Open Source Networking Software
Case studies and Roundtable

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THE LINUX FOUNDATION
Industry Progress towards Harmonization

1. Recap of Software Stack
2. Technical Collaboration
3. Bringing Global Community together
4. Deployment plans
5. Test & Certification Unification
6. Standards Collaboration
7. Beyond Telecom

THE LINUX FOUNDATION
Open Source Networking Landscape
Linux Foundation hosts 9/10 Top projects

- Application Layer / App Server
- Network Data Analytics
- Orchestration, Management, Policy
- Cloud & Virtual Management
- Network Control
- Operating Systems
- IO Abstraction & Data Path
- Disaggregated Hardware

Product, Services & Workloads

Systems Integration & Test Automation

Automation of Network + Infrastructure + Cloud + Apps + IOT

Linux Foundation Hosted
Outside Linux Foundation

Standards
Harmonization Beyond “Classic” Networking
Open Platforms are becoming de-facto standards

Network Automation Platform
Central Office Re-design Platform
Cloud Automation Platform
IOT Automation
Cloud Native App Platform
Blockchain Platform
AI Platform
LF Networking Structure Overview, effective Jan 1 2018

Examples of Cross-Project Architecture

- VNF on-boarding
- End to End Lab Testing
- CI/CD Efficiencies
- OpenStack Dependencies
- Kubernetes Integration
- SDO Collaboration
- Multi-Cloud Integration
LFN: Bringing the Global Community Together: Ecosystem Leaders
LFN: Bringing Global Community Together
# ONAP Early Deployments, Building on ODL/OPNFV Foundation

## AT&T

1. **Network on Demand** (today) with 100+ VNFs tested

2. **POCs with ONAP**
   - SON Use Case with LTE & physical boxes/Vendor A and ONAP modules (PNF+VNF)
   - RAN Use Case with Vendor

3. **CI/CD – ONAP**
   - Pulling from ONAP into their internal environment
   - Deploying it today with help from internal staff + vendors

## China Mobile

1. **NFV introduction case by case**
   - Interworking with legacy PNFs/OSSs simultaneously
   - Builds on NFVO orchestrator functionalities from ONAP (VFC, Multi-Cloud, A&AI, UUI)

2. **Reconstruct the whole network with a new DC-based infrastructure**
   - Includes: units of TIC and SDN DCI connections, with components from ONAP, including (SDC, SO, SDNC, etc.) Ref: ONAP summit

## Orange

1. **PoC before Amsterdam**
   - Q2-Q3 2017 vCPE
   - Q4 2017 ONAP-MEF; 2 months already no issues
   - Q4 2017 PCE Diversity Path (SDN-C for E2E connectivity)

2. **Open Lab and PoC**
   - Q4 2017 launching OpenLab with XCI R1 installation
   - Q1 2018 PoC vIMS and vMRF
   - Q2 2018 PoC vProbe and Core network VNF
   - Q3 2018 Field trial
ONAP Early Deployments, Building on ODL/OPNFV Foundation

**Bell**

1. “As a member of ONAP, we look forward to working with our international partners to begin the implementation of Version 1 later this year”

2. "We also look forward to the integration of the ONAP Operations Manager expected in the spring."

3. Modularity Usage from ONAP including SDC, SO, SDN-C, A/Al, DCAE

**Vodafone**

1. Analyzing elements of ONAP release for inclusion in “Ocean” transformation program

2. “Ocean” creates a global, automated service delivery platform using virtual elements (incl SDN/NFV) to deliver new services faster in both Core network and Enterprise markets

3. Modular use of ONAP enables common approach to virtual function onboarding control and service definition

**Other Major Carriers/Vendors**

1. POC with Amsterdam in DCs that need to be ready for 5G (multiple)

2. Modular Usage of ONAP platform
   - Multi-VIM for IT, Networking and cloud integration
   - DCAE closed loop automation for DC-DC optical traffic
   - MSFT Workloads (eg Exchange)

3. VoLTE (including vEPC, vIMS)
   - Commercial vEPC, vIMS VNFs, SDN controllers, cloud software

4. Vendor Announcements (from 11/3)
   - Fujitsu – Service on Demand
   - Amdocs - Virtualized intercarrier Service Orchestrator
ONAP Early Deployments, Building on ODL/OPNFV Foundation

1. **OpenLab Amsterdam**
   - Setup vCPE and VoLTE use case built on current OpenLab resource

2. **ONAP introduction in the next generation operation system**
   - Introduce ONAP automation platform into our operation system design and POC

3. **Introduce More SDN/NFV capability into ONAP**
   - Contribute our SDN/NFV consideration and network capability into ONAP, enhance SDNC, SO, A&AI, etc.

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**verizon**

1. **SDN/NFV journey** and push for intelligence and automation.
2. **Why ONAP**
   - Post multiple fragmented efforts, industry harmonization is finally happening and it is also pulling standards along with it.
3. **Key focus areas**
   - Simplify and accelerate onboarding & interop of network functions
   - Greater agility in network management, service creation and provisioning
   - Drive reference standards to vendors and partners for consistent deployment

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Other Major Carriers/Vendors

**Q1 updates**
OPNFV Verified Program

- **Announced Feb 6, 2018**
- Demonstrates the readiness and availability of commercial products based on OPNFV
- Uses an open source platform as referent to measure compliance of commercial products—a new and innovative step for the industry
- Automated test suite developed by the OPNFV community
- Initial version tests NFVI and VIM
- Supports both self-testing and third-party lab testing
- Expands market for OPNFV-based infrastructure and applications
SDO+OSS: First Major Collaborative Effort, Enabled by LF

Several SDO study groups initiated with ONAP/LFN 3GPP, ETSI, ITU… more details at ONS2018