LFN AI Taskforce

2nd DRAFT

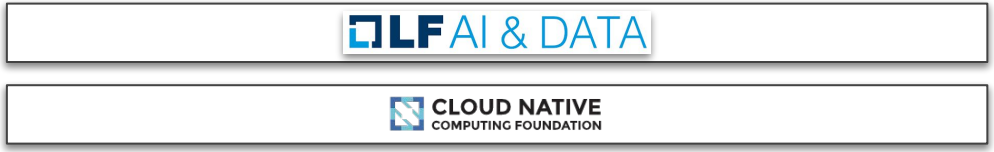
Call for Participation - Fall 2023

THE LINUX FOUNDATION

The big picture - who is doing what in open source AI?

LF AI+Data and LF Networking synergies

- Vertical Specific Use cases & applications, data sharing governance (CDLA based), OSS/BSS/NMS integration with AI systems and Infrastructure
- End to end solution testing and interop



- LF AI+Data focuses on **core Enabling Technologies** in relation to ML, Models and Data
- CNCF is a horizontal layer for all Cloud Native software specifically K8s irrespective of vertical integration

1. OpenSSF is also another horizontal sub-foundation that helps with security across all umbrellas.
2. LF AI+Data focuses on any **Horizontal (cross domain, cross vertical AI and Data open source software)**
3. LF Connectivity and AI focuses on Access (RAN, Broadband, Satellite etc) alternative and enhanced access layer
4. LF Edge and AI includes Edge and IOT specific use cases and solutions specific to Edge Verticals like Manufacturing, Automotive, Industrials etc…

Horizontal vs. Vertical Open Source Foundations

Horizontally focused Foundations provide the basis for all industries to build upon. These horizontal Foundations **do not** drill down to address the specific needs of any particular industry.
There are relatively few of these horizontal foundations. Primary examples of these include the Linux Kernel and:

OpenSSF	**OpenSSF** is a horizontal for the common security best practices and benchmarking methodologies for software development in general
CLOUD NATIVE COMPUTING FOUNDATION	**CNCF** is a horizontal for all Cloud Native software specifically K8s irrespective of vertical integration
LF AI & DATA	**LF AI+Data** is a horizontal focused on the core technologies which enable ML Models and Data

Vertically focused Foundations provide the actual solutions that the target needs of a specific industry. These vertical Foundations provide value by leveraging the work done upstream in the horizontal Foundations. There are many of these in areas such as finance, energy, healthcare and automotive. Examples in our space include:

LF Networking is a vertical for Service Provider Vertical (telecom+cloud) & Enterprise Networking	LF NETWORKING
LF Edge is a vertical includes Edge and IOT specific use cases and solutions specific to Edge Verticals like Manufacturing, Automotive, Industrials etc...	LF EDGE
LF Connectivity is a vertical focused on Access (RAN, Broadband, Satellite etc) alternative and enhanced access layer	LF CONNECTIVITY

Horizontal AI/ML engagement is only half of the story

LF NETWORKING
Industry specific Cloud Design Experts
Industry specific Security Experts
Industry specific AI / ML Data Experts

LF EDGE
Industry specific Cloud Design Experts
Industry specific Security Experts
Industry specific AI / ML Data Experts

LF CONNECTIVITY
Industry specific Cloud Design Experts
Industry specific Security Experts
Industry specific AI / ML Data Experts

CLOUD NATIVE COMPUTING FOUNDATION
General Experts in Cloud Computing Fundamentals & Design

OpenSSF OPEN SOURCE SECURITY FOUNDATION
General Experts in Software Security Process Fundamentals & Best Practices

LF AI & DATA
General Experts in AI, ML and Modeling Fundamentals & Frameworks

Even if your company has resources engaged in LF AI & Data they will not be developing any of the operational data models you may need in that Foundation. All of that work occurs in the vertical Foundations: LFN, LFE, LFC

Four Key Areas in AI for Networking

LF NETWORKING

LF AI & DATA

LF NETWORKING

THE LINUX FOUNDATION

1- Applications/AI Use Cases in Networking

The new functionality that is made available using AI

2a. AI Models (Domain Specific)

The AI capabilities, specific to Networking and Domain

2b. AI Models (Generic)

The AI capabilities, such as prediction, content generation, anomaly detection, etc.

3- Data and AI infrastructure (computing elements) (Sharing, Governance, Processing)

How data is collected and stored. The resources used for processing, running and training the models

4- Network Infrastructure (Open Source Projects + Vendor solutions) + Domain Data sets

The network itself and the data it provides and acts on the learnings from the above layers

The LFN AI Taskforce (LFN-Taskforce-AI)

Organization

- To help drive AI innovation in networking we propose the creation of a group of experts from the community, that will work together as a taskforce of the TAC
- Providing guidance to GB, TAC and individual projects, but not directly reporting to any committee
- Focusing on specific questions defined by the above bodies. Some potential questions to be addressed:
  - Identify “low hanging fruits” that can be achieved in reasonable time
  - Determine what use cases and applications should be prioritized
  - Identify the necessary types of data required to implement the use cases
- Method of operation
  - Mailing list, Periodic meetings, Confluence, Shared documents
  - Lightweight and flat administrative structure
  - Deliverables in milestones/sprints focused around a specific question at hand

Call for Participation

CfP

- Help identify experts in your organization
- Some minimal commitment of time and effort will be expected
- Why participate?
  - Be part of the future of AI for networking
  - Demonstrate your company’s thought leadership
  - Influence the direction of technology
  - Exchange ideas with experts from other organizations
  - Open ideation not limited by constraints of your own organization

Key Deliverables and Governing Board Requests

- How to create and maintain public Networking data sets for research and development of AI applications? (Ranked #1 in GB member survey)
- What are some feasible goals (short term) in creation of AI powered Network Operations technologies?
- Evaluate existing Networking AI assets coming from member company contributions
- Analyze generic base AI models and recommend creation of Network specific base models (Ranked high in GB member survey)

Thank you