



GitHub

# The InnerSource Journey

Brent Beer (@brntbeer) Nov 25th, 2019

## Introduction

# Hi! I'm Brent Beer

GitHub: @brntbeer

Twitter: @brntbeer

Email: [brent@github.com](mailto:brent@github.com)



# But first, an overview of the talk

- What is InnerSource
- Why is it becoming popular?
- How it helps (or how it should help!)
- Implementation
- Next steps

# So, what is InnerSource?

InnerSource takes the lessons learned from developing open source software and applies them to the way companies develop software internally.

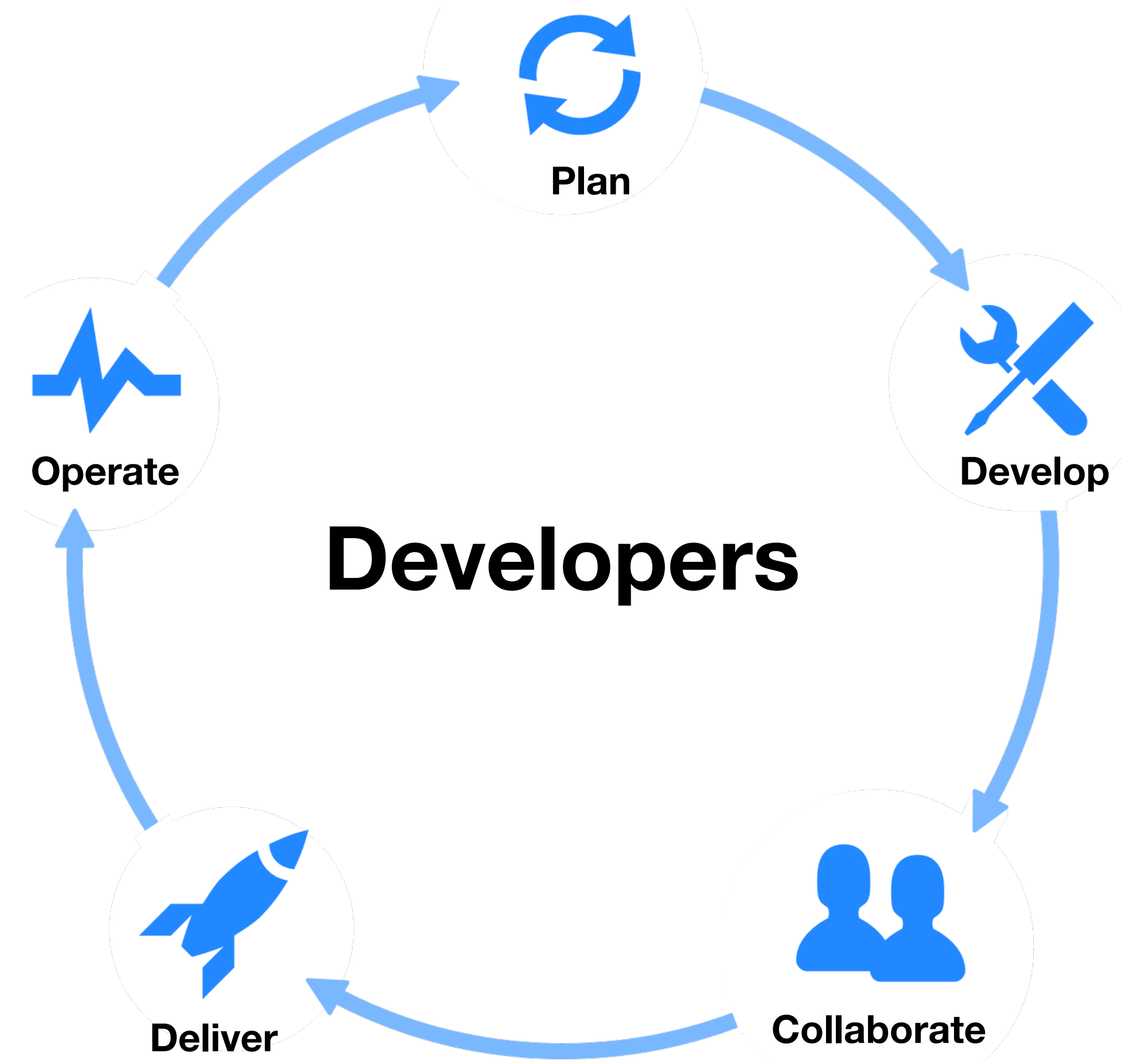
– <http://innersourcecommons.org/>

For companies building mostly closed source software, InnerSource can be a great tool to **help break down silos, encourage internal collaboration, accelerate new engineer onboarding, and identify opportunities to contribute software back to the open source world.**

<http://innersourcecommons.org/>

# What problems are people facing and solving today?

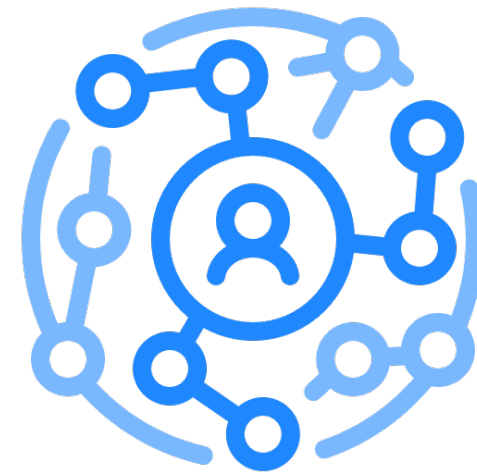
**Developers are at  
the core of innovation**



# Four key practices



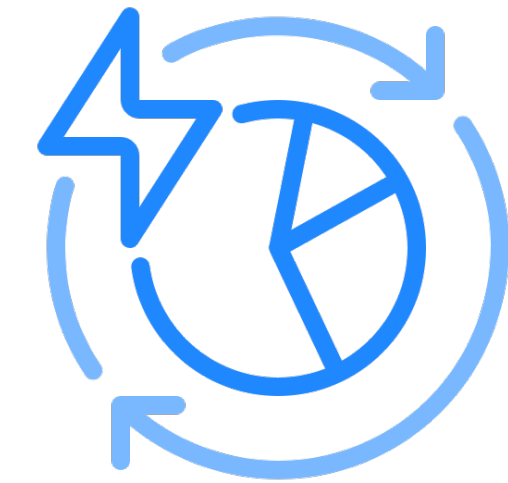
**Collaboration**



**Workflows and  
automation**



**Security and  
compliance**



**Continuous  
improvement**

**DevOps alone is not enough...**

# Organizations are working in silos

Silos prevent collaboration, both internally across your teams and when they isolate you from the open source community.





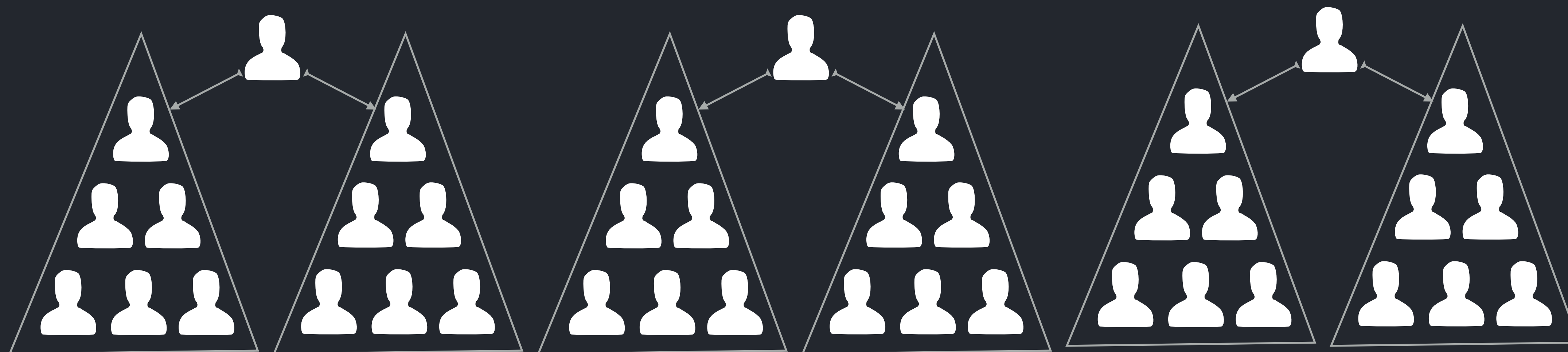
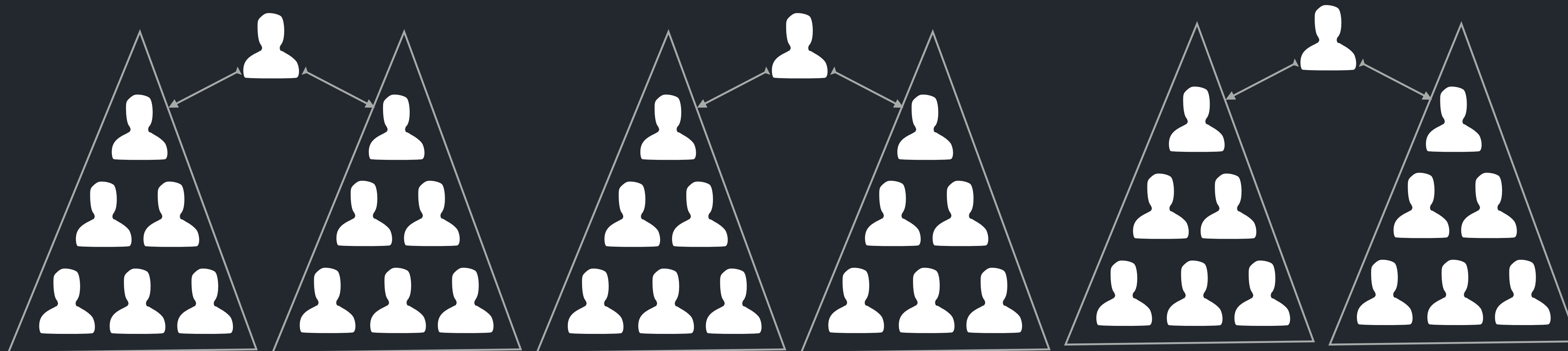
most organizations struggle with  
awareness of existing enterprise  
development

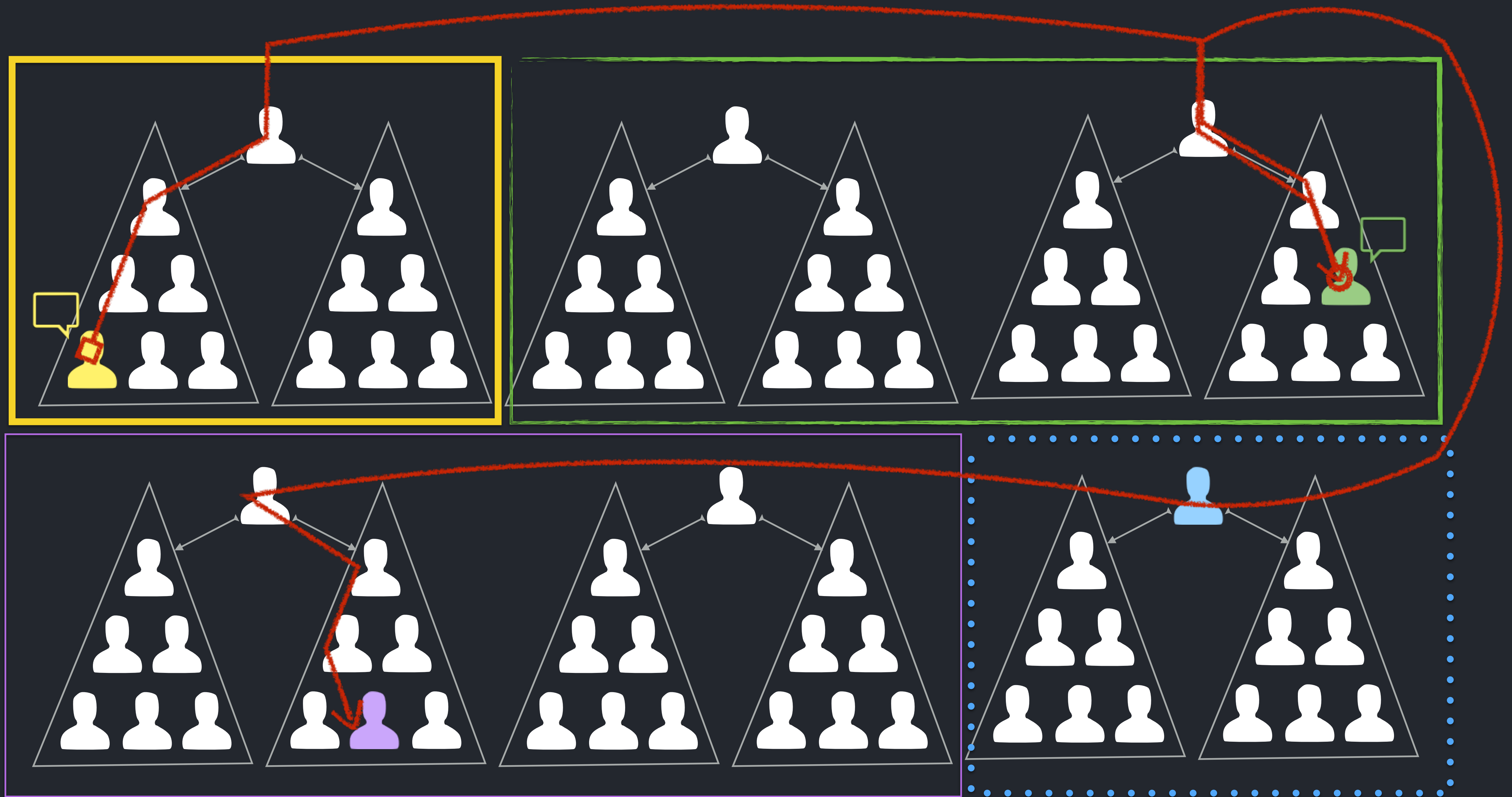


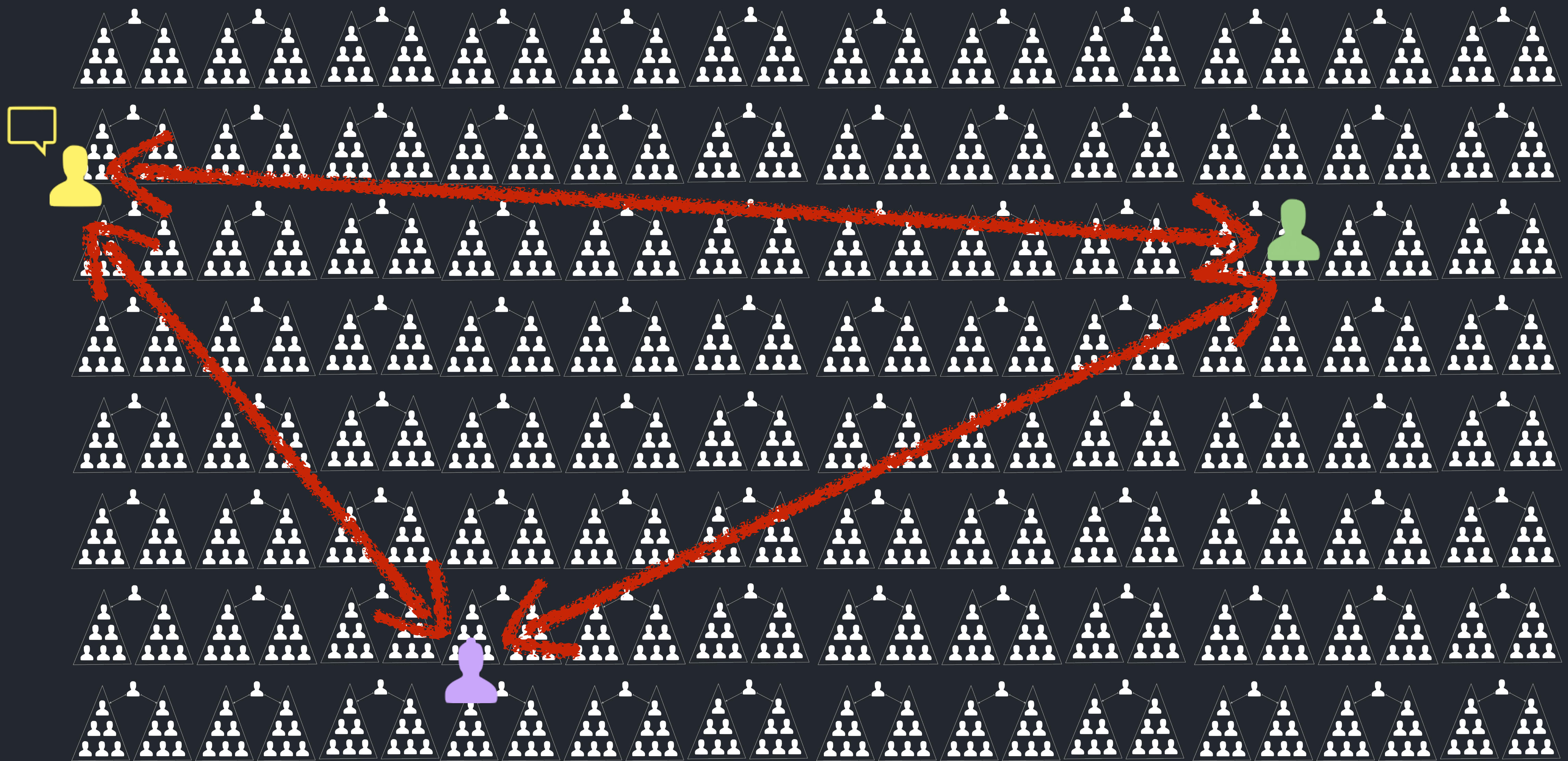
Where's the code?

How do I get access?

Why is there no documentation? Ugh, I can't figure out how to  
use this







# How InnerSource helps

# InnerSource Goals

- Reuse
- Collaboration
- Community
- Better software, faster.

# InnerSource Tenets

- **Open:** Create a level playing field for the open sharing of work
- **Transparent:** Ensure the process as well as the product is visible
- **Participative:** Make it easier for others to collaborate together
- **Collaborative:** Increase quality by increasing quantity
- **Governed:** Reduce missteps by providing clear goals and support

# Tenet: Open

## Repositories

- Prior art
- Reuse
- Contribute

## Contributions

- Create branches and propose changes to repositories
- Governance to ensure high quality
- Branch protection > forking

# Tenet: Transparent

## Process

- Documented processes
- Communication preserved and visible!

## Development

# Tenet: Transparent

*“We should switch over to mysql!”*

*“We tried that earlier this year and it didn’t work”*

*“Oh.... Okay”*

# Target: Transparent

*“We should switch over to sql!”*

*“We tried this year and it didn't work”*

*“Oh.... Okay”*

# Tenet: Transparent

*“We should switch over to mysql!”*

*“We tried that before and it didn’t work.  
Take a look at <https://github.com/ganymede/infrastructure/issue/123!>”*

*<~~Reading....~~>*

*“Oh that’s interesting! it looks like....”*

# Tenet: Transparent

Process

Development

- Collaborate **while** the code is written
- Surface concerns early, reduce the churn on your code

**A massive stack of information does  
not magically enable people to  
participate**

**users**

**contributors**

**maintainers**



# Tenet: Participative

Users

- Discovery
- Installation

Contributors

Maintainers

# Tenet: Participative

Users

Contributors

- Contributing process
- Engage with the community

Maintainers

# Tenet: Participative

Users

Contributors

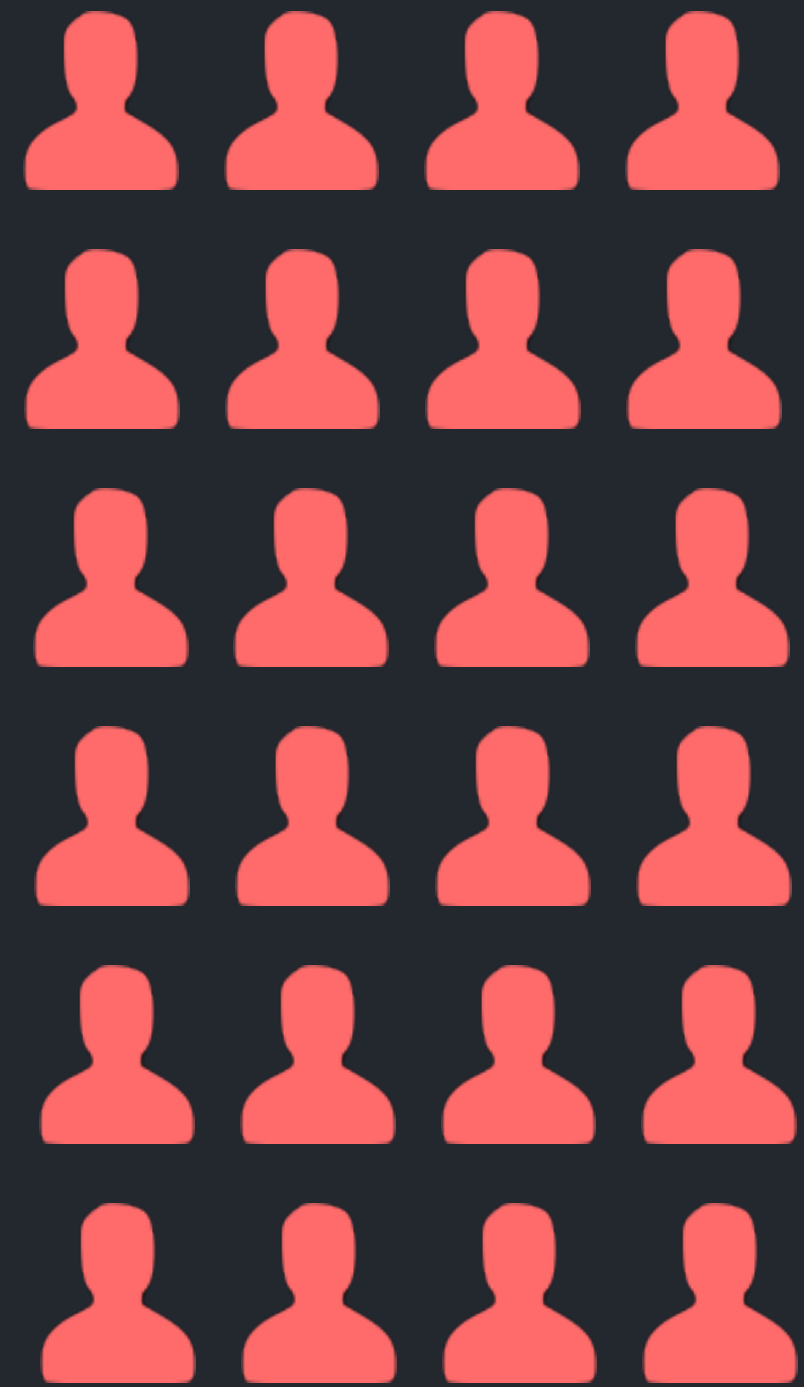
Maintainers

- Guide the project
- Stewards to help the other two types

# Tenet: Collaborative

## Informal teams

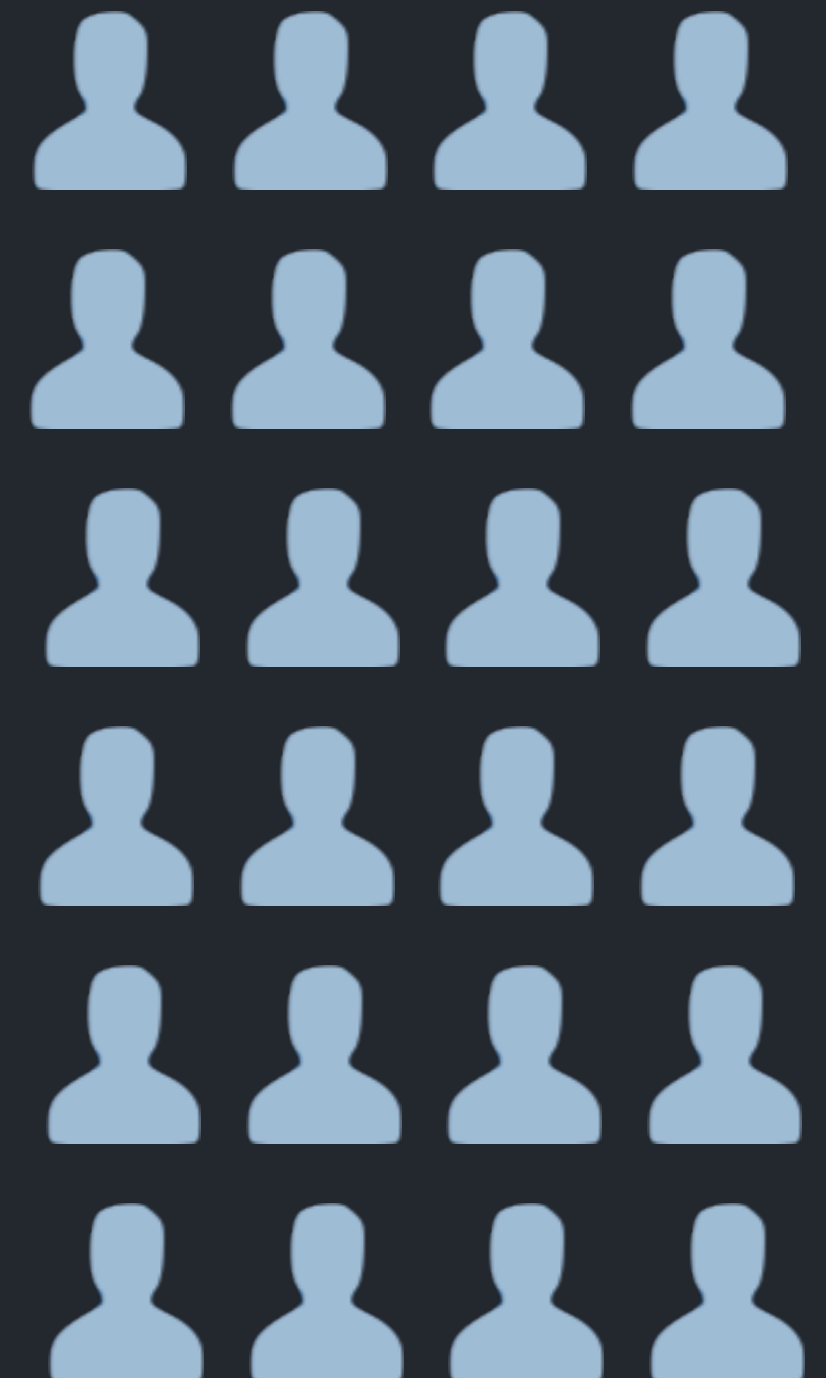
- Solicit help
- Learn from others
- Develop expertise



org/devGroupA

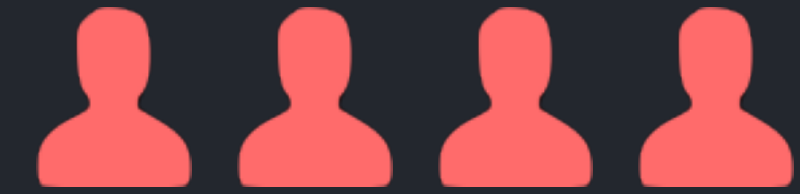
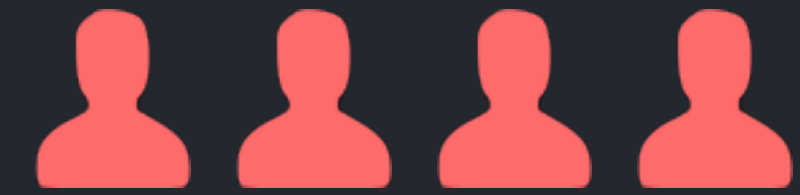
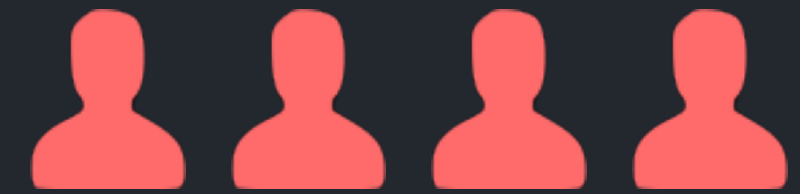
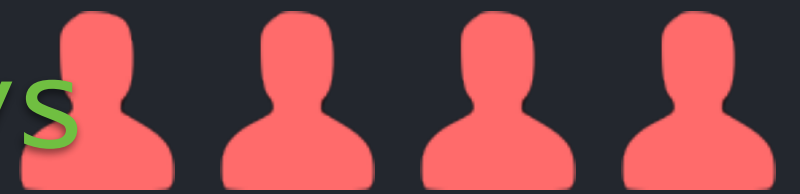


org/devGroupB



org/devGroupC

org/javascript-devs

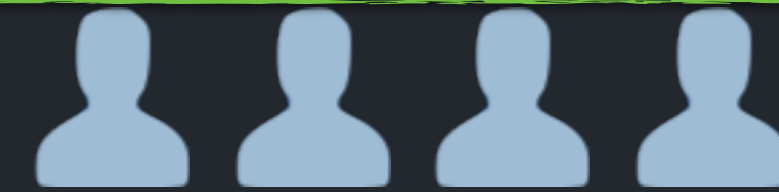
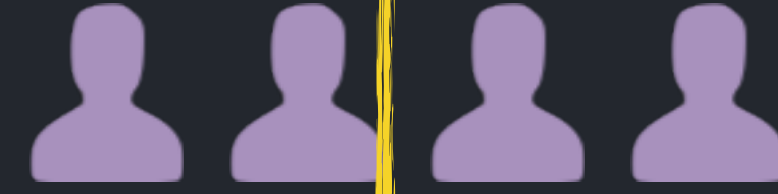


org/devGroupA

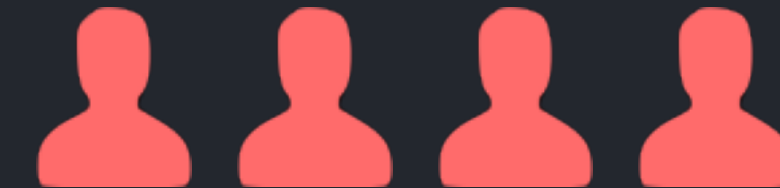
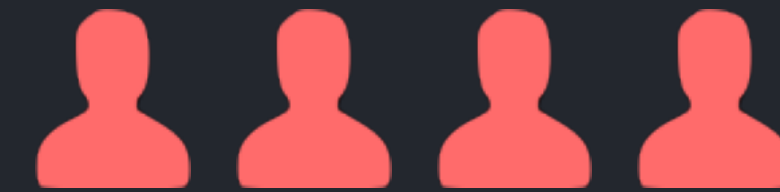
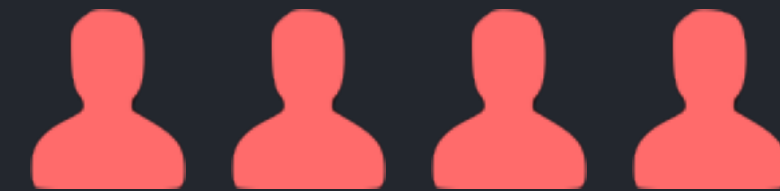
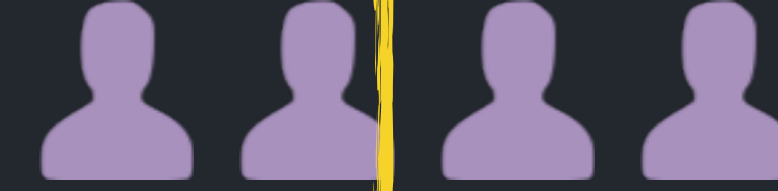
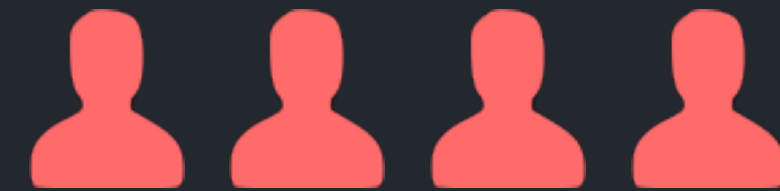
org/devGroupB

org/devGroupC

org/javascript-devs



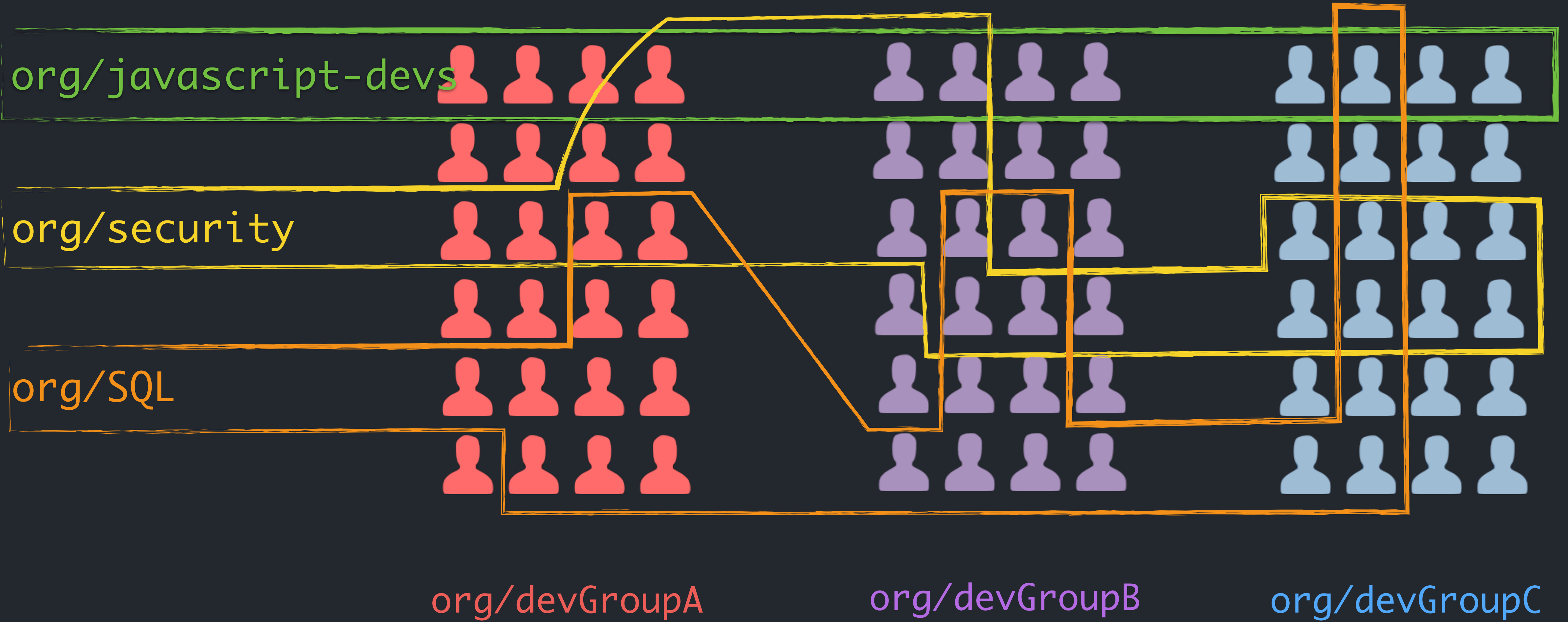
org/security

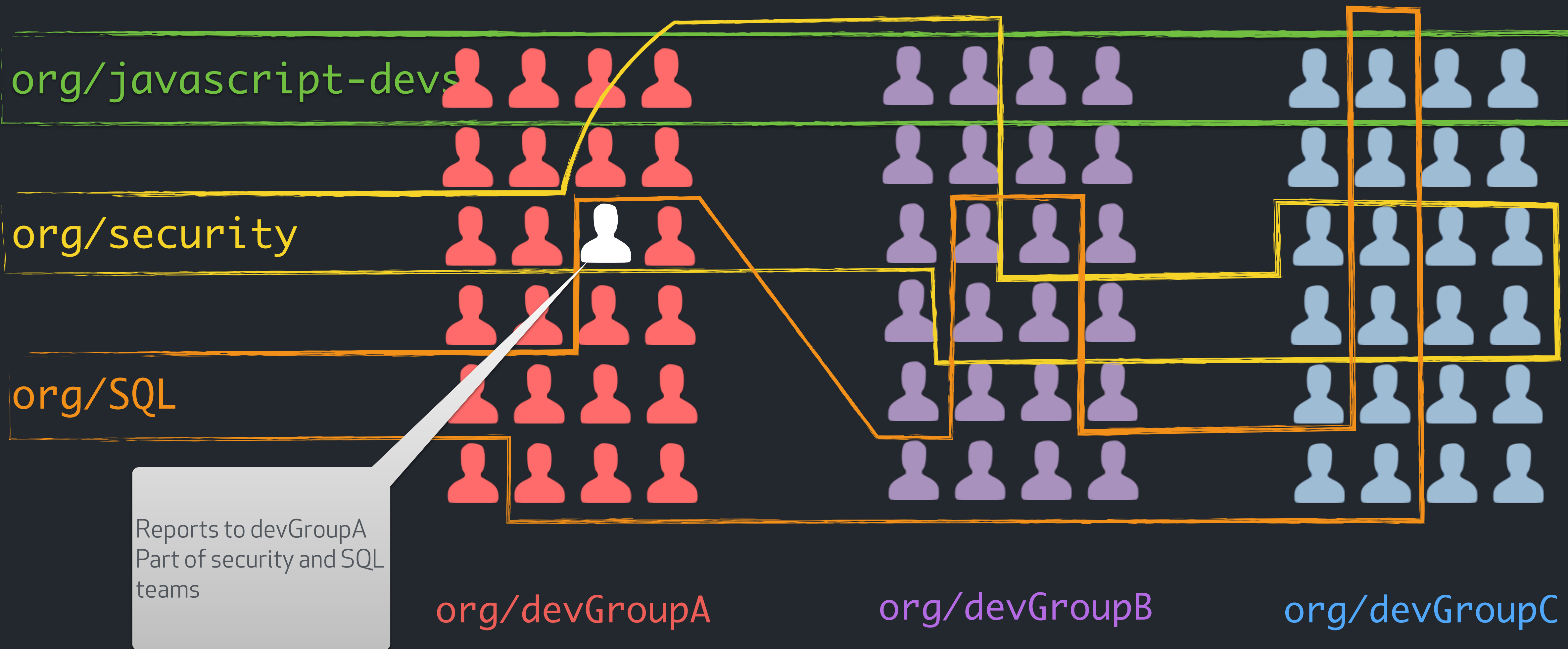


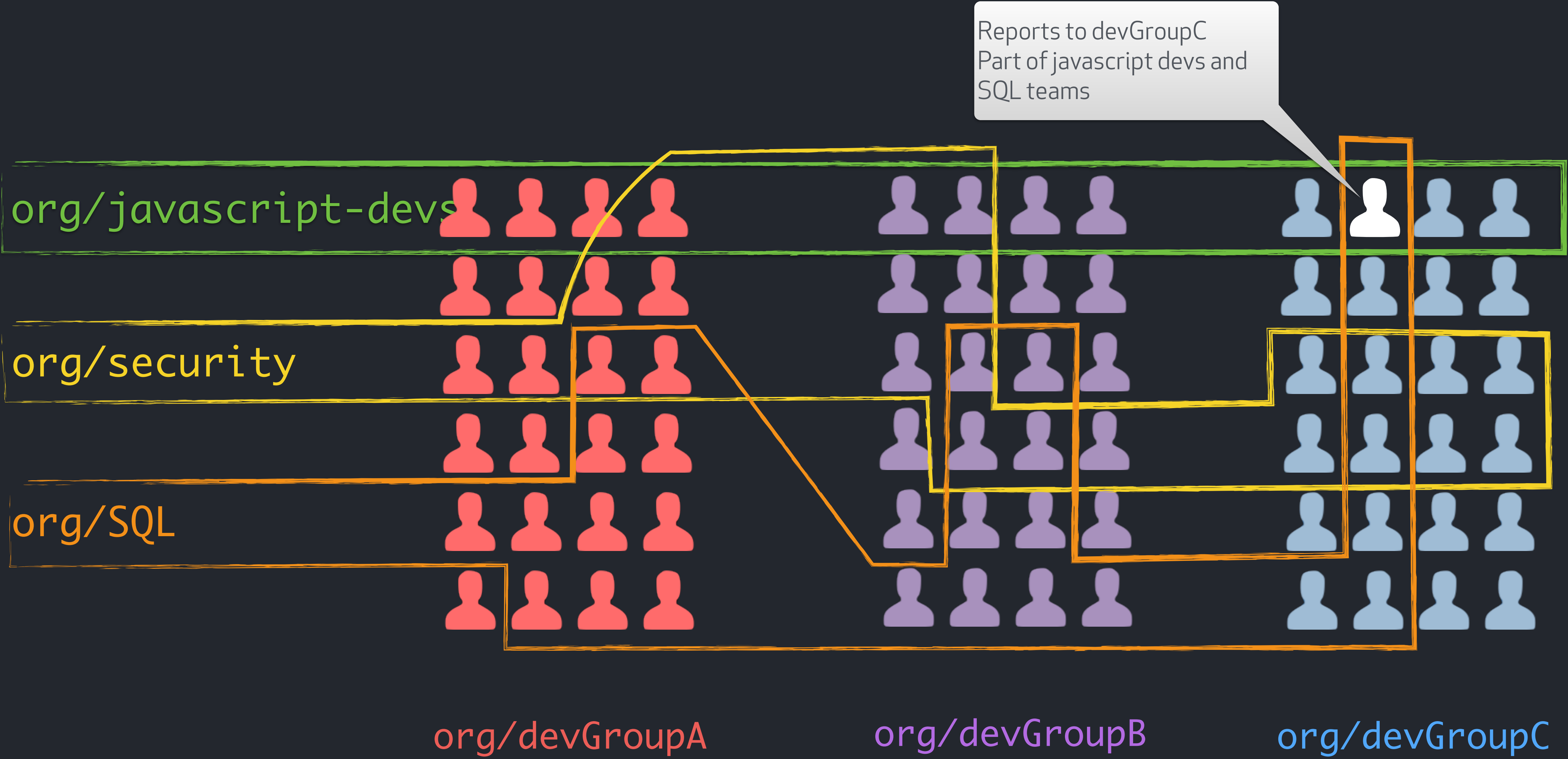
org/devGroupA

org/devGroupB

org/devGroupC







# Tenet: Governed

## Policies & Procedures

- Reporting issues
- Contributing code
- Code of conduct

## Enforcement

# Tenant: Governed

Policies & Procedures

Enforcement

- Maintainers
- Automated

# Implementing InnerSource

**users**

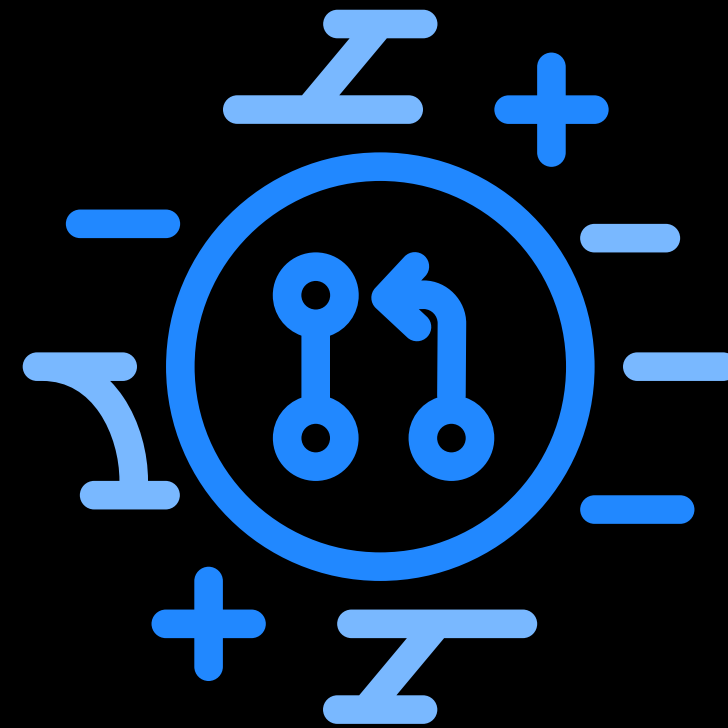
**contributors**

**maintainers**





**Discover/  
use**



**Contribute**






**Maintain**

Help people **find and use your  
project**

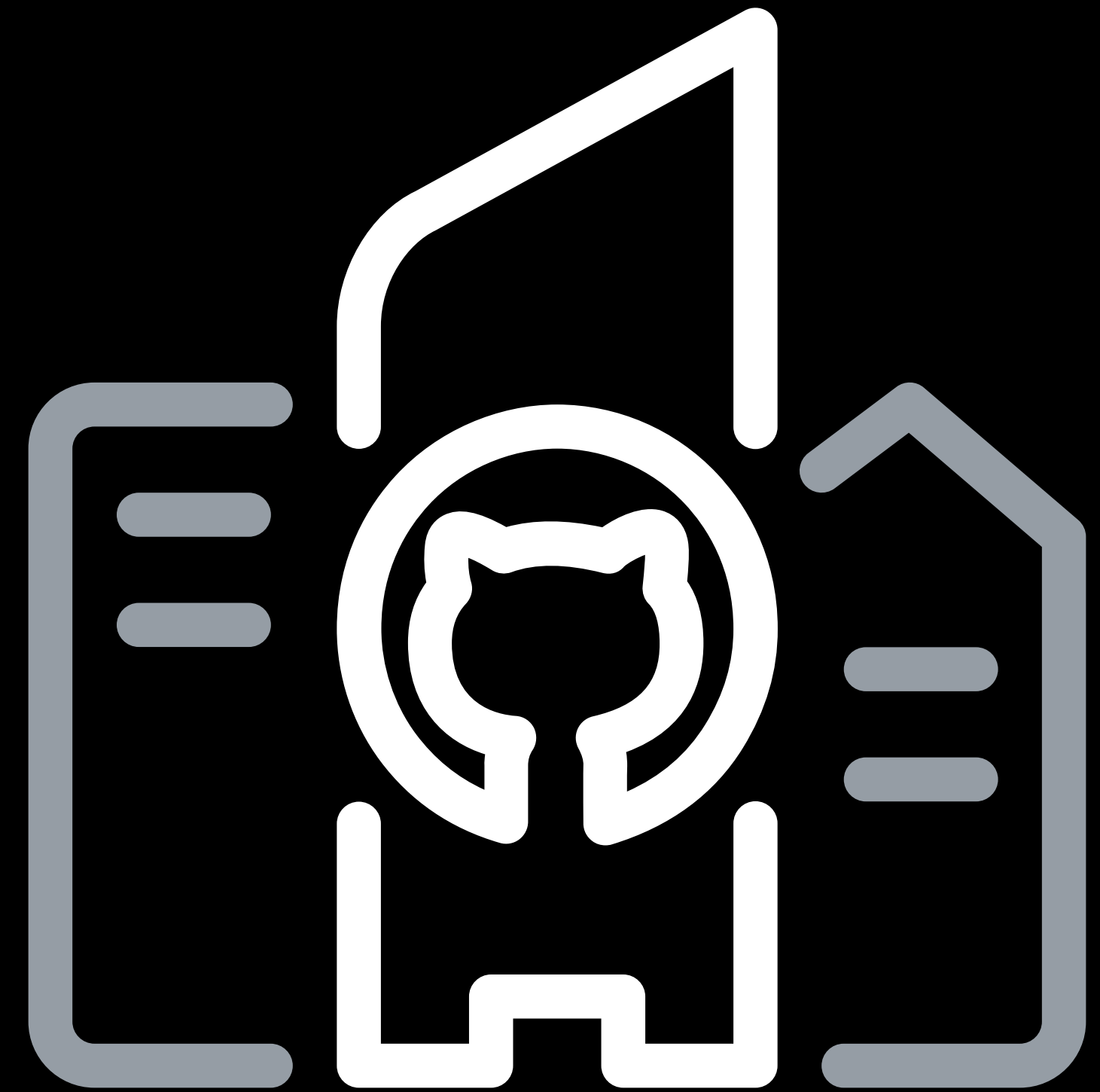
**Keep repositories as open as possible**

# Keep repositories as open as possible

- ☐  **Public**  
Anyone can see this repository. You choose who can commit.
- ☒  **Internal**  
Mona account members can see this repository. You choose who can commit.
- ☐  **Private**  
You choose who can see and commit to this repository.

Discover / Use

use a single, **highly  
searchable, VCS** to  
promote discovery



use multiple forms of  
documentation **aimed**  
**at the appropriate**  
**audience**



# Documentation Audiences: Contributors

README.md


## Microsoft Azure CLI

python

2.7 | 3.4 | 3.5 | 3.6 | 3.7

build

passing

 Azure Pipelines


succeeded

Slack

azurecli.slack.com

A great cloud needs great tools; we're excited to introduce *Azure CLI*, our next generation multi-platform command line experience for Azure.

Take a test run now from Azure Cloud Shell!

 Launch Cloud Shell

## Installation

Please refer to the [install guide](#) for detailed install instructions.

A list of common install issues and their resolutions are available at [install troubleshooting](#).

## Developer Installation (see below)

- [Docker](#)
- [Edge Builds](#)
- [Developer Setup](#)

## Usage

```
$ az [ group ] [ subgroup ] [ command ] {parameters}
```

## Get Started

Please refer to the ["get started" guide](#) for in-depth instructions.

For usage and help content, pass in the `-h` parameter, for example:

# Documentation Audiences: General Public



# Homebrew

The missing package manager for macOS (or Linux)

English

---

## Install Homebrew

```
/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

Paste that in a macOS Terminal prompt.

The script explains what it will do and then pauses before it does it. Read about other **installation options**. Install Homebrew on **Linux and Windows Subsystem for Linux**.

---

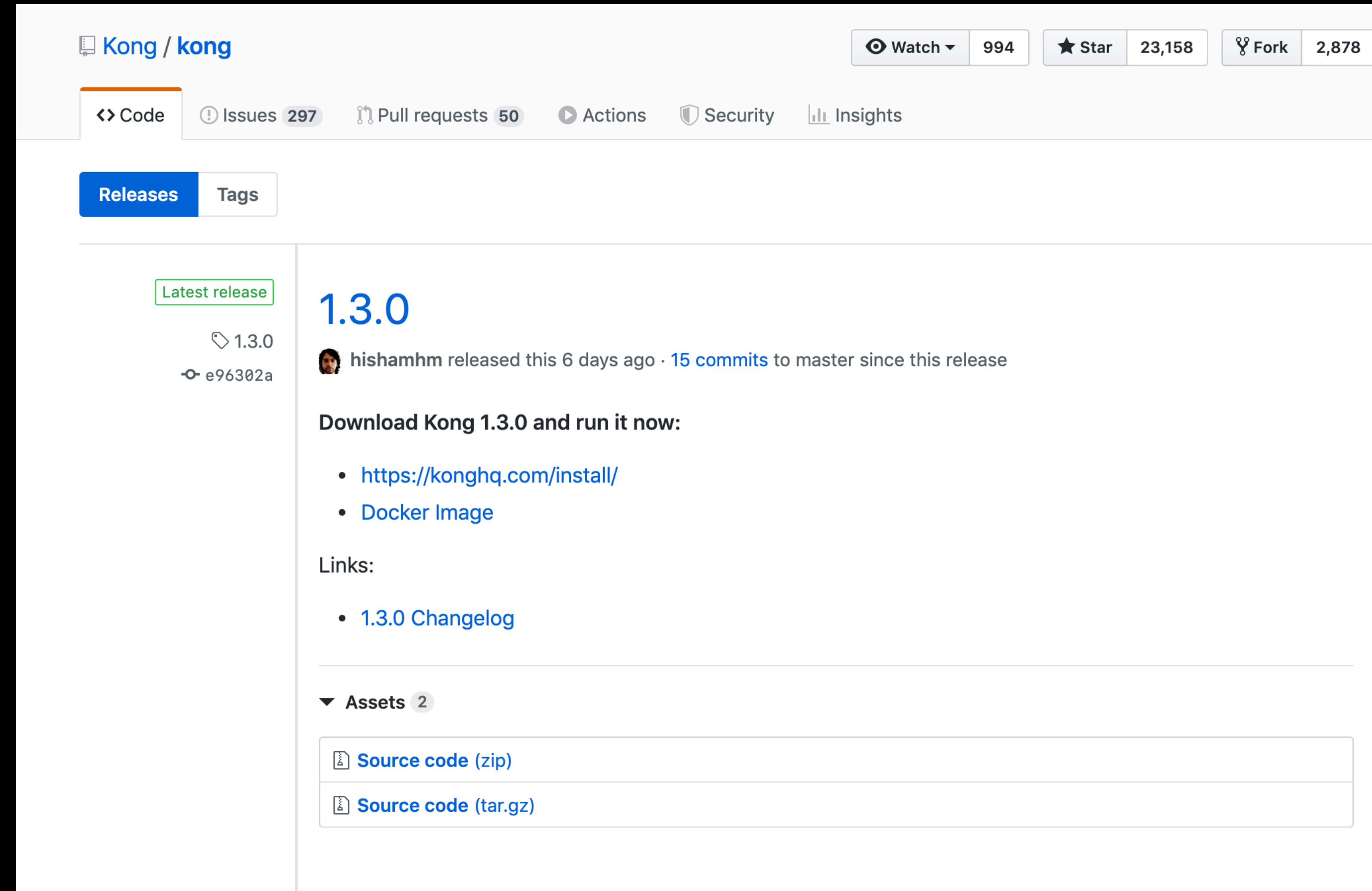
## What Does Homebrew Do?

Homebrew installs **the stuff you need** that Apple (or your Linux system) didn't.

```
$ brew install wget
```

Discover / Use

Provide easy access to  
**versions, release  
notes, and binaries**




The screenshot shows the GitHub repository for Kong / kong. The top navigation bar includes links for Watch (994), Star (23,158), and Fork (2,878). Below this, there are tabs for Code, Issues (297), Pull requests (50), Actions, Security, and Insights. The main content area is divided into two sections: Releases and Tags. The Releases section is active, showing the latest release, 1.3.0, which was released 6 days ago by hishamhm. The release page includes a list of links for downloading Kong 1.3.0 and running it now, such as <https://konghq.com/install/> and [Docker Image](#). It also provides a link to the [1.3.0 Changelog](#). At the bottom, there is a section for Assets (2) with two items: [Source code \(zip\)](#) and [Source code \(tar.gz\)](#).

Discover / Use

Provide easy access to  
**versions, release  
notes, and binaries**


Marketplace / Actions / Release Drafter



GitHub Action

# Release Drafter

v5.2.0 Latest version



## Release Drafter

Drafts your next release notes as pull requests are merged into master. Built with [Probot](#).

**npm v5.2.0**

### Usage

#### GitHub Actions

You can use the [Release Drafter GitHub Action](#) in a [GitHub Actions Workflow](#) by configuring a YAML-based workflow file, e.g. `.github/workflows/release-management.yml`, with the following:


```
name: Release Management
```

[Use latest version](#)

Stars

★ Star 654

Contributors



Categories

[Publishing](#) [Deployment](#)

Links

[toolmantim/release-drafter](#)

[Open issues](#) 23


[Pull requests](#) 13

[Report abuse](#)

Discover / Use


Provide easy access to  
**versions, release  
notes, and binaries**

[Marketplace](#) / [Actions](#) / Create a Release




GitHub Action

## Create a Release

 v1.0.0 Latest version

### GitHub Action - Releases API

This GitHub Action (written in JavaScript) wraps the [GitHub Release API](#), specifically the [Create a Release](#) endpoint, to allow you to leverage GitHub Actions to create releases.

 Tests passing

### Usage

### Prerequisites

Discover / Use

Provide easy access to  
**versions, release  
notes, and binaries**

[Marketplace](#) / [Actions](#) / Upload a Release Asset



GitHub Action

## Upload a Release Asset

v1.0.1 Latest version

### GitHub Action - Releases API

This GitHub Action (written in JavaScript) wraps the [GitHub Release API](#), specifically the [Upload a Release Asset](#) endpoint, to allow you to leverage GitHub Actions to upload release assets.

Tests passing

# Help people become contributors

Contribute

# Reduce friction involved with contributing

## Contribute

- **Open an issue**
- **Improve docs**
- **Offer insight in issues or pull requests**
- **Unsolicited improvements**
- **Complete backlog or roadmap items**

## Reduce Friction

Make getting up and running  
easy

### Scripts to Rule Them All



maddox Tools Engineer 📅 June 30, 2015

At GitHub we have a lot of software running our product and company. We also have a lot of potential contributing members. Being able to get from `git clone` to an up-and-running project in a development environment is imperative for fast, reliable contributions. A consistent bootstrapping experience across all our projects reduces friction and encourages contribution.

With practically every software project, developers need to perform the following tasks:

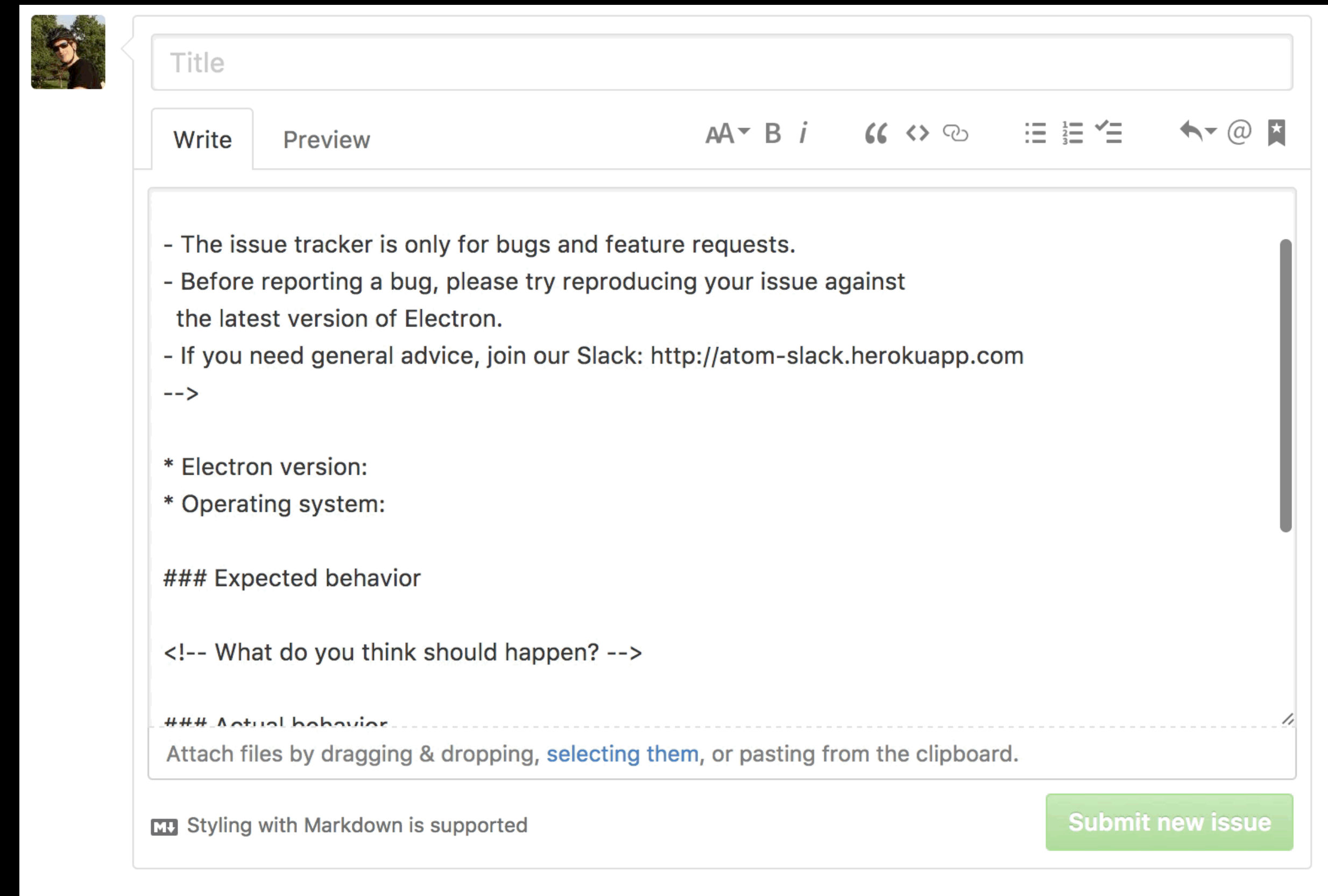
- bootstrap
- run tests
- run continuous integration
- start app

At GitHub, we have normalized on a set of script names for all of our projects that individual contributors will be familiar with the second after they clone a project. We call them "Scripts to Rule Them All".

Here's a quick mapping of what our scripts are named and what they're responsible for doing:

## Reduce Friction

# Submitting feedback



The screenshot shows a GitHub issue submission form. At the top left is a small profile picture of a person with glasses and a beard. To the right is a text input field labeled "Title". Below the title field are two tabs: "Write" (active) and "Preview". To the right of the tabs is a rich text editor toolbar with icons for bold (AA), italic (i), quote ("), code (<>), link (chain), list (three horizontal lines), ordered list (1, 2, 3), and undo (curved arrow). The main text area contains the following text:

- The issue tracker is only for bugs and feature requests.
- Before reporting a bug, please try reproducing your issue against the latest version of Electron.
- If you need general advice, join our Slack: <http://atom-slack.herokuapp.com>

-->

\* Electron version:

\* Operating system:

### Expected behavior

<!-- What do you think should happen? -->


### Actual behavior


Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

At the bottom left, there is a small icon of a document with a checkmark and the text "Styling with Markdown is supported". At the bottom right is a green button labeled "Submit new issue".

# Reduce Friction

Make sure things work by writing tests






Changes approved


1 approving review by reviewers with write access. [Learn more.](#)

[Show all reviewers](#)




1 approval

▼



4 pending reviewers


▼




All checks have passed

52 successful checks

[Hide all checks](#)





 enterprise

Successful in 9m — Build 19316569

Required

[Details](#)





 enterprise

— Build #19316569 succeeded in 575s

Required

[Details](#)





 enterprise-lint-schema

Successful in 4m — Build 19316571

Required

[Details](#)





 enterprise-lint-schema

— Build #19316571 succeeded in 254s

Required


[Details](#)




 enterprise-setup

Successful in 3m — Build 19316572

[Details](#)



 enterprise-setup

— Build #19316572 succeeded in 229s

[Details](#)

Reduce Friction

GitHub Actions: CI/CD +  
workflow automation



## Reduce Friction

# GitHub Actions: CI/CD revamp + workflow automation

25 lines (19 sloc) | 455 Bytes

```
1  name: Node CI
2
3  on: [push]
4
5  jobs:
6    build:
7
8      runs-on: ubuntu-latest
9
10     strategy:
11       matrix:
12         node-version: [8.x, 10.x, 12.x]
13
14     steps:
15     - uses: actions/checkout@v1
16     - name: Use Node.js ${ matrix.node-version }
17       uses: actions/setup-node@v1
18       with:
19         node-version: ${ matrix.node-version }
20     - name: npm install, build, and test
21       run: |
22         npm install
23         npm run build --if-present
24         npm test
```

## Reduce Friction

Make sure things work by  
writing tests other than  
traditional CI

```
-----  
Here are some suggestions on how to improve your post.  
Unlike CI in other repos, they're just suggestions.  
Feel free to ignore them as you wish. Humans generally know better than robots.  
-----
```

```
In posts/2017-00-00-adonting-innersource-post.md
```

```
=====
Contributing to code that is maintained by other teams, but you'd be surprised. A
      ^^^^^^^^^^^^^^^^^
"is maintained" may be passive voice on line 18 at column 229
-----
```

```
y other teams, but you'd be surprised. A good place to start is finding projects
      ^^^^^^^^^^^^^^^^^
```

```
"be surprised" may be passive voice on line 18 at column 269
-----
```

```
In open source this work is done by the maintainers or committers of a project.
      ^^^^^^^
```

```
"is done" may be passive voice on line 21 at column 209
-----
```

```
ivial pull requests that were accepted without modifications".
      ^^^^^^^^^^^^^^^^^
```

```
"were accepted" may be passive voice on line 21 at column 458
-----
```

```
ntly contribute can also be granted commit access. Maintainers can rotate the jo
      ^^^^^^^^^^^^^
```

```
"be granted" may be passive voice on line 23 at column 323
-----
```

```
hat they can continue to be involved in other ways, like writing great code.
```

# Reduce Friction

## Finding ways to contribute

ⓘ 35 Open

✓ 163 Closed

Author ▾

Labels ▾

Projects ▾

M ▾

ⓘ

BrowserWindow.setBounds() TypeError

documentation

help/beginner

★

#9552 opened 23 days ago by brianfajardo

ⓘ

cookies.get() value is decoded, but cookies.set() value will not be encoded automatically

enhancement

help/beginner

★

#9270 opened on Apr 23 by cuixiping

ⓘ

Allow specifying udp port range for webrtc

enhancement

help/beginner

★

#9042 opened on Mar 28 by MikeBailleul

ⓘ

shell.openItem doesn't work after sandboxing the app

fixme/bug

help/beginner

platform/macOS

topic/mac-app-store

★

#9005 opened on Mar 24 by alexey-sh

# Reduce Friction

GitHub, Inc. [US] | github.com/spotify

scio

A Scala API for Apache Beam and Google Cloud Dataflow.

bigquery

data

streaming

scala

beam

google-cloud

ml

Scala

Apache-2.0

291

1623

69 (24 issues need help)

Updated 1 hour ago

noether

Scala Aggregators used for ML Model metrics monitoring

machine-learning

scala

Scala

Apache-2.0

8

47

4

3

Updated 1 hour ago

featran

A Scala feature transformation library for data science and machine learning

data

scala

spark

tensorflow

ml

xgboost

algebird

Scala

Apache-2.0

45

302

19 (7 issues need help)

2

Updated 1 hour ago

java

python

scala

docker

google-cloud

People

79 >

The InnerSource Journey

GitHub

# Equip **maintainers** for success

Maintain

**Build and maintain a system that can mentor the next generation**

## Maintain

- **Set vision and direction**
- **Teach others**
- **Set / maintain tone**
- **Approve / deny or collaborate on submissions**
- **Facilitate shared ownership**
- **Protect the code**

Build and maintain a system

Set vision and direction

This repository

Search

Pull requests

Issues

Gist

mapbox / mapbox-gl-js

Watch

220

Star

1,435

Fork

<> Code

! Issues 359

🔗 Pull requests 18

**📁 Projects 4**

📶 Pulse

📊 Graphs

Find a project

4 projects

Smart setStyle

Updated on Nov 21, 2016

No description

Project 🌧️

Updated 4 days ago

No description

Vlad's backlog

Updated 18 days ago

Stuff Vlad's working on.


Create custom source API

Updated on Nov 16, 2016

A custom source API will

- allow developers to write sources that can ingest data in any format (i.e. TopoJSON)
- allow developers to write sources that can update data performantly (this is hard to do in the general case)

The InnerSource Journey

GitHub 

Build and maintain a system

Teach others



Learning Lab

Learning Paths

For Organizations

Docs

All public c...

Search

Q

In progress

Introduction to GitHub

Created by The GitHub Training Team

If you are looking for a quick and fun introduction to GitHub, you've found it. This class will get you started using GitHub in less than an hour.

● Git

● GitHub

Next: Assign yourself

0 of 8

Learn more

Start

Introduction to HTML

Created by The GitHub Training Team

If you are looking for a quick and fun introduction to the exciting world of programming, this course is for you. Learn fundamental HTML skills and build your first webpage in less than an hour.

● GitHub Pages

Next: Open a pull request

1 of 13

Learn more

Resume

Communicating using Markdown

Created by The GitHub Training Team

This course will walk you through everything you need to start organizing ideas and collaborating using Markdown, a lightweight language for text formatting.

● GitHub

● Markdown

Next: Create a task list

0 of 10

Learn more

Start

Featured courses

Introduction to GitHub

Created by The GitHub Training Team

If you are looking for a quick and fun introduction to GitHub, you've found it. This class will get you started using GitHub in less than an hour.

● Git

● GitHub

Next: Assign yourself

0 of 8

Setting up a Reason React App

Created by Stockholm Research Center

Hello and welcome! In this lab we will cover the basic setup needed to build Reason React applications, covering testing, documenting them, building, and releasing them!

● reason

● bucklescript

● reason-react

● react

Community starter kit

Created by The GitHub Training Team


There are millions of projects on GitHub, all competing for attention from the millions of open source contributors available to help. Learn how to help your project stand out.

● GitHub

● Open Source

Build and maintain a system

Maintain tone

 PROBOT


[Apps](#) [Docs](#) [Community](#)

# Sentiment Bot

Replies to toxic comments with a maintainer designated reply and a link to the repo's code of conduct

[+ Add to GitHub](#)


[🔗 127](#) [★ 60](#)



hiimbex commented 22 hours ago

Owner + 🗨️ ✎️ ✕

ok that last one wasnt toxic enough more anger hate grrr screw you bot!!! lol



sentiment-bot bot commented 22 hours ago

+ 🗨️ ✎️ ✕

Please be sure to review the code of conduct and be respectful of other users. cc/ @hiimbex  
Keep in mind, this repository uses the [Contributor Covenant](#).

Repository

behaviorbot/sentiment-bot

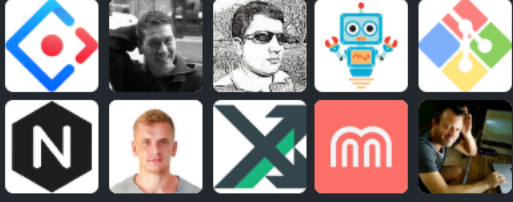
Authors

hiimbex


Updated

October 25, 2018

Used By



The InnerSource Journey

GitHub

## Build and maintain a system

Approve / deny / or collaborate  
on submissions

Merged

"Create pull request" URL on upstream push #94900  
brntbeer merged 49 commits into master from show-pull-request-url-on-... on Sep 7, 2018

make linter happy with space after comma

✓ c965749

mhagger requested changes on Aug 1, 2018

View changes

mhagger left a comment

+ 😊 ...

This seems like a handy feature.

But I'm pretty sure that this work should be done as part of the post-receive hook, not pre-receive. For example, the message should only be output if the push is successful. See githooks(5).

lib/github/githooks/pre\_receive\_pull\_request\_notice.rb

Outdated

21 + # TODO: needs to check that refs[1] is a new commit

22 +

23 + if @pushed\_refs.size == 1

24 + refs = @pushed\_refs.first

mhagger on Aug 1, 2018

+ 😊 ...

For readability, I suggest unpacking this as

before, after, ref = @pushed\_refs.first

then using those names within the block rather than refs[0] etc.

brntbeer on Aug 2, 2018

Author

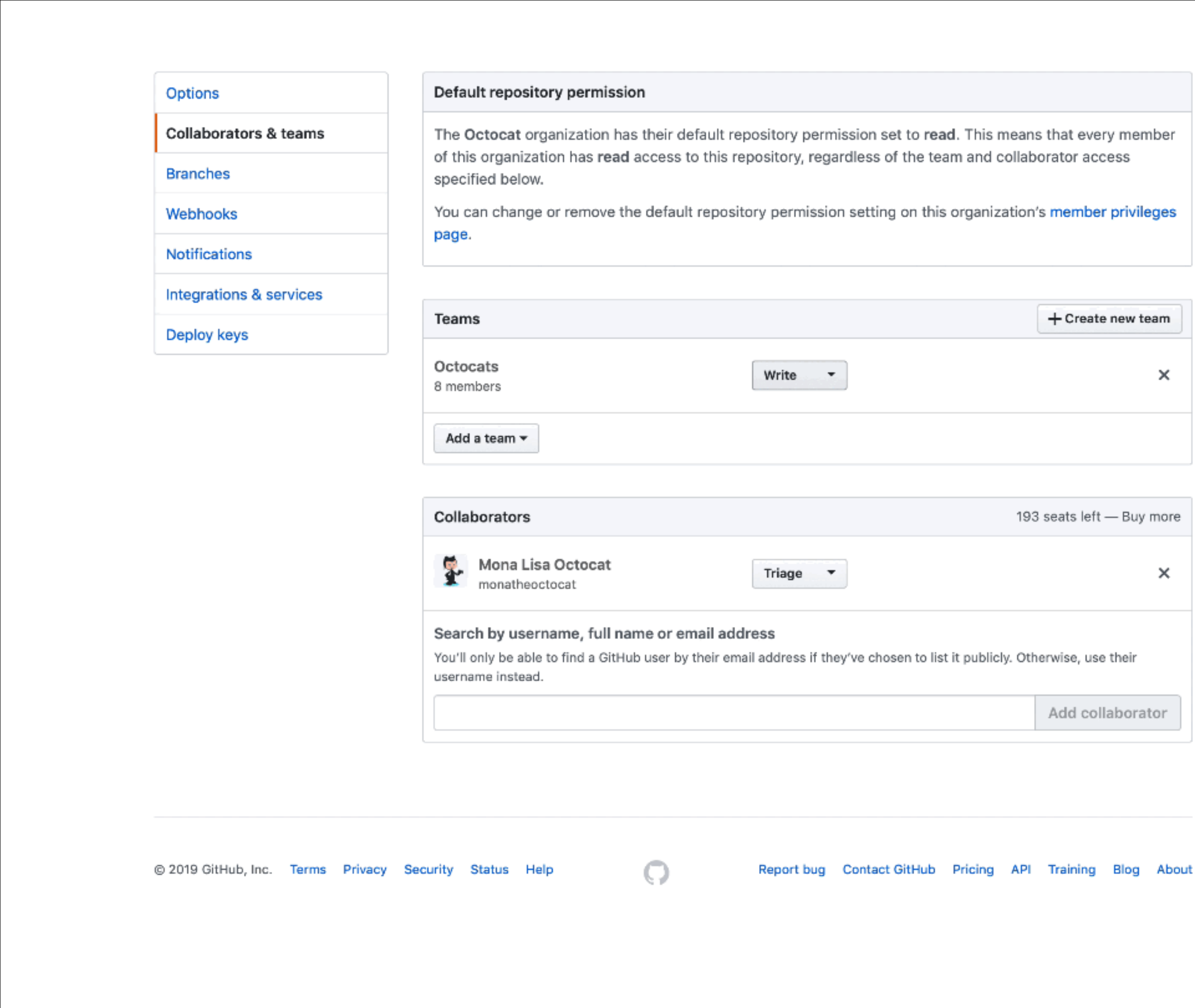
+ 😊 ...

thissssss is super nice. Thank you!

Reply...

Build and maintain a system

Facilitate shared ownership



Build and maintain a system

Security vulnerability alerts

<> Code

! Issues 0

🔗 Pull requests 0

📁 Projects 0

📖 Wiki

**📊 Insights**

Pulse

Contributors

Traffic

Commits

Code frequency

**Dependency graph**

Network

Forks

Dependency graph

Dependencies

Dependents

⚠️ We found a potential security vulnerability in one of your dependencies.

Dismiss

The `actionview` dependency defined in `Gemfile.lock` has a known moderate severity security vulnerability in version range `>=4.0.0, <=4.2.7` and should be updated.

Only users who have been granted access to vulnerability alerts for this repository can see this message.

[Learn more about vulnerability alerts](#)

These dependencies have been defined in `VulnerabilityTestRepoRubyGems`'s manifest files, such as `Gemfile` and `Gemfile.lock`

📦 Dependencies defined in Gemfile 1

## Build and maintain a system

# Automatic security fixes with dependably

The screenshot shows a GitHub pull request titled "[Security] Bump sshpk from 1.13.1 to 1.16.1 #23". The pull request is open and shows a merge of 1 commit into the master branch from dependabot/npm\_and\_yarn/sshpk-1.16.1. The pull request is categorized as a security update, with labels for dependencies and security. The dependabot bot has commented on the pull request, stating that it bumps sshpk from 1.13.1 to 1.16.1, which includes security fixes. The comment also lists vulnerabilities fixed, release notes, and commits. A compatibility badge shows 92% compatibility. The pull request has 1 commit, 0 checks, and 1 file changed. The pull request is verified and has 7471864 likes. The pull request is also linked to a GitHub Actions workflow. The pull request is also linked to a GitHub Actions workflow. The pull request is also linked to a GitHub Actions workflow.

dependabot bot commented 3 days ago

Bumps [sshpk](#) from 1.13.1 to 1.16.1. This update includes security fixes.

- ▶ Vulnerabilities fixed
- ▶ Release notes
- ▶ Commits

compatibility 92%

Dependabot will resolve any conflicts with this PR as long as you don't alter it yourself. You can also trigger a rebase manually by commenting `@dependabot rebase`.

▶ Dependabot commands and options

[Security] Bump sshpk from 1.13.1 to 1.16.1 ... Verified ✓ 7471864

dependabot bot added dependencies security labels 3 days ago

All checks have passed  
1 successful check [Show all checks](#)

This branch has no conflicts with the base branch  
Only those with [write access](#) to this repository can merge pull requests.

Reviewers  
No reviews

Assignees  
No one assigned

Labels  
dependencies security

Projects  
None yet

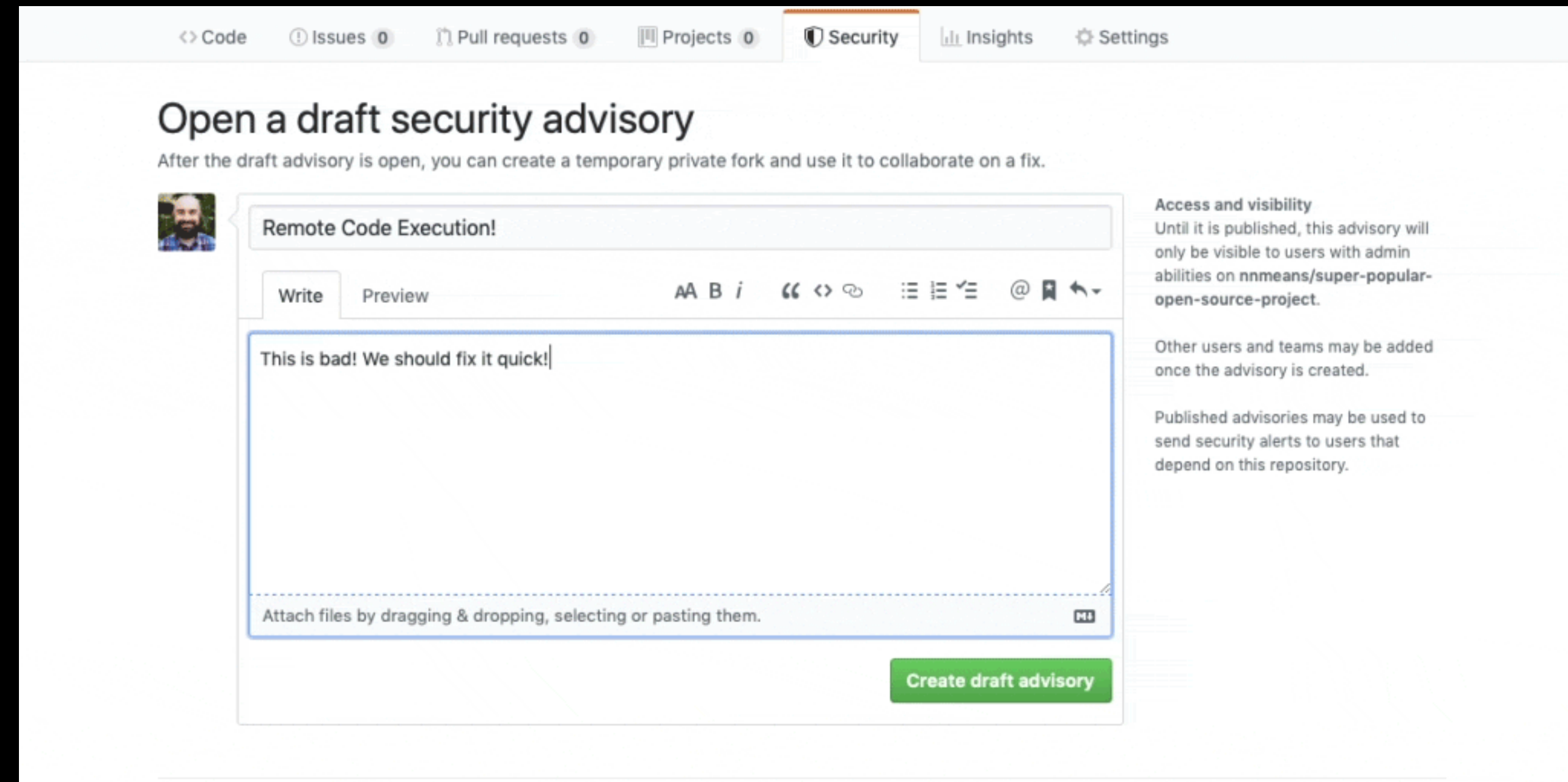
Milestone  
No milestone

Notifications  
[Subscribe](#)  
You're not receiving notifications from this thread.

1 participant

Build and maintain a system

# Security advisories and advisories API



**How does this work with hundreds or thousands of developers at your company?**

InnerSource working

# Societe Generale

“As a central team, you can imagine that we can easily be on the critical path of any other dependent team,” he explained, “and that’s exactly what we don’t want: we can’t afford to block any team waiting for us to deliver a fix that they need to move their own project forward.”

- *Amir Jaballah, Head of Digital Transformation and Digital Lab ASIA for Societe Generale*



InnerSource working

## Engie

“We’re setting up a tool for Python, and in the coming days for Java, that will take the documentation we write, generate it, format it, and push it automatically to GitHub Pages. So developers can see documentation changes almost as soon as we make them on a GitHub Pages site”

– *Florent Zara, Innersource Project Lead*



# Next Steps



# Celebrate!



**Reach out for help**



# Pick one thing

**A design system** is a collection of reusable components, guided by clear standards, that can be assembled together to build any number of applications.

— **A Guide to Design Systems, InVision**

From <https://noti.st/resource11> / @resource11 on twitter

**Great design systems  
combine team AND  
consumer experience**



# Questions? Concerns? Comments?

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# The InnerSource Journey

Brent Beer (@brntbeer) Nov 25th, 2019