

Open Source Networking Development: The Useful, The Scrap Heap, The Broken

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A Brief History of Networking



“For every thing, there is a season...”



A vibrant, multi-colored starburst light effect is centered on a dark background. The light radiates outwards in many directions, creating a sense of motion and energy. The colors transition from a bright white-yellow center to deep blues and greens as they spread out.

Fast Forward ...

Open Source Is Eating the World

https://medium.com/@_jogy_/open-source-is-eating-the-world-e6aa105488eb

<https://medium.com/@yusufhussain/software-is-eating-the-world-open-source-is-eating-software-how-do-we-fill-the-skills-gap-717e9e9c4f38>

<https://developer.ibm.com/blogs/how-open-source-software-is-eating-the-world/>



A pragmatic view of open source

We contribute to a project...

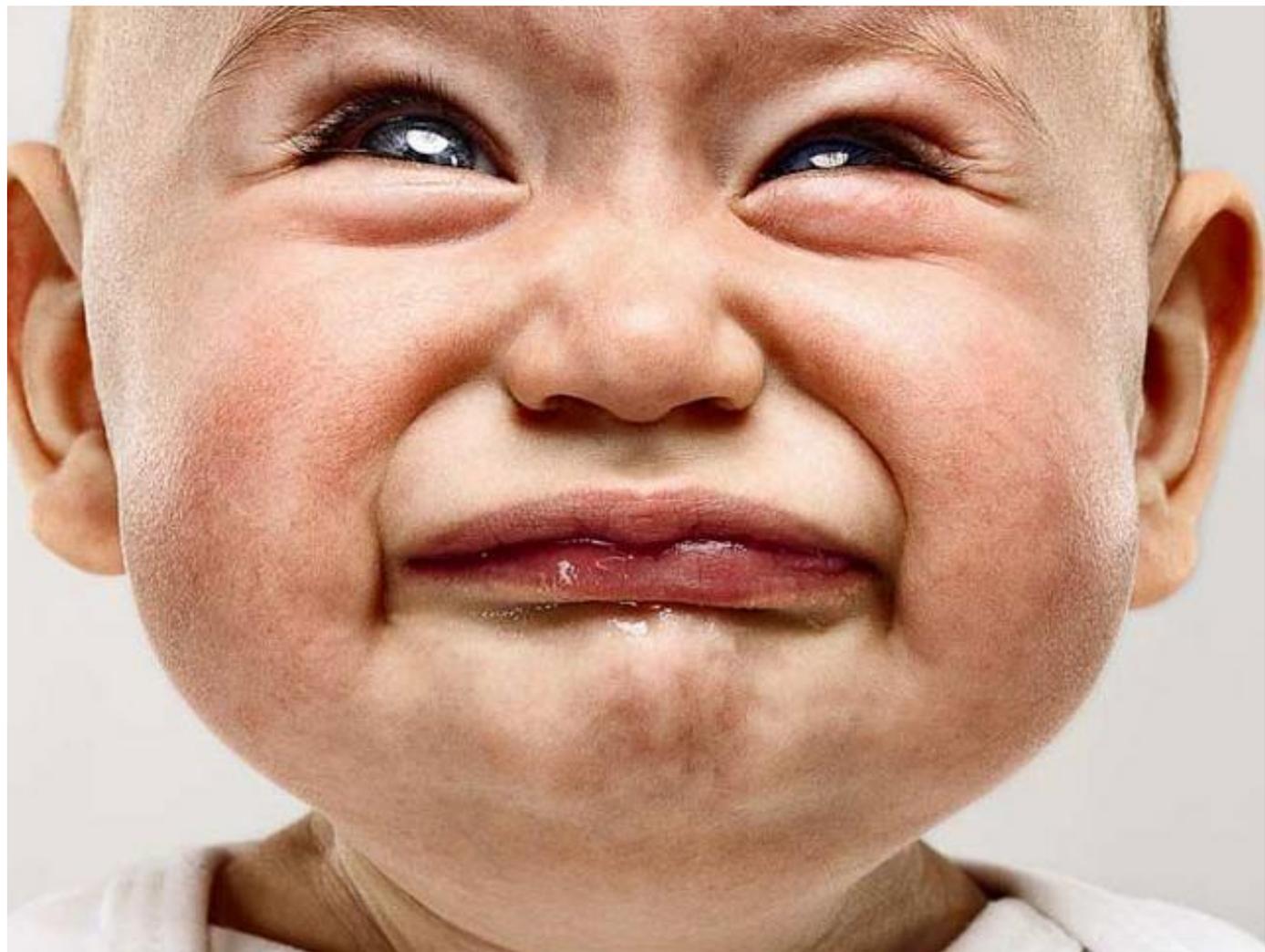
... and others contribute to a project, with common goals...

... and everyone's problem is solved sooner.

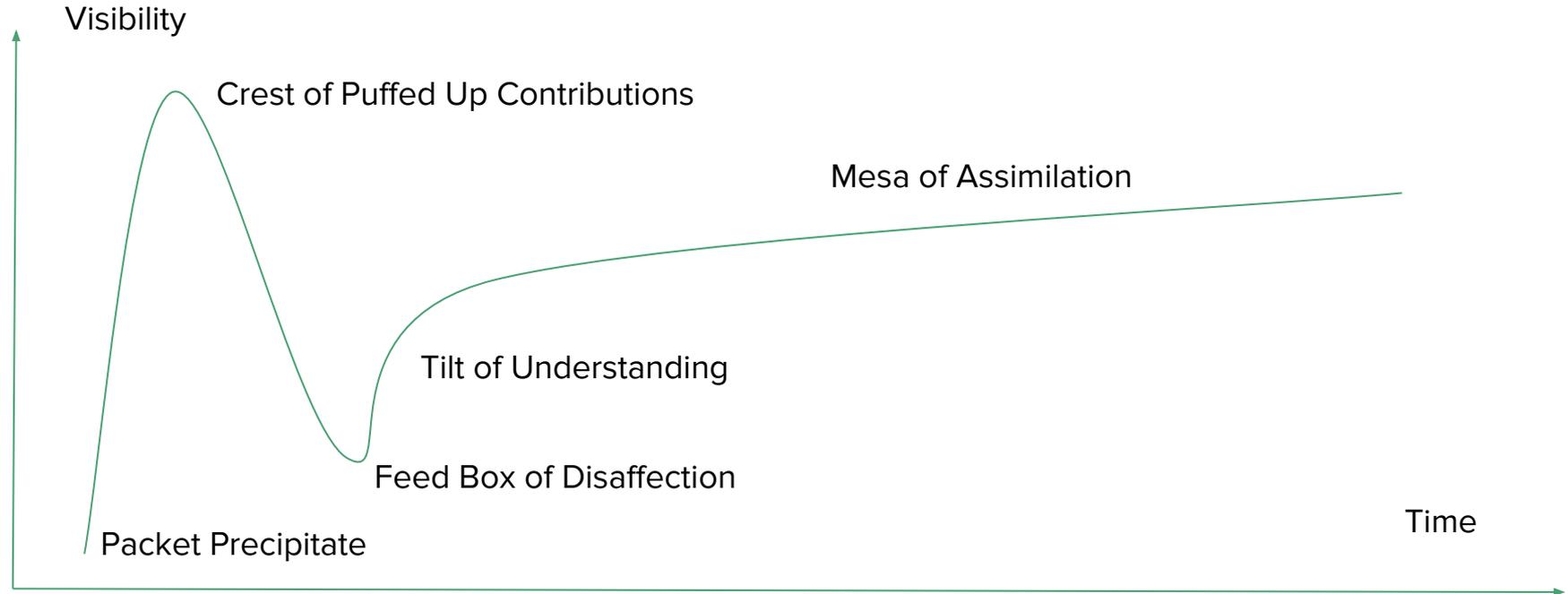
But where do I start?



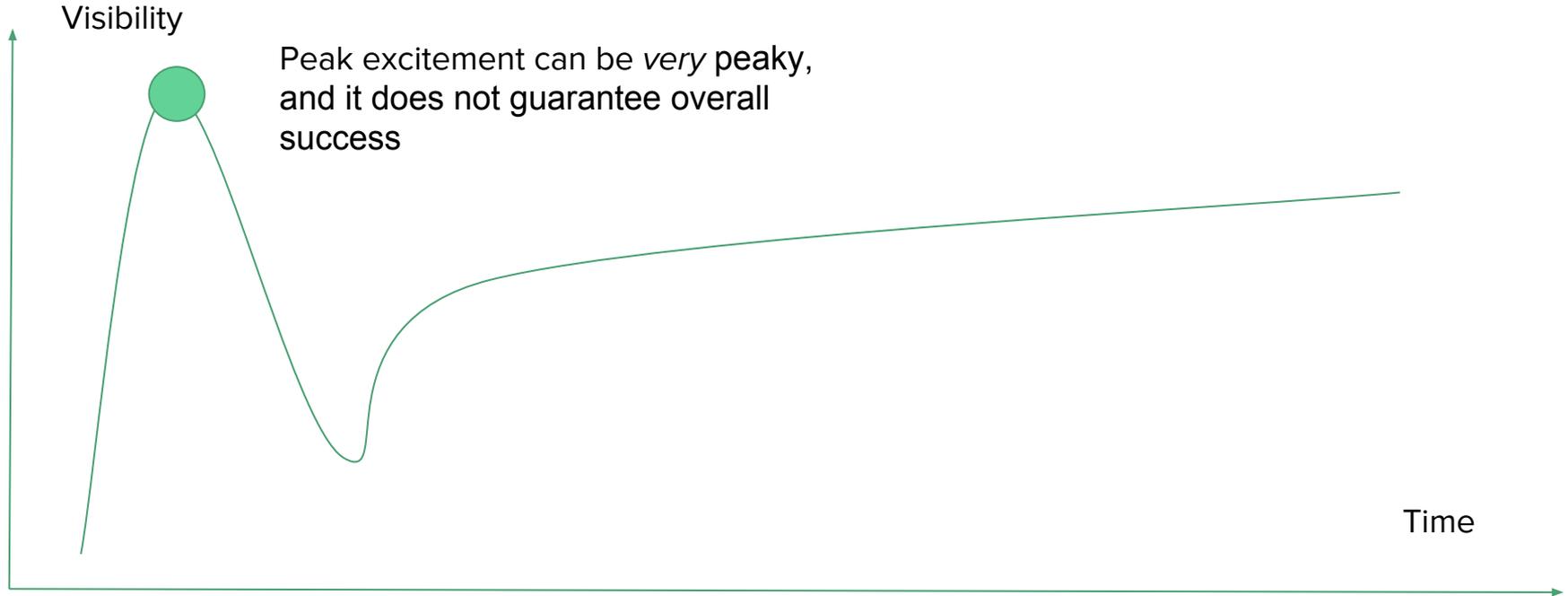
A Project of The Network Device Education Foundation



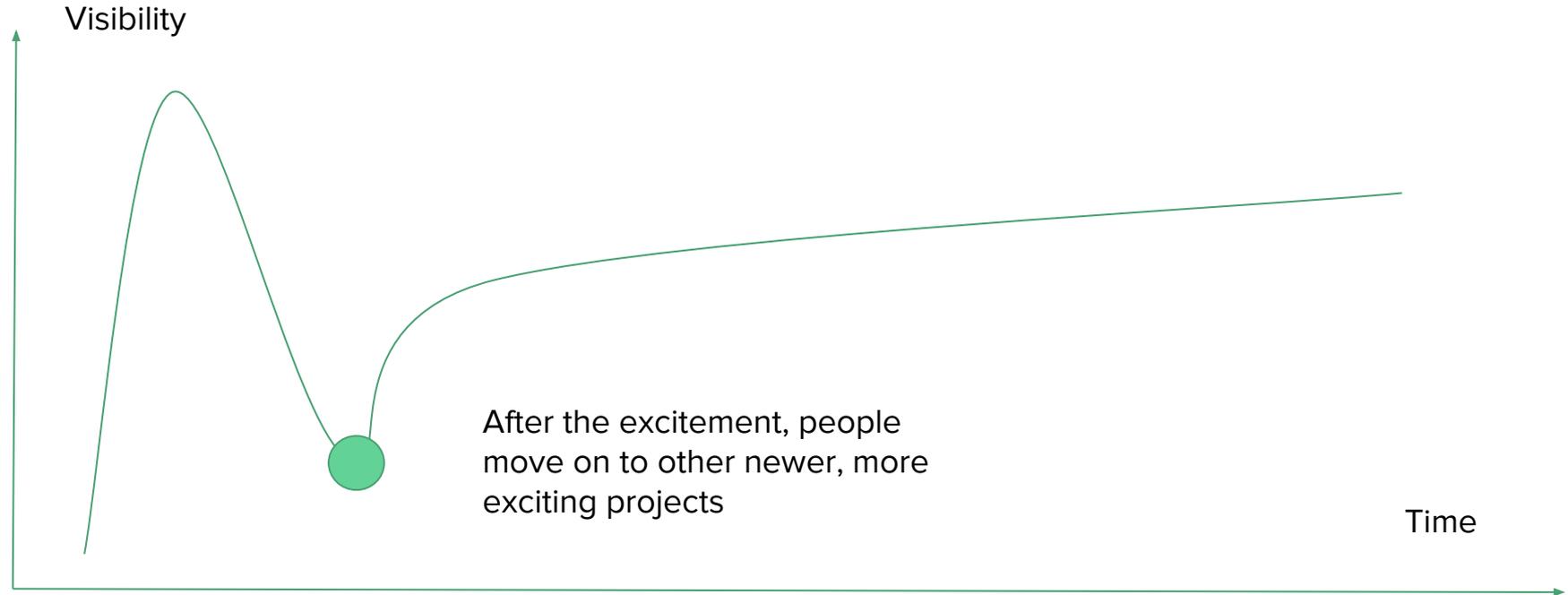
The Hype Cycle Of Open Source Networking Development



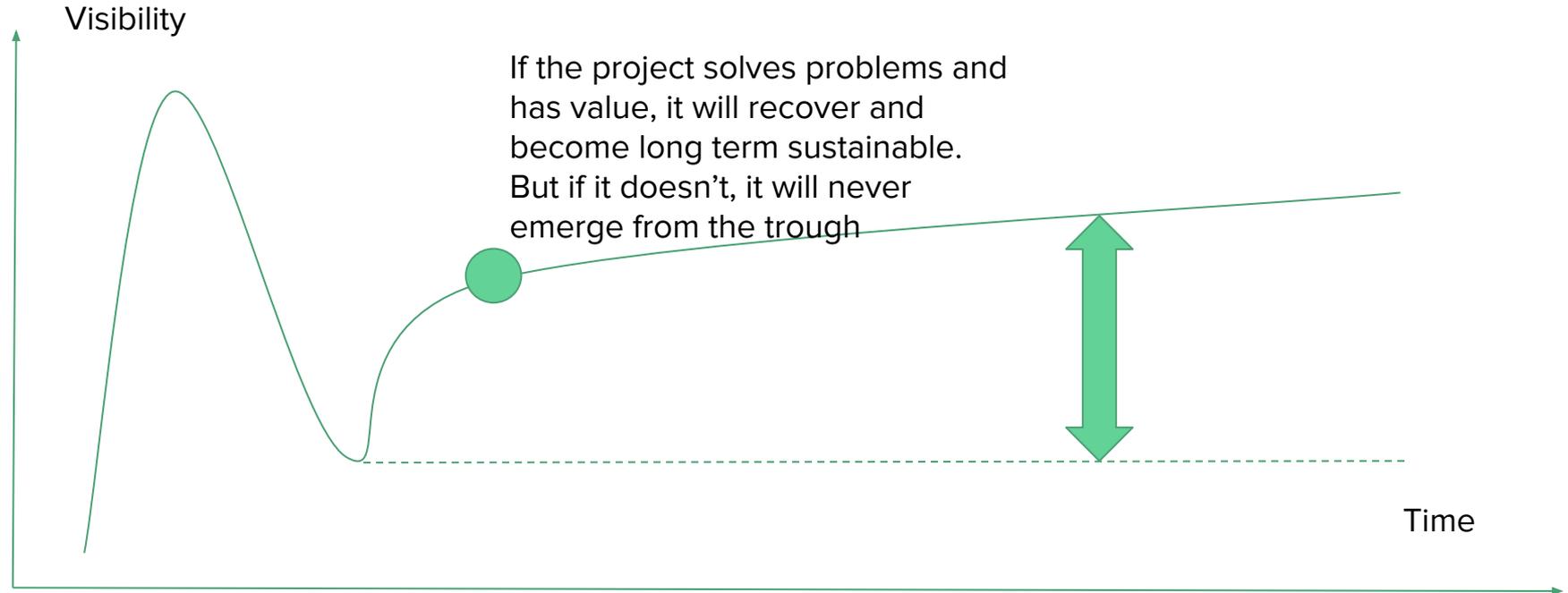
The Hype Cycle Of Open Source Networking Development



The Hype Cycle Of Open Source Networking Development



The Hype Cycle Of Open Source Networking Development



The Hype Cycle Of Open Source Networking Development



What Does It Mean To Be “Useful”

- Does it help me? Does it do what I need? Does it work?
 - If not, how sure am I that it will work one day?
- Can I make it better?
- Can I fix it?

What Does It Mean To Be “Broken”

- Does it have a diverse community?
 - If it has one committer or source of committers, what happens when they get bored?
 - Does one committer gatekeep all commits or demand special IP rights?
- Does the community value my contributions?
 - If not, can I be certain I will never have to change it?
- Is it going in the right direction?

What Does It Mean To Be On the “Scrap Heap”

- The project has run its course and is no longer useful.
- It picked the wrong problem to solve
 - ... or the problem has changed.
- Developers have left the project and moved on to the new hotness so there is no longer a community to help add value.

Choosing projects that aren't broken or
on the scrap heap

Culture Is Important

- How easy is it to contribute to the project?
- Is there a code of conduct to handle bad actors, amongst others?
- Does the project have downtime?
 - *The difference between volunteering and thinking you've signed a lifetime contract.*
- Is it dominated by a single source of commits?
 - What happens when they lose interest?



Does It Do What I Want And Need?

- How useful is the project?
- Is the project ready for me to deploy and use?
- Is the project in development, but moving in the direction I want?



Project Direction Is Important

- Where is the project on the curve?
- Does it have a roadmap which matches my own roadmap?
 - Maybe it's close but not quite the same ... ok. Maybe I can help with that.
- How quickly does the project release new code?



Release and Versioning

- The most important thing about a project: Repeatability
- How often do they release?

- Testing? Testing.



Continuous Testing

- Continuous testing has to happen, hard stop.
 - On each commit? On each release?
 - Of lots of important things? Or one test for British English spelling?
- Bonus points: Does it test across repositories and with other projects?



Contributing To Open Source
Networking:
Being Part of the Solution Rather Than
the Problem

Contributing:



Two Ways



“I want to
contribute,
please help
me!”

“Your project is
too hard to
contribute to.”

“I want to
contribute,
please help
me!”

- **Open Source Networking
Projects need more than code!**
 - Documentation
 - QA
 - Infrastructure
 - Blogs
 - IRC
- ***But reliably tested and
working code is still important***

“I found a bug!”

“I am gonna
complain about
it, but I won't tell
you what it is!”

“I found a bug!”

- **Report the bug in the project's bug tracker**
 - Include all relevant information
 - Include steps on how to reproduce
 - Hardware you used
 - Network topologies being used
- **Wait**
 - Projects work through their bug backlog in different ways
 - If no word heard after a week, poke developers on IRC, Slack or the mailing list

“I found a bug
and I have a fix
for the bug!”

“You’re not
merging my bug
fix fast enough!”

“I found a bug
and I have a fix
for the bug!”

- **Report the bug in the project's bug tracker**
 - Include all relevant information
 - Include steps on how to reproduce
- **Post the patch**
 - Ensure the patch passes whatever CI the project uses
 - Respond in a timely manner to comments from reviewers
 - Be thorough:
 - consider regressions, upgrade/performance implications, etc.

“I have a fancy
new feature
based on the
latest IETF
draft!”

“You must
accept my new
feature based
on the latest
IETF draft!”

“I have a fancy
new feature
based on the
latest IETF
draft!”

- **Is the project interested?**
 - Does it align with the project's goals?
 - Is it within scope of the project?
- **Add the feature to the project's roadmap**
 - Projects track these in different ways
 - Listen to feedback from other contributors

“I have a great project idea!
Let's work together to figure out how to address common goals.”

“I have a great project idea!
Can I replace you entirely but still be considered part of the same community?”

“I have a great project idea!
Let's work together to figure out how to address common goals.”

- **Evaluate how your project idea can fit with the existing project**
 - Does it overlap?
 - Does it provide extra value?
 - Can something be abstracted?
- **Is the community interested?**
 - Does it fit the communities goals?
 - Do you have a plan for testing, documentation and support?

“Open Source networking is strategic, and I’d like to use it in my project.”

“We plan to leverage Open Source networking software.”

“Open Source networking is strategic, and I’d like to use it in my project.”

- **Evaluate the upstream project and how you can integrate it**
 - How strategic is it?
 - What value can you provide back for the value you’re receiving?

“I want to start a
new Open
Source
Networking
project!”

“Lets get it on
the conference
track as soon as
we can!”

“I want to start a
new Open
Source
Networking
project!”

- **Focus on quality over splashy presentations!**
 - Is it clearly written down what the project is?
 - Is there a clearly understood architecture document?
 - Have you written working code, with a robust CI/CD system, focusing on deployment and operations?

Comparing Open Source Contributions: FD.io, Istio, and Calico

Project Communication

Project	Mailing Lists	IRC / Slack	Other?
	Found here	IRC, found here	Weekly meetings
	Discussion board found here	Slack, found here	Other ways to get involved
	Found here	Slack and #calico on Freenode	Project Calico community

Infra and Docs

Project	Infra	Docs	New Contributors Docs
	<u>Gerrit</u>	Mostly on <u>readthedocs.io</u>	Yes, but spread across website and youtube
	<u>GitHub</u>	Mostly in-tree docs and devref, some wiki articles remain	<u>Yes</u>
	<u>GitHub</u>	Wiki articles	<u>Yes</u>

I Want to File a Bug

Project	Where To Go	Where Bug Tracked	Notes
	Wiki has instructions	Jira	Excellent instructions
	GitHub Issues	GitHub Issues and PRs	More instructions found here
	GitHub Issues	GitHub Issues and PRs	Not obvious when searching

I Want to Add a Feature

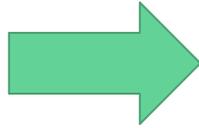
Project	Where To Go	Where Feature Is Tracked	Notes
	Mailing list	Mailing list and Jira	Discussions also happen on IRC
	Discussion board and Slack	PRs in GitHub	Like newer most CNCF projects, Slack is critical here
	Mailing lists and slack	PRs in GitHub	IRC also an option

Project Evolution

Project	Started	Evolved To	Foundation
	Seeded with VPP technology from Cisco	Squeezing more out of less, but with various control planes	Linux Foundation
	Started by Google, IBM and the Envoy team from Lyft	“Service Mesh of the Moment”	None, Google CLA required to contribute code
	Began life as pure L3 networking for OpenStack, written in Python	Pure L3 for bare metal, VMs and containers re-written in golang	No, CLA required for PRs

Practical Advice on Succeeding Upstream

Pick the Correct Project





<https://www.flickr.com/photos/eddale/6925936070>

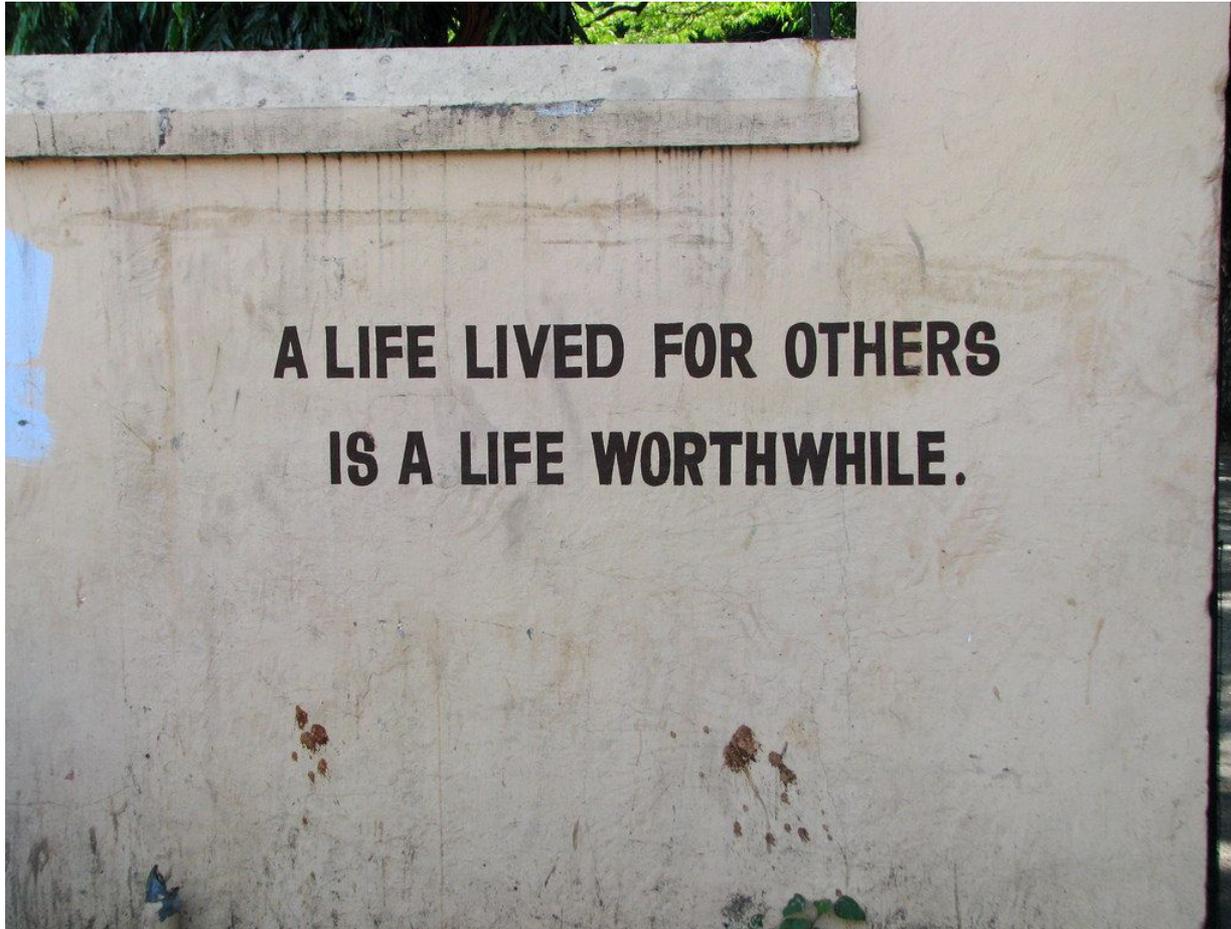


CURB

YOUR

EGO





<https://www.flickr.com/photos/mckaysavage/3986896319>

It's the little
things in life
that matter the
most. Appreciate
what you have.
Be grateful.

LiveLifeHappy.com

*Empower your Open
Source Developers!*



***Be Excellent To Each
Other!***

Thank you!

