State of Networking & Edge

What a Year!

Arpit Joshipura
GM, Networking, Edge & IOT
The Linux Foundation
We have answered 5 hard questions

Thank You Community!
Why Open?

“Open-Sourcification” of Vertical Industries

Telecom at the forefront

+ Automotive

+ Motion Pictures

+ Fintech

+ Public Health

Software-defined vertical industries: transformation through open source

How open collaboration enables user-centered innovation, achieving faster development cycles, time to market, and increased interoperability and cost savings.

A Publication of The Linux Foundation | September 2020
Why Open Networking & Edge

“From Cost Savings to Market Adoption”

Top Reasons
Market Creation, Adoption Acceleration & Collaboration

Source: LF Edge Community Survey, Sept 2020
Is it Standards OR Open Source?

“Harmonize” was a hot word 3 years ago

Unification well beyond Standards - now Open Source communities, Markets, Verticals are taking direction from the LFN playbook

Linux Foundation Projects are harmonized with Standards
Why Contribute?

- Open Networking
- Open Edge/IOT
- Open RAN
- Open Enterprise
- Open Cloud
- Open Source Software
- Open Testing & Interop

accelerated by

ONAP, OPNFV, CNTT, ODL, O-RAN, Akraino, EdgeX, CNTT, OpenStack and Kubernetes among other projects

From Consumption to Contribution

14,132 Commits
439 Code Authors
200 Repositories
34 Organizations Contributing Code

4 of the Top 10 Contributions in ONAP Frankfurt release from End Users
POC to Production

Open Compliance & Verification
Open Interop & Testing
Open Training & Certification

1. LFN EUAG (operational)
2. (NEW) End User Edge Vertical Solutions Group
3. (NEW) Certified ONAP Professional

OPNFV, CNTT, Akraino Blueprints leading Open Interop & compliance
Value of Open Source Software created in LF Networking

8 Projects
6+ Years
2000+ Developers

Total Value
$7.3B

Total LOC
87.6M

Source: https://lfanalytics.io/projects/lfn & COCOMO II model of estimation
2020 Priorities

By/For the Communities
“The Acronyms”

LFN/OVP/CNTT/OPNFV/CVC
CNTT + OPNFV: Announcing a merger

CNTT

Reference Model RM
Reference Architecture RA

OPNFV

Tests & Tools
Reference Implementations RI
Verification Program OVP

LF NETWORKING

Industry Collaboration Integration
Single Entity for allocating resources

“MERGED PROJECT”

Join Us!

“Everyone benefits, vendors don’t have to build one-off architectures for every single telecom customers, and operators don’t have to devote resources to building potentially unsupportable infrastructures”
- Beth Cohen, Verizon

“This project has a significant impact on both CNTT and OPNFV, and much is at stake. I look forward to seeing this project through to a successful conclusion.”
- Scot Steele, AT&T
End to End Architecture

Unified Edge
Access with ORAN-SC
End to End Architecture: Deployment Ready Open Source

- Carrier Access
- Carrier Cloud Data Center
- Carrier Interconnect
- Internet / Web
- Hosted Private Cloud
- Public Cloud
- OpenStack
- Kubernetes
- Acumos AI
- ONAP
- ONAP and other open source projects
- Examples: Google, Microsoft, AWS, Facebook/TIP, Alibaba, Baidu, Tencent

Collaboration

- Mobile
- Residential
- SMB/ROBO
- Enterprise
- Device Edge
- Service Provider Edge
- Core & Cloud

The Linux Foundation
The Edge

Dedicated, Operated

Shared, XaaS

Regional Data Centers

Distributed Devices and Systems

MCU-based devices

Embedded compute

Smartphones, PCs, ruggedized IoT gateways and servers in accessible to semi-secure areas

On-Prem Data Center Edge

Constrained Device Edge

Last Mile Networks

Access Edge

Regional Edge

Server-based compute at Telco Network and Edge Exchange Sites

Server-based compute at Regional Telco and Direct Peering Sites

Servers in traditional cloud data centers

Stage 1: At Large Projects
Baetyl, Open Horizon, Secure Device Onboard

Stage 2: Growth Projects
EVE, Fledge, Home Edge, State of the Edge

Stage 3: Impact Projects
Akraino Edge Stack, EdgeX Foundry
5G and Edge Critical in the Next Battle, a new normal!
Edge is 4X the size* of Cloud Market!

“As businesses and governments establish their own new normal, **5G and Edge computing** will be necessary to deliver the automation, performance and cognitive insight required by many industries—including manufacturing, healthcare, energy and utilities, among others. Telecom operators will need to embrace open ecosystems to externalize innovation and accelerate new services.”


Source: 451 Research
Cloud and Telecom Harmonization

Fueled by 5G, Edge and IOT
A new hybrid world: PNF+VNF+CNF + Cloud Native Applications
Welcome

Amol Phadke
Managing Director
Global Telecom Industry Solutions

Google Cloud Joins Linux Foundation Networking at Platinum Level
Cloud Native Network Automation in Action

Focus areas In Action

Kubernetes Usage in Telecommunications

What are your largest challenges with adopting Kubernetes?
39 responses

Top challenge Networking

Source: Survey of Linux Foundation Dev Communities, Sept 2020

Top features Performance & VNF+CNF
OPEN NETWORKING & EDGE SUMMIT