ONF Merging Projects into Linux Foundation

January 2024

Speakers

Timon Sloane
ONF General Manager
Incoming Aether Executive Director

Manuel Paul
Broadband Area Board
Incoming LF Broadband board member

Larry Peterson
Aether TST Chair
Incoming Aether board member

Lyndon Ong
Incoming ONMI Project co-lead

Nate Foster
P4 Chief Architect
Incoming P4 Board Member

Scott Nichols
Linux Foundation
VP of project formation

State of ONF

- ONF community has grown to include a number major and important projects:

  - VOLTHA — - leading broadband open OLT platform - in deployment with major tier 1 operators

  - Aether & SD-RAN — - leading open source 5G platform, with both core and RAN components and open RAN support

  - P4 & Prog Dataplane - leading innovation platform for next-generation SDN programmable networking

  - OTCC and OIMT — - leading set of SDN models used across the SDO community

- Board Members' interests have diverged as project portfolio has grown

  - Board members have each become concerned with a specific ONF project

    - Deutsche Telekom and Turk Telekom actively deploying VOLTHA, and are invested in the project

    - Intel and Google broadly leveraging P4 and are motivated to foster the continued growth of the project

    - Intel Lab & a number of research orgs and US gov't is invested in Aether and the ONF's 5G agenda

    - OTCC and OIMT have an engaged community, but don't have any direct board-level champions

  - No longer have key stockholders backing the collective value of a portfolio of interlocking projects

Motivation for LF and ONF Coming Together

- In order to foster continued growth, the ONF board determined that the projects should be separated so that they can each pursue their own path

- LF was determined to be the right home to create several wholly independent projects

  - LF is skilled at this type of project structure and community governance

- Why bring ONF and LF together?

  - Opportunity to rally membership and create greater critical mass for each of the projects

  - Industry harmonization under a single project umbrella

  - Simplifies foundation membership for member companies (putting things under a single umbrella)

- Why is LF so interested in ONF?

  - ONF has transformed SDN, data center, transport and broadband networking

  - ONF has a reputation for being agenda driven and disruptive – this will serve LF and the larger industry well

  - LF wants to create projects that can still execute using the unique ONF model

ONF Board's Conclusion

- The best path for the projects is to Merge with Linux Foundation

  - Create 3 separate funded projects under LF (Broadband, Mobile, P4)

  - Create an independent unfunded Open Network Modeling & Interfaces (ONMI) project for OTCC and OIMT

  - Archive all other projects

  - Ensure independent governance for each of the projects

    - For funded projects, seed governing boards with the current key ONF stakeholders from each of the projects

  - Split ONF's financial reserves equally into each of the funded projects, giving each project runway going forward

  - Take care not to disrupt the technical operation of the projects

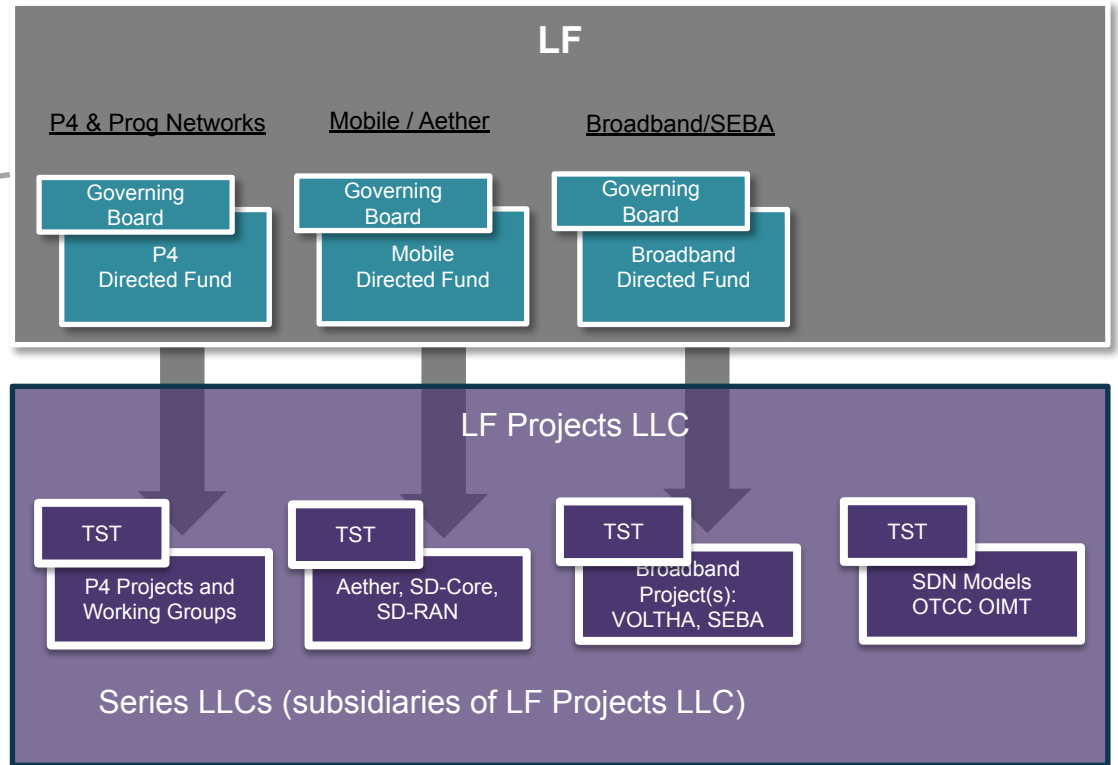# Plan Creates Separate Structures for the Projects

- Directed Funds are managed by LF
- Each Directed Fund controls the money & budget, and oversees the direction of the projects
- Each Directed Fund has a Governing Board that sets the budgets and agenda

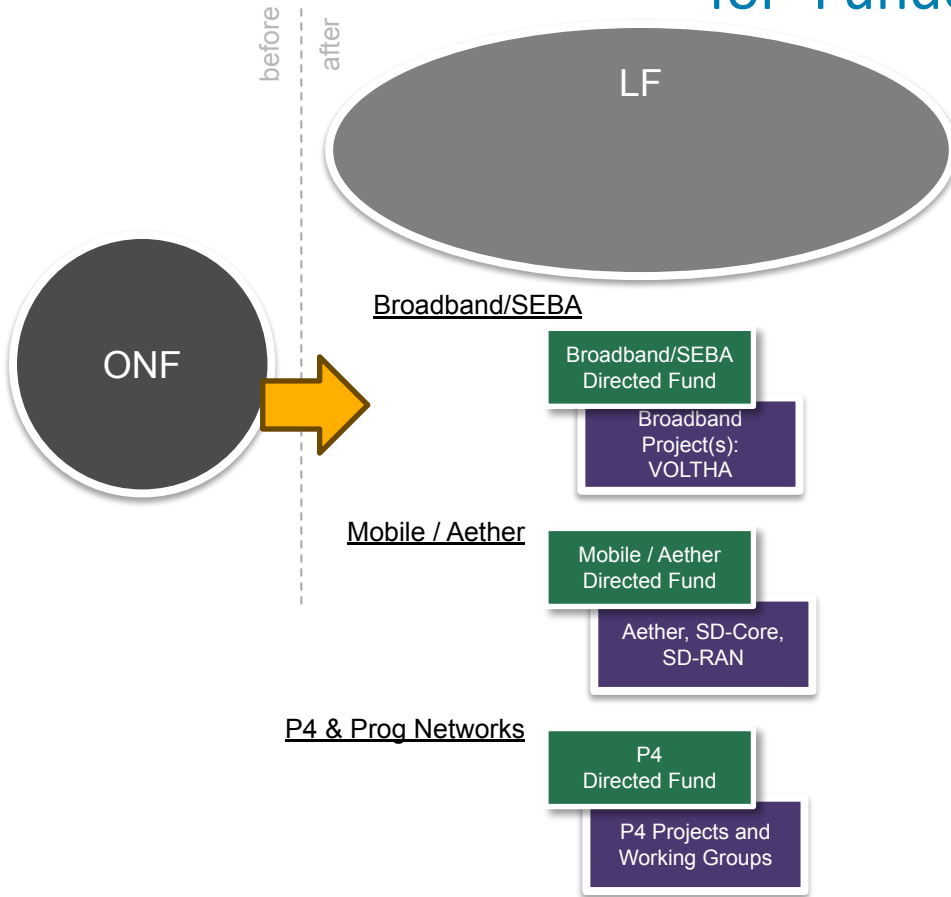Project Governing Series are the technical projects.

Each is structured as Series LLCs, a legal entity underneath LF Projects LLC

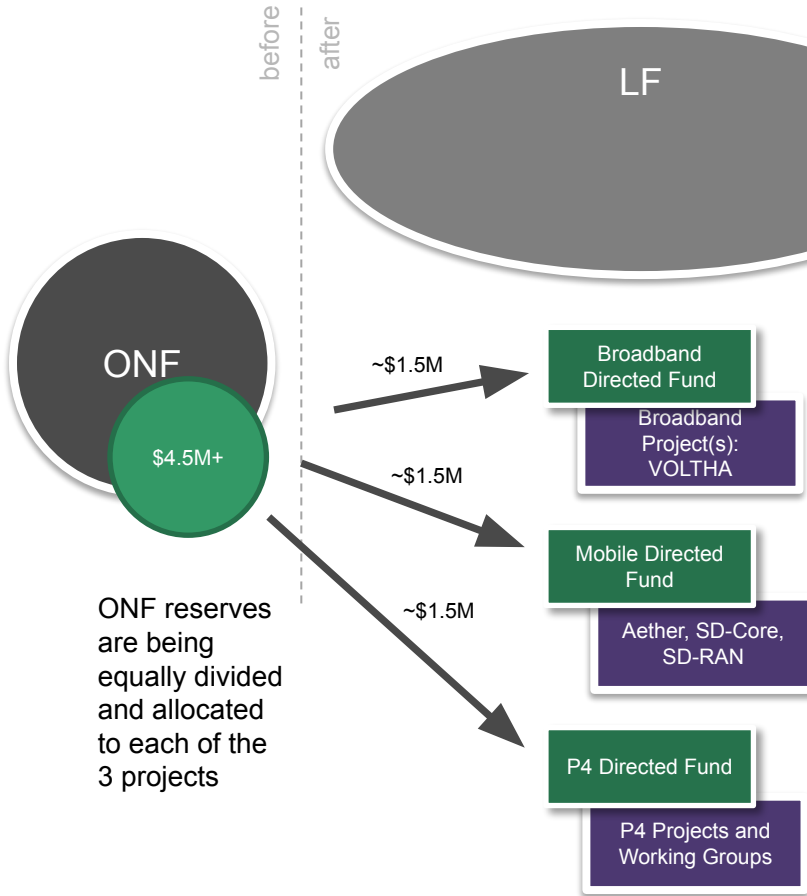A TST oversees each project within each Project Governing Series.

3 of the projects are 'funded'. One is 'unfunded'

LF

P4 & Prog Networks

Mobile / Aether

Broadband/SEBA

Governing Board

P4 Directed Fund

Governing Board

Mobile Directed Fund

Governing Board

Broadband Directed Fund

LF Projects LLC

TST

P4 Projects and Working Groups

TST

Aether, SD-Core, SD-RAN

TST

Broadband Project(s): VOLTHA, SEBA

TST

SDN Models OTCC OIMT

Series LLCs (subsidiaries of LF Projects LLC)

ONF

Visual Depiction of the Merger Structure & Operations for 'Funded' Projects

ONF Reserves Distributed into the Separate Directed Funds

before after

LF

ONF

$4.5M+

~$1.5M → Broadband Directed Fund

Broadband Project(s): VOLTHA

~$1.5M → Mobile Directed Fund

Aether, SD-Core, SD-RAN

~$1.5M → P4 Directed Fund

P4 Projects and Working Groups

ONF reserves are being equally divided and allocated to each of the 3 projects

Separate Governing Boards with have ownership over budgets and spending through the Directed Funds

ONF

LF is Injecting Additional Funding as "Skin in the Game"

LF

ONF

$400k

$133k → Broadband Directed Fund

Broadband Project(s): VOLTHA

$133k → Mobile Directed Fund

Aether, SD-Core, SD-RAN

$133k → P4 Directed Fund

P4 Projects and Working Groups

before | after
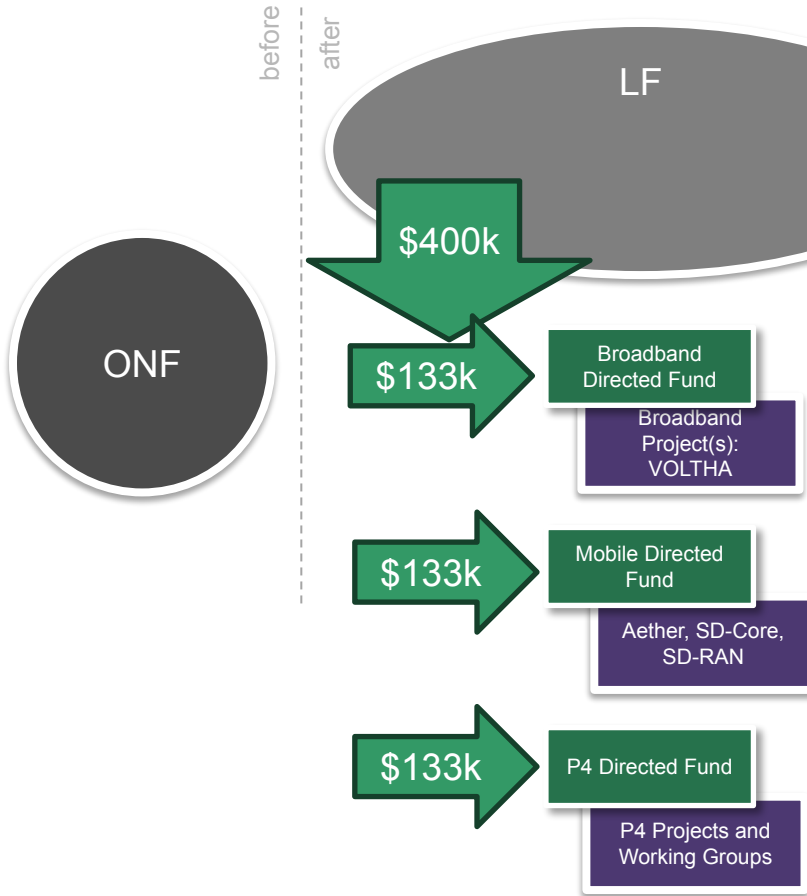
As a way to put 'skin in the game' and help ensure the successful transition and growth of the projects, LF is injecting $400k into the projects over a period of 2 years

These funds will be evenly distributed across the projects, so each Directed Fund would receive $133k over 2 years.

ONF

New Membership are being established with the new Projects

## ONF Membership will be dissolved as of February 1st, 2024
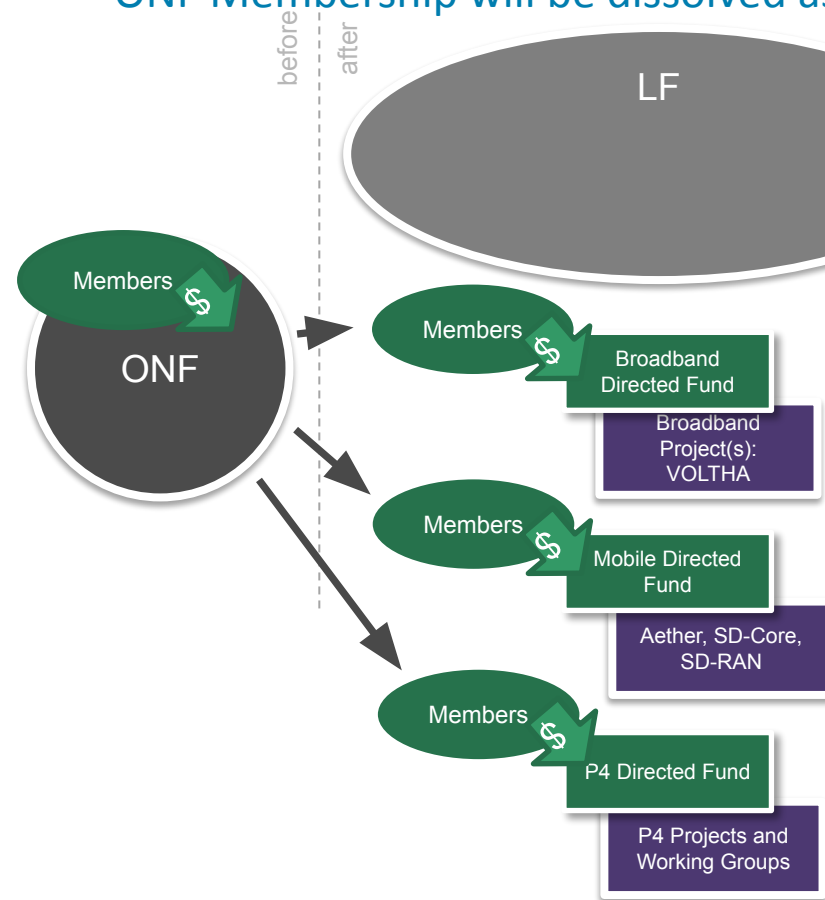
- Each of the new projects have established new Membership rates as part of the transition. Budget will be approved by the new Governing Boards of the new projects once the projects are up and running

- All existing ONF members will be given opportunity to execute new membership agreement in any (or all) of the 3 new projects

- Existing ONF member gets prorated credit for any unused days of current ONF membership if they signup for the projects BEFORE THE CLOSE (1/31/24)
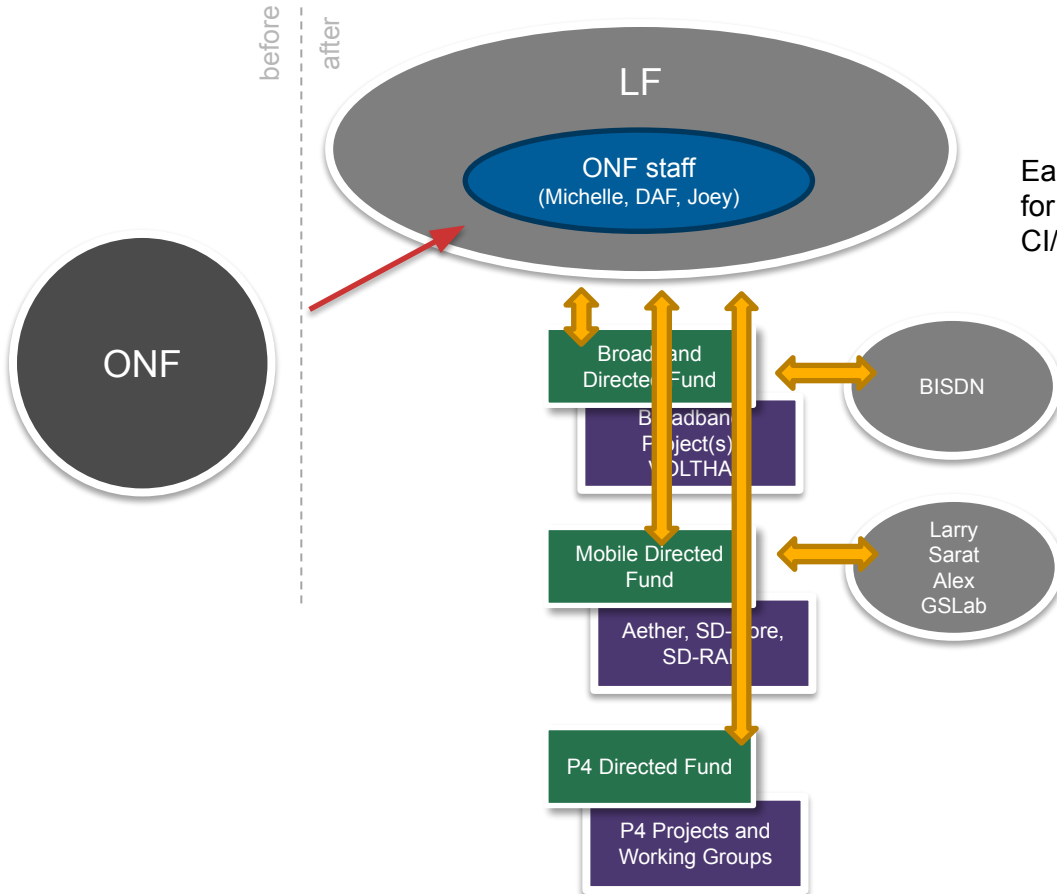
Team members are being hired by LF
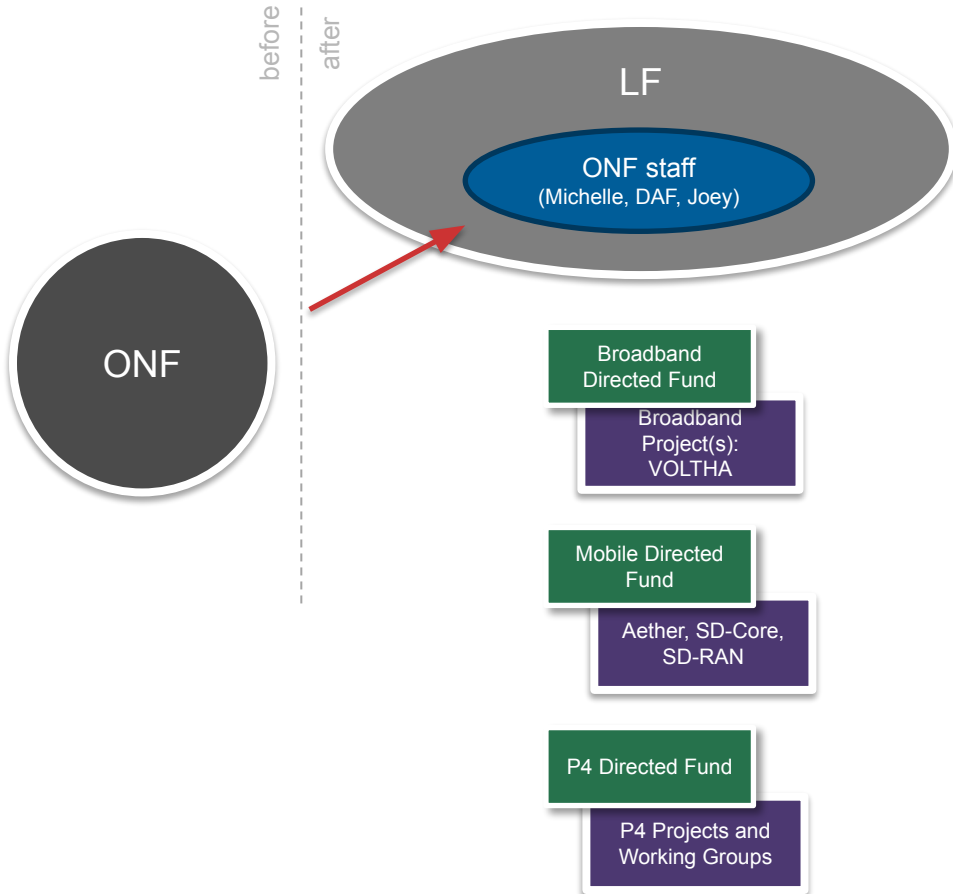
LF Charges Projects for Base Services (this is LF's standard model)
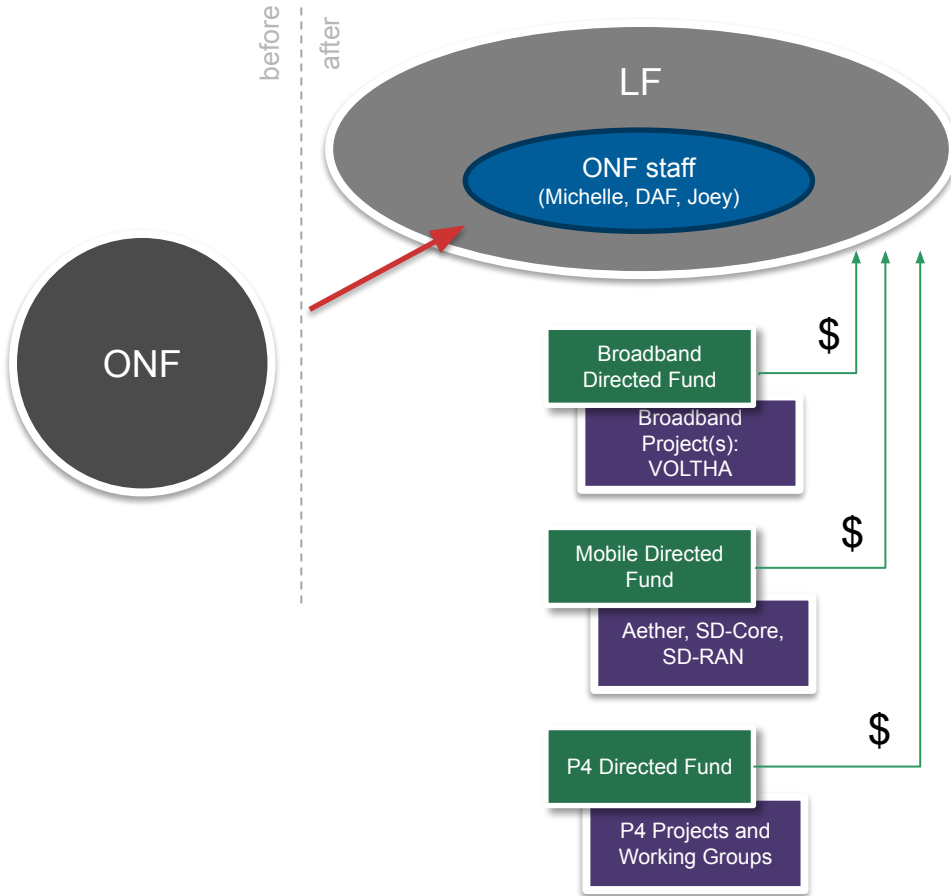
Each Project will each pay a G&A fee to LF

Pays for "membership records, finance, accounting, and human resources operations"

Projects will contract with LF or Third parties for additional services

before | after

LF

ONF staff
(Michelle, DAF, Joey)

ONF

Broadband
Directed Fund

Broadband
Project(s)
VOLTHA

BISDN

Mobile Directed
Fund

Aether, SD-Core,
SD-RAN

Larry
Sarat
Alex
GSLab
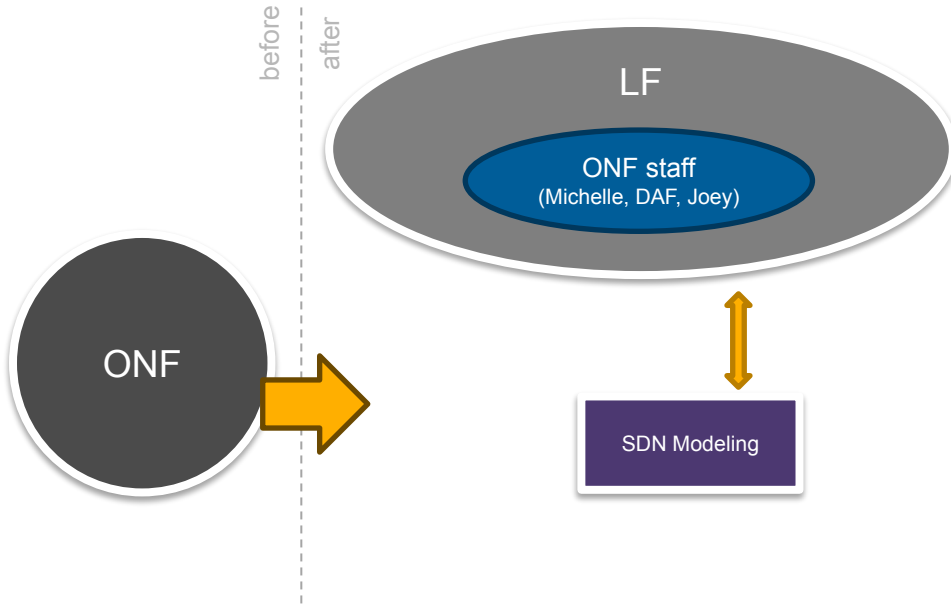
P4 Directed Fund

P4 Projects and
Working Groups

Each project is free to enter service agreements with LF for additional services, such as marketing, leadership, CI/CD hosting, events, etc.

Projects can also engage 3rd party services as they choose.

Projects plan to continue to work with existing contractors (individuals and firms)

ONF

Unfunded Projects - SDN Modeling project

before | **after**

LF

ONF staff
(Michelle, DAF, Joey)

ONF

SDN Modeling

Unfunded projects won't have a directed fund or a Governing Board, but they operate similarly in all other ways.
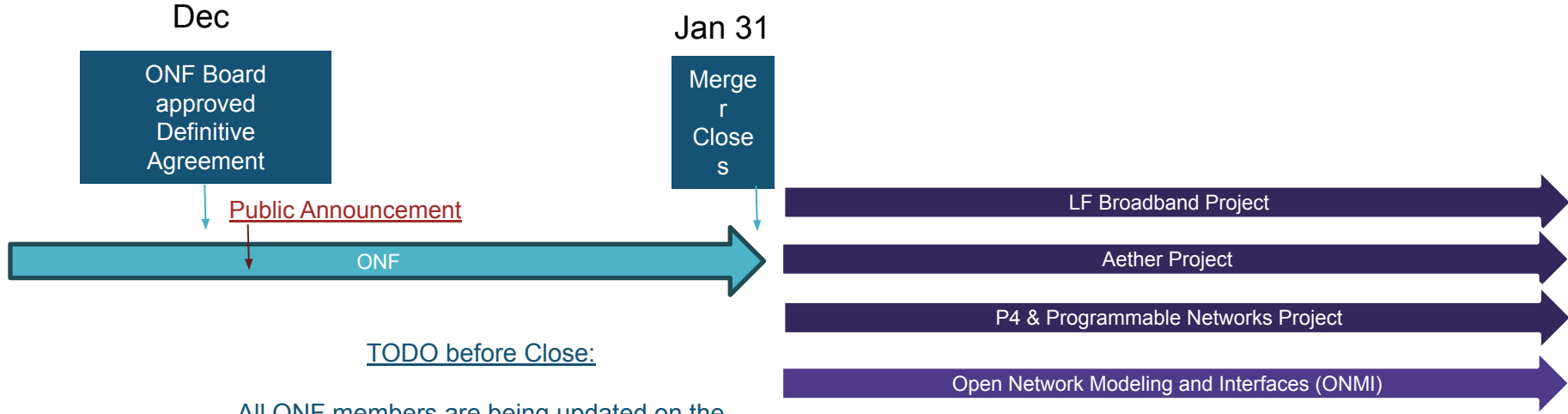
An unfunded project is being created to host the OTCC, OIMT and IISOMI projects

This project will be entirely run by the TST. There is no associated directed fund or Governing Board

This group is largely independent already. This group does not leverage an active CI/CD pipeline, or development resources as do the other funded projects – hence the different model

ONF program mgmt and Infra teams will provide limited support to help this group transition to a new operating model. But moving forward, without a budget, this project will operate in a self-sufficient manor relying on community leadership.

Transition Timeline

Dec

ONF Board approved Definitive Agreement

Jan 31

Merger Closes

Public Announcement

ONF

LF Broadband Project

Aether Project

P4 & Programmable Networks Project

Open Network Modeling and Interfaces (ONMI)

TODO before Close:

All ONF members are being updated on the transition

Companies sign new member agreement(s). Companies signing before the Close are eligible for credit for any 'unused' ONF membership dues

Project Governing boards established based on who signs up as Premium members

Separate projects begin to operate

The 3 funded projects run by a separate Project Governing Boards hosted by LF

Unfunded ONMI project led by TST

ONF

ONF Member Transition Plan

- Throughout January we are updating all ONF members on the plan for the new projects

- Each existing ONF member is being offered membership in all 3 of the new fund projects

  - They can choose to join 1, 2 or all 3 of the projects

  - The unfunded OMIT project does not have 'members' as it is an open project without a directed fund

- Each former ONF member is being granted a credit for any prorata unused portion of their ONF membership dues

  - Credit can only be used for membership fees in the new projects, and will be distributed proportionally across the projects joined.

  - Companies need to execute participation agreements with the new projects before Jan 31st to receive this credit

    - Joining the projects before the Close also entitles the company to be considered a 'founding member'

- When the transaction Closes, all memberships in ONF will be terminated

Tiers of Membership for Funded Projects

- **Premium Members**

  - Grants company a seat on the Project Governing Board

  - Gives company a vote in how the funds ($1.6M+) will be allocated,

  - Significant opportunity to to help guide & invest in the project

- **General Members**

  - For-profit companies supporting the project

  - Sliding scale based on company headcount

- **Associate Members**

  - Free for educational institutions and non-profits

- **NOTE: unfunded projects don't have 'members'**

  - There are no membership fees

  - Entirely run by the community, with a community appointed TST

New Membership Rates as LF projects

	LF Broadband	Aether (Mobile)	P4
Premium (Board Members)	$50,000	$75,000	$100,000
General (5000+ employees)	$25,000	$25,000	$10,000
General (500 – 4999 employees)	$15,000	$15,000	$7,500
General (100 – 499 employees)	$5,000	$5,000	$5,000
General (fewer than 100 employees)	$2,500	$2,500	$2,500
Associate (universities and nonprofit)	$0	$0	$0

ONF

Project Governing Boards

- To join a governing board, companies must join as Premium members

  - 'Founding' board members will:

    - Set the direction for the project

    - Establish the initial budgets for the projects

    - Have input into the selection and hiring of an Executive Director

- Current slate of Founding Board Members includes:

  - **Broadband**: Manuel Paul (DT), Emel Subas (TT), Robert Soukup (Radisys), Bora Eliacik (Netsia)

  - **Aether**:   Pranav Mehta (Intel), Larry Peterson (TST Chair)

  - **P4**:   Nate Foster (P4 Architect), Dan Lenoski (Google), Deb Chatterjee (Intel)

- Other companies are also welcome join the board for the launch

Transition Plan for ONF Support Functions for the Projects

- CI/CD Engineering (DAF, Joey)

  - ONF's CI/CD engineering team is moving to LF. DAF and Joey will join LF's CI/CD team, but continue to focus on ONF's projects (at least to start)

- Project & Membership Operations (Michelle)

  - Michelle is joining LF's project operations team, supporting ONF projects

- Contracted engineering resources

  - Broadband project can continue to contract services (e.g. BISDN)

  - Aether project will continue to procure contract services from Larry, Sarat and Alex, and from GSLabs

- Marketing

  - Each Directed Fund will determine if it wants to budget for Marketing services with LF or to another provider

- Business & Ecosystem Development

  - Each Directed Fund will work with the LF business dev organization to recruit members and secure funding

Leadership Transition

- LF Broadband plans to hire a new ED

- Aether will be led by Timon in a part-time capacity

- P4 plans to hire a new ED

- LF will run searches for new leaders at the direction of the Governing Boards
  - Assumes the project governing boards budget for the position from their Directed Funds

LF Broadband Project

- SEBA has defined the de facto architecture for building open broadband networks

- VOLTHA has an active ecosystem taking the project to production deployments
  - Deutsche Telekom, Turk Telekom, Jio and others

- VOLTHA project is undergoing continuous enhancements and live CI/CD verification
  - Next release coming out this month
  - TST meets weekly, and is open to the public

- Where to Learn More
  - Project Overview: https://opennetworking.org/voltha/
  - Get Started with VOLTHA: https://docs.voltha.org/

- How to Join as a Member
  - https://enrollment.lfx.linuxfoundation.org/?project=broadband-fund

AETHER Project

- Encompasses all Private 5G / Open RAN / Edge Cloud work of the ONF

    - SD-Core: Microservice-based Mobile Core

    - SD-RAN: O-RAN Compliant Software-based Split-RAN

    - SMaRT-5G: xApps and rApps for power-optimized 5G

    - AMP: Cloud-based Management Plane

- SD-RAN just received a $2M grant from the US Government for work on energy efficiency

- Near-Term Opportunities

    - Developing power-optimized 5G

    - Trial deployments with real-world applications

    - Horizontally scaling 5G Core for IoT workloads

- Learn More

    - Project Overview: https://opennetworking.org/aether/

P4 Project

- Current operations

  - **Technical Steering Team:** Andy Fingerhut (chair, independent), Nate Foster (Cornell and Jane Street), Fabian Ruffy (NYU) Steffen Smolka (Google), Hari Thantry (Google)

  - **Working Groups:** Language Design, Architecture, APIs, Education

- Future Priorities

  - P4 on hardware targets (switches, SmartNICs)

  - P4 on software targets (DPDK, Linux kernel)

  - P4 as a language for precise specification of data planes

  - P4 in research and education

- See the P4 website (https://p4.org) for specifications, code, examples, and more

- Anyone is welcome to join; reach out to Nate Foster (**jnfoster@cs.cornell.edu**) for details about membership, or show up at a working group to participate in our technical work

- How to join as a Member:

https://enrollment.lfx.linuxfoundation.org/?project=p4-fund

Open Network Modeling and Interfaces (ONMI)

- Current activities

  - Network models and APIs/Interfaces for (and in operation in) operator networks – specifications listed on the Opennetworking.org website

  - Transport API: https://github.com/OpenNetworkingFoundation/TAPI

  - 5G-xHaul: https://github.com/openBackhaul/Overview

  - Core Information Model: https://github.com/OpenNetworkingFoundation/CoreInfoModel

  - IISOMI (Informal Inter-SDO Open Model Initiative)

- Future Plans

  - Currently OTCC and OIMT projects in ONF ☐ Open Network Modeling and Interfaces (ONMI) Project in LF

  - Work continues as an unfunded standards project guided by TST

    - Most Core Model work will migrate to ITU-T Study Group 15 under previous agreements

  - Regular weekly calls/Zoom sessions – hope to continue with minimal disruption through the transition

Anyone is welcome to join; reach out to lyong@ciena.com for details about activities and how to participate in our technical work

Q & A

- Announcement

  - https://opennetworking.org/news-and-events/press-releases/onf-merges-market-leading-portfolio-of-open-source-networking-projects-into-the-linux-foundation/
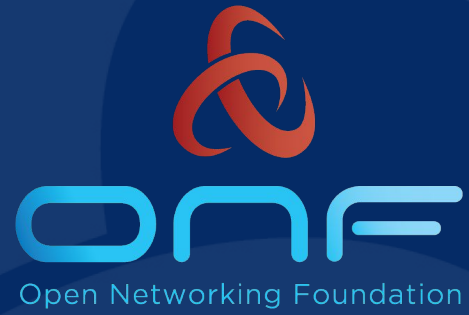
- FAQ Document

  - https://docs.google.com/document/d/1I8e81HH7NozDpoF4AF0tdL7lNxDWqyDvL1YoLr7k6ck/edit#heading=h.h5eabu66n7tz

- Signing Up for New Projects:

  - LF Broadband: https://enrollment.lfx.linuxfoundation.org/?project=broadband-fund

  - Aether: https://enrollment.lfx.linuxfoundation.org/?project=aether-fund

  - P4:   https://enrollment.lfx.linuxfoundation.org/?project=p4-fund

- Additional Questions

  - michelle@opennetworking org

    - Soon to be mroth@linuxfoundation.org