inner source at Microsoft

High-performing teams thrive when the culture enables inner sourcing - the sharing of knowledge, skills and code inside the organization.

- Changed incentives to encourage sharing
- Made sharing with the org the default
- Support cross-org fork and pull request workflows

Measuring Impact at Microsoft

Inner source & open source in other companies

90% reduction in merge times

Rewrote Nationwide Financial 6-months ahead of schedule and 40% below budget

Faster, cheaper & better

We want you to consume OS because it's better, but we want you to contribute to the community

Greater collaboration

Code reuse was greater than 90%. Collaboration increased 20-fold.

GitHub enabled transparency

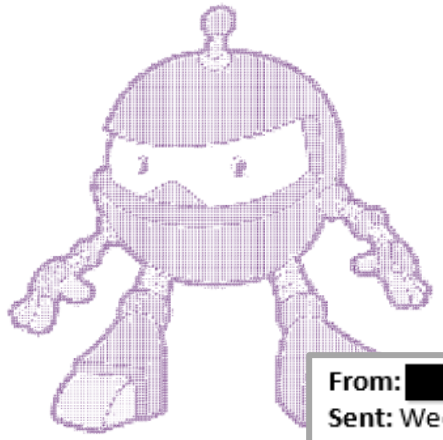
4x increase in performance

30% increase in productivity

Giving employees greater tools to affect positive culture change

IBM teams using GitHub Enterprise to provide internal documentation - for engineering design, operations and support activities - have experienced 80% fewer escalation calls from first-line.

Search GitHub Pull requests Issues Gist



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cci
Common Compiler Infrastructure
0

cli
0

dotnet bot

dotnet-bot

Microsoft
Cyberspace
dotnet-bot@microsof
http://blogs.msdn.com
Joined on Oct 3, 2014

89 Followers 2 Starred

From: [redacted]
Sent: Wednesday, July 29, 2015 5:47 AM
To: dotnet-bot <dotnet-bot@microsoft.com>
Subject: Senior .Net development - Global gas and chemical supplier - [redacted] based

Hi There,

I have been looking at your profile and your skills/experience with .Net development has really grabbed my attention.

I am currently working closely with a global gas and chemicals supplier based in the [redacted] area. This company has over 150,000 customers worldwide and operates in over 50 countries. My client is rapidly growing in both size and revenue, generating over $10 billion in revenue last year. They are looking for someone with your expertise and experience to join their already very successful team.

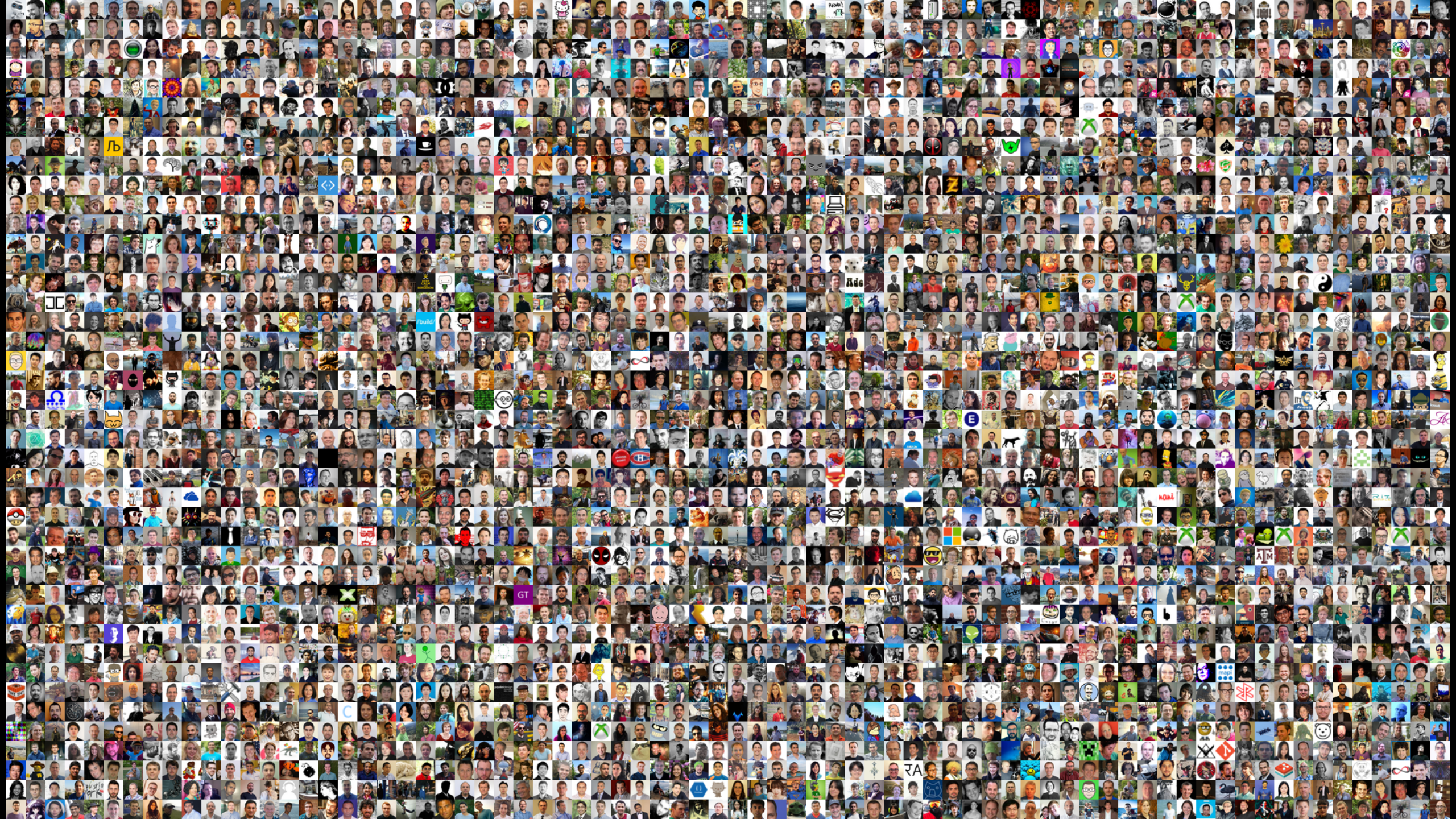
I understand you may not be currently looking for a new opportunity, but I'm keen to understand what you are looking for with your career progression, and give you a greater insight in to the role.

With this in mind when would be a good time for me to give you a quick call?

Best regards,
[redacted]

Open Source in Your Company

- Step One: Consume Responsibly
- Step Two: Understand the Business Need to Contribute
- Step Three: Convince the Stakeholders
- Step Four: Keep it Legal
- Step Five: Be the Community
- Step Six: Have Success!
- Step Seven: Inner Source



Thank You!

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