



OLF NETWORKING

Member Guide

August 2018

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CHAPTER ONE

Welcome to LF Networking

Thank you for joining the LF Networking community as a member. Your support is vitally important in sustaining the health and innovative momentum of the LF Networking projects.

We've written this guide to provide you a complete reference guide to the LF Networking community. You will learn how to engage with your communities of interest, all the different ways you can contribute, and how to get help when you need it. If you have suggestions for enhancing this guide, please get in touch with LFN staff or email lfn-info@linuxfoundation.org.

Learn more about
LF Networking here:
[Website](#) [Charter](#) [Wiki](#)

LF Networking Organizational Overview

LF Networking (LFN) is a [consortium](#) of open source networking projects hosted by The Linux Foundation. The Linux Foundation provides staff members to help manage various operational aspects of these projects, but developing the code and sharing it with the world is in the hands of our passionate developers and other community members.

Under the LF Networking charter, the technical leadership of each project—[Technical Steering Committee \(TSC\)](#)—is responsible for the roadmap and delivery of their project releases, and for managing all of the technical operations and activities necessary to support the release.

The TSC leads may also participate in the [Technical Advisory Council \(TAC\)](#), a forum for cross-project technical collaboration. The TAC also serves as a technical advisory body and developer advocacy group to the Governing Board.

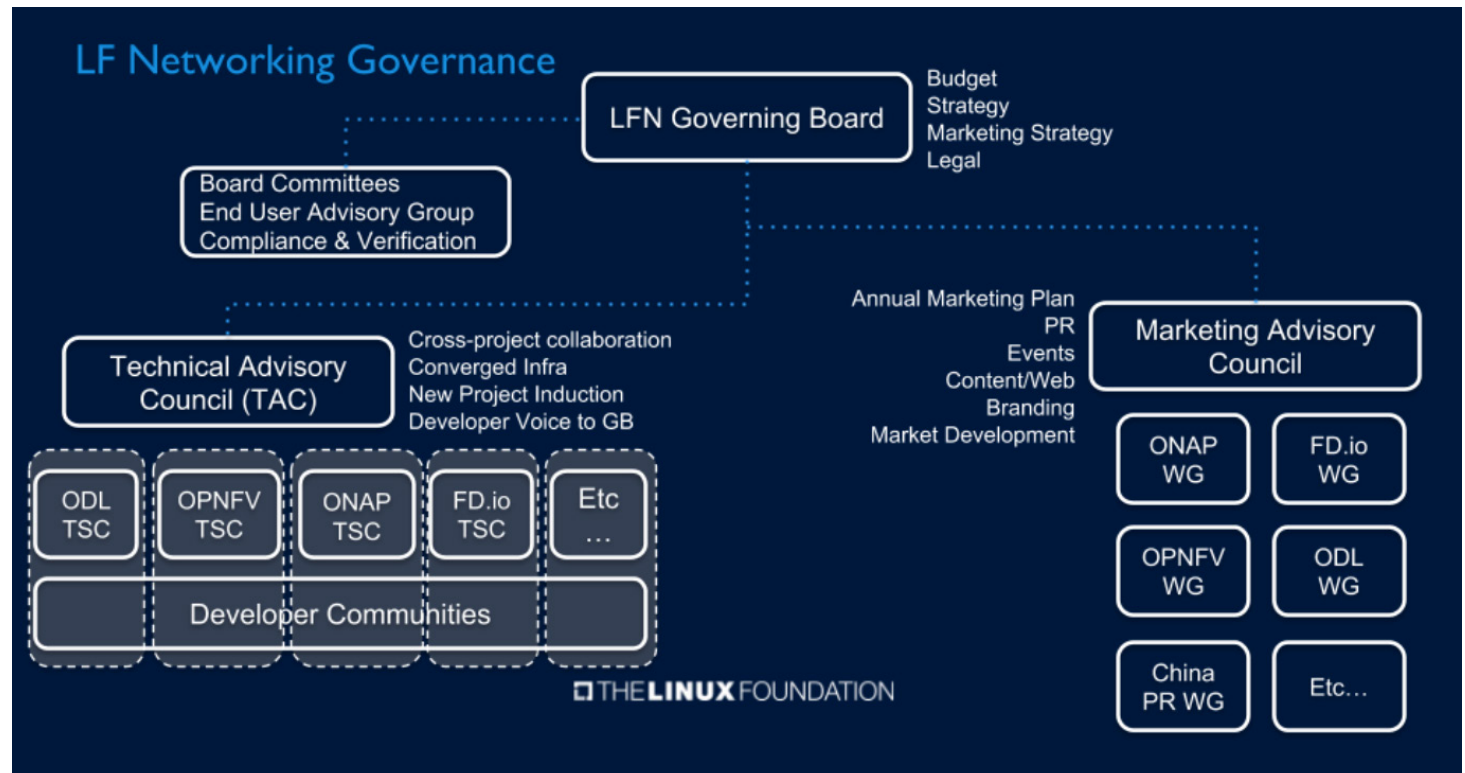
Each project TSC has a corresponding Marketing Workgroup (MWG), which works collaboratively with their TSC to promote their project in the broader industry. Each MWG leader also participates in the [Marketing Advisory Council](#)

(MAC) in order to inform their peers and the broader member community of project marketing activities, and to find opportunities to collaborate with other projects in marketing activities of mutual interest.

The MAC is composed of representatives from member companies and leaders from Marketing Workgroups. The MAC is charged with formulating a common marketing plan for the LF Networking group, taking inputs from each of the projects, and executing that plan within budget, as agreed by the Governing Board.

The [LFN Governing Board](#) is composed of representatives from our member companies, as well as a TAC representative and a Committer representative. The Board sets the strategic direction for the [consortium](#) and allocates budget to support the activities of the community.

Not all networking-related projects hosted by The Linux Foundation are part of the LFN consortium, though we expect that more will elect to join LFN over time. Read more about the current LFN projects [here](#).



The Role of The Linux Foundation

Here are some of the things that Linux Foundation staff do to support your open source activities:

- Program Management. Program managers work closely with project [Technical Steering Committees \(TSCs\)](#) and Project Technical Leads (PTLs) to schedule group meetings, track action items, and propose solutions to challenges encountered by the technical community. They also help organize Developer Design Forums (DDFs) and other technical community events. In short, they ensure smooth operation of projects' technical communities on a day-to-day basis, and are your first point of contact for any general questions about engaging with a project.
- Marketing support. As a neutral party, Linux Foundation staff generally take the responsibility for leading message and content development for marketing and PR materials, in consultation with project TSCs and Marketing Workgroups (MWGs). LF staff also act as project managers for LFN-related marketing events and activities, which may include industry tradeshows, regional meetups, online events such as webinars, research and thought leadership work, and other types of outreach. We rely heavily on the participation of marketing professionals from member companies to help execute and promote these activities around the globe.
- Administrative guidance. LF staff work closely with Board members, individually and as a group, to ensure alignment between members and between the Board and the projects.

Your Staff Contacts

These contacts can answer any general questions you may have about how to engage with any aspect of the community, and will provide introductions to other community members and activities as you choose to get more deeply involved.

Leadership

Arpit Joshipura

General Manager, Networking
ajoshipura@linuxfoundation.org

Phil Robb

VP Technical Operations
probb@linuxfoundation.org

Heather Kirksey

VP Ecosystem and Community
hkirksey@linuxfoundation.org

Marketing

Lisa Caywood

MAC/Marketing Ops, Content Marketing
lcaywood@linuxfoundation.org

Brandon Wick

Digital/Event Marketing
bwick@linuxfoundation.org

Jill Lovato

PR Lead
jlovato@linuxfoundation.org

Kristi Tan

PR Support
ktan@linuxfoundation.org

Celia Stamps

LF Events support
cstamps@linuxfoundation.org

Technical Operations

Casey Cain - Technical Program Manager

OpenDaylight, PNDA, Tungsten Fabric, New Member Management, LFN Webstore, Meetup Management / Admin, TAC
ccain@linuxfoundation.org

Trishan de Lanerolle - Program Manager

OPX, FD.io, DPDK, OvS, SNAS.io, FRR, DANOS, LFN Internships, Academic Outreach
tdelanerolle@linuxfoundation.org

Kenny Paul - Technical Program Manager

LFN Board, ONAP, LFN EUAG, Meetup Content, LFN CLAs
kpaul@linuxfoundation.org

David McBride - Senior Technical Release Manager

OPNFV Release, LFN Bitergia Oversight
dmcbride@linuxfoundation.org

Min Yu - Senior Operations Analyst

Member Onboarding and Engagement, Internships, LFN C&V Committee, back office operations
myu@linuxfoundation.org

Training & Certification

Mary Campbell - Sr. Manager, Corporate Training Solutions

All LF hosted projects, including all LFN projects
mcampbell@linuxfoundation.org

Community Leadership

Governing Board

Chair: Chris Rice, AT&T
Vice Chair: Sanqi Li, Huawei
Vice Chair: Yachen Wang, China Mobile
Treasurer: Jonne Soininen, Nokia

Technical Leadership

FD.io TSC: Ed Warnicke, Cisco
ODL TSC: Abhijit Kumbhare, Ericsson
ONAP TSC: Mazin Gilbert, AT&T
OPNFV TSC: Tim Irtich, Ericsson

Marketing Leadership

MAC Chair: Balaji Ethirajulu, Ericsson

Project Liaisons

FD.io: John DiGiglio, Intel
ODL: Maddison Long, Inocybe
ONAP: Nermin Mohammed, Huawei
OPNFV: Bryan Madden, Intel
Tungsten Fabric: Heqing Zhu, Intel

Committee Leadership

End User Advisory Group (EUAG) (coming soon!)
Compliance & Verification Committee (CVC) (coming soon!)

CHAPTER TWO

Introduction to LFN Projects



FD.io

The Fast Data Project (FD.io) aims to establish a high-performance I/O services framework for dynamic computing environments. The project fosters innovations in software-based packet processing to support the creation of high-throughput, low-latency and resource-efficient IO services suitable to many architectures (x86, ARM and PowerPC) and deployment environments (VM, container, bare metal).

- [Website](#)
- TSC Chair: Ed Warnicke, Cisco
- TAC liaison: Ed Warnicke, Cisco
- MAC liaison: John DiGiglio, Intel
- LF program manager: Trishan de Lanerolle tdelanerolle@linuxfoundation.org
- LF marketing & PR support: Jill Lovato jlovato@linuxfoundation.org
- [Wiki](#)
- [Mailers](#) and [IRC](#)
- [Documentation and getting started guides](#)
- Bug reporting: <https://jira.fd.io/>



ONAP

ONAP provides a comprehensive platform for real-time, policy-driven orchestration and automation of physical and virtual network functions that will enable software, network, IT and cloud providers and developers to rapidly automate new services and support complete lifecycle management.

- [Website](#)
- TSC Chair: Mazin Gilbert, AT&T
- TAC Liaison: Mazin Gilbert, AT&T
- MAC Liaison: Nermin Mohamed, Huawei
- LF program manager: Kenny Paul
kpaul@linuxfoundation.org
- LF marketing support: Lisa Caywood
lcaywood@linuxfoundation.org
- LF PR support: Jill Lovato
jlovato@linuxfoundaiton.org
- [Wiki](#)
- [Mailing lists](#), [IRC](#) and [WeChat](#)
- Support options:
 - [Questions](#) option on the wiki.
 - onap-discuss@lists.onap.org Mailing list.
 - Directly mail the PTL as indicated on the specific project page.
 - IRC: #onap channel on freenode (not widely used by this community)
- [Bug reporting](#)
- [Documentation](#)



OpenDaylight

OpenDaylight (ODL) is a modular platform for customizing and automating networks of any size and scale. The OpenDaylight Project arose out of the SDN movement, with a clear focus on network programmability. It was designed from the outset as a foundation for commercial solutions that address a variety of use cases in existing network environments. It is also at the core of broader open source frameworks, including [ONAP](#), [OpenStack](#), and [OPNFV](#).

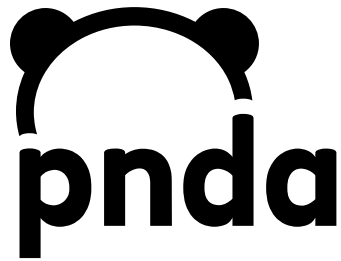
- [Website](#)
- TSC Chair: Abhijit Kumbhare, Ericsson
- TAC Liaison: Daniel Farrell, Red Hat
- MAC Liaison: Martin Bach, Serro
- LF program manager: Casey Cain
ccain@linuxfoundation.org
- LF marketing support: Lisa Caywood
lcaywood@linuxfoundation.org
- LF PR support: Kristi Tan
ktan@linuxfoundation.org
- [Wiki](#)
- [Mailing lists](#) and [IRC](#)
- Support channels: Tag a question with #opendaylight on [Stack Overflow](#) or [Serverfault](#) or email discuss@lists.opendaylight.org
- [Bug reporting](#) (for security bugs, go [here](#))
- [Documentation](#)
- [Solution Directory](#)



OPNFV

OPNFV facilitates the development and evolution of NFV components across various open source ecosystems. Through system level integration, deployment and testing, OPNFV creates a reference NFV platform to accelerate the transformation of enterprise and service provider networks. Participation is open to anyone, whether you are an employee of a member company or just passionate about network transformation.

- [Website](#)
- TSC Chair: Tim Ichnich, Ericsson
- TAC Liaison: Tim Ichnich, Ericsson
- MAC Liaison: Bryan Madden, Intel
- LF Program Manager (interim): David McBride
dmcbride@linuxfoundation.org
- LF Marketing support: Brandon Wick
bwick@linuxfoundation.org
- LF PR support: Jill Lovato
jlovato@linuxfoundation.org
- [Wiki](#)
- [Mailing lists](#) and [IRC](#)
- Support channels
 - End user:
 - [Ask](#)
 - Mailing List: *opnfv-users*
 - Developer:
 - Mailing List: *opnfv-tech-discuss*
- [Bug reporting](#)
- [Documentation](#)
- [Get involved](#)



PANDA

The Platform for Network Data Aalytics aggregates data from logs and network telemetry, consuming millions of messages per second. It supports both batch processing and streaming, real-time data, and efficiently distributes the data to applications that process and analyze data, including interactive notebooks.

- [Website](#)
- TSC Chair: Nick Hall
- LF Program Manager: Casey Cain
ccain@linuxfoundation.org
- LF Marketing & PR support: Kristi Tan
ktan@linuxfoundation.org
- [Mailing lists](#)
- Support channels: Please use the mailing list
- [Bug reporting](#)
- [Documentation](#)



SNAS

Streaming Network Analytics System (project SNAS) is a framework to collect, track and access tens of millions of routing objects (routers, peers, prefixes) in real time.

- [Website](#)
- TSC Chair: Serpil Bayraktar (Technical lead)
- LF Program Manager: Trishan de Lanerolle tdelanerolle@linuxfoundation.org
- LF Marketing & PR support: Kristi Tan ktan@linuxfoundation.org
- [Mailing lists](#)
- [Support channels](#)
- Bug reporting: <https://github.com/SNAS>
- [Documentation](#)



Tungsten Fabric

A software-defined network and security fabric built for rapid deployment at scale. It connects multiple orchestration stacks like Kubernetes, Mesos/SMACK, OpenShift, OpenStack and VMware, supporting cross-stack policy control, visibility and analytics.

- [Website](#)
- TSC Chair: Greg Elkinbard (acting)
- MAC Liaison: Heqing Zhu, Intel
- LF Program Manager: Casey Cain
ccain@linuxfoundation.org
- LF Marketing support: Lisa Caywood
lcaywood@linuxfoundation.org
- LF PR support: Jill Lovato
jlovato@linuxfoundation.org
- [Wiki](#) (Under development)
- [Mailing lists](#)
- Support: discuss@lists.tungsten.io and
tungstenfabric.slack.com
- [Documentation](#)

CHAPTER THREE

LFN Support Programs

The Linux Foundation and LF Networking projects have worked to develop several programs to support both solution providers using open source code in their commercial offerings as well as user organizations who are interested in building their next-generation network infrastructure on open source-based platforms and solutions.

Independent Market Education

LF Networking (LFN) is a consortium of open source networking projects hosted by The Linux Foundation. LF Networking staff have unique insights on the evolving networking landscape. Through working closely in a neutral role with the top 10 leading networking vendors as well as innovative enterprises and the majority of Tier 1 carriers, LFN staff are uniquely positioned to provide guidance to all of their members about the state of the networking industry as a whole, as well as best practices in commercializing and implementing open source-based networking solutions.

The LF Networking [Resources page](#) provides in-depth explanations of how open source and standards bodies are collaborating, independent market analysis of key user trends and their impact on solution providers, and articles surveying leading users and their experiences.

Compliance and Verification Programs

Open source code can be used in a variety of ways, from completely do-it-yourself to fully packaged distributions and services. In most cases, user organizations partner with solution providers with various types of expertise, from upstream development to implementation services to training and support.

To facilitate the growth of a commercial ecosystem around LFN code, the Projects have developed compliance, interoperability testing and verification programs. These initiatives ensure that solution providers have a standardized platform on which to build their solutions, reducing integration and implementation time. User organizations get the peace of mind of working with an ecosystem sharing a common code base and transferable skillsets.

In addition to in-project and inter-project integration initiatives, there are currently two formal compliance and verification programs. More are under development.

Powered by OpenDaylight

The “Powered by OpenDaylight” program was created to help end users identify quality OpenDaylight-based solutions, while supporting vendor solutions and services based on the OpenDaylight platform.

Solution providers bearing the “Powered by” logo have affirmed that their offering is compliant with the core elements of recent OpenDaylight Project releases, ensuring that OpenDaylight models, skills and training are transferable across solutions.

Find Powered by OpenDaylight-compliant solutions [here](#).

OPNFV Verified

Designed to simplify adoption in commercial NFV products, the OPNFV Verified Program (OVP) demonstrates the readiness and availability of commercial products based on OPNFV and expands the market for OPNFV-based infrastructure and the applications designed to run that infrastructure.

OPNFV members, including network operators, worked closely together to establish a framework that helps operators establish entry criteria for their POCs and RFPs. OVP facilitates both vendor self-testing and third-party lab testing. The initial version will test and verify NFV infrastructure components and features, including NFVI, VIM, underlying cloud infrastructure, basic packet forwarding, IPv6, and VPN. The program will evolve over time as more capabilities and test cases are added, with continuing test suite releases, and may expand to include VNFs and other components in the future.

Learn more [here](#).

Training

The Linux Foundation provides several online training and certification programs related to open networking. Thousands of networking professionals have already enrolled in these courses. Current offerings include:

[Introduction to Open Source Networking Technologies](#)

Learn technical fundamentals needed to adopt SDN, NFV, disaggregation, orchestration, network automation, and modern networking. Discover use cases and technical options for open networking. Plus: learn more about The Linux Foundation networking projects.

[Introduction to ONAP: Complete Network Automation](#)

Learn how the ONAP platform uses SDN and NFV to orchestrate and automate physical and virtual network services to help network operators accelerate time to market while reducing OpEx.

[NFV Acceleration: An Introduction to OPNFV](#)

Learn how Network Functions Virtualization (NFV) is moving the industry from fixed-function, proprietary devices to flexible, software-driven environments, and how OPNFV (Open Platform for NFV) can help make the transition easier.

In addition to the LF Training MOOCs, there are a range of free videos, webinars and in-person trainings hosted by the project communities and their respective commercial ecosystems. Check the websites for projects you're interested in to learn more.

CHAPTER FOUR

How to Engage

During your new member onboarding call, LFN staff will note your projects and topics of interest and make introductions to the project program managers and other relevant community members as appropriate. Make sure to get your developers connected with these new contacts right away. Your designated Board representative (if any) and your marketing rep will also be added to Board and MAC mailing list and meeting invitations.

As a new member, you will be invited to participate in an LFN-issued press release announcing your support of LF Networking. You are also encouraged to [download your membership badge](#) to display on your website and collateral, as well as in trade show booths.

Information for Board Members

Board Leadership

Chair: Chris Rice, AT&T

Vice Chair: Sanqi Li, Huawei

Vice Chair: Yachen Wang, China Mobile

Treasurer: Jonne Soininen, Nokia

LFN VP/GM: Arpit Joshipura (ajoshipura@linuxfoundation.org)

Platinum members each receive a Board seat. The designated Board member will be added to a Board mailing list and meeting invitations once identified to LFN.

Gold and Silver members have designated representatives for their sponsor tier (1 for every 3 Golds, 1 for all Silvers). Your Board designee will be introduced to your Board rep once identified to LFN. You are encouraged to meet with your Board rep at the start of your membership, and on a regular cadence thereafter, to discuss your goals and the directions you'd like the LFN to take. Your Board rep can also be an excellent resource for learning how to participate effectively in LFN at every level.

The LFN Board normally meets the third Wednesday of each month, however this is subject to change.

Marketing Advisory Council (MAC)

Leadership

MAC Chair

Balaji Ethirajulu, Ericsson

Project Liaisons

FD.io: John DiGiglio, Intel

ODL: Martin Bach, Serro

ONAP: Nermin Mohammed, Huawei

OPNFV: Bryan Madden, Intel

Tungsten Fabric: Heqing Zhu, Intel

China Marketing WG: May Chen, Huawei

LF Staff

Lisa Caywood, MAC/Marketing Ops, Content Marketing
lcaywood@linuxfoundation.org

Brandon Wick, Digital/Event Marketing
bwick@linuxfoundation.org

Jill Lovato, PR Lead
jlovato@linuxfoundation.org

Kristi Tan, PR & Marketing Support
ktan@linuxfoundation.org

Celia Stamps, LF Events support
cstamps@linuxfoundation.org

Upon designating your Marketing representative, s/he will be added to the MAC mail list and meeting invitations. Your MAC rep and other interested Marketing staff should also indicate to LF Staff which project workgroups they'd like to participate in so that they can be inducted into those groups and their activity streams quickly.

Here are some ways you can contribute to growing LFN's industry presence, as well as your own organization's return on your LFN investment:

- Attend monthly MAC and MWG calls and review meeting notes and the [Marketing wiki](#). Share marketing information and updates with other interested individuals in your organizations and professional networks: developers who work within LFN projects or on LFN-based products or projects within your company; other marketers and communications personnel associated with LFN-based products or projects within your company; and your Board rep.
- Amplify LFN and project marketing through your own channels (e.g., your organization's blog or other digital channels, personal or company social media channels, etc.). Member promotion is the best way to extend the reach of LFN messages. If you are active on social media, please be sure to follow general LF and LFN project channels. You may also be asked to provide a quote from your organization for certain press releases.

- Volunteer for planning initiatives. The MAC has had short-term workgroups to develop the annual marketing plan, prepare for major industry tradeshows, [OSN Days](#), and other marketing/community events, including some digital events. The China Marketing workgroup contributes translations and China-based PR support for LFN news releases and key items of project collateral.
- Identify LFN speaking opportunities in your region to the MAC and help secure speakers from the community.
- Help secure user stories about LFN-based deployments. LFN staff can develop the content, or modify user stories written by your organization to meet LFN neutrality requirements.
- Participate in the Marketing Workgroups for LFN projects of interest to your organization. Activities may range from event planning to collateral, demo and other content development, as well as community-based marketing activities.
- Volunteer to host an [OSN Days](#) tour stop. OSN Days have emerged as a high-impact vehicle for bringing together LFN community experts and senior staff with interested developers and users in various regions around the globe. Many of these individuals do not get the opportunity to travel to industry conferences in their region, so this is an opportunity to develop a network of expertise in your region. Contact [Brandon Wick](#) to learn more.
- Productize open source-based solutions and profit from your organization's LFN expertise.

Technical Advisory Council (TAC)

Leadership

TAC Chair

Mazin Gilbert (acting)

LF Staff

Casey Cain

ccain@linuxfoundation.org

Phil Robb

probb@linuxfoundation.org

Mailing List

tac@lists.lfnetworking.org

[Wiki and Agenda](#)

[Technical Community Events](#)

LFN has TAC Projects and non-TAC Projects, as defined in the [Charter](#) and [LFN Project Lifecycle documentation](#). TAC membership is comprised of a representative from each of the TAC Projects, appointed by their respective TSCs, and a representative from each Platinum member. Representatives will be added to the TAC mail list and bi-weekly meeting invitations. Member TAC reps should also indicate to LF Staff which project workgroups they'd like to participate in so that they can be inducted into those groups and their activity streams quickly.

- Here are some ways that TAC members support the technical projects.
- In bi-weekly meetings, Project reps share success stories, opportunities and challenges with the broader LFN technical community to seek input from peers and to identify opportunities for collaboration on common interests and initiatives.
- The TAC shares infrastructure and tooling across all projects, which both facilitates collaboration and reduces operating costs. In addition, common CI/CD tests provide regular opportunities for projects to work together to ensure technical health of all projects, and identify and test areas of interoperability. TAC members oversee the design and operation of these shared resources and activity.
- TAC members support various technical subcommittees, including:

- [Compliance & Verification](#)
 - Documentation (evaluating shared documentation platforms and tools, best practices, and providing cross-project support)
 - Security (providing expertise in code security, vulnerability and incident response)
 - Release Coordination (driving a common release process, and ensuring upstream communities are aligned with the timing needs of downstream projects)
-
- Technical leadership for harmonization efforts with other open source communities within and beyond the Linux Foundation, as well as with standards bodies, such as MEF, TMForum, ETSI and others.
 - The TAC hosts and sponsors Design Forums and other intra-project and inter-project in-person developer events. These are critically important to the development of relationships within and between technical communities, and serve as venues for intense sprints for release design and resolving strategic technical issues.
 - The TAC advises the Governing Board on technical issues, including [technical due diligence of new projects](#) being evaluated for inclusion in LFN, emerging adjacent technologies and their impacts on networking, etc. The TAC Chair also works with the Governing Board to highlight the Projects' collective opportunities and any resource needs.

Project Technical Steering Committees (TSCs)

Under LF Networking, the individual projects retain their individual brands and technical independence. The LFN umbrella organization exists to assist with cross-project collaboration and streamline outbound market development and outreach.

As a new member, you will want to identify which projects are of most interest to your organization, and what your goals are with regard to those projects. These may be a combination of technical and business goals. Share your ideas and goals with LF staff in your initial onboarding meetings, and then with the leaders of the projects you decide to participate in. These leaders will help guide your contributors towards the individuals, groups and resources they'll most want to get involved with.

Pitching a project

- Ineffective: “ONAP would be so much better if these 10 projects would accept my requirements”
- Effective:
 1. Identify an existing need and solve it
 2. Work within the scope of an existing project, if possible
 3. Minimize the impact of your feature/requirement on other projects
 - Socialize major architectural changes well in advance (harder sell)
 - It should be optional that they use your feature/component, not mandatory
 4. Bring developers – no “unfunded mandates”
 5. “Sell” other projects/PTLs on the value of your feature/component
 - Architecture/Use Case committees
 - PTL meetings
 - ONS or other conferences (F2F is best): share a meal, “hallway time”
 - Pick up the phone

THE LINUX FOUNDATION



Chris Donley, active in the ONAP project, developed a good overview of best practices for getting involved in a project. You can watch the whole presentation [here](#).

Here are some of the ways developers can contribute to the growth of a project:

1. Attend calls, in person, by proxy, or IRC
2. Propose/join/lead a project
3. Write, review, test, fix code

4. Write, review, edit documentation
5. Join integration, test and compliance/ verification efforts
6. Attend, participate, contribute at technical events
7. Attend, participate, speak, demo at marketing events
8. Contribute to technical content (technical whitepapers, demo development, etc)
9. Seek collaboration opportunities with other members
10. Share innovations, successes, breakthroughs with marketing counterparts for cross-promotion

Visit the [LFN wiki](#) to learn more.

Technical Onboarding

Setting Up Your LF Account

Although most of the technical content and source code repositories for LFN Projects are available to an anonymous user, a Linux Foundation identity (LFID) is needed to access some content areas. Having an LFID is also a requirement to submit bugs, contribute to wiki content and commit code in most circumstances.

Not only is an LFID your passport to the LFN Communities, it will also give you access to dozens of other Projects from all areas of the Linux Foundation. We strongly recommend that you do this first, even if you only plan to be passively browsing information. To get an LFID, go to <https://identity.linuxfoundation.org/> and select the option to create a new account, and complete the form.

The LF Tool Chain

Most LFN Projects are using a selection of infrastructure tools and services managed by the Linux Foundation's IT department. This includes applications such as Confluence, JIRA, Gerrit and other tools commonly used in software development. Learn more about the typical LF tool chain [here](#).

Each Project has its own set of tools that have been chosen by that particular community and while there are ongoing efforts to standardize where possible across the LFN, one size does not fit all. Visit the Getting Started section on the wiki or website of the Project that interests you to learn the specific tool sets used by that particular Project.

“Upstream-First” Contribution Ethic - Getting the Most From Your Engagement

Upstream First is one of the tenets of open source. The first part of that idea is “upstream”, meaning making contributions to the open source project vs focusing exclusively on the product or service your organization is building with the

upstream code. In other words, organizations that get value from upstream projects should give back to those upstream projects. Organizations that simply consume upstream code, without contributing, put the long-term sustainability of both their project and the one they are consuming at risk. Ultimately this takes the form of investment, either directly through code contributions or indirectly by making monetary contributions to the upstream organizations.

Upstream First means engaging the broader community before doing something. Diverse stakeholders in upstream communities typically bring viewpoints that result in approaches that are generically applicable for a broad range of environments. Think of the upstream developer community as a worldwide focus group for determining the most successful way of doing something. This collaborative development process—with real-time user input—is where organizations maximize the benefits from their participation in an open source project.

In addition, most open source projects leverage work done by other open source projects. Within LFN there are numerous examples of cross-project utilization. Using those upstream discussion channels to build consensus and iterate on proposals ensures that contributions make use of work already completed.

Upstream-First Practices

A code review is the primary forum for getting and giving feedback. Patches almost always require iterative feedback/fix cycles. Large patches in particular often require input from many people over a long period before they are ready to be merged.

There are two common mistakes that organizations new to open source make. Here's why they cause problems, and what to do instead:

- Avoid doing purely internal development that is then “thrown over the wall” without discussion to an upstream community, with the expectation that it will be implemented in its entirety. Large patches merged without iterative feedback, especially if developed by people within the same company, will raise red flags and instill a sense of community mistrust for that company that may take a very long time to overcome. Always ensure that large features are planned publicly, with community input.
- Don't limit yourself to maintaining downstream-only changes. Because open source projects are often the consumers of other projects, a downstream-only focus can result in costly refactoring of code to consume new upstream changes. Make sure to maintain changes upstream and keep your downstream (proprietary) work aligned with upstream releases.

Steps to Upstreaming - “I have a great idea for a feature... now what?”

The engagement model for contributing new code may vary slightly from Project to Project. (For clarity, typically Project refers to the collective platform, such as ODL or PNDA, whereas project refers to the individual development efforts or repositories approved as part of the Project.)

Review the various LFN Project sites to identify where your contribution fits best. Within that Project, Review the list of existing projects / repositories to see where you believe your contributions can be best aligned with what you want to do. You have the best chance at a successful community engagement if you take the following steps:

- Contact the Project Technical Lead (PTL)
- Ask questions
- Pitch your idea to the community
- Listen to the feedback
- Make iterative adjustments
- Seek Approval

Contact the lead Committer or Project Technical Lead (PTL) for the project you’re interested in joining

The PTL will have the best knowledge of what that group of developers care about. Introduce yourself and provide an overview of your idea. Your conversation with the PTL will be the beginning of an ongoing dialogue, not a one-shot conversation.

If you are uncomfortable with contacting an unfamiliar PTL directly, contact the LFN Program Manager for the Project and ask her/him to make an introduction. They will be happy to do so.

Ask Questions

- Has something like this been attempted before? If so, what is the status of that effort? Proposing a change without knowing if there was previous history addressing the issue you’re interested in is likely to undermine the perceived credibility of your solution, regardless of how good it is.
 - It is possible that there may already be work under way, or something that was previously abandoned for some reason. Proposing a different approach or solution to a problem is something that a community will probably debate, but your approach may ultimately be embraced.

- Does the PTL think this is a good idea / approach? If not, what is missing, or what factors do you need to take into consideration?
- Does the PTL think it would be a good fit in their project? If not, where do they think it would fit better?
 - They may suggest that your work would best be done in another project or perhaps as an entirely new project. If they think it would be best as a new project, ask them for pointers to the “How-To” documentation for proposing a new project, as well as introductions to the people who can guide and support the proposal.
- Are there any hot-buttons or trigger words you should know/use/avoid with this community? Being successful could all come down to how you position something.
- What is the best communications channel to use for initial conversations?
 - Some teams in the same Project may prefer instant messaging over mailing lists. Other teams may be more wiki-focused. There isn’t a one-size-fits-all answer, so understanding the preferred communications model is important.
 - Where can you best contribute to the project now, while you are putting your proposal together? Name recognition and trust within the community are much more important in open source than someone’s job title or organizational status within your company. Making even small contributions, such as minor bug fixes or documentation improvements, can go a long way to helping you achieve your ultimate goal.

Pitch your idea to the community

- Having gained insight from the PTL and tuned your initial draft, sharing it with the community is the next big step. For most projects this will involve filling out some manner of template that includes the key information about your proposal.
- Never try to bluff your way through your pitch. You are talking to developers, not executives who are several levels removed from the realities of actually making something someone else’s “good idea” work. Unlike many internal development organizations, saying “I don’t know” or “I had not considered that.” are not signs weakness in an open source community. A good response is, “I’d love to hear the community’s suggestions on how to address that issue.”
- Address any prior history at the outset of your presentation. Point out the ways that your solution is similar and where it differs.
- As a newcomer, establishing that you have been in discussions with the PTL in advance of your pitch will usually garner a lot of goodwill with the community. Never say things like, “I spoke to the PTL and she agrees this is a good idea” unless you have their specific permission to do so.

- Defend without being defensive. Developers respond to more to facts and data more than they respond to feelings and opinions. If someone disagrees in a heated way, don't respond immediately. Someone else in the community will likely come to your defense, even if they themselves disagree with you.
- Initial pitches are rarely accepted "as is". Expect many questions and possibly some healthy debate among community members. Listen to what is being said and use that to finetune your proposal. As with your initial conversation with the PTL, this is the first step of a longer conversation.

Listen to the Feedback. All of it.

The real power of open source development is that many differing perspectives will generate the best outcomes. This may involve highlighting new functionality that never occurred to you, or uncover a different use case that your proposal cannot address. Take the community's input to heart because when comes time to seek approval, if there is some key element that you failed to address, someone will bring that up.

Make iterative adjustments

- You are going to get more feedback than you will probably expect. Take that input and keep the dialogue with the entire community running throughout the process. **MAKE SURE THAT YOU ARE USING PUBLIC COMMUNICATION CHANNELS TO DO SO.** The occasional 1:1 conversation is OK, but in open source the expectation is 100% transparency. This includes individuals within the same company communicating on the open source project.
- Work through architectural modeling and implementation concepts at a high level where key questions can be answered and more importantly the reasons why.
- Avoid the urge to cram too much into your initial proposal for "Release 1". Think about the long term plan and what a logical roadmap may look like.
- Generate believers. The more you are engaged with the community in defining the scope of your proposal the more trust and credibility you will generate. This is a great help to not only draw in interested contributors, but to gain advocates for when your proposal goes up for approval.
- Identify contributors versus "interested parties". When a group of developers expresses a keen interest in your project, many people new to open source interpret that as a commitment to contribute to the project, which isn't always the case. When you see enthusiasm for your proposal, simply ask what resources, if any, they can realistically contribute to the project. Always do a final verification of your contributor commitments immediately prior to your approval request.

- Contributors versus Committers- Most of the project proposal forms ask for a list of Contributors and Committers. Many times when a new group puts their first project proposal forward, Committers are assigned based purely upon a person's job title within a company, rather than based upon a person's job role on the project. This practice almost always causes a great deal of pain for the company in the long run, delays the velocity of the project and erodes community trust.
- In most Projects, "Committer" is an actual job role within the Community with a set of responsibilities that are very clearly defined in the Project's legal charter. While any contributor may make a commit into the branch they have pulled, only a Committer can push that patch back into the main line. A Committer is responsible not only for writing code, but for reviewing the code of other contributors and then either rejecting the patch or executing the code merges into the main code branch.

Seek Approval

This is often the easiest part of the process if you have been diligent and engaged with the community up till this point. In theory, the community should be well aware of the proposal, you should have contributors lined up, and advocates on your side.

After your proposal has been published for the community to review and comment on, you will typically present it to the Technical Steering Committee for your Project. Don't be surprised if you receive feedback from a different set of people during this period. If your proposal has been effectively vetted with the community, you can usually refer to answers previously provided in a public forum, and be reasonably confident of getting final approval.

Other Ways to Engage

End User Advisory Groups (EUAGs)

The LFN-EUAG is made of individuals from end-user organizations, including telecommunications carriers, cable operators, network, application, compute or storage service providers. It is a superset of previously existing project-level EUAGs, which have served as forums for sharing wins, challenges, and best practices between user organizations, and highlighting new areas of opportunity for the developer community. The EUAG is still in its formative stages at this time. Please send email to euag-info@lists.linuxfoundation.org for more information.

Academic Outreach and Internships

Linux Foundation Networking (LFN) engages student developers in open source software development, with opportunities to gain hands-on experience by working with the industry's leading technologists to contribute to industry-leading open source networking projects.

Internships: Visit the Internship [wiki](#) and then email lfn-internship@linuxfoundation.org.

Open Source Networking User Groups (OSNUGs)

Open Source Networking User Groups (OSN User Groups) are locally managed groups that are passionate about network transformation through open source. Groups meet periodically to discuss practical applications and the latest innovations from the Linux Foundation networking projects: ONAP, OpenDaylight, OPNFV, and others.

Groups provide an opportunity to meet face to face with other open networking enthusiasts in the region, share ideas and insights, and work collaboratively to advance open source networking. Membership is open to everyone and all backgrounds and skill levels are welcome. Please email osnug@linuxfoundation.org with any questions, or visit the [OSNUG home page](#).



The Linux Foundation promotes, protects and standardizes Linux by providing unified resources and services needed for open source to successfully compete with closed platforms.