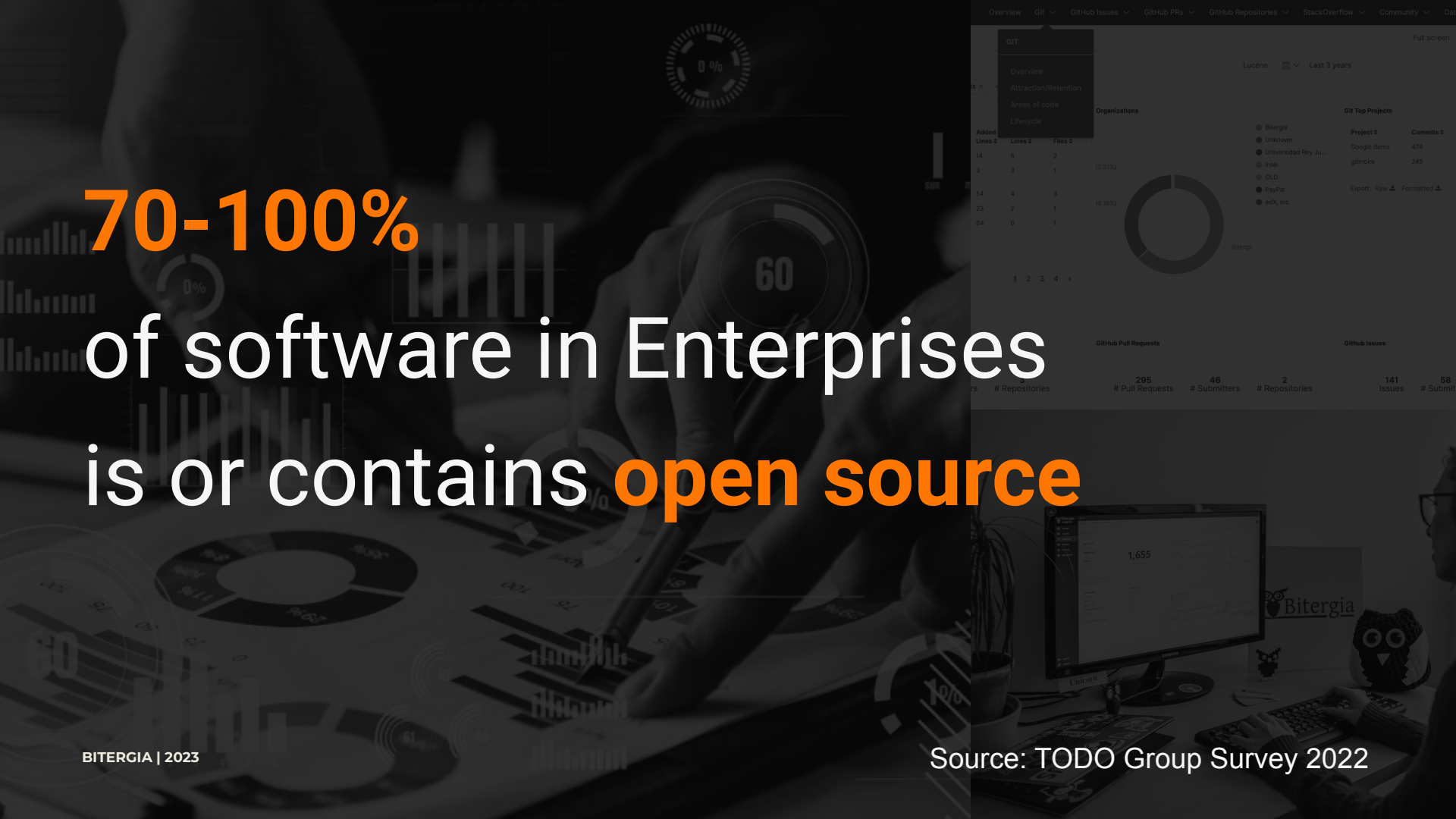
Open Source Summit North America

Building and Supporting Open Source Communities Through Metrics

Georg Link - Director of Sales at Bitergia

At the core of open source we care about using, sharing and collaborating



70-100%

of software in Enterprises

is or contains **open source**

Source: TODO Group Survey 2022

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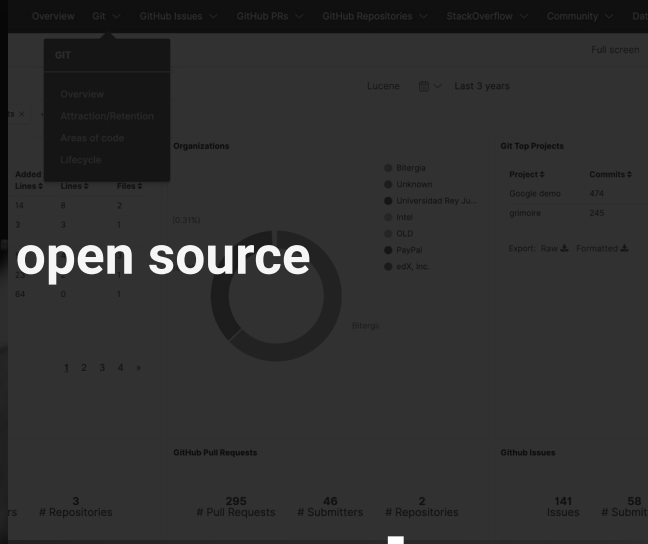
Open source **funding** expectations **increased** from 38% to **45%**



Source: TODO Group Survey 2022

- The **heartbleed** incident
- The **Struts/Equifax** debacle
- The **Log4j** security vulnerability

BIZ & IT —

Failure to patch two-month-old bug led to massive Equifax breach

Critical Apache Struts bug was fixed in March. In May, it bit ~143 million US consumers.

DAN GOODIN - 9/13/2017, 10:12 PM

FTC warns companies to remediate Log4j security vulnerability

By: This blog is a collaboration between CTO and DPIP staff and the AI Strategy team | January 4, 2022

White House reminds tech giants open source is a national security issue

By Sergiu Gatlan

January 14, 2022 02:04 PM 0

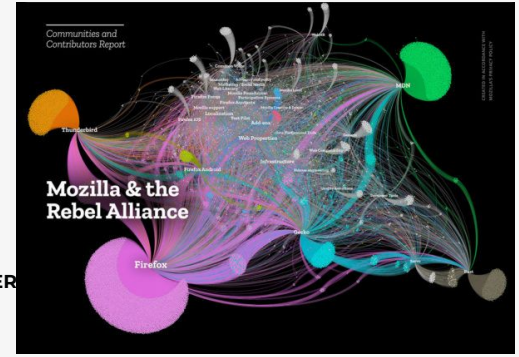
How can we solve these problems?

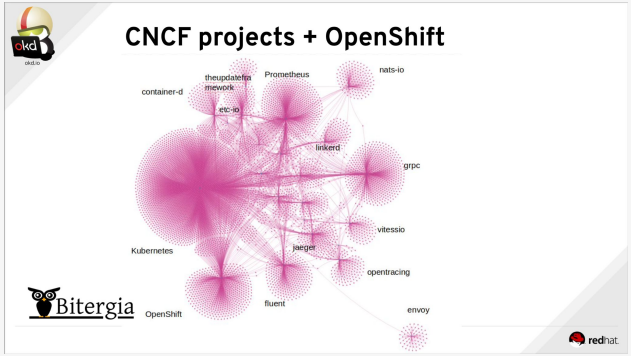
The **Mozilla Foundation** released a report in 2019 on the **different types** of **open source projects**

using metrics when building and supporting open source projects

Bitergia

- More than 15 years of experience
- Maintains the open source GrimoireLab metrics tools
- Official Metrics Partner of OpenInfra and NumFOCUS foundations
- Co-founded the CHAOSS project in 2017





Metrics in the Framework

CHAOSS

CHAOSS

Community Health Analytics Open Source Software

CHAOSS

Who is CHAOSS for?

- **Open source contributors** want to know where they should place their efforts and know that they are making an impact.
- **Open source communities** want to attract new members, ensure consistent quality, and reward valuable members.
- **Open source companies** want to know which communities and software to engage with, communicate the impact the organization has on the community, and evaluate the work of their employees within open source.
- **Open source foundations** want to identify and respond to community needs, evaluate the impact of their work, and promote communities.

CHAOSS

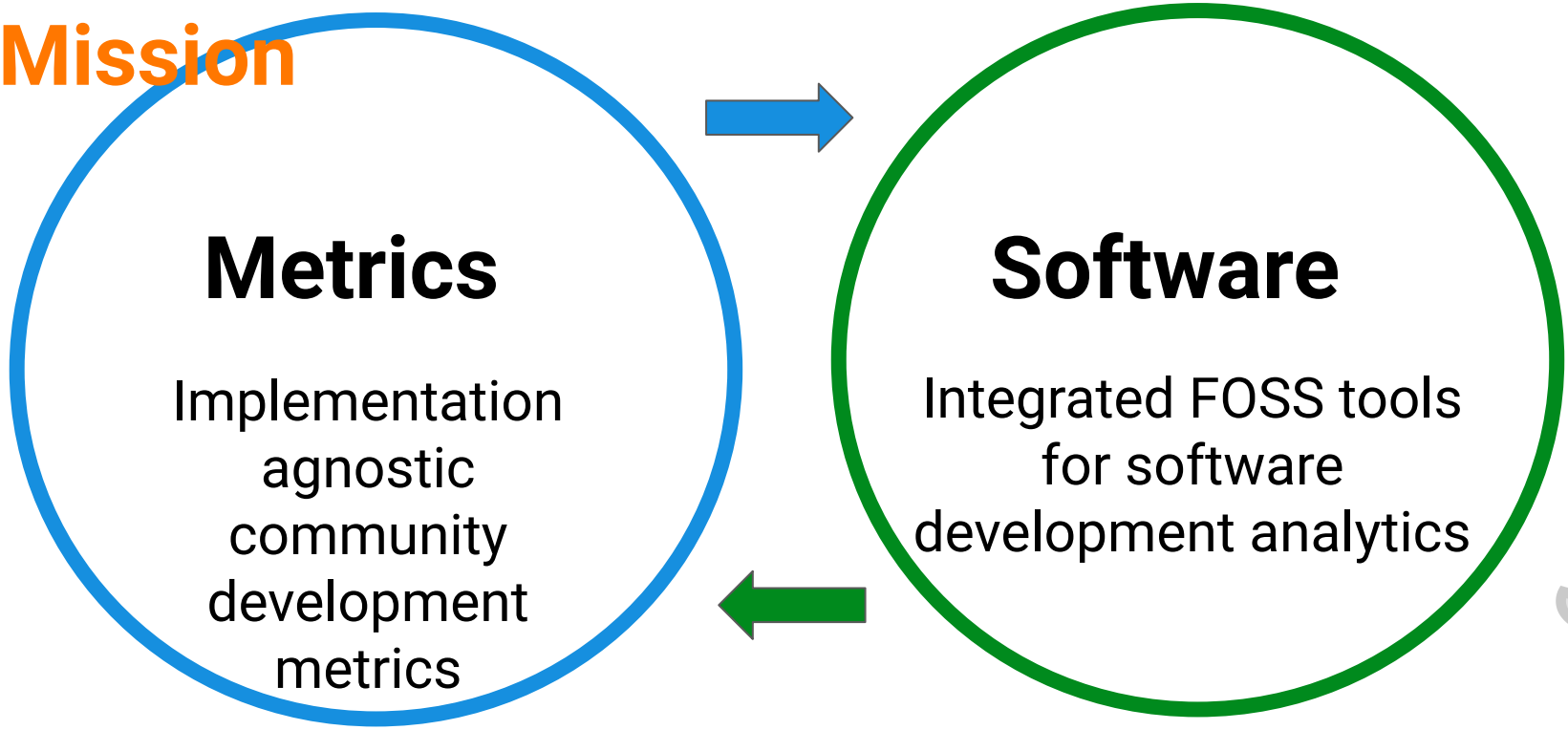
Why Create CHAOSS?

The CHAOSS community is developing metrics, metrics models, and methodologies implemented in software for expressing open source project health and sustainability to:

- Improve transparency
- Educate maintainers
- Create healthier communities for contributors
- Provide visibility for the four stakeholders

CHAOSS

Mission

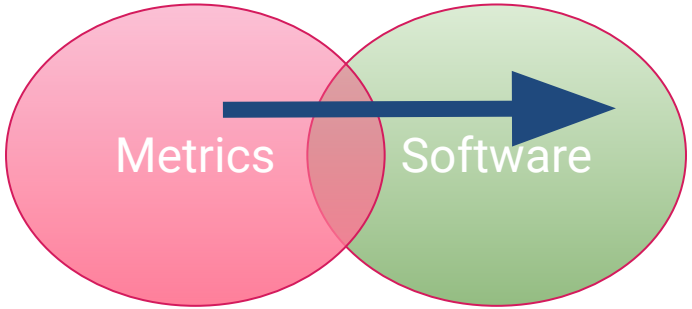


CHAOSS Origins and Contributions

New Member and OSPO Expectations Now

CHAOSS

Project Structure



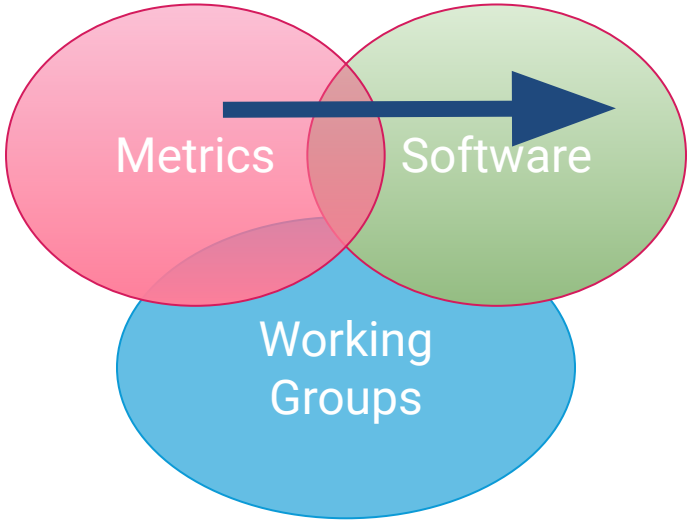
CHAOSS

Project Structure

GRIMOIRE LAB

augur

1. Risk
2. DEI (Diversity, Equity and Inclusion)
3. Common
4. Metrics Models



CHAOSS

Working Groups

- Focus on one particular health & sustainability category
- Recommend and define specific metrics in that category
- Recommend and define specific methods for collecting data related to the metrics
- Can also be operational for CHAOSS (Website, Design, etc)

CHAOSS

Working Groups

Metrics WGs:

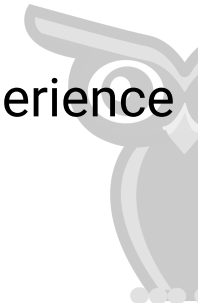
- Risk
- Diversity, Equity, and Inclusion
- Common
- Metrics Model

Context WGs

- App Ecosystem
- OSPO
- Science
- University
- Academic

Operations WGs:

- Communications
- Software
- CHAOSScon
- DEI Badging
- Website
- Design
- Newcomer Experience
- CHAOSScast



CHAOSS

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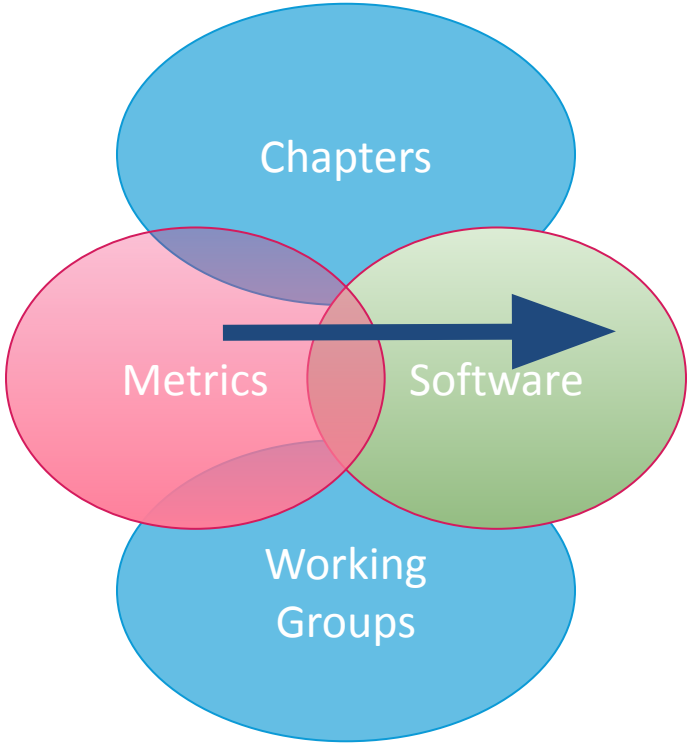

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GRIMOIRE LAB

CHAOSS

Chapters

- CHAOSS Africa
- CHAOSS Asia-Pacific
- CHAOSS LATAM (new, not formed)
- CHAOSS Eastern Europe (new, not formed)

CHAOSS

Metrics Models

- Collaboration Development Index
- Development Responsiveness
- DEI Event Badging
- Safety
- Community Activity
- Community Service and Support
- Project Engagement
- Funding
- Project Awareness
- Starter Project Health
- Community Safety

CHAOSS

Metrics Models

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Model: Community Safety

(abbreviated summary)

Why it Matters

Systemic biases favor some people over others. Creating safe communities levels the playing field.

User Stories

- Non-profit: sponsorship decision
- Contributor: invest time decision
- Maintainer: track progress

Metrics in Mode

- Psychological Safety
- Project Code of Conduct
- Event Code of Conduct
- Inclusive Leadership
- Board/Council Diversity
- Burnout

Metrics:

how to interpret them

Global and Inclusive Community

Building a global and inclusive community requires accommodating timezones, languages, cultures, and other differences.

Global and Inclusive Community

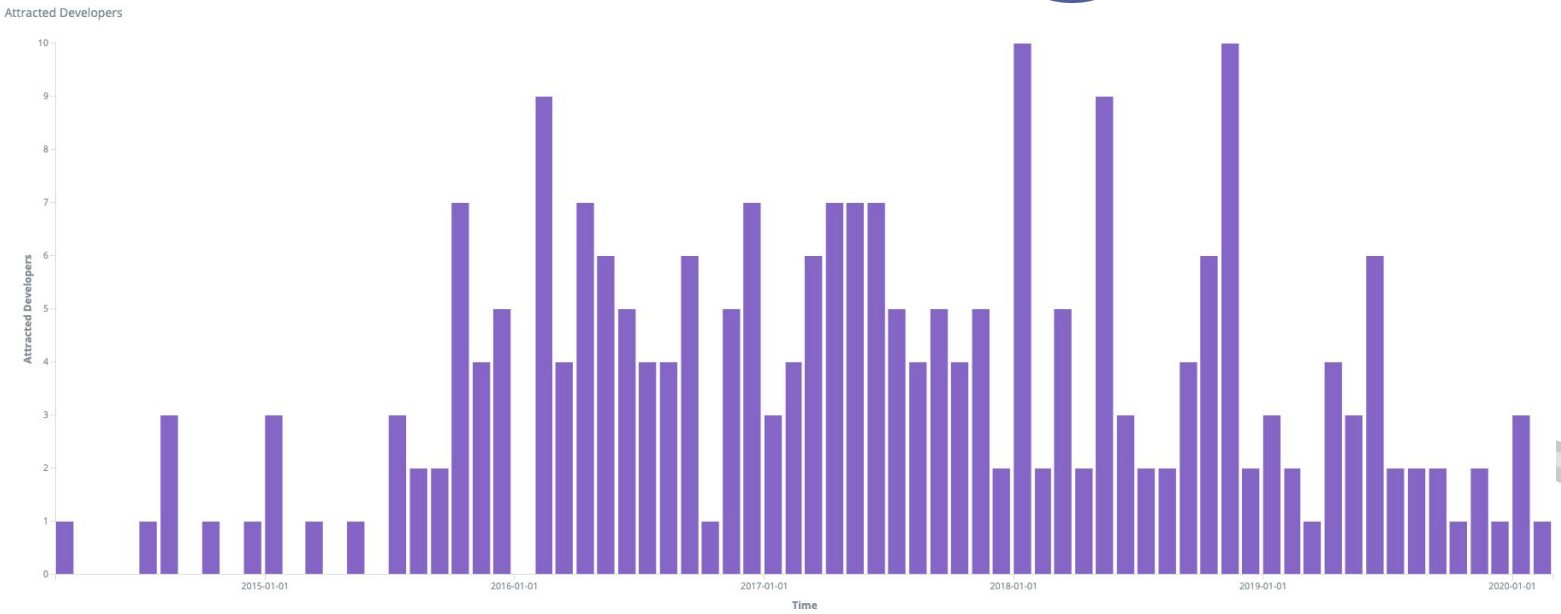
1. WordPress translation community has it **fully translated into 56 languages**, and partially translated in dozens more.
2. In 2017, WordPress communities around the world organized **128 WordCamp events**, in **48 countries**, and sold **39,625 tickets**.
3. In 2017, Local WordPress communities organized **4,379 meetups** in **73 countries**.
4. There are dozens of WordPress groups on Facebook, with WPBeginner Engage being the largest WordPress **Facebook group with 90,000+ members**.

https://www.wpbeginner.com/beginners-guide/ultimate-list-of-wordpress-stats-facts-and-other-research/

New Contributors & Contributions

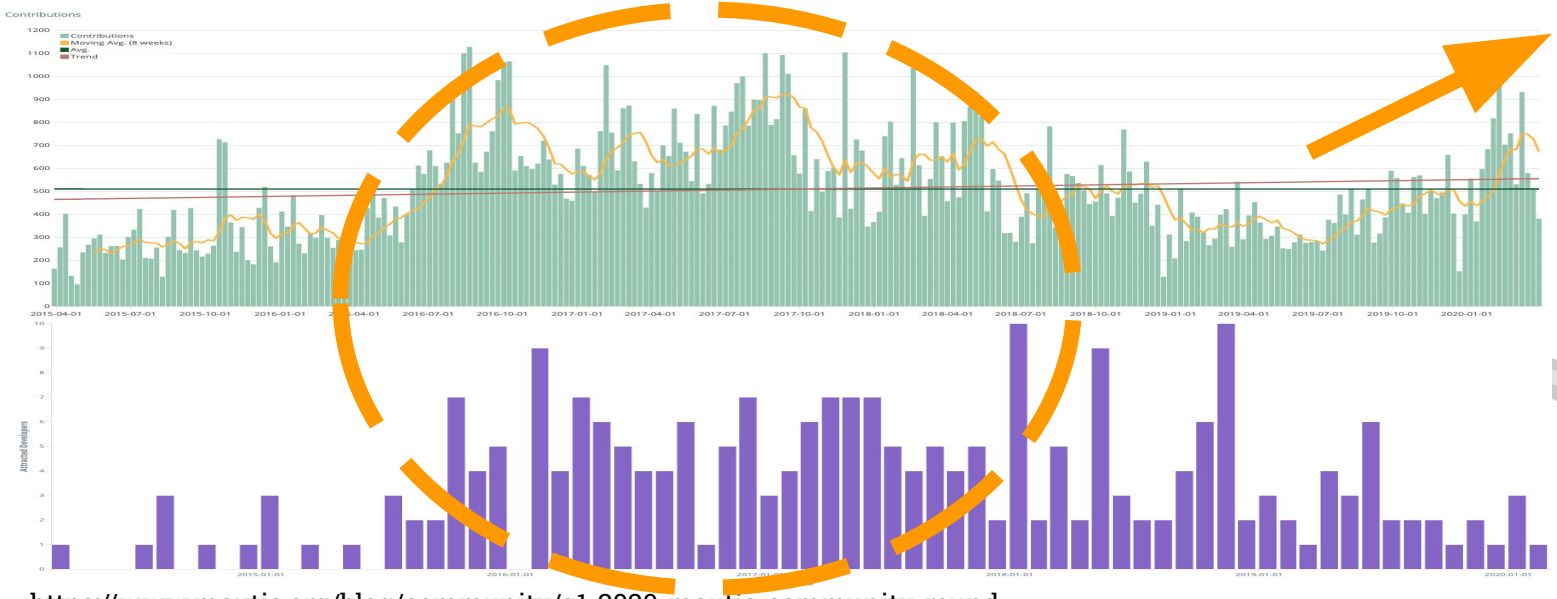
An increase or decline in new contributors and contributions can be an early indicator of community health.

New Contributors



https://www.mautic.org/blog/community/q1-2020-mautic-community-round

Growth in overall contributions



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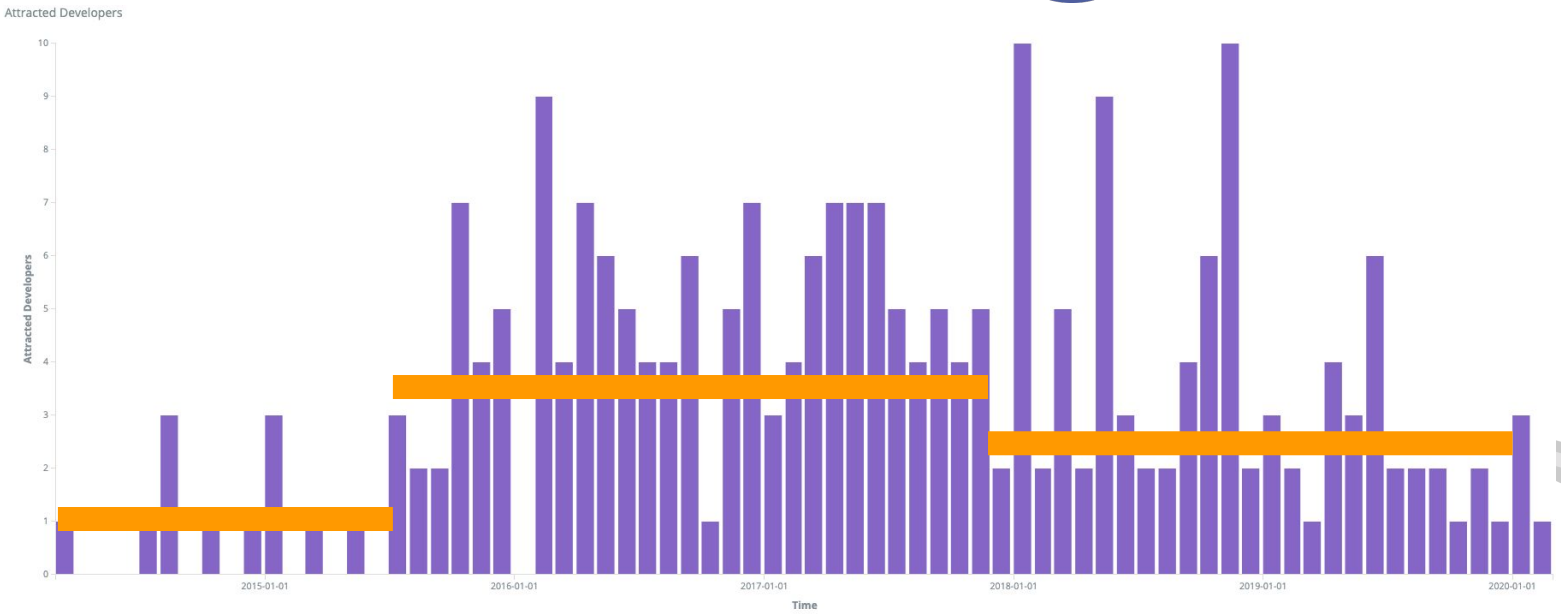
New Contributors



https://www.mautic.org/blog/community/q1-2020-mautic-community-round

Foundation for community growt

mautic

Report Conclusion:

Q1 2020 has been a busy one in the Mautic Community. A lot of positive steps have been taken to **establish a solid foundation for growth**.

Teams are becoming more proactive and **processes are being established** which helps the community to function more effectively.

We have seen, **as a result, a significant increase in engagement** and have welcomed new contributors to the project as a result.

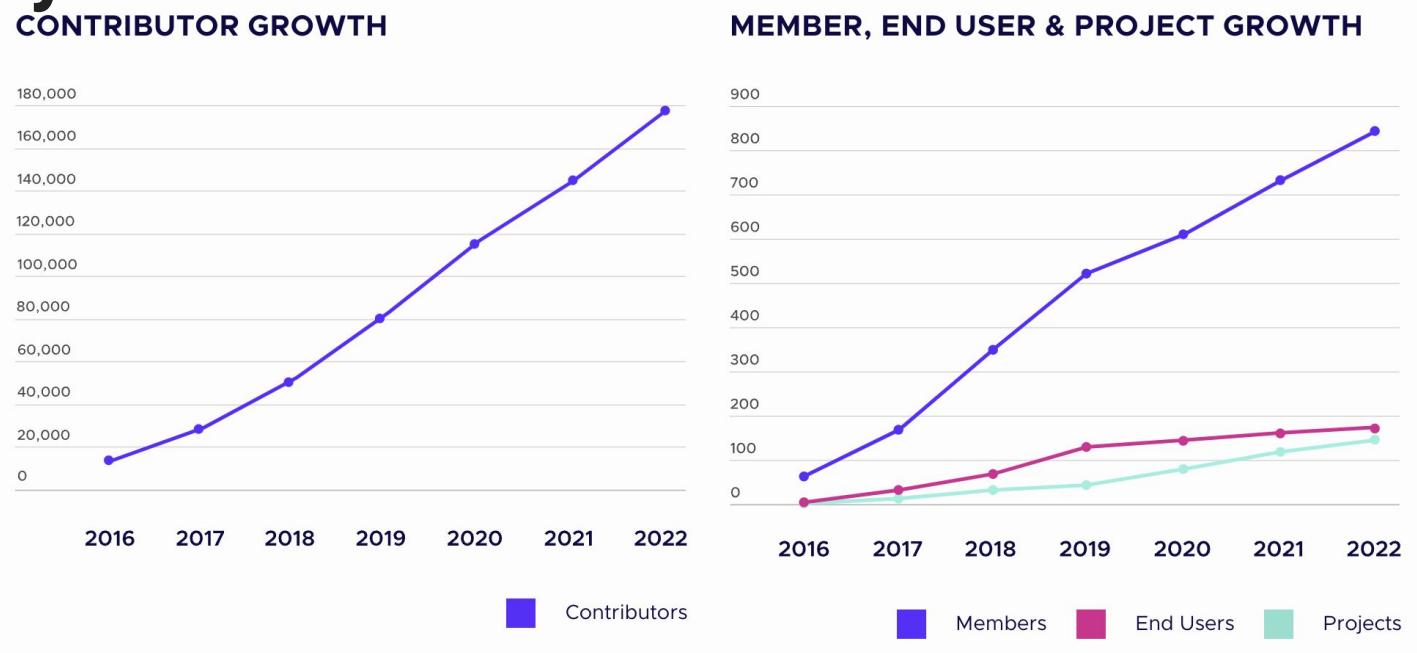
https://www.mautic.org/blog/community/q1-2020-mautic-community-round

Ecosystem Growth

An ecosystem of projects grows by attracting more

- project
- contributors
- members
- users

Ecosystem Growth



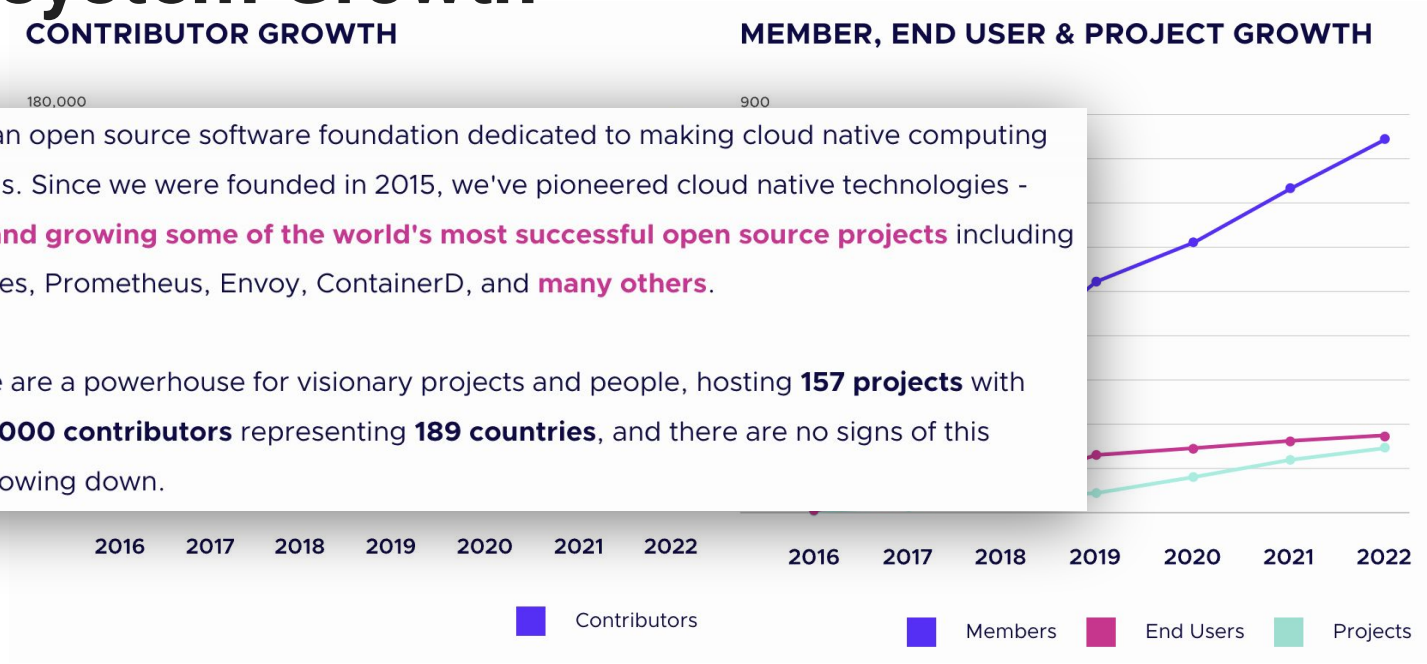
https://www.cncf.io/reports/cncf-annual-report-2022/

Ecosystem Growth

CLOUD NATIVE COMPUTING FOUNDATION

CNCF is an open source software foundation dedicated to making cloud native computing ubiquitous. Since we were founded in 2015, we've pioneered cloud native technologies - **hosting and growing some of the world's most successful open source projects** including Kubernetes, Prometheus, Envoy, ContainerD, and **many others**.

Today we are a powerhouse for visionary projects and people, hosting **157 projects** with over **178,000 contributors** representing **189 countries**, and there are no signs of this growth slowing down.



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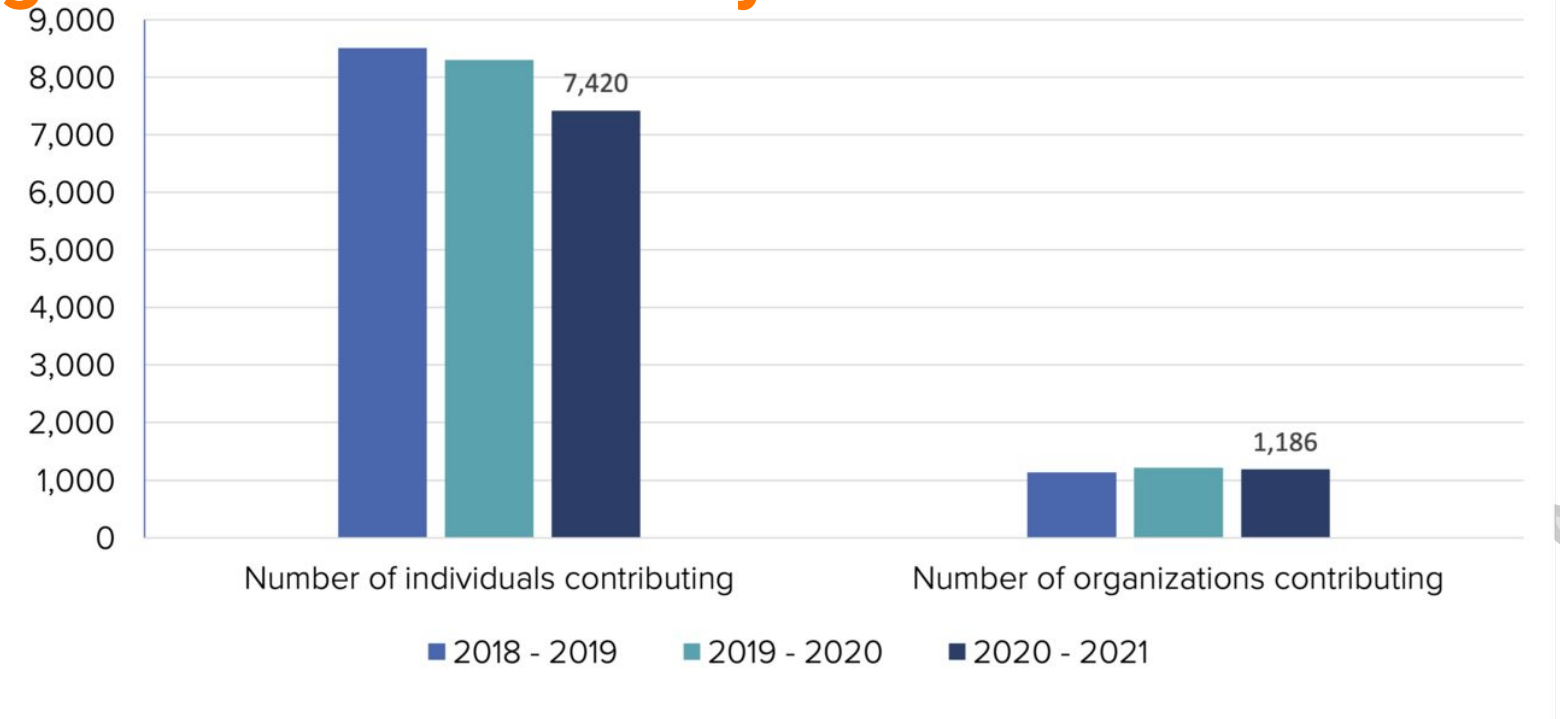
Organizational Diversity

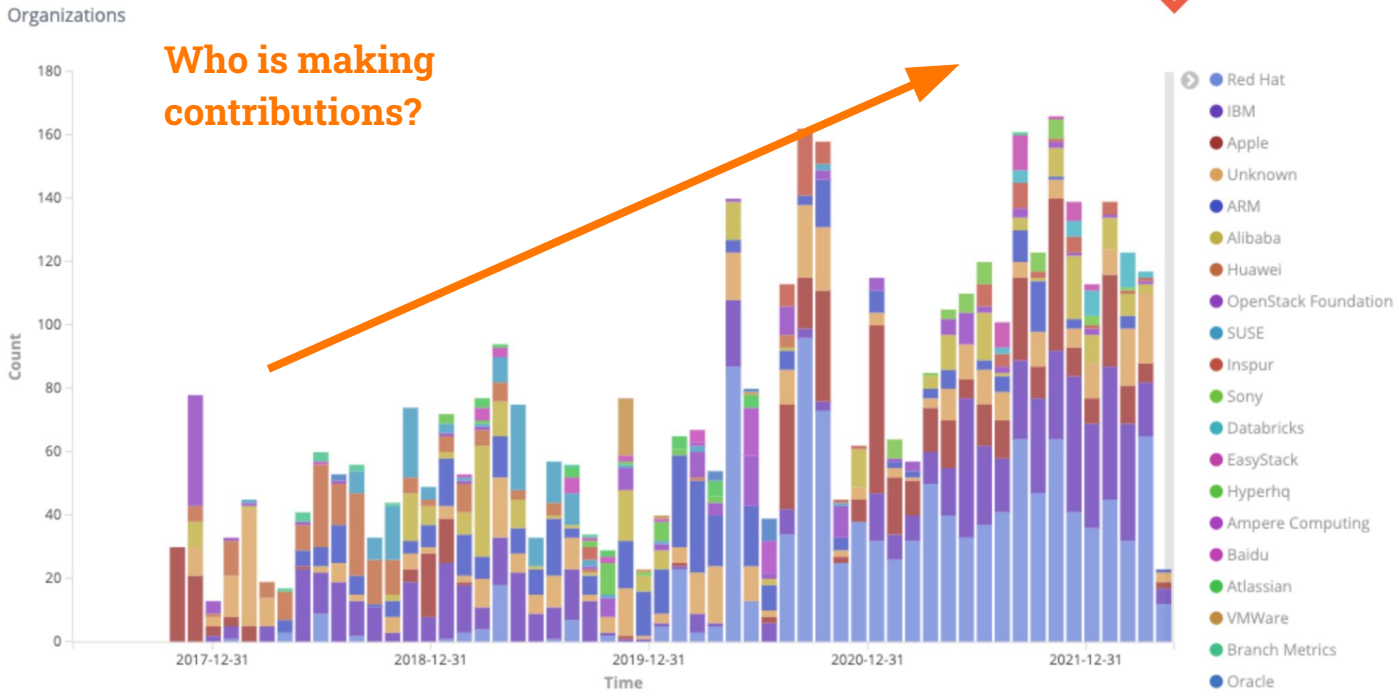
Organizational diversity expresses how many different organizations are involved in a project.

Organizational Diversity



https://dri.es/who-sponsors-drupal-development-2020

Contributions by Organizations



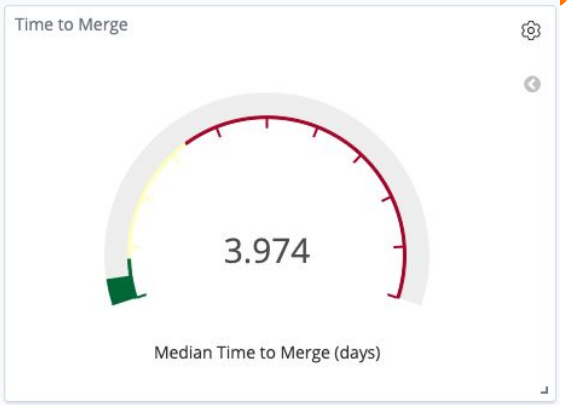
BITE https://katacontainers.biterg.io/

Change Requests

Change requests are intended to be reviewed by other developers, who may suggest improvements.

- **Pull Request (GitHub)**
- **Merge Request (GitLab)**
- **Changeset (Gerrit)**

Change Request Duration



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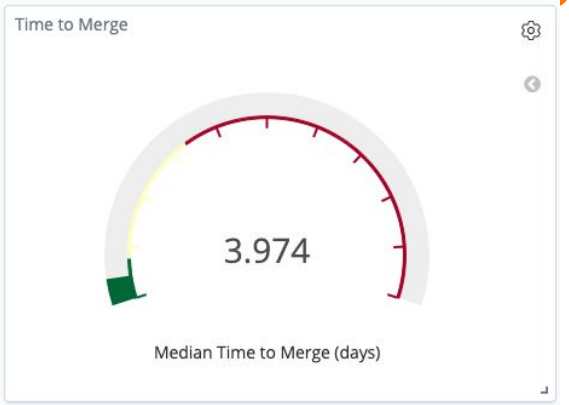

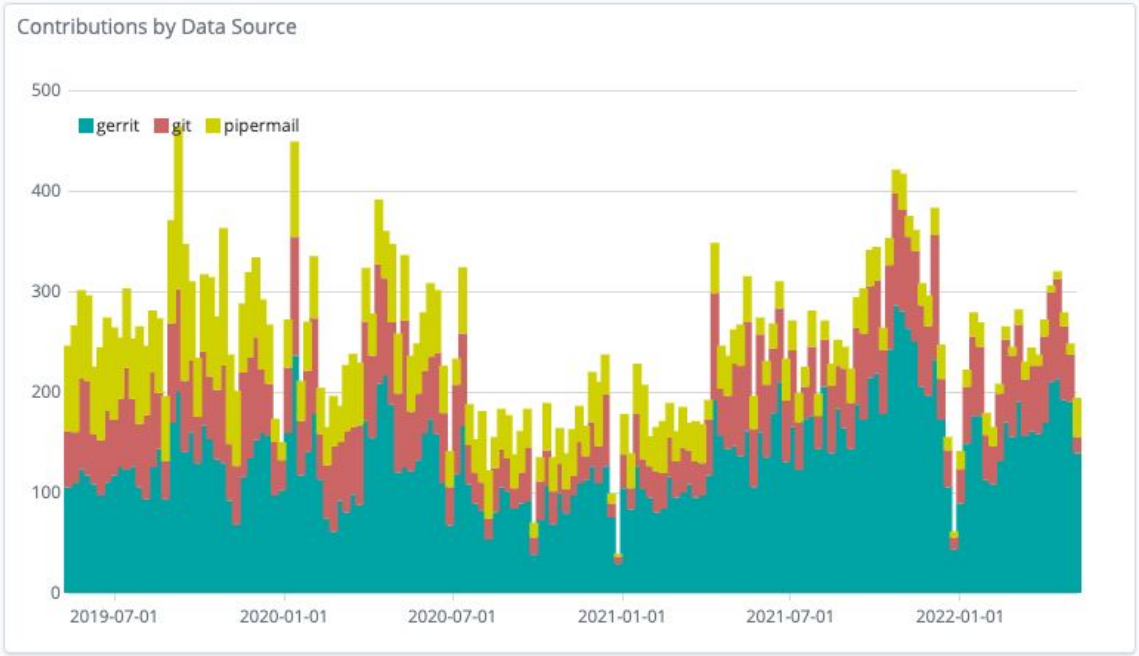

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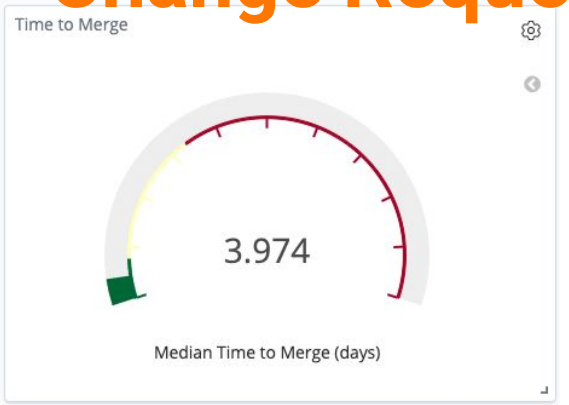
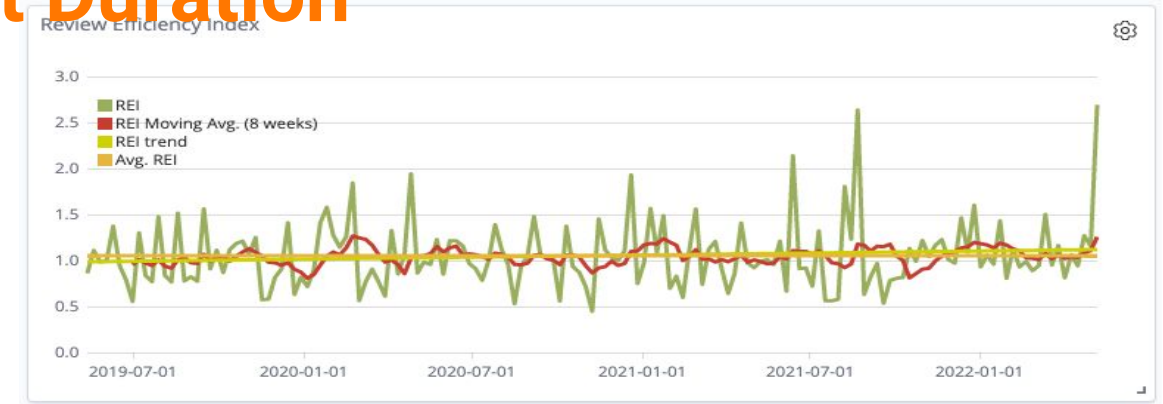
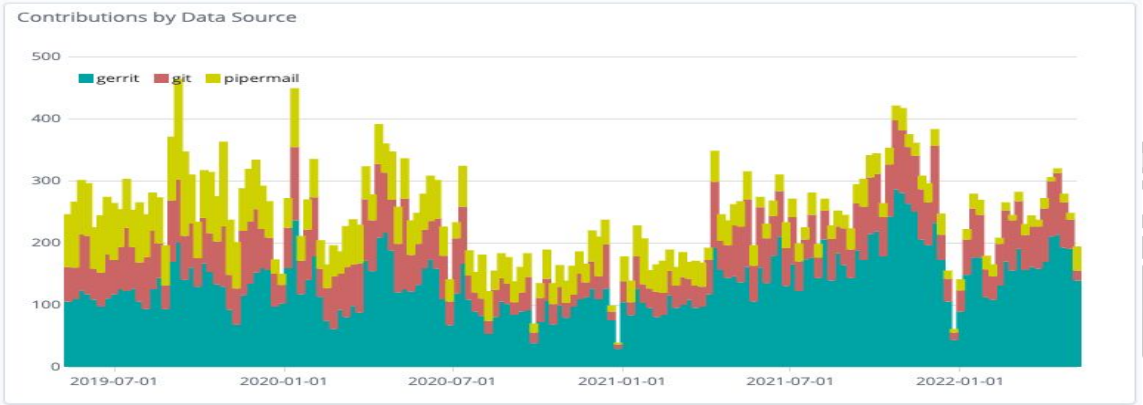




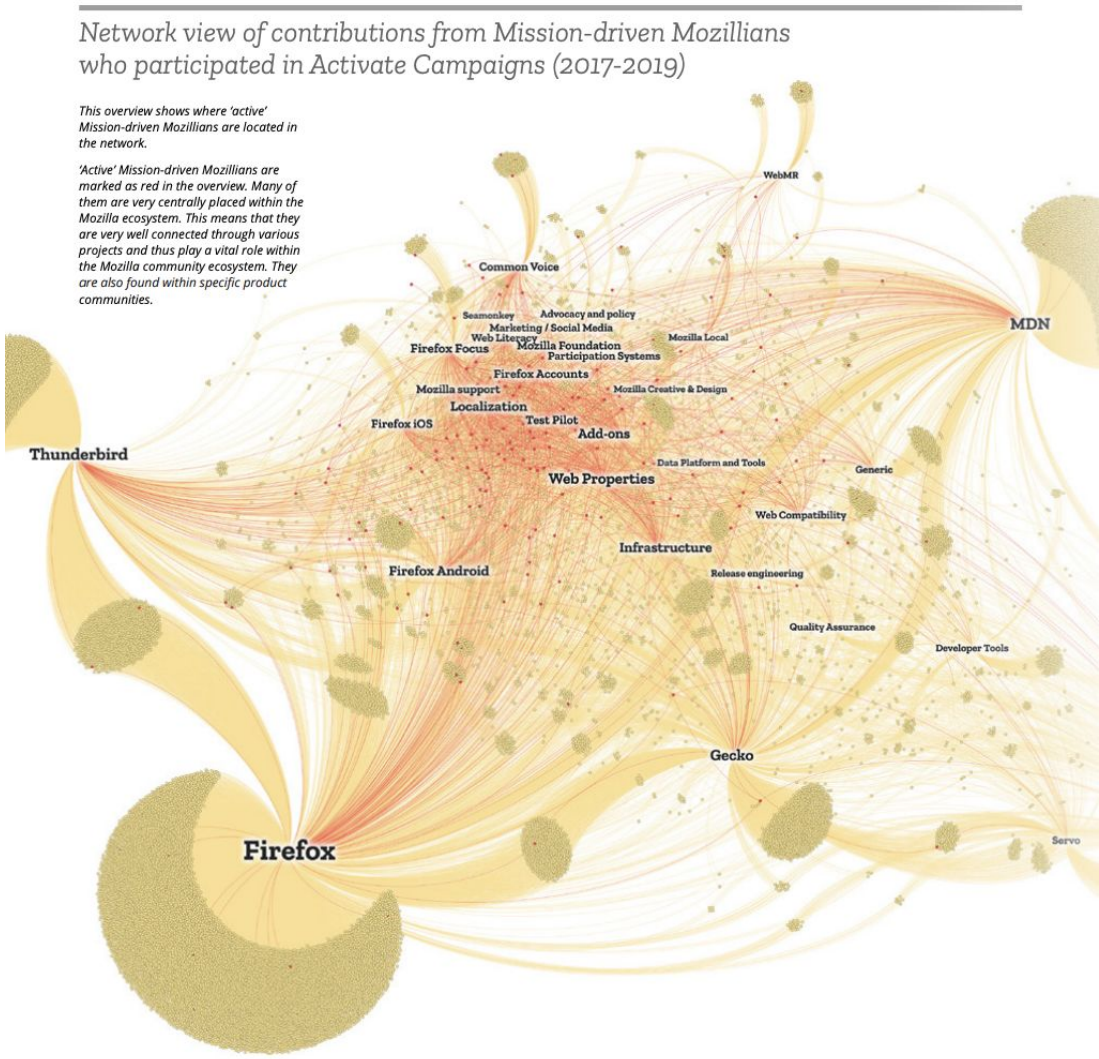


Event Impact

Projects use events to energize and activate contributors.

Event Impact

moz://a



Organizational and Technical Challenges

Organizational Challenges

- ➔ Deciding on the right metrics
- ➔ Knowing what to do about metrics
- ➔ Knowing what is good and bad
- ➔ PII* concerns

*Personally identifiable information (PII) uses data to confirm an individual's identity.

Technical Challenges

Where is the data?

- ➔ Git
- ➔ GitHub
- ➔ GitLab
- ➔ BitBucket
- ➔ Jira
- ➔ Gerrit
- ➔ Confluence
- ➔ ...

Technical Challenges

Where is the community?

- ➔ Wiki
- ➔ Discourse
- ➔ Mailing List
- ➔ IRC
- ➔ Slack
- ➔ Meetup.com
- ➔ StackOverflow

How to get the data

Raw data:

- Get data from data sources

Enriched data:

- Unify data
- Manage identities
- Calculate metrics

Useful data:

- Visualize, report

Raw data

- Easiest step
- Query logs
- Use APIs

Challenge: Changing APIs and data formats

Enriched data

➔ **Unify data**

- Date formats
- Level of detail
- Metadata about different contributions
- Convert everything into the desired database structure

➔ Manage identities

➔ Calculate metrics

Enriched data

➔ Unify data

➔ **Manage identities**

- Who is who in the community
- Who do contributors work for (now and before)
- Different usernames and email
- Assigning contributions to the correct person

➔ Calculate metrics

Enriched data

- ➔ Unify data
- ➔ Manage identities
- ➔ **Calculate metrics**
  - Primary metrics - summarizing original data
  - Secondary metrics
    - Calculation from different data fields
    - Combining data from different data sources
    - Value judgements on data - e.g., quality models

Useful data

- ➔ Who is the data user?
- ➔ How should the data be presented?
- ➔ What visualizations are most meaningful?
- ➔ What story does the data tell?

Technical Solutions

OSS Solutions

- CHAOSS GrimoireLab
  - Cauldron.io
- CHAOSS Augur
- Apache Kibble
- CNCF Dev Analytics

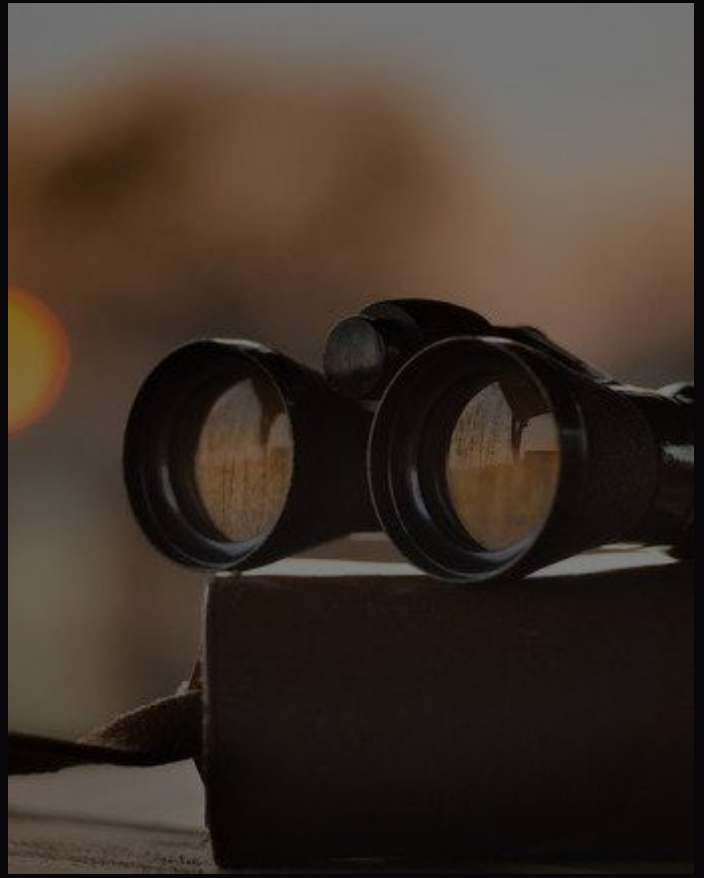
Summary

Lessons Learned

Lessons learned

Summary

- ➔ Use metrics
- ➔ Track metrics early
- ➔ Start with easy to get metrics
- ➔ Present metrics in context
- ➔ Be transparent with the community



Thank you!

Questions?

Let’s Connect

LinkedIn