Welcome to

How to Create a Successful Open Source Project

May 3, 2017
Today’s Speakers

Mike Dolan, VP of Strategic Programs at The Linux Foundation

Scott Nicholas, Sr. Director of Strategic Programs at The Linux Foundation

Mike Dolan is VP of Strategic Programs responsible for Collaborative Projects and Legal Programs at The Linux Foundation. Mr. Dolan has setup and launched dozens of open source and open standards projects covering technology segments including networking, virtualization, cloud, blockchain, Internet of Things, Big Data and analytics, security, containers, storage and embedded devices.

Scott Nicholas is Sr. Director of Strategic Programs for the Linux Foundation. Scott assists in the launch and support of open source projects and contributes to the foundation’s legal programs. Scott has set up numerous collaborative projects across the technology stack. Scott assists in the execution of The Linux Foundation’s annual Legal Summit and other legal programs.
Mike Dolan, VP of Strategic Programs, @mdolan on Twitter
Scott Nicholas, Sr. Director of Strategic Programs
8 May 2017
Agenda

1. What does The Linux Foundation do?
2. The Linux Foundation’s approach to open governance for projects
3. Considerations and Best Practices for starting a project
4. Q&A
The Linux Foundation’s goal is to create the greatest shared technology investment in history by enabling open source collaboration across companies, developers, and users.

We are the nonprofit organization of choice to build ecosystems that accelerate open technology development and commercial adoption on a global scale.
Linux Foundation by the numbers

- $16.8 billion shared R&D investment across our projects
- 850+ corporate members across all our projects
- 60+ multi-industry open source projects
- 100+ events world wide very year
- 800,000+ individuals trained in open source tech
- 99% of high performance computing market
- 65% of smart mobile devices
- 55% of embedded systems market
- 90% of the world’s stock exchanges
- Home to the best in class projects – Node.js, Kubernetes, Cloud Foundry, Hyperledger, OpenDaylight and Linux
Open Source -- the new norm for software development
It’s not just software.
Open source is the new economic norm.
Open source is the way to develop new technology

- 3.8M Open source contributors worldwide
- 31B Lines committed to open source repositories
- 110+ Open technology startups that raised funding
- 10 Open technology companies valued above $1B
- $2.4b Venture dollars invest in open companies 2014
**Linux is the most successful software in history**

<table>
<thead>
<tr>
<th><strong>53,000</strong></th>
<th><strong>21+M</strong></th>
<th><strong>3900+</strong></th>
<th><strong>$10.3b</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Source files in the Linux kernel</td>
<td>Lines of source code</td>
<td>Developers from all over the globe</td>
<td>Value of typical Linux operating system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>99.4%</strong></th>
<th><strong>64.8%</strong></th>
<th><strong>90%</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Of worlds high performance computing systems</td>
<td>Smartphone, tablet, handheld, smart TV, wearable computer</td>
<td>Of the world’s stock exchanges</td>
</tr>
</tbody>
</table>
Linux kernel project: **scale of collaboration**

One release of the Linux kernel in February, 2015:

- 53,000 files
- 21,150,000 lines of source code
- 3,974 developers
- 440 companies
Linux kernel project: rate of development is increasing

In just one year of Linux kernel development (April 2015 to March 2016)

• 10,800 lines of code were added
• 5,300 lines of code were removed
• 1,875 lines of code were modified
• 10+ older kernel version bug patches
Linux kernel project: rate of development is increasing

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• 1,875 lines of code were modified
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Every Day
Collaboration at Scale

- No organization could on its own fund the cost of developing the code for our projects
- Most projects do not hire the core development teams; they rely on outside contributions
- The Linux kernel is not the only openly shared technology companies are willing to invest their time on.
The LF is much more than Linux. A small sample...

Security
We are helping global privacy and security through a program to encrypt the entire internet.

Networking
We are creating ecosystems around networking to improve agility in the evolving software-defined datacenter.

Cloud
We are creating a portability layer for the cloud, driving defacto standards and developing the orchestration layer for all clouds.

Automotive
We are creating the platform for infotainment in the auto industry that can be expanded into instrument clusters and telematics systems.

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

Let's Encrypt
Core Infrastructure Initiative
OPNFV
ONAP
Cloud Native Computing Foundation
Cloud Foundry
Automotive Grade Linux
Hyperledger Project

We are consistently adding projects - for the most up-to-date listing of all projects visit – http://tlfprojects.org
And the LF is not alone

**ASF** has 175+ committees managing ~300 projects and another 50+ projects in incubation.

**Eclipse Foundation** has over 160+ projects and 120+ new projects in incubation.

**OpenStack** has 49 project teams working on 1,525 project repositories.

**GitHub** hosts over 56,000,000 project repositories.
The real question is which projects matter?
The answer: projects with sustainable ecosystems

Sustainable Ecosystem:

A rich developer community whose code is productized in commercial products that profit businesses who in turn reinvest back into the projects.
The Linux Foundation Focus: sustainable ecosystems

Value of Individual Project

Number of Open Source Projects
The key driver behind successful projects is companies taking commercial dependencies on the project.

Commercial dependency drives a virtuous cycle of commercial and community engagement based on accepted governance and IP models.
Commercial dependency results in users, users buy solutions that generate profit, profits increases resources to invest back in the community.
The Linux Foundation Way
How our model serves our communities

1. Independent governance and neutral project assets to preserve focus
2. Centralized services to achieve scale for skills and enable collaboration.
3. Separate financial decisions from technical decisions to preserve organic innovation that happens in open source.
4. Lend best practices across projects in order to improve the quality, legal stability, and security for our efforts.
5. Projects cross pollinate and collaborate where there are mutual dependencies which speeds development.
The LF is often asked to assist projects across a wide spectrum of topics

| 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  
|                                                                                       | • Trademark management  
|                                                                                       | • Legal defense and Collaboration |
We are creating critical projects up and down modern technology stacks and are now in a position to enable better outcomes across all of them
CII Badge Program

https://www.coreinfrastructure.org/programs/badge-program

- Free program designed with evolving criteria from open source community
- Not a strict mechanical process, compensating controls are allowed
- Badges will showcase project’s commitment to security
- Streamlined process for Github-hosted projects
- No security theater - only include items that really improve security
Events catalyze development and build ecosystems

We are consistently adding events for the most up-to-date listing of all projects visit – http://tlfevents.org
100+ Events World Wide Every Year

We are the source where the developers of open source technology go to connect

<table>
<thead>
<tr>
<th>ATTENDANCE</th>
<th>PRESS AND SOCIAL MEDIA</th>
<th>AUDIENCE BY COMPANY SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,000+ attendees</td>
<td>7500+</td>
<td>Company Size</td>
</tr>
<tr>
<td>28% YoY Growth</td>
<td>Media clips with</td>
<td>1-99</td>
</tr>
<tr>
<td>REPRESENTING</td>
<td>152,000,000+ impressions</td>
<td>26%</td>
</tr>
<tr>
<td>4,000+ organizations</td>
<td>90,000+</td>
<td>100 – 499</td>
</tr>
<tr>
<td>Including corporations, associations and academic institutions worldwide</td>
<td>Social media engagements on Facebook, Google+ &amp; Twitter</td>
<td>16%</td>
</tr>
<tr>
<td>FROM</td>
<td></td>
<td>500 - 4999</td>
</tr>
<tr>
<td>85 countries</td>
<td></td>
<td>16%</td>
</tr>
<tr>
<td>With representatives from US, Japan, Germany, Korea, UK and many more</td>
<td></td>
<td>5000 - 9999</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10000+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37%</td>
</tr>
</tbody>
</table>

2016 Events Recap

28% YoY Growth

7500+

Media clips with 152,000,000+ impressions

90,000+

Social media engagements on Facebook, Google+ & Twitter

374,000,000+

event keyword impressions on social media

AUDIENCE BY COMPANY SIZE

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Sum of the %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-99</td>
<td>26%</td>
</tr>
<tr>
<td>100 – 499</td>
<td>16%</td>
</tr>
<tr>
<td>500 - 4999</td>
<td>16%</td>
</tr>
<tr>
<td>5000 - 9999</td>
<td>5%</td>
</tr>
<tr>
<td>10000+</td>
<td>37%</td>
</tr>
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</table>
OpenChain enables compliance on a macro scale

http://openchainproject.org/

- **Specification**: defines best practices in compliance programs that should be applied across a supply chain for efficient and effective compliance with open source licenses.
- **Curriculum**: designed to help organizations meet the training and process requirements of the OpenChain Specification. Approx. 75 pgs, available in PDF and source formats so organizations can customize to their needs.
- **Conformance**: designed to self-assess an organization's conformance with a specific version of the OpenChain Specification.
As projects scale, training experts becomes a challenge. The Linux Foundation has a platform to build a talent funnel:

- MASSIVE OPEN ONLINE COURSES
- SELF-PACED E-LEARNING
- CLASSROOM-LED
- CERTIFICATION TESTING
- CUSTOM INSTRUCTION
We have a cutting edge user and developer catalog

- Linux Internals
- Open Source Developer Compliance
- Systems Administration
- Security
- Networking
- Cloud

We are growing fast for the most up-to-date courses visit – http://tlftraining.org
Every day, developer communities work on and contribute code to open source projects to build the best solutions possible for a particular objective.

Contributions are voluntary, not compulsory and tend to “scratch their own itch”

An open governance model enables participation
Participants want to share their code and IP and need trust and knowledge to do so

- Participants need a trusted neutral home for IP assets (trademark, copyright, patents).
- Participants need a place to pool resources (financial, technical, etc.).
- Participants need expertise to train them how to collaborate with their competitors in an effective manner.
- Participants need infrastructure that makes sharing at large scale cost effective.
Project Formation High Level

- Gather interested community participants to align on a mission, scope and governance model
- LF membership provides overall entity and bylaws, each project establishes a directed fund Participation Agreement, governance Charter (including an IP Policy)
- LF often educates and guides those unfamiliar with open source
- LF offers templates, automation, tooling and strategic guidance
- Eventually the community aligned on a governance structure; if there are members, the terms for membership as well
- Community assets are assigned to the LF (trademark, domain, repo)
- Launch the project with a coordinated press effort
- Begin public operation of the project under the new governance model

LINUX FOUNDATION
Example Project Governance

**Goal:** Separate business decisions from meritocracy, technical decisions

<table>
<thead>
<tr>
<th>Governing Board</th>
<th>Technical Governance &amp; TSC</th>
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</thead>
<tbody>
<tr>
<td>• Decides project goals</td>
<td>• Serves as the highest technical decision body consisting of project maintainers</td>
</tr>
<tr>
<td>• Sets business, security process, marketing and legal decisions</td>
<td>• Sets technical direction for the project</td>
</tr>
<tr>
<td>• Prioritizes investments and oversees budget</td>
<td>• Coordinates X-community collaboration</td>
</tr>
<tr>
<td>• Oversees marketing such as PR/AR, branding, others</td>
<td>• Sets up new projects</td>
</tr>
<tr>
<td>• Identifies member requirements</td>
<td>• Coordinates releases</td>
</tr>
<tr>
<td></td>
<td>• Establishes and enforces development processes</td>
</tr>
<tr>
<td></td>
<td>• Moderates working groups</td>
</tr>
<tr>
<td></td>
<td>• Oversees relationships with other relevant projects</td>
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Each LF Project has a defined IP Policy

- **Inbound Contributions** (*DCO required, acceptable license for contributions, headers, CLA if project chooses to require one*)
- **Outbound License** (*license code is released, inbound=outbound*)
- **Documentation** (*documentation != code*)
- **Exceptions** (*common for dependencies*)
- **Trademarks** (*neutrally owned, community policy for use*)
Developer Certificate of Origin v1.1

- LF Projects require a DCO signed-off-by on each git commit
- The DCO is **NOT** the same as a CLA
- The DCO addresses issues of code **provenance**
  - Provenance means, “the origin or source of something”
- A DCO signed-off-by simply says, “I have authorization to contribute this code and for my contribution to be a public record.”
- The public record (d) was added in v1.1 and is important relating to data privacy laws.
If using a CLA, automate it to avoid errors!
SPDX License Identifiers in Source Files:

- Concept created by U-Boot developers in 2013 for efficiency and help with automatic license processing.
- Leverages the comprehensive SPDX license list for short names for FOSS licenses at https://spdx.org/licenses.
- Linux Foundation projects are adopting as a standard, starting in Linux kernel in November.
- “Open Government Partnership” created a best practices template for Open Source Policy that includes SPDX-License-Identifiers in December, France adopting “as is”.
- Developed to work with dual-licensed and other licensing scenarios. (See specification)
Headers: Use SPDX Short Identifiers (spdx.org)

Simplifying licensing at a file level can help improve commercial adoption and reuse of your project’s code

/*

Copyright Node.js contributors.
SPDX-License-Identifier: MIT
*/
While some open source projects do use a single license for contributions of code as well as documentation, LF projects generally employ separate code and documentation licenses.

Most of our projects will use a Creative Commons license (e.g., CC-BY-4.0) for contributions of documentation.

There are two reasons for using a separate documentation license:
• Many OSI-approved licenses use “code-oriented” terminology, and this may create some ambiguity if used with respect to documentation; and
• In the case of patent licenses, it is potentially unclear what patent rights are granted with respect to descriptive aspects of documentation.
Document your APIs!

- When properly defined via the OpenAPI Specification, developers and machines can understand and interact with remote services with a minimal amount of implementation logic.
- Allows polygot developer teams to describe services in one, common format that is machine and human readable with a consistency across internal and external users.
- Developer teams can generate documentation, tests, and mock services allowing client teams to work in parallel.

```yaml
/estimates/price:
  get:
    summary: Price Estimates
    description: The Price Estimates endpoint returns an estimated price range for each product offered at a given location. The price estimate is provided as a formatted string with the full price range and the localized currency symbol. The response also includes low and high estimates, and the [ISO 4217](http://en.wikipedia.org/wiki/ISO_4217) currency code for situations requiring currency conversion. When surge is active for a particular product, its surge_multiplier will be greater than 1, but the price estimate already factors in this multiplier.
    parameters:
      - name: start_latitude
        in: query
        description: Latitude component of start location.
        required: true
        type: number
        format: double
      - name: start_longitude
        in: query
        description: Longitude component of start location.
        required: true
        type: number
        format: double
      - name: end_latitude
        in: query
        description: Latitude component of end location.
        required: true
        type: number
        format: double
      - name: end_longitude
        in: query
        description: Longitude component of end location.
        required: true
        type: number
        format: double
```

https://www.openapis.org
Trademark Usage Guidelines

- We view trademarks as community assets, and The Linux Foundation holds a project’s trademarks for the benefit of the community.

- To enable and encourage appropriate use of a project’s trademarks, we publish and maintain trademark usage guidelines. Our guidelines can be found here: https://www.linuxfoundation.org/trademark-usage.

- Trademarks should be used in a factually accurate manner, in the appropriate form (word marks used as an adjective, not a noun, and logos should appear in the right color scheme, etc.) and not in a way that implies endorsement by the trademark holder. Our trademark guidelines reflect these principles.
Using Trademarks for Compliance and Certification Programs

- Some projects also create trademarks that denote compliance with certain requirements. In those cases, the project requires attestation or proof of meeting the requirements.
- To create a compliance and/or certification program, our projects will typically business and technical representatives from the community to define what the mark is meant to convey and the level of testing or verification, if any, required to use the trademark of the program.
- Verification requirements can range from self-certification against a set of published requirements to certification through third party testing laboratories, with a full range of certification options in between these points.
- The expense of testing programs can run from nearly free in the case of self-certification programs to hundreds of thousands of dollars per year (or conceivably more) in the case of third party testing laboratories.
Questions?
Physical Addresses

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http://www.linuxfoundation.jp

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Corporate Training
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Event Sponsorship
sponsorships@linuxfoundation.org

Social Media

Twitter - @linuxfoundation
YouTube - https://www.linkedin.com/company/the-linux-foundation
LinkedIn - https://www.linkedin.com/company/the-linux-foundation
Facebook - https://www.facebook.com/TheLinuxFoundation/