OPEN-O
Unified NFV/SDN Open Source Orchestration

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Why OPEN-O?
Is SDN only enough?

**E2E Unified SDN/NFV Service Orchestrator**

**Virtualization**
- vCPE
- vBRAS
- vPE Router
- vFW
- vLB

**SDN Controller**
- Vender specific
- ONOS
- ODL

**MAN Network**
- Legacy
- Domain A
- Domain B

**Access**
- pCPE
- BRAS

**Data Center**
- OpenStack (DC controller)
- GW
- TOR

**Legacy Domain A**
- vCPE
- vBRAS
- vPE Router
- vFW
- vLB

**Domain B**
- vCPE
- vBRAS
- vPE Router
- vFW
- vLB
SDN Dilemma: No Cross Domain Solution

- Most carriers’ network is *hybrid network* which includes legacy and SDN, physical and virtual network.

- SDN orchestration focus on end to end *service and resource orchestration*, it is key to enable agile operations across *multi-domains and multi-vendors*.
Commercialized NFV-O?

**SDN-O**

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

**OSS/BSS**

**SDN-O interface**

**NB Interface**

**Unified IM/Canonical DM**

**Option 1: VNFM Plugin**

**Option 2: VNFM standard interface**

**SB Interface**

- Multiple VIMs / Multiple SDN controllers
Could Enterprise Solution Meet Telecom Expectation?

- Orchestration
- NFVI
- Information Model?
- Monitor Capability?
- Multi-Site?
- Unified API?
- Multi-VIMs Support?
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 can support layer2 connection across multiple DCs.
- Layered Orchestration architecture can provide 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

- No vendor-in, more freedom of service innovation
- Service agility enabled by unified Orchestrator
- Simplification, Less customization, faster integration
- Easier using network capability, accelerate innovation
- Standardized open interface, Lower entry cost
What is OPEN-O?
OPEN-O Mission Statement

• create a carrier grade framework for NFV orchestration (NFVO and VNFM) and SDN orchestration, implemented and released as open source software,

• supporting common data models and interoperability across multiple VIMs, upon which end user service providers can build and run robust network services including industry-specific applications in support of cloud, NFV, and SDN environments

Keep updating with Governance
• End-to-End SDN/NFV Orchestration
• ETSI NFV MANO compliant
• Modular and multiplatform
• Service and Resource Orchestration
• YANG and TOSCA support

Keep updating according Pre-TSC next Tuesday
• Focused on connectivity for Network Services.
  • Routers and switches, optical devices, access devices, etc.
  • Supports SDN and legacy devices.
  • Can provision and provide assurance directly to devices supporting Netconf/YANG.
  • Also integrates with SDN controllers and EMS/NMS systems.

• Simplifies and accelerates service creation for network services
  • Layer 2/Layer 3 VPN
  • Bandwidth on demand

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**SDN-O SW Architecture**

- Abstract NBI API
- SDNO
- Template Mgr
- Model Driven
- Cloud VPN
- WAN VPN
- SDN Res Mgr
- ...
• Provides NFV global management and automatic deployment
• Common Data Models facilitate service innovation, interoperability
• Integrates with multiple VIMs and VNFMs through an abstract driver layer

Keep updating according Pre-TSC next Tuesday
Join OPEN-O
Strategic use of open source software

Average * 29%

Best in class 80% OSS

Your value add

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

Programming Frameworks
Application Platforms
VM/VIM Managers
Containers
Operating Systems
Virtual Machines
Management and Orchestration
Carrier Networking
Network Controller
Data Plane Services
Hardware
• Open-O plays well with others
• ETSI NFV ISG – architecture and data models
• Open Source projects - OPNFV, Open Stack, Open Daylight, ONOS
• MEF - LSO
OPEN-O: 1st unified NFV/SDN Open Source Orchestrator

OPEN-O Press Conference on MWC 2016

• OPEN-O is driven by operators, supported by mainstream SDN&NFV vendors
2016 OPEN-O Event

- Speech & Demo on ONS: 2016.03.16
- MWC Intent Announcement: 2016.02.23
- Official Founding: 2016.04
- OPEN-O 1st Hackfests: 2016.05
- OPEN-O 1st release: 2016.09
- OPEN-O 2nd Hackathon: 2016.10
All the elements are coming

- Project moves fast
- Product is stable
- Profit is coming
Getting involved in OPEN-O

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Q&A
Thank you!