OPEN-O
Unified NFV/SDN Open Source Orchestration

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Disclaimer

• The following represents general proposals being worked on by a formation community. The following materials have not been approved or endorsed by the members, but represent current working drafts of discussions that we would like to invite a wider community to participate in.
Why OPEN-O?
Is SDN only enough?

E2E Unified SDN/NFV Service Orchestrator

Virtualization

vCPE  vBRAS  vPE Router  vFW  vLB

MAN Network

Access  Data Center

Legacy  Domain A  Domain B
Is Controller enough for SDN?

- Most carriers’ network is **hybrid network** which includes legacy and SDN, and virtual network
- Controller focus on network **resource abstraction** and **path calculation**
- SDN orchestration focus on end to end **service and resource orchestration** and it is key to enable agile service across multi-domain, multi-layer and multi-vendor
Commercialized NFV-O?

SDN-O interface

Unified IM/Canonical DM

Option 1: VNFM Plugin
Option 2: VNFM standard interface

SDN-O

OSS/BSS

NB Interface

Commercialized NFV-Os

Huawei vCMM
Ericsson
ZTE Conductor
Nokia Cloudband
HP Director
ADVA ESO
Cinema
Blue Planet
Gigaspaces Cloudify

Option 1: SDN controller plugin
Option 2: SDN standard interface

SB Interface

Multiple VIMs

VIM

SDN Controller

VNFM
Could Enterprise Solution Meet Telecom Expectation?

Enterprise Solution

Orchestrator


Telecom Network

Orchestrator

VNFM

VNFM

Telecom Network
OPEN-O: From OSS to OSS

OSS — Operation Support System
OSS — Open Source Software

• OPEN-O is working on the new Orchestrator OSS (Open Source Software) as the Next Generation OSS Foundation for ICT Service Agility
China Telecom’s use case: CloudVPN

- SDN supports layer2 connection across multiple DCs.
- In this case, it needs to support:
  - End-to-end overlay between multi-DCs
  - Separated overlay between DC and WAN
  - Traffic steering for different types of traffic
  - NFVO and VNFM for vCPE and VAS service
- Layered Orchestration architecture provides cross-domain service orchestration and global optimization.
KT’s use case: Transport SDN

- **SDN** controls transport path over multi-vendor devices in a centralized manner.

- **Orchestrator** optimizes end-to-end provisioning.
China Mobile’s use case: Orchestration for TICs

• Two layers of TICs (Telecom Integrated Cloud) are deployed for virtual network services for both fix and mobile network.

• Orchestrator is used to coordinate the service between the two layers.
OPEN-O benefits for Industry

1. Most viable to work across vendors
2. Managed Open Source: PSI is baby sitter without lock-in
3. Operators can innovate services based on abstract service element
4. Vendors can do OSS pre-integration – reduce OSS integration time & cost.
5. Vendors like plug-in after pre-integration. Operators can plug in/out easily.
Significance of Orchestrator Similar to IP

If we can, Open source makes 1 single orchestrator becoming possible, rather than many orchestrators from many vendors.
What is OPEN-O project?
OPEN-O Mission & Scope

• Enabling end-to-end service agility across SDN, NFV, and legacy networks via a unified orchestration platform supporting NFV orchestration (NFVO and VNFM) and SDN orchestration.

• This platform will be implemented and periodically released as open source software. Its modular nature will support common and vendor-specific data models and interoperability across multiple controllers, VNFs, VIMs and VNFM.

• Open-O will allow service providers to maximize the use of available network capacity, reduce customization, and accelerate innovation in a multivendor ecosystem
OPEN-O SW Architecture

- End-to-End SDN/NFV Orchestration
- ETSI NFV MANO compliant
- Modular and multiplatform
- Service and Resource Orchestration
- YANG and TOSCA support
User Story:

1. A doctor sends a patient to the hospital for X-rays
2. The doctor needs to set up a VPN connection between his office and the hospital (L2/L3 vpn) to download the X-Rays
3. Both the doctor and the hospital need to turn on firewall VNFs
4. They also need to turn on encryption
5. The VPN should adjust the amount of bandwidth it delivers – for example, a lot of bandwidth for the X-rays, but only a little for billing records
Sequence Diagram for eHealth Use Case

Service request(eHealth)

API gateway: Service request(eHealth)

Service Catalog: Verify Service

Decompose Service

Service Execute 1: vFirewall Create and Deploy

Create and deploy vFirewall

Service Execute 2: create IPSec VPN(connect to vFirewall)

Notes: Didn’t describe the interaction between orchestration

Common response
Join OPEN-O
Strategic use of open source software

Your value add

80% OSS

Average *

29%

Best in class

* Source: Gartner Group
OPEN-O fills in the gaps between Infra. to OSS

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• Open-O plays well with others
• ETSI NFV ISG – architecture and data models
• Open Source projects - OPNFV, Open Stack, Open Daylight, ONOS
• As upstream open source project, open to work with other forums

Customer Portal/BSS
(E2E Service= VPN+ VAS + Cloud)

Restful API

OPEN-O

SDNO

NFVO

OPEN Cord

EMS

Controller

VNF

S-VNF

VIM

G-VNF

Legacy network

SDN network

Service provider
Public cloud

Relationship with other standard bodies

OPEN-O

EMS

Controller

VNF

S-VNF

VIM

G-VNF

OPEN Cord

Legacy network

SDN network

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OPEN-O: 1st unified NFV/SDN Open Source Orchestrator

- OPEN-O project intent is driven by operators and got early supports from 15 SDN&NFV mainstream vendors
2016 OPEN-O Event Plan

- Speech & Demo on ONS: 2016.03.16
- OPEN-O 1st Hackfests: 2016.05
- OPEN-O 1st release: 2016.09
- OPEN-O 2nd Hackfests: 2016.07
- Official Founding: 2016.05
- OPEN-O 1st Summit: Time to declare on May

- MWC Intent Announcement: 2016.02.23
Getting involved in OPEN-O

• www.openo.org

Contact:

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Q&A
Thank you!