Power Dynamics, Rug Pulls, and Other Corporate Impacts on OSS Sustainability

SCALE March 2026
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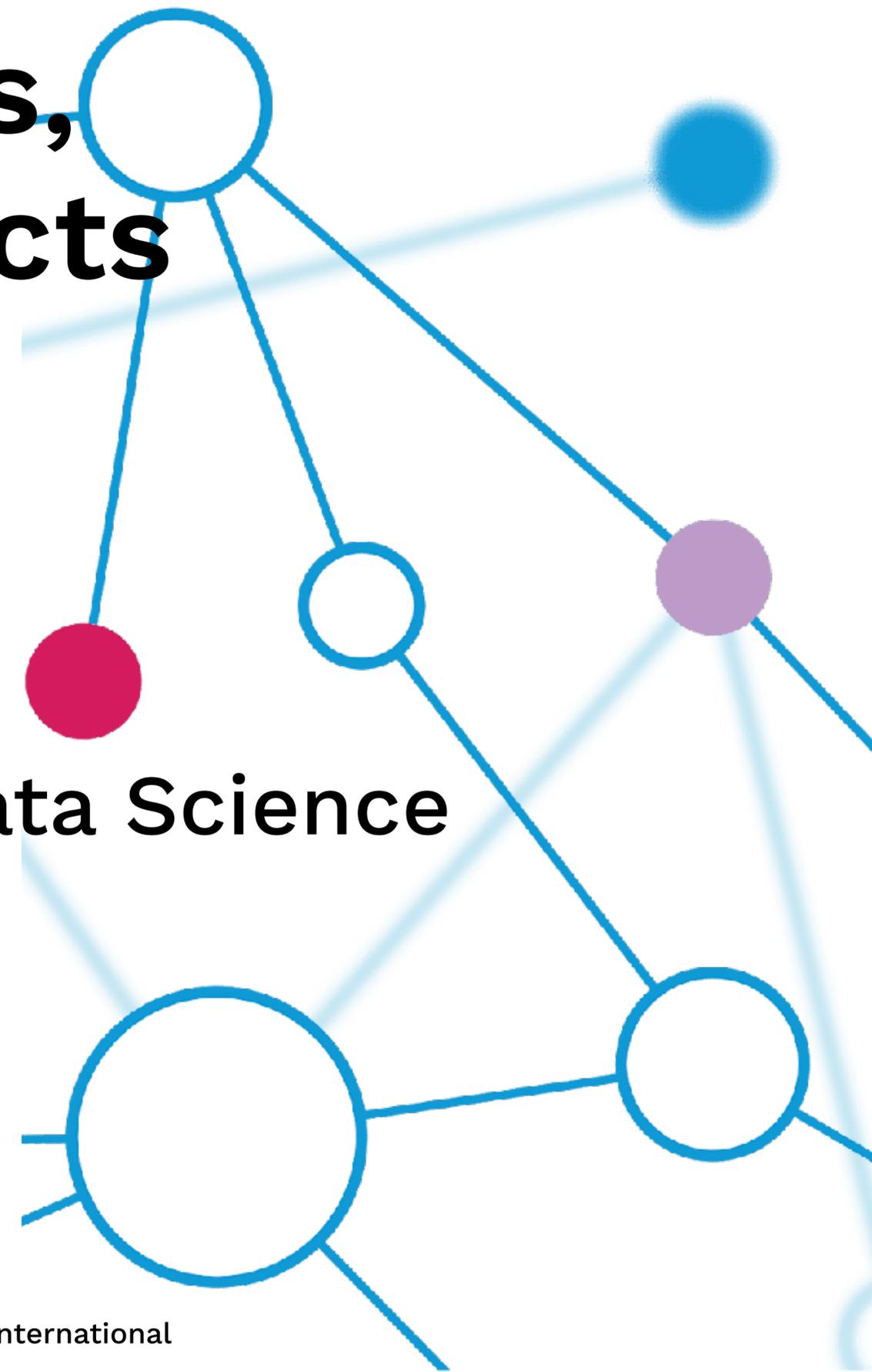
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Whoami

Photos by Mom, the Linux Foundation, and me

- Geek, traveler, reader
- 30+ yr tech career focused on open source (VMware, Intel, Puppet, ...)
- Open Source Strategy Consultant
- OpenUK Board
- CHAOSS Board and WG lead
- Previous CNCF TAG Co-Chair
- PhD on Linux kernel collaboration

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Agenda
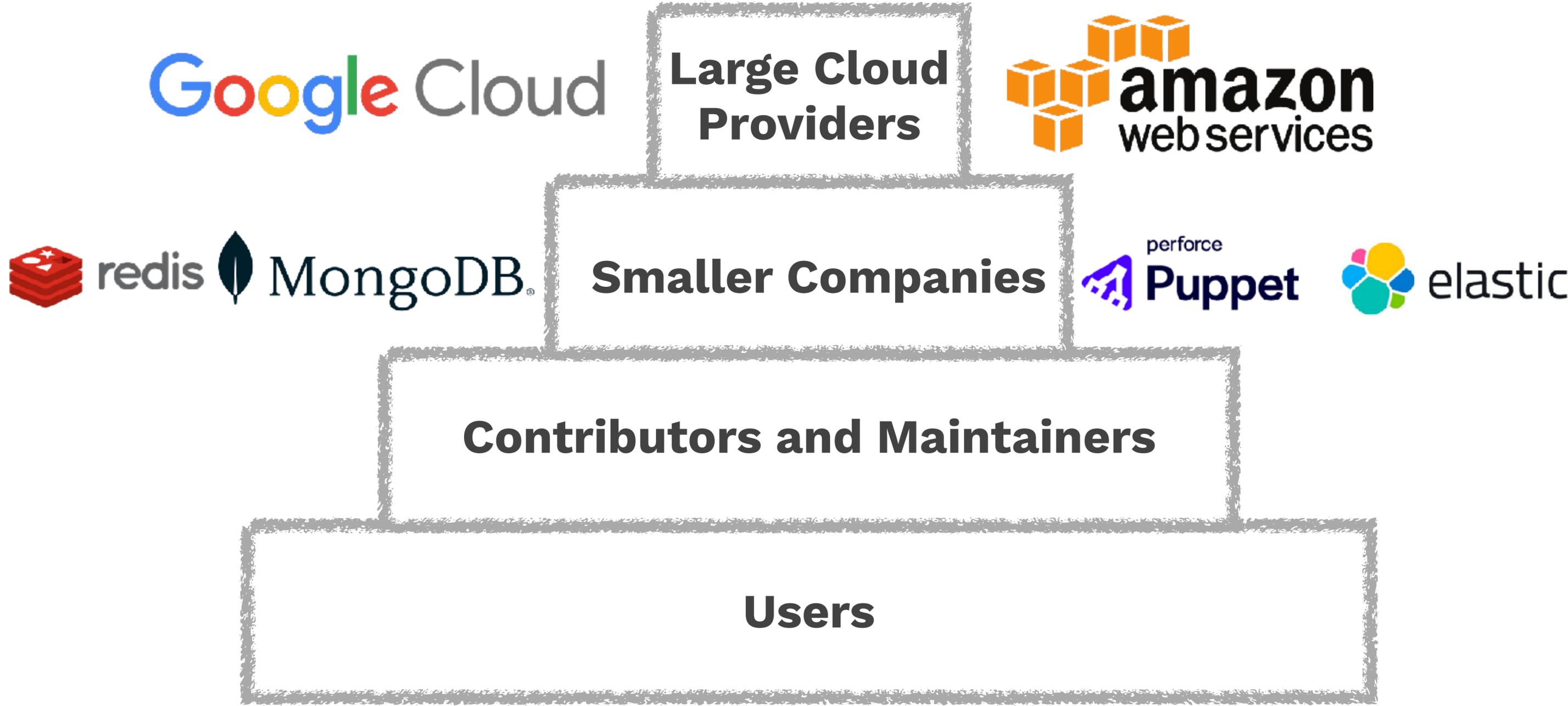
- Power Dynamics

- Rug Pulls

- Relicensing -> Forks Data

- What Can We Do?

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The Feudal Society in Medieval Europe

The Church

The King

Nobles
suzerain vassals
(barons and bishops)

Towns
merchants
& craftsmen

Lords
tenant vassals
(knights & abbots)

Lords
tenant vassals
(knights, & abbots)

Freemen
independent
peasants

Serfs
tied to the land

Open Source Power Dynamics
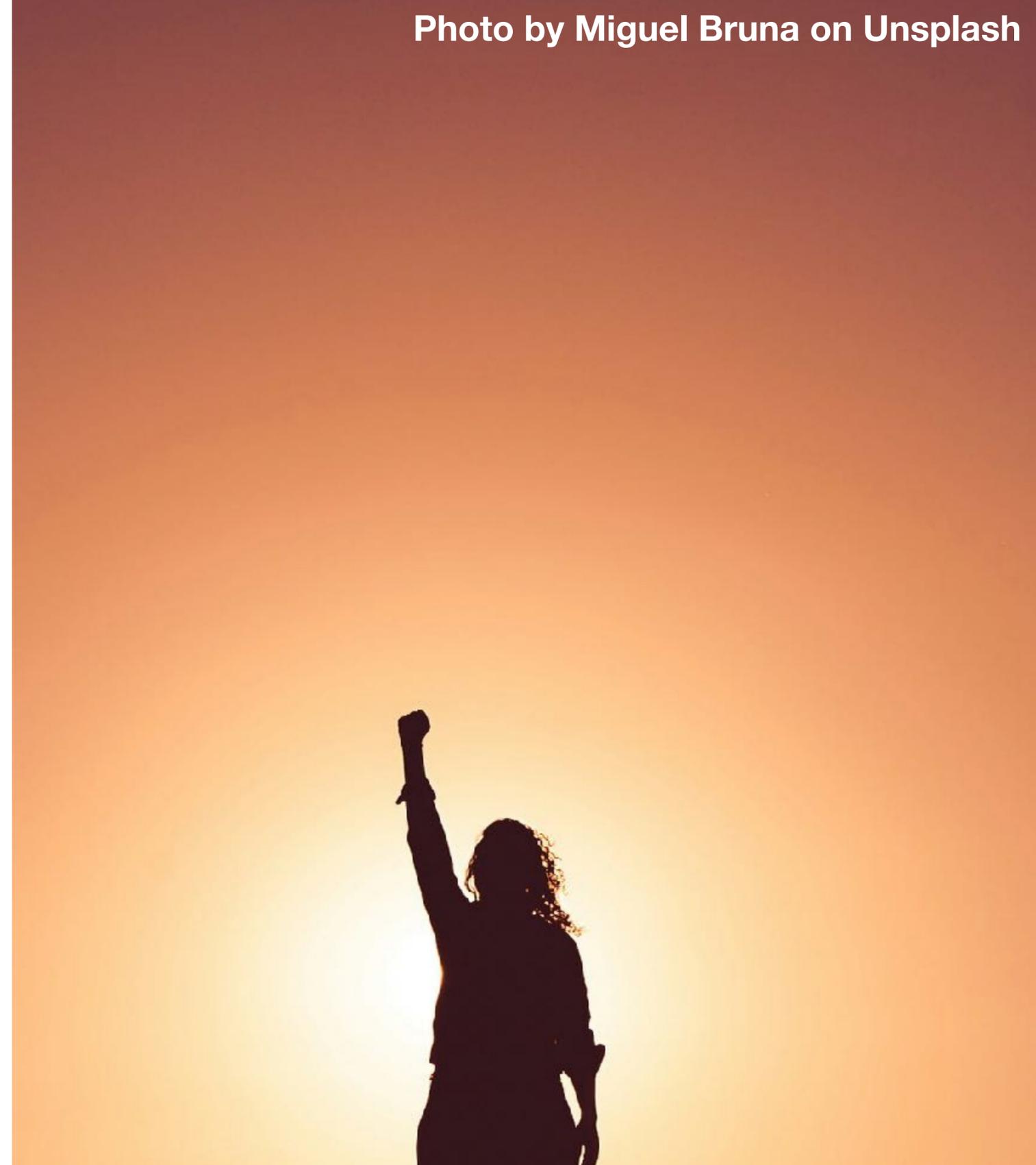

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Rug Pulls and Disruption

Companies with more power can pull the rug from underneath the rest of us resulting in disruptions
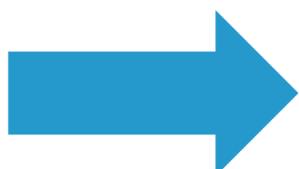
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Relicensing: Flip the Power Dynamic

Cloud providers often cited as cause for relicense, which puts more power in the hands of the smaller company

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Rug Pulls -> Forks

Social fork: forking a project to collaborate and contribute back to it (GitHub fork)

→ Hard fork (aka hostile fork): starts a new project that often competes with the original

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Forks Flip the Power Dynamic

Forks are a form of rebellious collective action where those with less power can take control of the governance of a project via a fork

(Mindel et al., 2018)

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Rug Pulls: Relicensing, Forks, and More

Relicensing Rug Pulls & Forks

Elastic Relicense → OpenSearch Fork

- 2021-02-03: Elastic relicenses to SSPL & Elastic
- 2021-04-12: OpenSearch fork owned by AWS

Terraform Relicense → OpenTofu Fork

- 2023-08-10: Terraform relicenses to BSL
- 2023-09-05: OpenTofu launched as fork under the LF

Redis Relicense → Valkey Fork

- 2024-03-20: Redis relicenses to SSPL & RSAL
- 2024-03-28: Valkey fork launched as an LF project

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MongoDB: Server Side Public License (SSPL)

The MongoDB relicense in 2018 kicked off the recent wave of relicensing events, but did not result in a fork

Closing Development & Restricting Releases

Perforce doesn't relicense Puppet, but they move the development and releases to behind closed doors, which resulted in the OpenVox fork
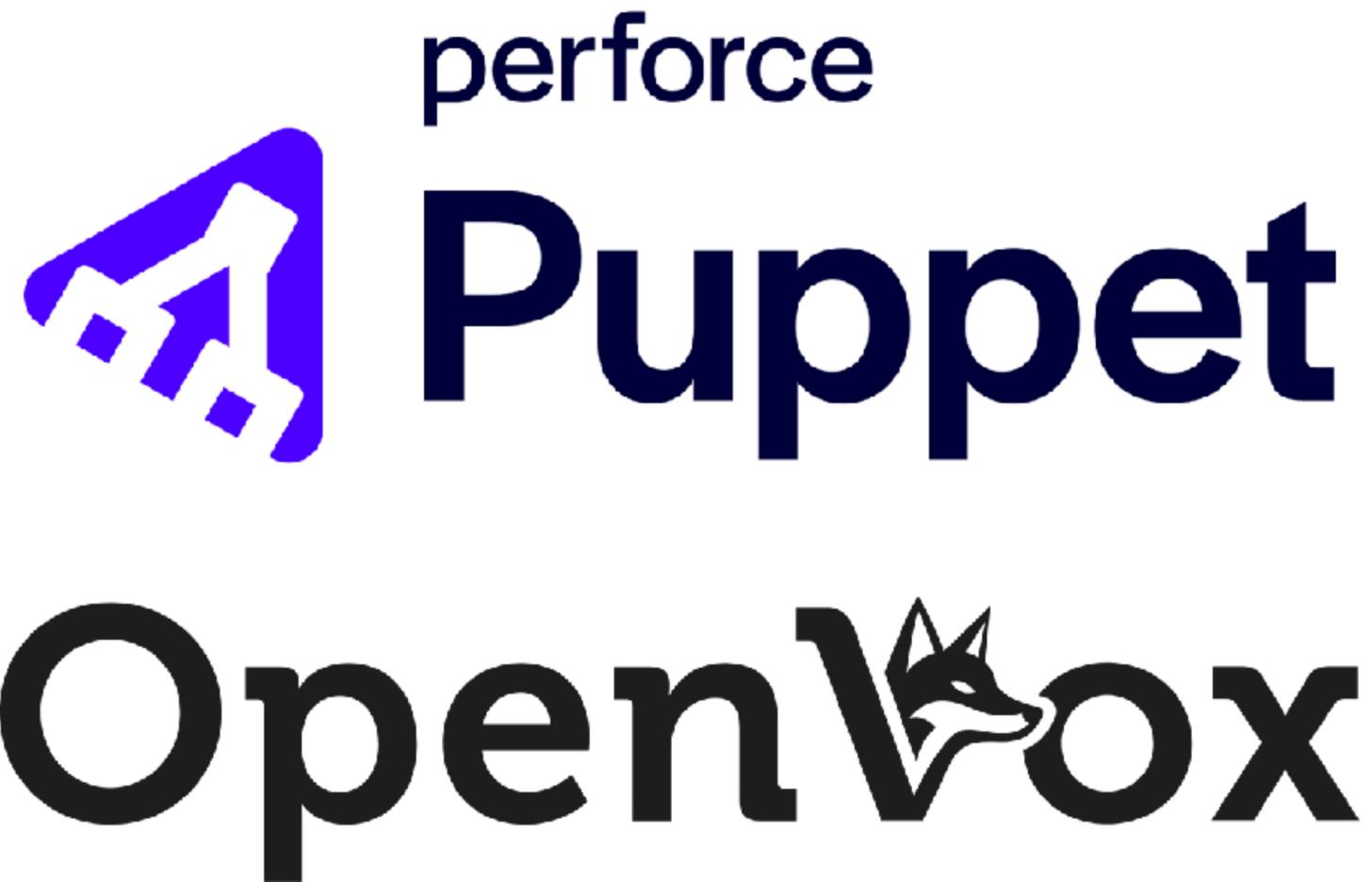
Images / Releases Behind a Paywall

The Broadcom acquisition of VMware / Bitnami drove this rug pull, and Bitnami images went from freely available to behind a paywall

Images / Releases Behind a Paywall

CNCF project Linkerd
puts stable release images
behind a paywall from
sponsoring company Buoyant
while keeping the
rest of the project open.

Impacts and Data

About the Data
(Contributions Welcome!)

Current Focus:

- Organizations / Employers (challenging to gather)

Commits / Lines of Code:

- Used for thresholds

Additions / Deletions:

- Lines of code for magnitude

GitHub Stars / Forks:

- Proxy for usage (not a measure of health)

Next:

- Additional community health measurements

https://github.com/chaoss/wg-data-science/tree/main/dataset/license-changes/fork-case-study/notebooks
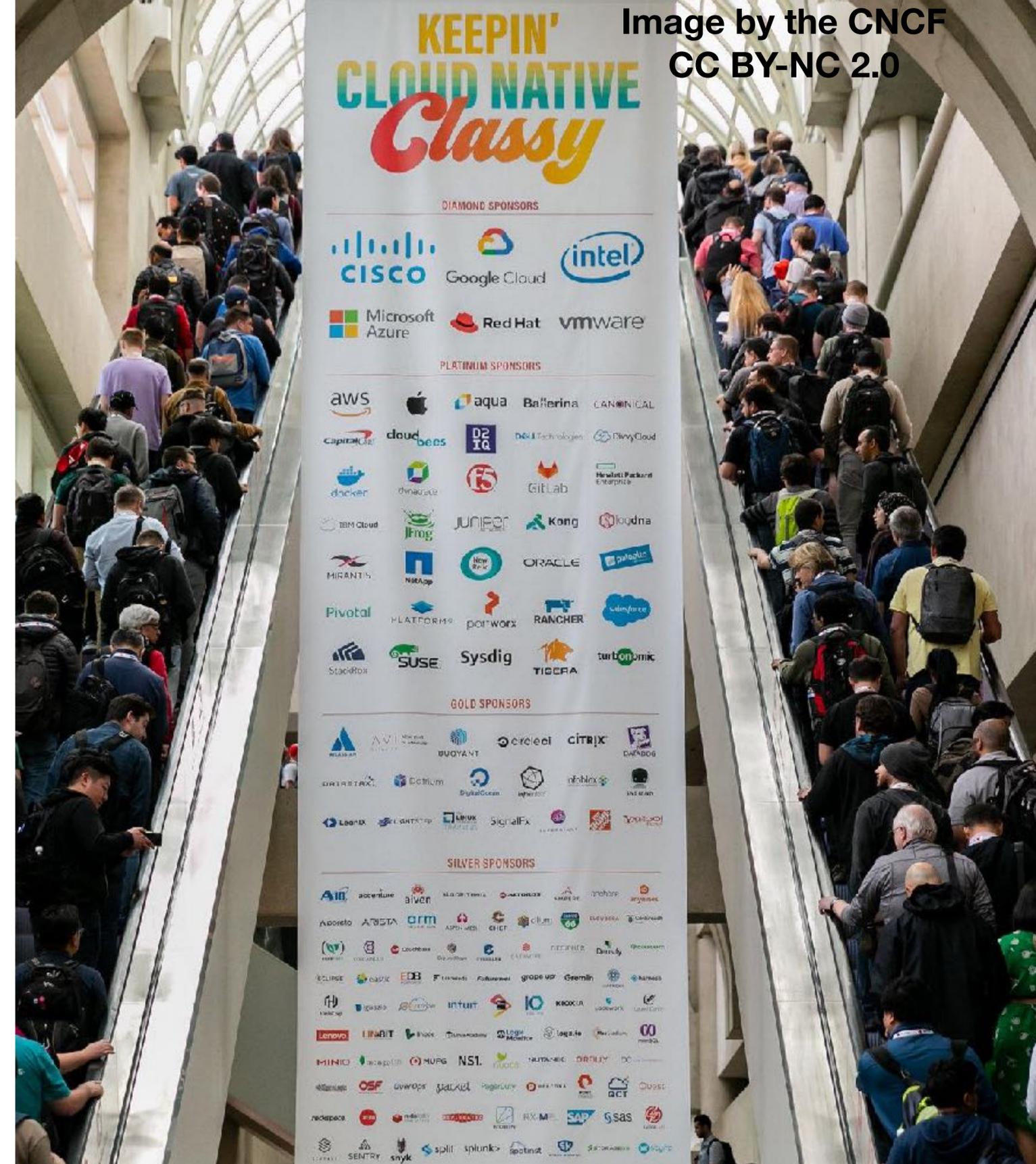
Relicensing: Users Drove Fork

Contributions from vendor employees.

Fork created by new contributors and owned by a company.

Key Dates:

- **2021-02-03: Elastic relicenses to SSPL & Elastic**
- **2021-04-12: OpenSearch fork owned by AWS**
- **2024-08-29: Elastic adds AGPL**
- **2024-09-16: OpenSearch moves under LF**

elasticsearch

OpenSearch

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Elasticsearch repo (https://github.com/elastic/elasticsearch)

Timeframe	Org Affiliation	People	Commits	Additions	Deletions
1 Year Before the Relicense (2020-02-03 - 2021-02-03)	Elastic employees with 10+ commits	67	6,477 (92%)	1,377,558 (96%)	623,561 (97%)
	Non-Elastic employees with 10+ commits	3	94 (1%)	3,855 (<1%)	740 (<1%)
1 Year after the relicense (2021-02-03 - 2022-02-03)	Elastic employees with 10+ commits	65	5,668 (91%)	1,597,988 (96%)	1,061,154 (98%)
	Non-Elastic employees with 10+ commits	2	47 (1%)	7,283 (<1%)	2,178 (<1%)
1 Year Before Adding AGPL (2023-08-29 - 2024-08-29)	Elastic employees with 10+ commits	99	7,616 (95%)	2,621,830 (95%)	1,123,628 (97%)
	Non-Elastic employees with 10+ commits	1	11 (<1%)	326 (<1%)	326 (<1%)

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OpenSearch Repo (https://github.com/opensearch-project/OpenSearch)

Timeframe	Organization	People	Commits	Additions	Deletions
One Year After the Hard Fork (2021-04-12 to 2022-04-12)	Amazon employees with 10+ commits	7	246 (34%)	296,720 (80%)	224,179 (91%)
	Non-Amazon employees with 10+ commits	2	110 (15%)	26,995 (7%)	10,799 (4%)
One Year before move to LF (2023-09-16 to 2024-09-16)	Amazon employees with 10+ commits	40	923 (49%)	237,781 (63%)	48,894 (65%)
	Non-Amazon employees with 10+ commits	6	242 (13%)	42,863 (11%)	9,936 (13%)
6 Months After LF (2024-09-16 - 2025-03-16)	Amazon employees with 10+ commits	42	945 (50%)	242,075 (64%)	49,947 (66%)
	Non-Amazon employees with 10+ commits	4	220 (12%)	38,569 (11%)	8,883 (12%)

Relicensing: Users Drove Fork

Contributions from vendor employees. Fork created by new contributors in a foundation.

Key Dates:
- **2023-08-10: Terraform relicenses to BSL**
- **2023-09-05: OpenTofu launched as fork under the LF**

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Terraform Repo (https://github.com/hashicorp/terraform)

Timeframe	Org Affiliation	People	Commits	Additions	Deletions
1 Year before relicense (2022-08-10 - 2023-08-10)	HashiCorp employees with 5+ commits	21	971 (82%)	202,612 (93%)	81,019 (95%)
	Non-HashiCorp employees with 5+ commits	2	13 (1%)	84 (<1%)	33 (<1%)
1 Year after relicense (2023-08-10 to 2024-08-10)	HashiCorp employees with 5+ commits	24	1,620 (91%)	672,393 (90%)	242,052 (93%)
	Non-HashiCorp employees with 5+ commits	2	18 (1%)	353 (<1%)	354 (<1%)

# OpenTofu Repo (https://github.com/opentofu/opentofu)

After 2023-09-05 fork until 2024-09-05:

- **31 people at 11 companies with >= 5 commits**

- **None of these people previously contributed to Terraform**

People	Organization	Commits	Additions	Deletions
10	Spacelift	328	88121 (55.21%)	63992 (69.15%)
6	Env0	99	26507 (16.61%)	12248 (13.23%)
3	Scalr	47	12516 (7.84%)	3374 (3.65%)
3	Harness	17	2948 (1.85%)	366 (0.40%)
3	Red Hat	15	1605 (1.01%)	159 (0.17%)
1	Hangzhou Dianzi University	6	891 (0.56%)	242 (0.26%)
1	Chainguard	6	266 (0.17%)	93 (0.10%)
1	lessops	6	2017 (1.26%)	226 (0.24%)
1	claranet	6	118 (0.07%)	20 (0.02%)
1	Cooby-inc	5	72 (0.05%)	69 (0.07%)
1	nvdnc	5	68 (0.04%)	11 (0.01%)

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Relicensing: Contributors Drove Fork

Significant contributors not employed by the vendor. Fork created by existing contributors in a foundation.
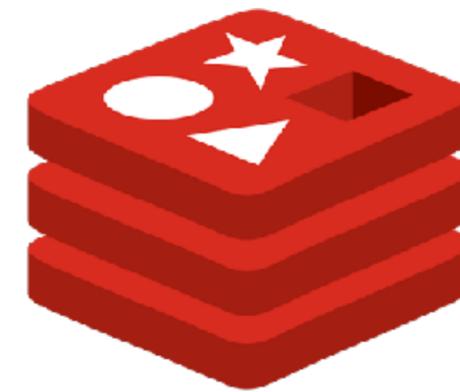
Key Dates:
- 2024-03-20: Redis relicenses to SSPL & RSAL
- 2024-03-28: Valkey fork launched as an LF project
- 2025-05-01: Redis adds the AGPL

Redis Repo (https://github.com/redis/redis)

Timeframe	Organization	People	Commits	Additions	Deletions
One year before relicense (2023-03-20 - 2024-03-20)	Redis employees with 5+ commits	6	164 (28%)	189,656 (80%)	83,122 (74%)
	Non-Redis employees with 5+ commits	12	319 (54%)	28,334 (12%)	16,684 (15%)
One year after relicense (2024-03-20 - 2025-03-20)	Redis employees with 5+ commits	10	303 (75%)	65,901 (66%)	16,430 (73%)
	Non-Redis employees with 5+ commits	0	0	0	0

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https://github.com/chaoss/wg-data-science/blob/main/dataset/license-changes/fork-case-study/notebooks/redis.ipynb

Valkey Repo (https://github.com/valkey-io/valkey)

After 2024-03-28 Fork (until 2025-03-28):

- 52 people at 13 companies with >= 5 commits

- 22 of these people previously contributed to Redis

People	Organization	Commits	Additions	Deletions
29	Amazon	335	42314 (25.13%)	15759 (15.99%)
4	Alibaba	20	2049 (1.22%)	419 (0.43%)
2	Google	46	44524 (26.44%)	40971 (41.58%)
2	Ericsson	110	22282 (13.23%)	8173 (8.30%)
2	Samsung	5	48 (0.03%)	48 (0.05%)
2	ByteDance	22	6903 (4.10%)	2456 (2.49%)
1	Percona	14	4591 (2.73%)	2595 (2.63%)
1	LINE Corporation	6	130 (0.08%)	100 (0.10%)
4	Huawei	97	3702 (2.20%)	3191 (3.24%)
2	Intel	22	775 (0.46%)	524 (0.53%)
1	@gnet-io	8	104 (0.06%)	73 (0.07%)
1	@Aliyun	6	107 (0.06%)	67 (0.07%)
1	Tencent Cloud	200	9337 (5.54%)	4513 (4.58%)

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Stars and Forks as Proxy for Usage
**(Vargas et. al., 2024)**

Original project and fork are both used.

Relicensed projects have reduced usage due to some users switching to the fork.

More pronounced in foundation forks (OpenTofu / Valkey).

Median new stars / new forks per day		Stars	Forks
Elasticsearch	One year before relicense	21	12
	After relicense, before adding AGPL	14	6
	6 months after adding AGPL	14	4
OpenSearch	Before joining LF (all time)	5	2
	6 months after joining LF	5	2
Terraform	One year before relicense	13	3
	One year after relicense	10	3
Open Tofu	One year after fork	20	2
Redis	One year before relicense	15	3
	One year after relicense	14	3
Valkey	One year after fork	17	2

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What can we do?
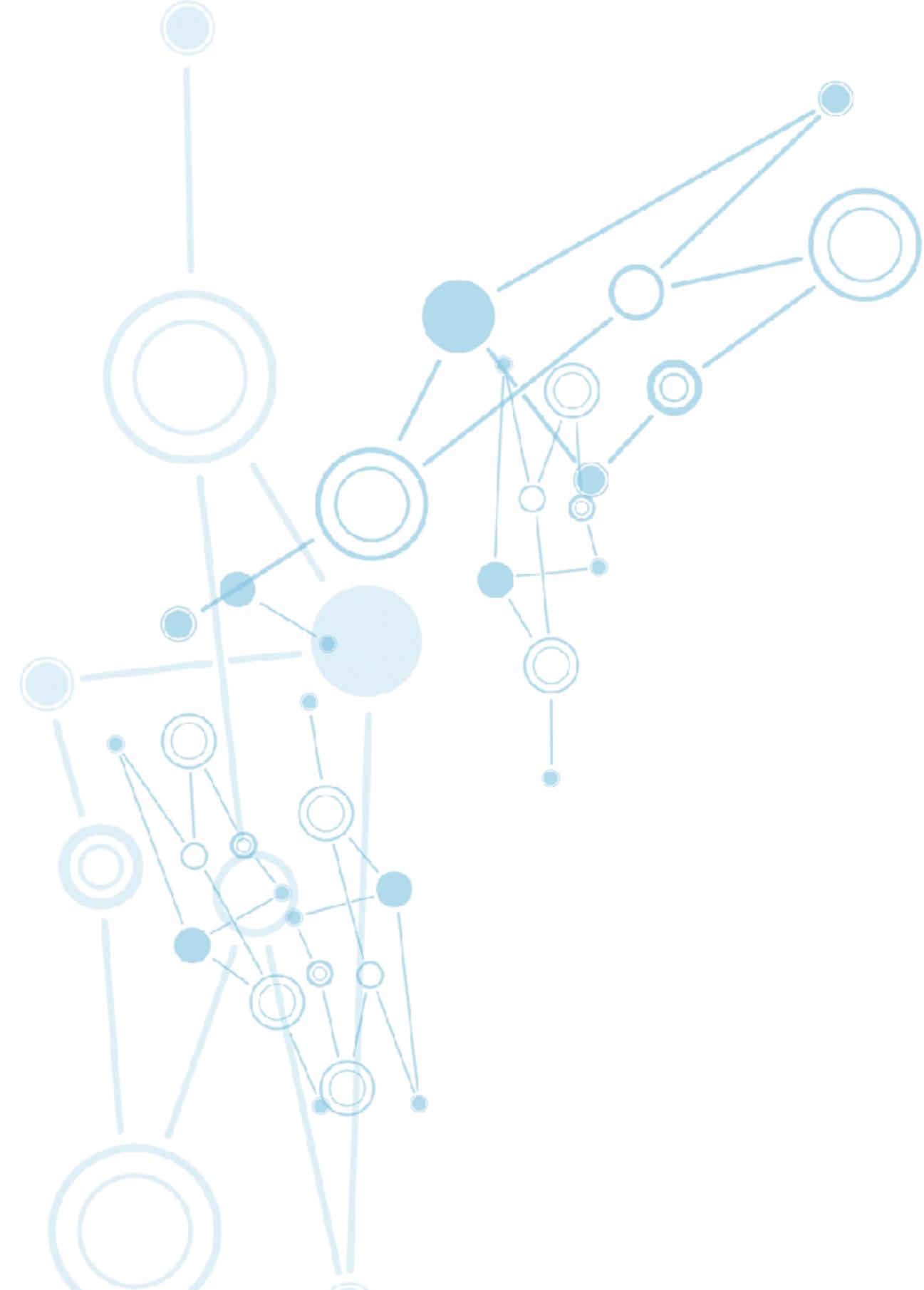
Legal Stuff*

Contributor License Agreement (CLA)

vs.

Developer Certificate of Origin (DCO)

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* I am **NOT** a Lawyer

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Neutral Foundations

Embrace projects under foundations where we can all participate as equals

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Neutral Governance

Level playing field with leaders/ maintainers from a variety of organizations and a fair and transparent process for selecting them

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Contributor Sustainability

Enough contributors

to sustain the

project over time

Image by the CNCF

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Contribute!

Have your employees contribute to the projects that are most important for your company to improve the sustainability of those projects from within
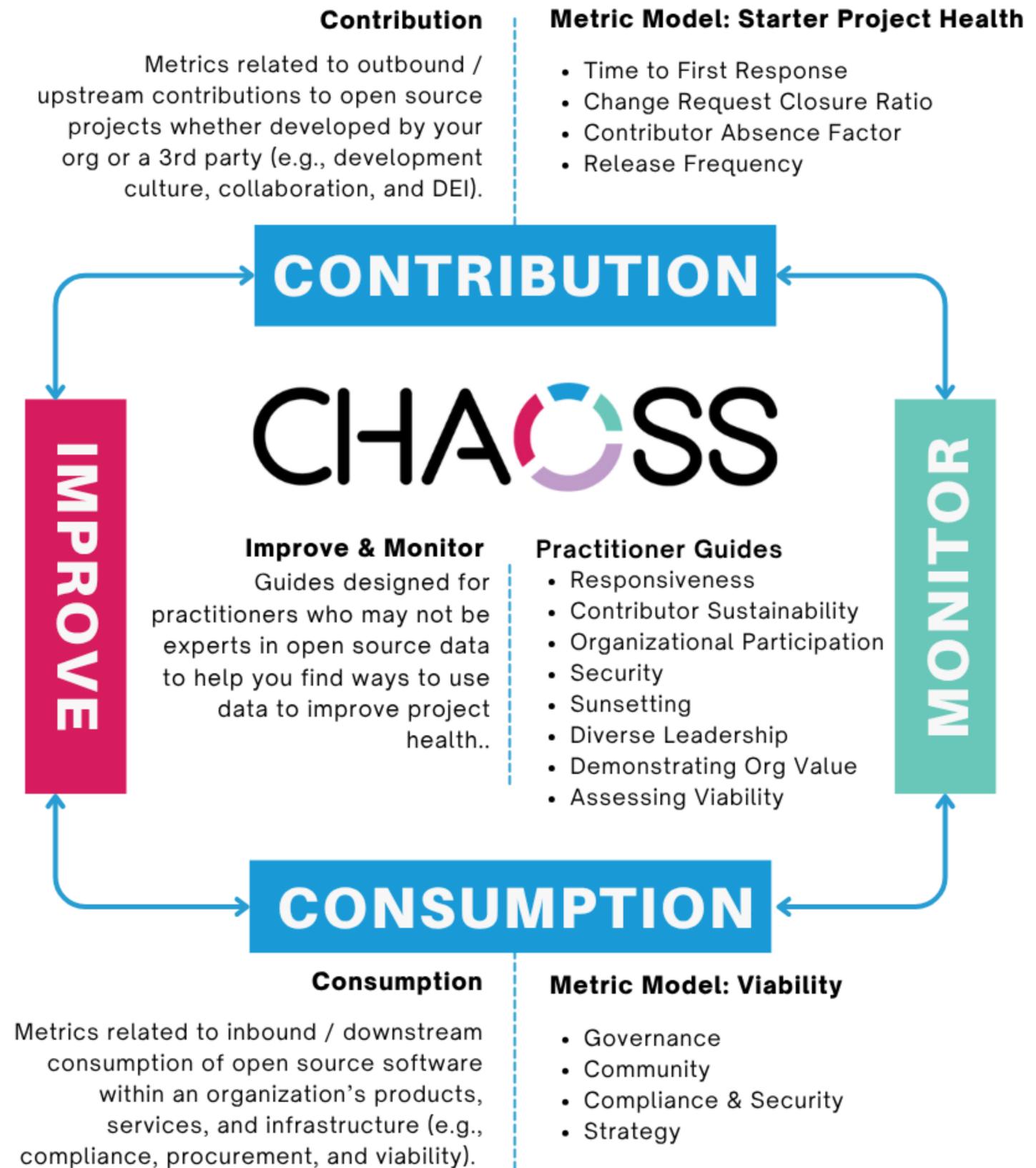
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CHAOSS Resources

Practitioner Guides and collections of metrics to improve the health and sustainability of your projects

https://chaoss.community/kb/metrics-model-project-viability-starter/

https://chaoss.community/about-chaoss-practitioner-guides/

Contribution

Metrics related to outbound / upstream contributions to open source projects whether developed by your org or a 3rd party (e.g., development culture, collaboration, and DEI).

Metric Model: Starter Project Health

- Time to First Response
- Change Request Closure Ratio
- Contributor Absence Factor
- Release Frequency

CONTRIBUTION

IMPROVE

MONITOR

Improve & Monitor

Guides designed for practitioners who may not be experts in open source data to help you find ways to use data to improve project health..

Practitioner Guides

- Responsiveness
- Contributor Sustainability
- Organizational Participation
- Security
- Sunsetting
- Diverse Leadership
- Demonstrating Org Value
- Assessing Viability

CONSUMPTION

Consumption

Metrics related to inbound / downstream consumption of open source software within an organization's products, services, and infrastructure (e.g., compliance, procurement, and viability).

Metric Model: Viability

- Governance
- Community
- Compliance & Security
- Strategy

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Resources and References

Resources:

- chaoss.community
- github.com/chaoss/wg-data-science
- github.com/chaoss/wg-data-science/tree/main/dataset/license-changes/fork-case-study
- chaoss.community/about-chaoss-practitioner-guides

References:

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- Mindel, V., Mathiassen, L., & Rai, A. (2018). The Sustainability of Polycentric Information Commons. MIS quarterly, 42(2), 607-632.
- Vargas, S., Link, G., & Lee, J. (2024, April). Estimating Usage Of Open Source Projects. In Proceedings of the 21st International Conference on Mining Software Repositories (pp. 652-653).

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Final Thoughts

We can keep these risks in mind
to more thoughtfully select projects
and contribute back to
reduce those risks

Photo by Arnold on Unsplash
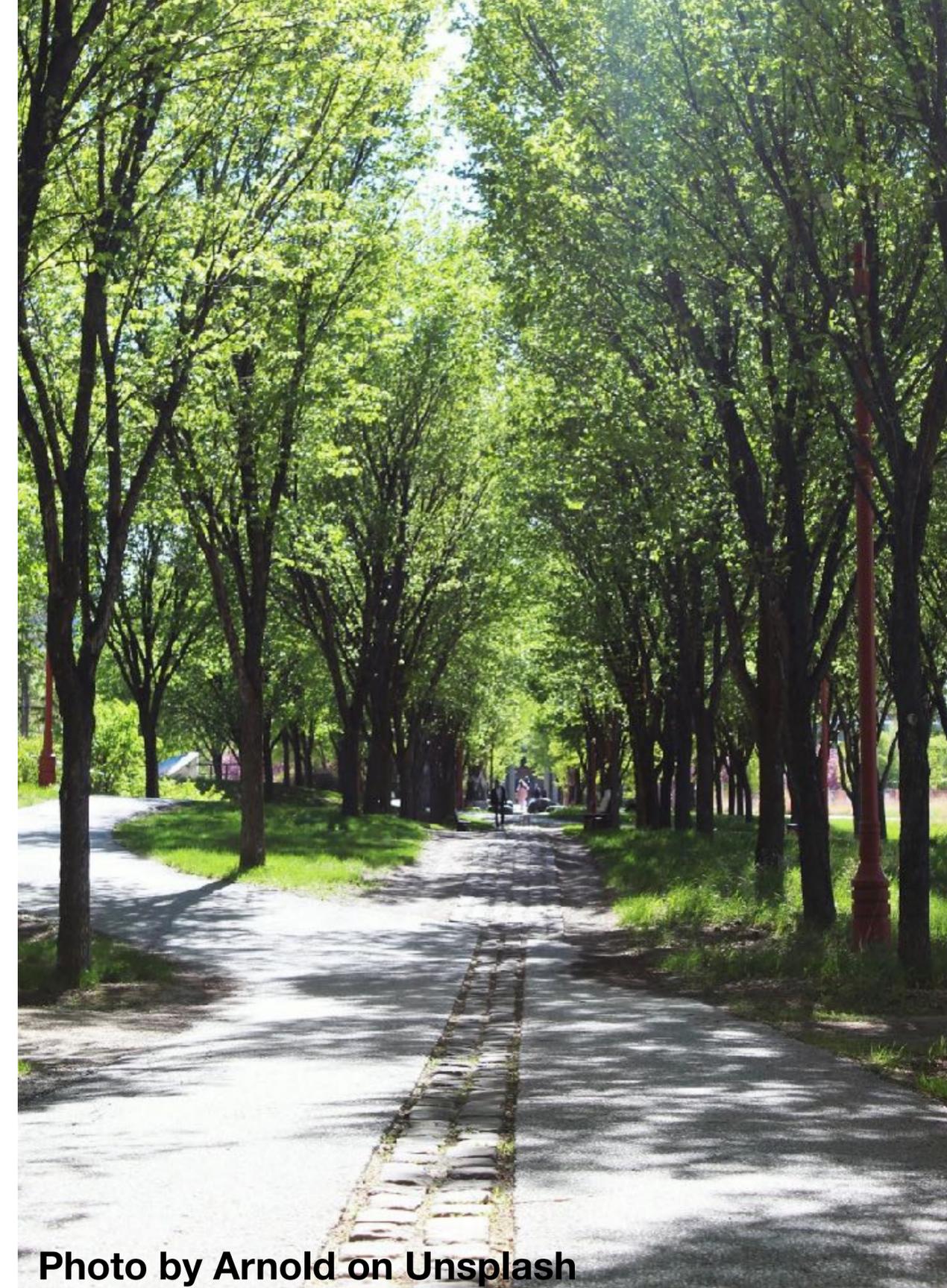
THANK YOU!

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