Bringing an Open Source Project to the Linux Foundation

Chris Aniszczyk (@cra)

June 21, 2018

🔲 THE **LINUX** FOUNDATION

Hi, I'm Chris Aniszczyk (@cra)

› CTO/COO, Cloud Native Computing Foundation (CNCF)
› Executive Director, Open Container Initiative (OCI)
› VP, Developer Relations, Linux Foundation (LF)

› *In a previous life…*
  › *Director of Open Source (@Twitter) / Sr. Eng Manager*
  › *Co-Founder of the TODO Group*
  › *Co-Founder of EclipseSource (via Code9)*
  › *Open Source Committer (Gentoo, Fedora, etc)*
  › *Principal Software Engineer, Red Hat*
  › *Senior Software Engineer, IBM*

Been a crazy ~3 years for me... Google Trends + CNCF

Jul-16   Jan-17   Jul-17   Jan-18

— Kubernetes — Mesos — Docker Swarm
— Cloud Foundry — OpenStack

YOU FOUGHT IN THE CONTAINER WARS?

YES. I WAS ONCE A DEVELOPER, THE SAME AS YOUR FATHER

imgflip.com

Drew Petersen
@KirbySaysHi

Follow

Regarding the Docker/Rocket stuff

5:26 PM - 2 Dec 2014

↩ ⟲ 85   ♥ 46
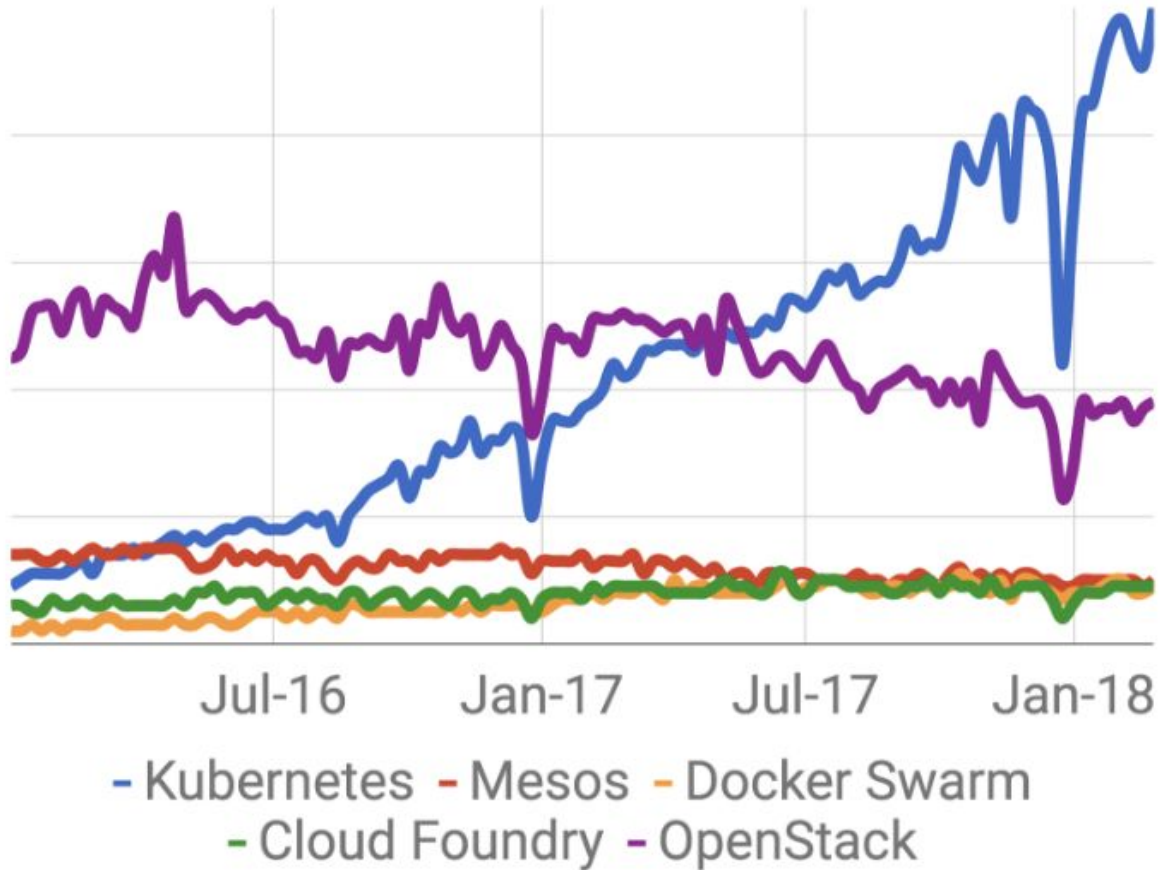
Agenda

› What is the Linux Foundation?

› Linux Foundation Projects

› How do I bring my project to the Linux Foundation?

› Open Source Project Best Practices

› Q&A

Chris Aniszczyk

Travis County, United States

Scan the QR code to add me on WeChat

What is the Linux Foundation?

Today the **Linux Foundation is More than Linux!**

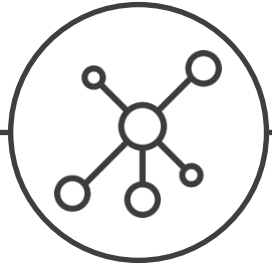| Security	Networking	Cloud	Automotive	Blockchain	Edge/Embedded	Web

We securing the internet as home to world's largest certificate authority securing 100M web sites.

We are home to 8 of the top 10 open source networking projects in the world backed by the majority of global network providers.

We are creating a portability layer for the cloud, driving standards and developing reference tools for cloud native development.

Our Automotive Grade Linux platform is backed by 12 automakers and is either in or slated for production in millions of vehicles worldwide.

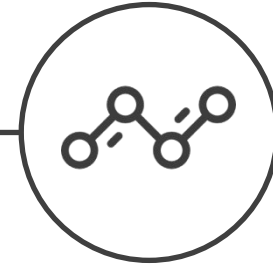We are creating a permanent, secure distributed ledger that makes it easier to create cost-efficient, decentralized business networks.

We are creating projects used in building the majority of embedded linux distributions and rationalizing edge computing.

We are providing the application development framework for next generation web, mobile, serverless, and IoT applications.

Let's Encrypt

ONAP — OPEN NETWORK AUTOMATION PLATFORM

OPEN DAYLIGHT

CORD — Central Office Re-architected as a Datacenter

kubernetes

CLOUD FOUNDRY

CLOUD NATIVE COMPUTING FOUNDATION

AUTOMOTIVE GRADE LINUX

HYPERLEDGER

Zephyr™

yocto PROJECT

EDGE X FOUNDRY™

node JS

JS Foundation

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Foundations!

UNITED FEDERATION of P~~LANE~~TS

The Linux Foundation and Other Orgs Continue to Grow
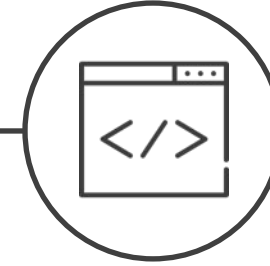
1000+
Members From
41 Countries

80%
of Fortune 100
Tech & Telecom

25,000+
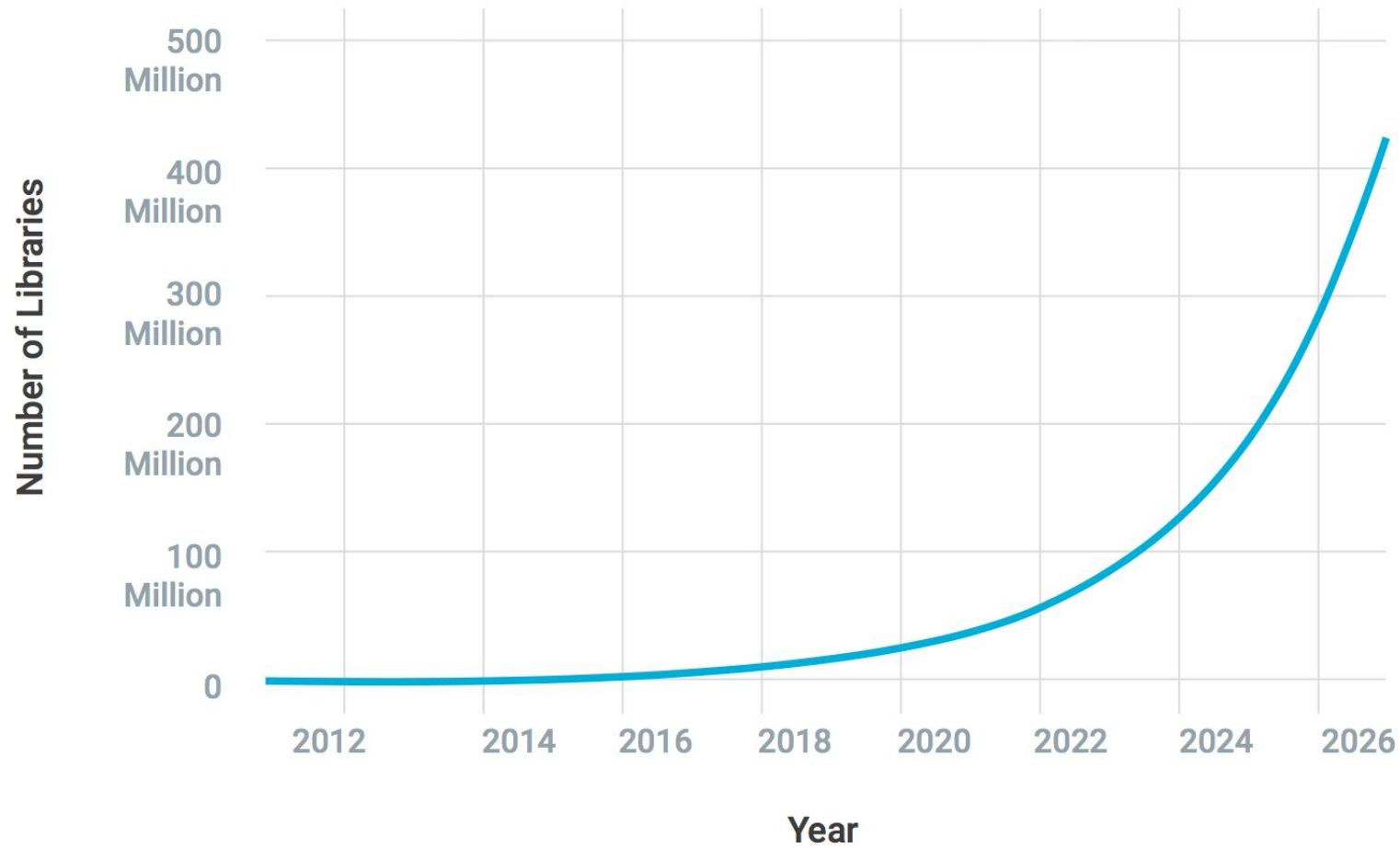Developers
Contributing Code

100+
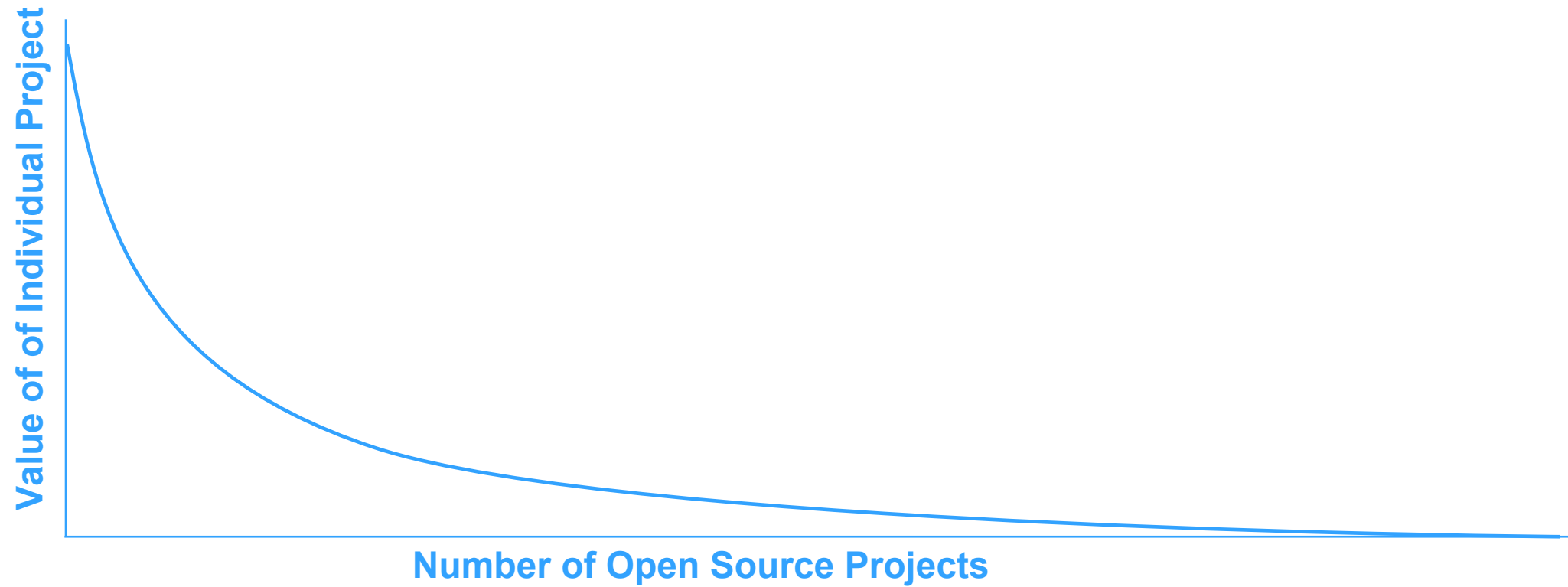Open Source
Projects

$16B
Shared
Value

We have seen unprecedented growth in our projects

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Open Source Isn't Slowing Down Any Time Soon

[:] SourceClear

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The Real Question is Which Projects Matter?

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LF seeks to accelerate new projects to adoption and sustainability

Value of of Individual Project (y-axis)

Build Ecosystems

Number of Open Source Projects (x-axis)

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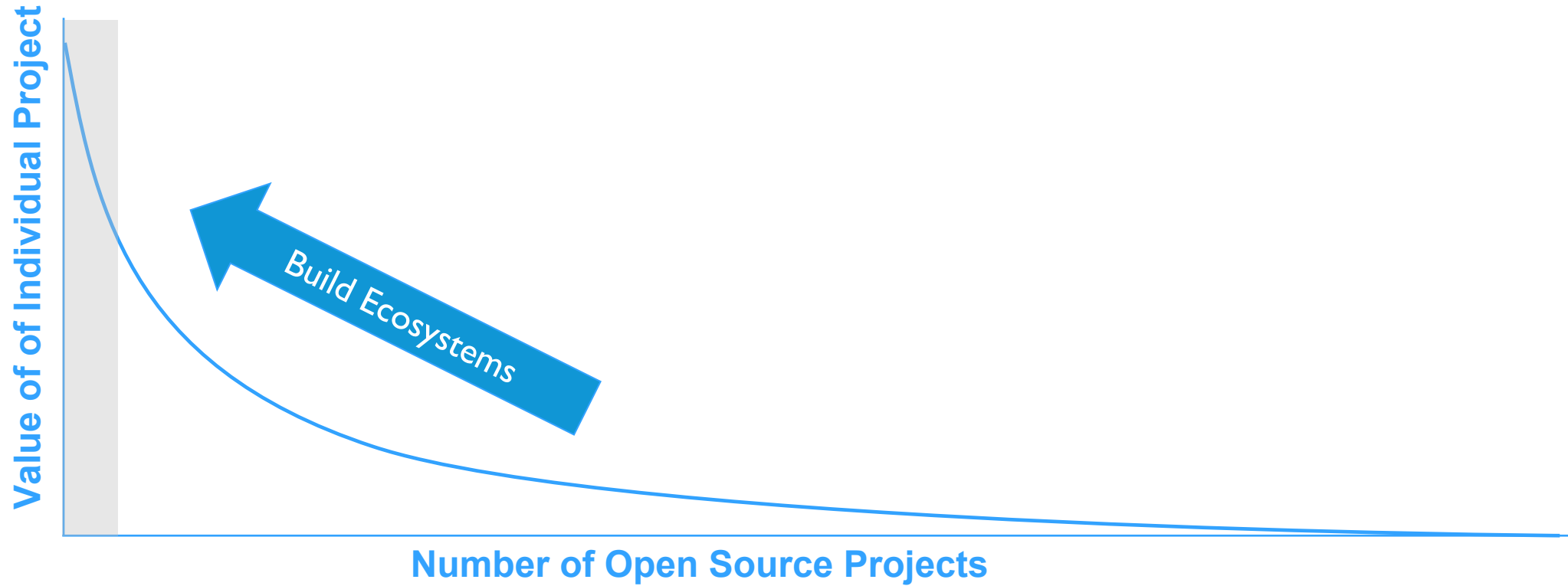
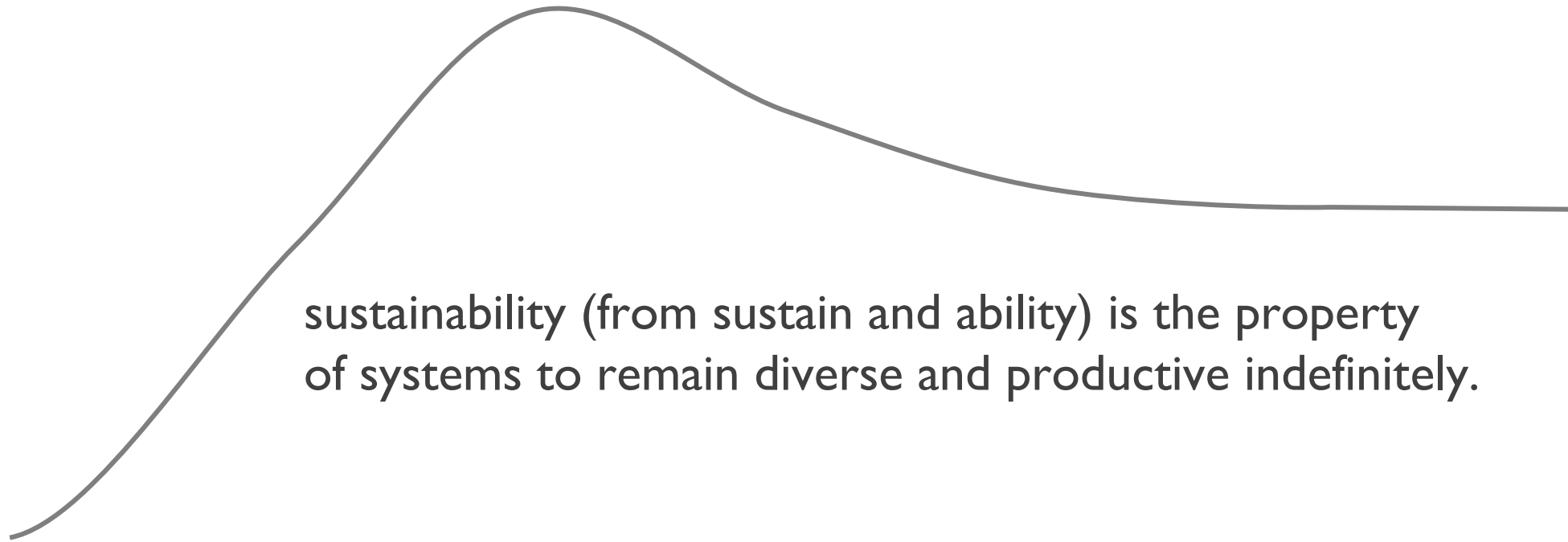# The Answer: Projects With Sustainable Ecosystems

Sustainable projects have a developer community whose technology is used in commercial solutions that profit businesses, who in turn participate and reinvest back into the project and hire developers to work in the community.

PROJECTS

PRODUCTS

PROFITS

DEVELOPER COMMUNITY

TECHNOLOGY

PRODUCTS

MARKETS

PARTICIPATION

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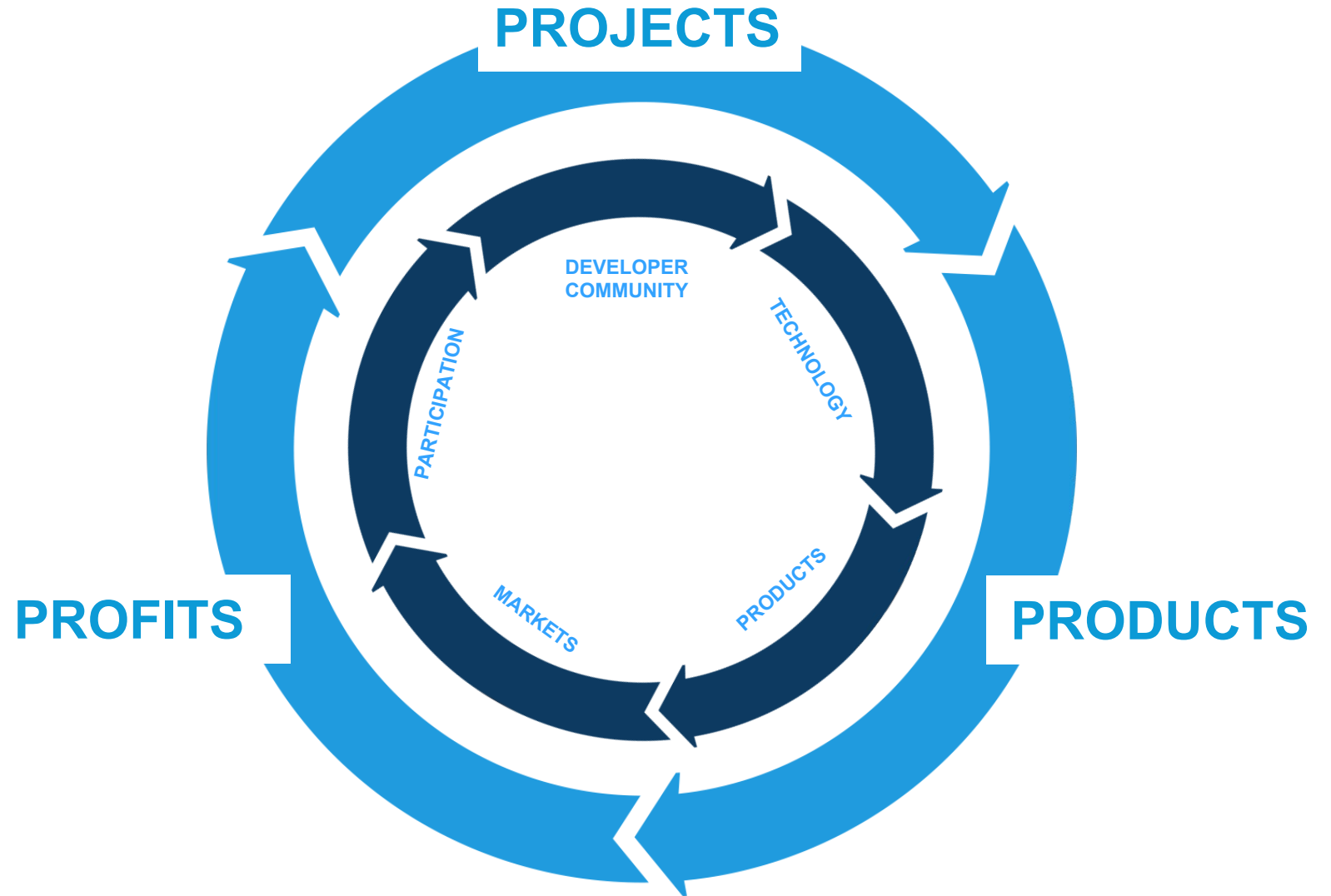
Creating sustainable open source projects requires **real work**

Governance and Membership	• Incorporation, Tax status, Bylaws, Member Agreements, Anti-trust, etc. • Ongoing business development and membership recruitment
Development Process	• Technical Decision Making • Project Life Cycle • Release Process
Infrastructure	• Custom infrastructure using open source best practices • Security and reliability
Ecosystem Development	• Marketing • Events • Training
IP Management	• Code Provenance and License compliance • Trademark management • Legal defense and Collaboration

Sustainability is about longevity

sustainability (from sustain and ability) is the property of systems to remain diverse and productive indefinitely.

Products have a lifecycle

Invest

Reap rewards

INVESTMENT

TIME

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Open Source Projects **ALSO** follow a life cycle
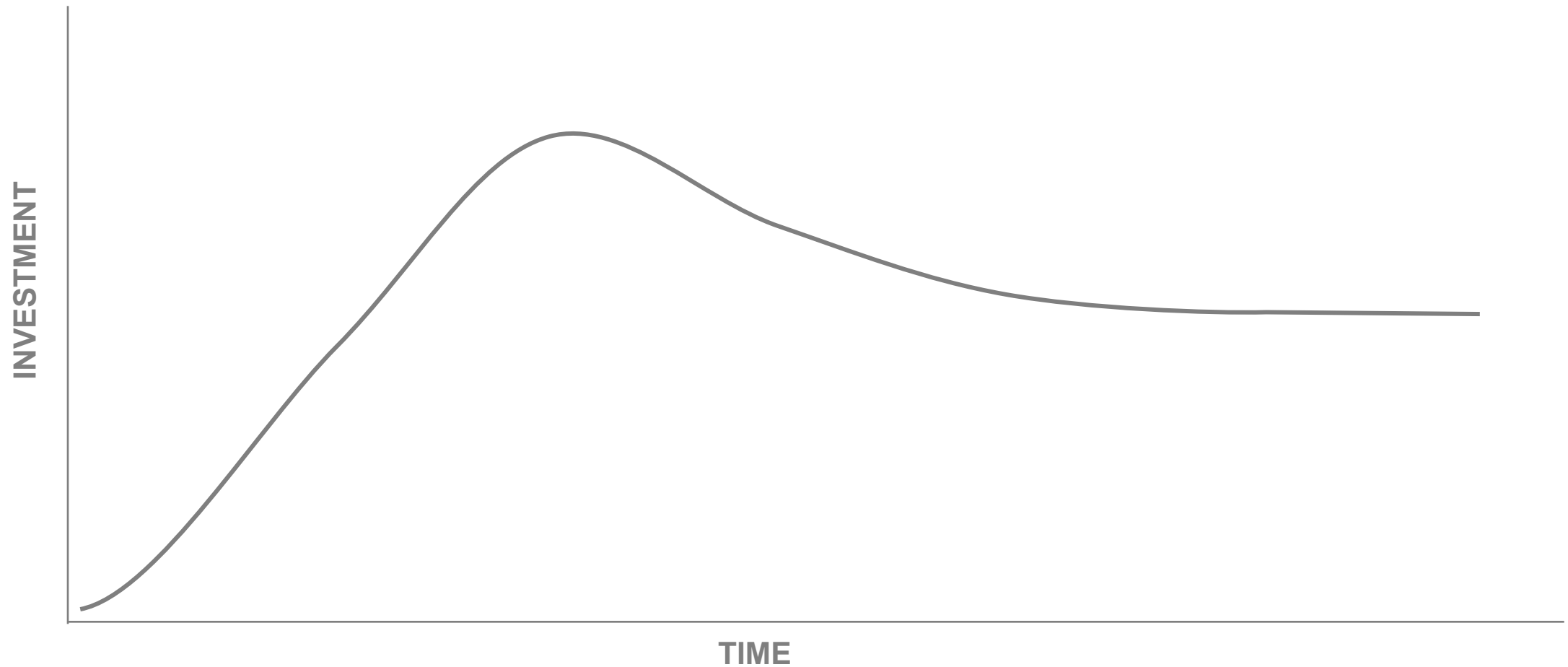
Project lifecycles often map to commercial lifecycles

LAUNCH   COMMERCIALIZATION   MAINTAIN   SUSTAIN...

INVESTMENT

TIME

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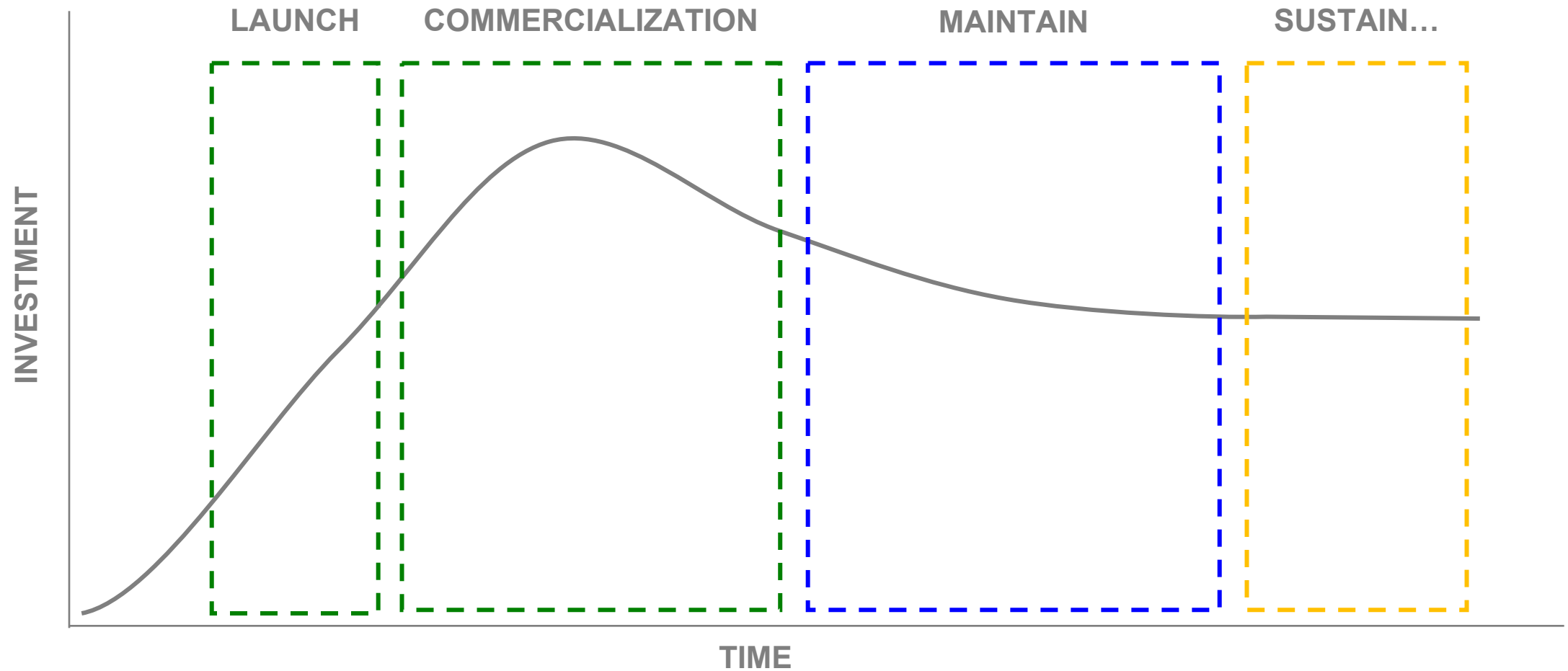
Foundations like the LF support a portfolio of projects

"LF is like a mutual fund of open source projects/foundations" - Chris Aniszczyk

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Project needs change in each lifecycle stage

LAUNCH **COMMERCIALIZATION** **MAINTAIN** **SUSTAIN…**

- Be visible
- Release code
- Show momentum
- Attract user interest
- Add contributors
- Create brand

INVESTMENT

TIME

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Project needs change in each lifecycle stage

LAUNCH   **COMMERCIALIZATION**   **MAINTAIN**   **SUSTAIN…**

- Products using code
- Production users
- Diverse contributor base
- Stable release cadence
- Organization, stability
- Rate of new features slows
- Conformance, interoperability

INVESTMENT

TIME

Project needs change in each lifecycle stage

LAUNCH   COMMERCIALIZATION   MAINTAIN   SUSTAIN…

INVESTMENT

- Established community
- Established products
- Conformance program
- Interdependency w/other projects
- Long term support releases
- Stable security policy
- Bug tracking drives priorities

TIME

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Project needs change in each lifecycle stage

LAUNCH   **COMMERCIALIZATION**   **MAINTAIN**   **SUSTAIN…**

- Retain commercial contributions, support
- Provide long term home
- Availability, security updates, notices

INVESTMENT

TIME

Linux Foundation Project Examples

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Linux Foundation Project Types: Examples
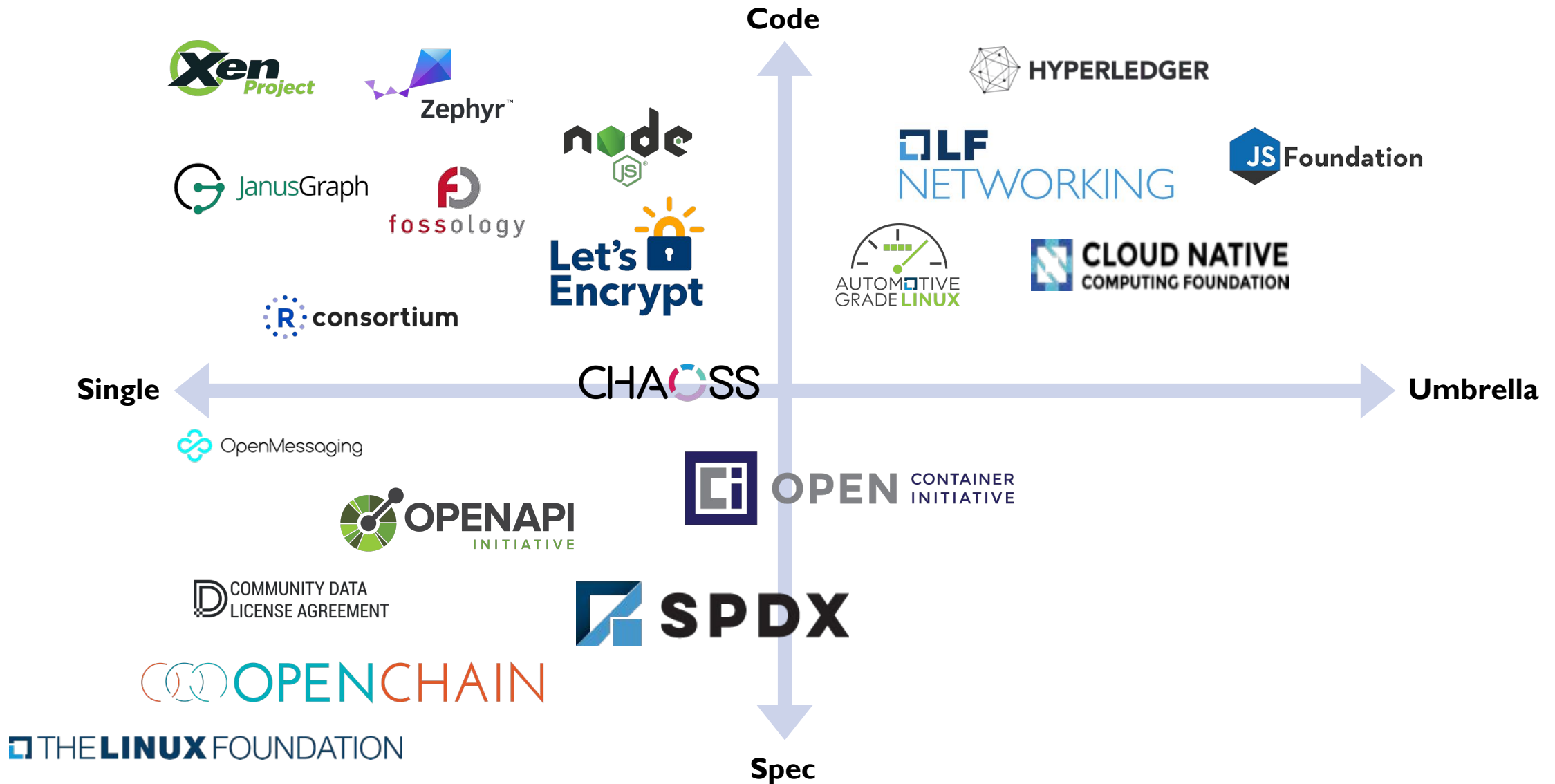
LF Project Type: Code + Single Community

› These projects are focused on code and generally around a single project and community (funded or unfunded)

› Fossology: https://www.fossology.org

› JanusGraph: http://janusgraph.org

› NodeJS: https://nodejs.org

› Xen Project: https://www.xenproject.org
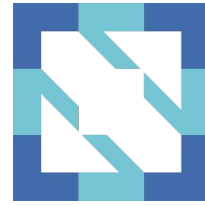
› Zephyr: https://www.zephyrproject.org

LF Project Type: Code + Umbrella Community

› These projects are focused on code and generally around being an umbrella for a group of themed projects.

› Automotive Grade Linux (automotive): https://automotivelinux.org

› Cloud Native Computing Foundation (cloud native): https://cncf.io

› Hyperledger Foundation (blockchain): https://hyperledger.org

› JS Foundation (javascript): https://js.foundation

› LF Networking (networking): https://lfnetworking.org

Case Study: CNCF

Value of of Individual Project (y-axis label)

Linux Foundation focuses on projects that matter

CLOUD NATIVE COMPUTING FOUNDATION

Major Problem

- How to create a portability layer for cloud
- How to accelerate "cloud native" computing: devops, containers, microservices

How LF Innovated

- 2015 Google create Cloud Native Computing Foundation with LF
- Project seeded with Kubernetes
- Cloud Native Computing Foundation founded with 28 members

Results - 2018

- 230+ Members
- Kubernetes defacto standard for container management
- CNCF home to 20 additional projects beyond Kubernetes
- 58 Kubernetes certified providers including 10/10 top public clouds
- Kubernetes surpasses OpenStack on Google trends

Number of Open Source Projects – Millions on Github

Case Study: Hyperledger

HYPERLEDGER

Linux Foundation focuses on projects that matter

Value of of Individual Project

Number of Open Source Projects – Millions on Github

Major Problem

- "Blockchain" or pioneered by Bitcoin has been proven to provide a method for trusted transactions and smart contracts.
- However, cryptocurrency and anonymous blockchains were either inadequate or saddled with regulatory risk
- There has been a need for "blockchain for business" to unlock the power of blockchain beyond cryptocurrency.
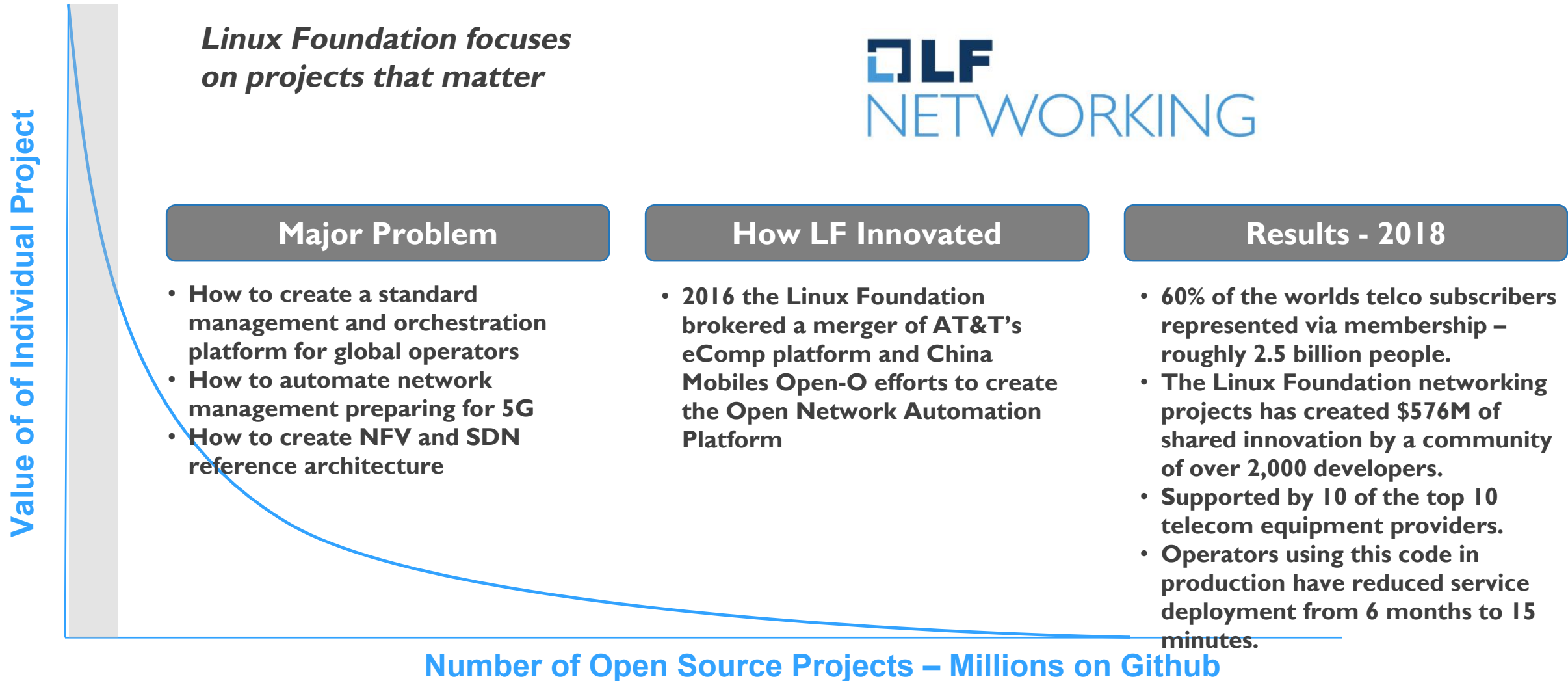
How LF Innovated

- In December 2015 IBM worked with the LF to launch "Hyperledger" with 26 companies to create an open source, non-crypto currency, blockchain platform

Results - 2018

- Project has grown to over 200 companies including major banks, technology firms and governments bodies.
- In less that two years the effort has 9 projects with two production ready code bases
- Hyperledger code is used to track the world's diamond supply to root out blood diamonds
- Hyperledger code is also used to track Walmart's food product supply chain to improve food safety for hundreds of millions of people

Case Study: LF Networking (LFN)

Value of of Individual Project (vertical axis)

Number of Open Source Projects – Millions on Github (horizontal axis)

Linux Foundation focuses on projects that matter

LF NETWORKING

Major Problem

- How to create a standard management and orchestration platform for global operators
- How to automate network management preparing for 5G
- How to create NFV and SDN reference architecture

How LF Innovated

- 2016 the Linux Foundation brokered a merger of AT&T's eComp platform and China Mobiles Open-O efforts to create the Open Network Automation Platform

Results - 2018

- 60% of the worlds telco subscribers represented via membership – roughly 2.5 billion people.
- The Linux Foundation networking projects has created $576M of shared innovation by a community of over 2,000 developers.
- Supported by 10 of the top 10 telecom equipment providers.
- Operators using this code in production have reduced service deployment from 6 months to 15 minutes.

LF Project Type: Spec + Single Community

› These projects are focused on a specification/standard and around a singular project/community (funded or unfunded)

› CDLA (open data license): https://cdla.io

› Open Container Initiative (container specs): https://opencontainers.org

› OpenAPI Initiative (api spec): https://openapis.org

› OpenMessaging (messaging spec): https://openmessaging.io

› SPDX (licensing spec/tools): https://spdx.org

Bringing an Open Source Project to the Linux Foundation

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Linux Foundation Projects

› The LF currently hosts well **over 100 open source projects!**
  › https://www.linuxfoundation.org/projects/

› Projects considering the foundation generally seek:
  › A neutral host foundation for intellectual property (IP)
  › Governance and community help
  › Resources (e.g. events, community CI/build infrastructure)
  › Build momentum within the LF community of 1000+ members
  › Ability to raise and manage funds (optional)

› Projects often start with individual devs seeking to elevate their project or orgs interested in working together under a neutral home

Linux Foundation Project Hosting Requirements*

The project must:

- ❏ use an approved OSI open source license;
- ❏ be supported by a LF member;
- ❏ allow neutral ownership of project assets such as a trademark, domain or GitHub account (the community can define rules and manage them);
- ❏ technical do-ocracy and separation of business governance from technical governance (we're flexible on the model) clearly documented in a charter;
- ❏ allow anyone to participate in the technical community, whether or not a financial member or supporter of the project

LF Projects: All Shapes and Sizes

› There is no "required" or "right" size or shape for a project at the LF

› Some raise funding and have members, others do not

› Some have dedicated staff to work on efforts, while others benefit from the community contributing to efforts

› Some have thousands of developers, others start off with a dozen or so

› Many are focused on code, while others are building specifications, standards or best practices

Project Trademarks

› Our project communities control the name of the project, not any one member or company contributor

› In order to provide for neutral ownership of project assets, we require that The Linux Foundation entities own the trademarks leveraged by the project.

› In the event that a trademark is already in use by the sponsoring organization, we recommend that the project create a new name to operate under or the owner assign the interest in the mark to The Linux Foundation.

› *See http://fossmarks.org for an education on trademarks in open source*

Project Preparation Checklist

❑ Prepare draft mission and scope statement

❑ Identify internal teams within mission and scope

❑ Identify developers internally

❑ Analyze code for identification of licenses, license quality and project dependencies

❑ Assess potential universe of project members

❑ Identify ecosystem constituents and concerns of each

❑ Identify any trademarks leveraged by the project (these will be owned by the LF neutrally)

❑ Outline infrastructure, marketing any other requirements needed for the project

❑ Name project leads for governance/leadership, marketing, technical and legal teams

Umbrella Projects

› An "umbrella" project is a directed fund established to support multiple technical projects (e.g., CNCF, Hyperledger and LFN)

› This allows a single Governing Board to allocate resources across a variety of projects depending upon (a) the needs and requirements of each individual technical project and (b) evolution and maturation of projects within the umbrella.

› We include the following additional provisions within a funding charter to accommodate the needs of an "umbrella" project:

   › "technical projects" versus a single project

   › "Technical Advisory Body", or similar, supports communication and coordination (GB + projects); does not prescribe or oversee any technical project's direction or efforts

Community Projects

› A separate legal entity is created for the technical project

› A "Technical Charter" sets the ground rules for the technical governance of the project and provides for:

  › Mission and scope of the technical project
  › Composition of the technical oversight body (generally referred to as a "Technical Steering Committee")
  › Details on how decisions are made
  › IP policy for the project, including the license for code contributions to the project

› Optionally, a directed fund project has its own governance, separate from that of the technical project ("business governance")

  › The "Funding Charter" establishes the fiscal decision-making process
  › The "Participation Agreement" sets membership fees and binds members to the project's Funding Charter

Business Governance (Funding)

› The funding charter sets forth the business governance for the project:

  › Membership levels and rights

  › Governing Board composition and responsibilities

  › Any committees under the Governing Board (marketing, legal, finance, etc.) or fulfilling an advisory role (such as an end-user advisory committee)

  › Quorum and voting requirements

  › Administrative / operational details

› Membership fees:

  › Determined at time of formation; some times revised later by the governing board

  › Involves both '**top-down**' and '**bottom-up**' analyses that assess the projected budget needs against the projection of the number and membership level of potential participants.

  › **Membership is NEVER REQUIRED TO PARTICIPATE IN TECHNICAL COLLABORATION, contribute code or take a role in the technical community.**
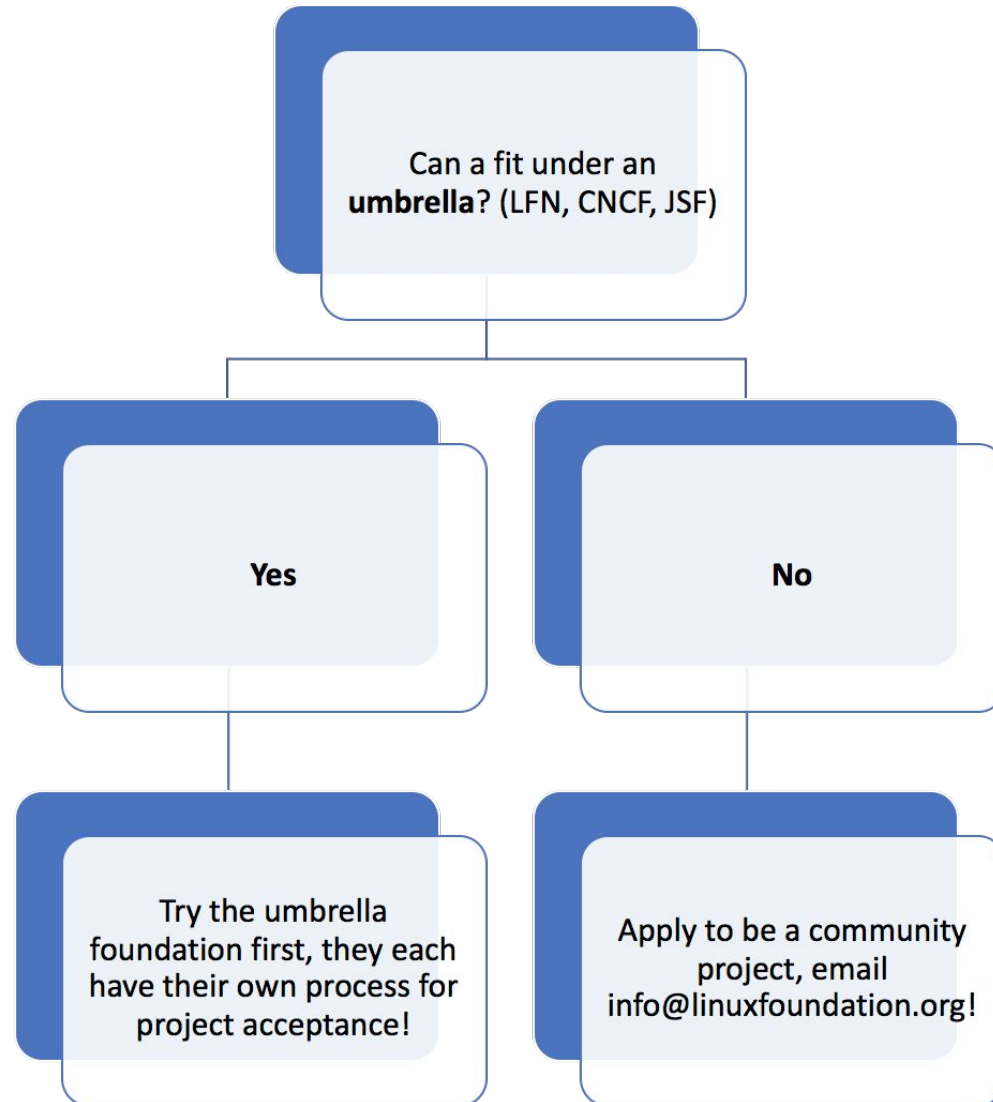
Bootstrapping the Community/Project

› Once we have worked out the intended mission and scope of the sponsored project, we work to build out a formation group to draft the governance documents and finalize the project structure as a community.

› We establish a series of tracks – generally consisting of business governance, legal and technical, and work in parallel to finalize the structure of the project including membership tiers, fee levels, IP policy and other details.

› Towards the end of the formation process we often convene a marketing team, and LF will prepare the launch press release with input and feedback from the marketing team.

› The advantage of working via formation teams is that the community is already familiar with working with each other and solving problems collectively before the project even opens publicly.

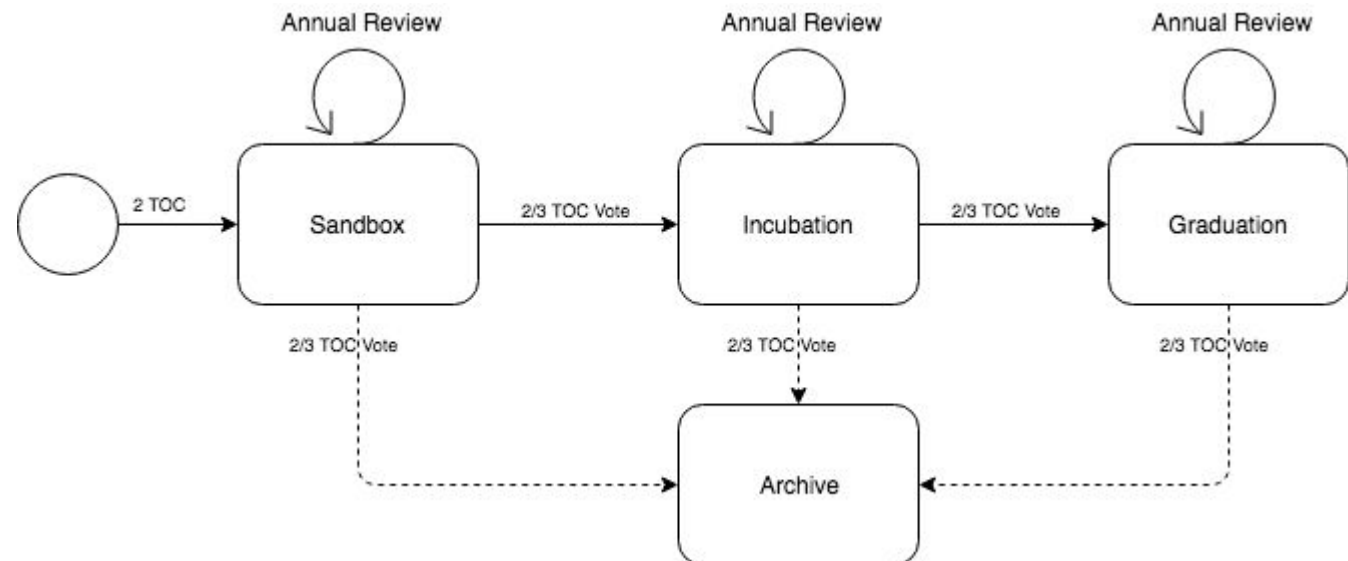# Bringing a Project to the LF in a Simple Flowchart
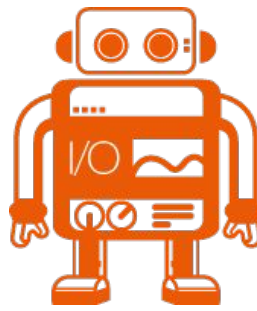

Umbrella Community + Funding

These projects support several technical projects under the same funding structure and are focused on a technology area. This allows the community to pursue a strategic vision across a spectrum of opportunities while balancing demands on resources. Examples of these projects include: Automotive Grade Linux, Cloud Native Computing Foundation, Hyperledger, LF Deep Learning Foundation, and LF Networking.

Can a fit under an **umbrella**? (LFN, CNCF, JSF)

Yes

No

Try the umbrella foundation first, they each have their own process for project acceptance!

Apply to be a community project, email info@linuxfoundation.org!

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Example: Rook and Helm Joining the CNCF

› CNCF is the home of cloud native technology and accepts projects as long as they adhere to the cloud native definition and principles in the charter
› CNCF has an **independent technical board (TOC)** that make a decision on which projects get accepted into the foundation (not staff): https://github.com/cncf/toc
› Project proposal examples:
  › Helm: https://github.com/cncf/toc/pull/114
  › Rook: https://github.com/cncf/toc/pull/57

Example: WebdriverIO joining JSF

> JSF has an independent **Technical Advisory Committee (TAC)**: Technical leadership composed of project, member and community reps (determine technical direction and policies, oversee Mentorship Program and project adherence to overarching community, collaboration and continuity policies)

> Any **JavaScript ecosystem project may apply to join the JS Foundation** and the process is outlined in our Project Lifecycle Document

> The TAC reviews applications and asks necessary questions then accepts or rejects a project's application (upon acceptance, projects enter the Mentorship Program where they work to improve the project structure and operations to ensure growth and long-term sustainability)

> Example: WebdriveIO Project Proposal: https://github.com/JSFoundation/TAC/pull/22

FYI: LF Umbrella Foundation Project Proposal Info

› CNCF (any cloud native project, neutral to programming language)
  › https://github.com/cncf/toc/blob/master/process/project_proposals.adoc
› JavaScript Foundation (any JavaScript project)
  › https://github.com/JSFoundation/TAC/blob/master/Project-Lifecycle.md
› Hyperledger (any blockchain related project)
  › https://wiki.hyperledger.org/community/proposals
› Automotive Grade Linux (any automotive related project)
  › https://wiki.automotivelinux.org/project_proposals
› LFN (any networking related project)*
  › https://gerrit.linuxfoundation.org/infra/#/c/11139/ (newly formed)

Tips for Open Source Projects

Please choose a license … or it's not FOSS!

Branch: master ▾   **facade** / LICENSE   [Find file] [Copy path]

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Apache License 2.0

A permissive license whose main conditions require preservation of copyright and license notices. Contributors provide an express grant of patent rights. Licensed works, modifications, and larger works may be distributed under different terms and without source code.

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- ✔ Commercial use
- ✔ Modification
- ✔ Distribution
- ✔ Patent use
- ✔ Private use

Limitations
- ✘ Trademark use
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- ✘ Warranty

Conditions
- ⓘ License and copyright notice
- ⓘ State changes

This is not legal advice. Learn more about repository licenses.
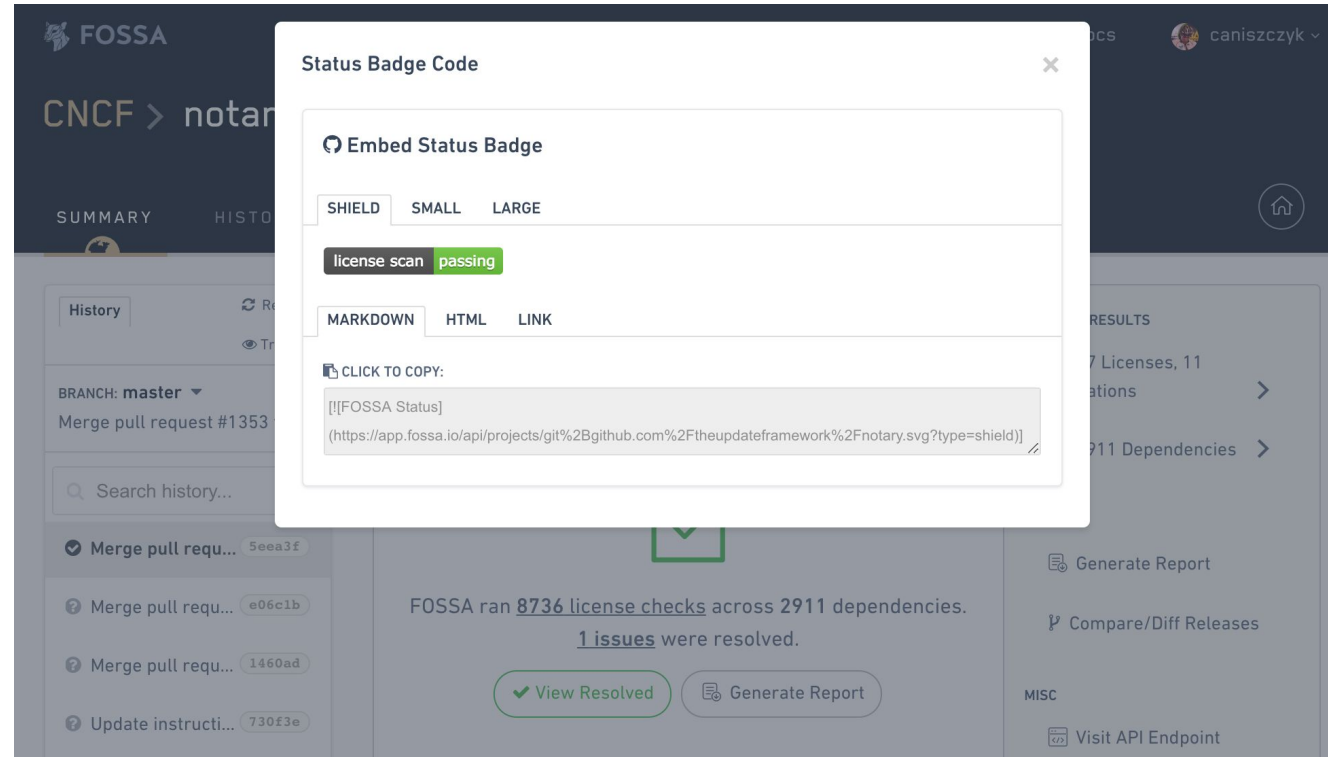
And please use an OSI-approved license
https://opensource.org

CLOUD NATIVE
COMPUTING FOUNDATION

https://cncf.io/blog/2017/02/01/cncf-recommends-aslv2/

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License Scanning: FOSSA / Fossology

› License scanning with FOSSA.io / Fossology can help your developers ensure they aren't bringing in code out of IP Policy
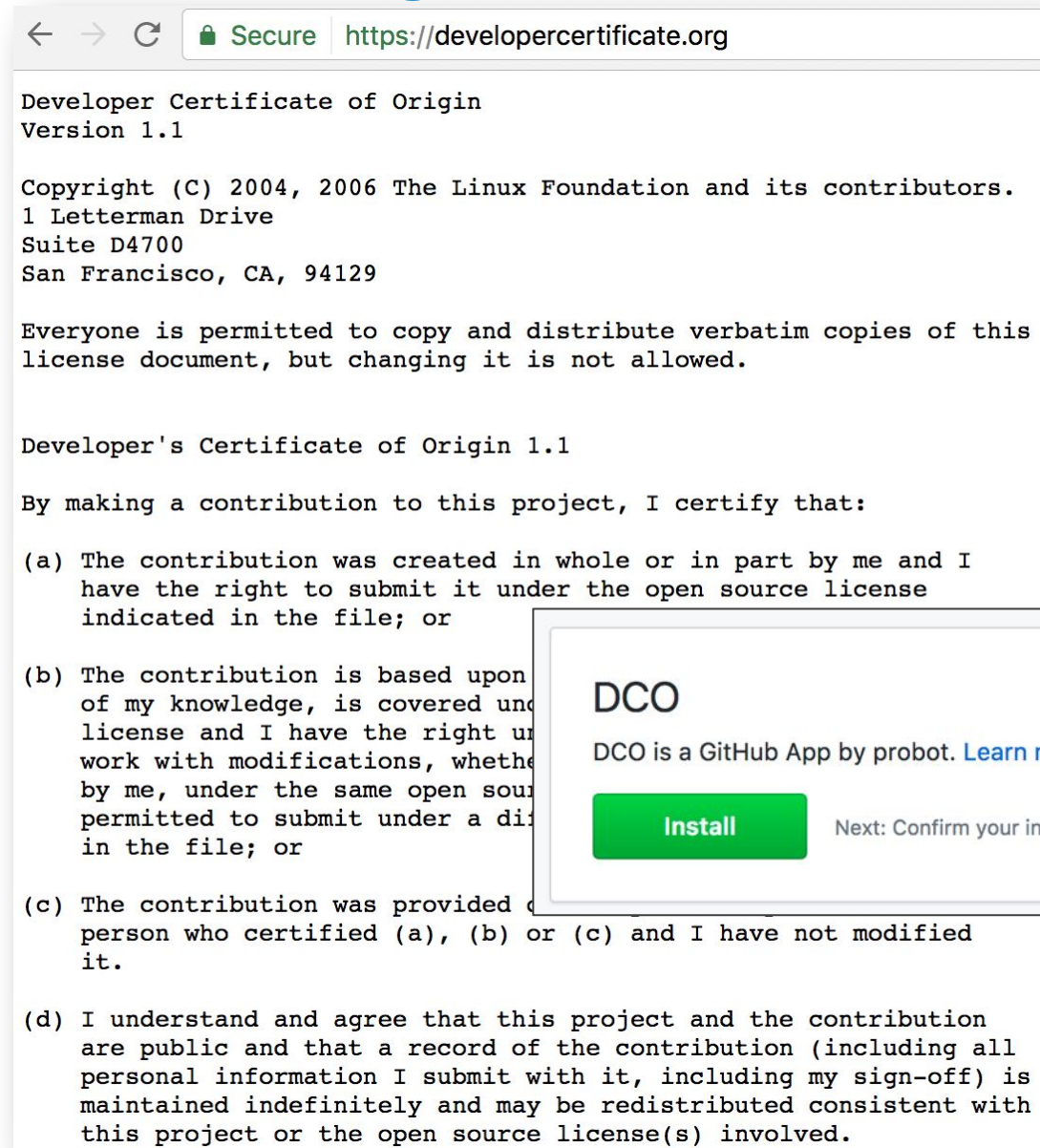

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The Developer Certificate of Origin v1.1

The DCO captures code provenance at time of submitting a pull request, on every contribution.

The Linux Foundation worked with GitHub to make it easy to implement "DCO required" in any project.
https://github.com/apps/dco

← → C 🔒 Secure | https://developercertificate.org

```
Developer Certificate of Origin
Version 1.1

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1 Letterman Drive
Suite D4700
San Francisco, CA, 94129

Everyone is permitted to copy and distribute verbatim copies of this
license document, but changing it is not allowed.


Developer's Certificate of Origin 1.1

By making a contribution to this project, I certify that:

(a) The contribution was created in whole or in part by me and I
    have the right to submit it under the open source license
    indicated in the file; or

(b) The contribution is based upon
    of my knowledge, is covered und
    license and I have the right u
    work with modifications, wheth
    by me, under the same open sou
    permitted to submit under a di
    in the file; or

(c) The contribution was provided
    person who certified (a), (b) or (c) and I have not modified
    it.

(d) I understand and agree that this project and the contribution
    are public and that a record of the contribution (including all
    personal information I submit with it, including my sign-off) is
    maintained indefinitely and may be redistributed consistent with
    this project or the open source license(s) involved.
```

DCO
DCO is a GitHub App by probot. Learn more...
Install   Next: Confirm your installation location.

Get a CII Best Practices Badge

› Initiative launched in May 2016 to raise awareness of development and governance steps for better security outcomes

› The badge makes it easier for users of open source projects to see which projects take security seriously

  › Not a "rubber stamp" process

› 1,000+ projects registered for the badge

› While only 10% of the projects successfully passed, every one of them made an improvement to achieve a badge

https://www.coreinfrastructure.org

More Than Code: Training, Meetups, Docs, Internships

› FOSS communities should consider training, education for users as important as other activities

› Documentation can often determine a winning project

› Help train the next generation – attend/hold meetups, share your lessons learned, share mistakes and resolutions

› See meetups.cncf.io as an example, meetup pro is great!

Security Disclosure Process

› Consider formulating a security disclosure process or use a tool like HackerOne to help you with security issues!

› https://github.com/envoyproxy/envoy/blob/master/SECURITY_RELEASE_PROCESS.md

Security Release Process

Envoy is a large growing community of volunteers, users, and vendors. The Envoy community has adopted this security disclosures and response policy to ensure we responsibly handle critical issues.

Product Security Team (PST)

Security vulnerabilities should be handled quickly and sometimes privately. The primary goal of this process is to reduce the total time users are vulnerable to publicly known exploits.

The Product Security Team (PST) is responsible for organizing the entire response including internal communication and external disclosure but will need help from relevant developers to successfully run this process.

The initial Product Security Team will consist of all maintainers in the private envoy-security list. In the future we may decide to have a subset of maintainers work on security response given that this process is time consuming.

Disclosures

Private Disclosure Processes

The Envoy community asks that all suspected vulnerabilities be privately and responsibly disclosed via the reporting policy.

Learn from Peers: TODO Group

› Leverage best practices to run or start an open source program/project:

  › https://todogroup.org

› Topics include:

  › Creating an Open Source Program
    Tools for Managing Open Source Programs

  › Measuring Your Open Source Program's
    Success

https://www.linuxfoundation.org/resources/open-source-guides

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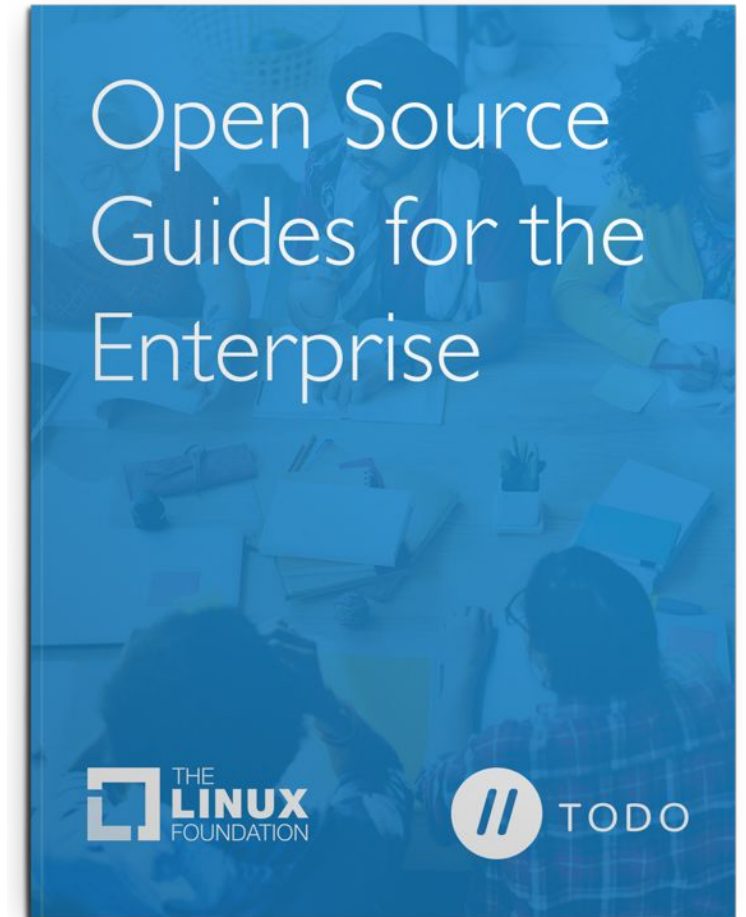
Summary and Final Thoughts...

› There are many types of projects at the Linux Foundation, from simple single community projects, to specs to large umbrella foundations!

› There is NO ONE SIZE FITS ALL approach to building a community for your open source project, let the Linux Foundation help you as an experienced trusted advisor.

› See https://www.linuxfoundation.org/projects/hosting

Thank you!

https://twitter.com/cra
https://aniszczyk.org
cra@linuxfoundation.org

Chris Aniszczyk
Travis County, United States

Scan the QR code to add me on WeChat

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www.linuxfoundation.org

General + Project Inquiries

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Membership

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