MWC 2016 OPEN SOURCE MANO (OSM)
E2E ORCHESTRATION DEMO

OSM Kick-off meeting (OSM#1)
April 2016
DEMONSTRATION: L3 VPN SERVICE WITH VALUE ADDED SERVICES
Putting OSM in practice
MWC 2016 DEMO – RATIONALE

- **OBJECTIVE**: Demonstrate the feasibility of the concepts, starting with existing code seeds
- As realistic as possible, with commercial VNFs
- Proof of main concepts of OSM:
  - E2E automation
  - EPA & underlay control – SLA can be guaranteed
  - Multi-Site
  - Multi-VIM
  - Combination of multi-tenant and single-tenant VNFs
  - Connection to external physical lines
- Useful for next stages of the project
  - Enabler for further code development
  - Room for further evolution/complexity
Multitenant VNF (PE) connection to single tenant VNFs (Gateways and Traffic generator):

- PE VNF needs to set the vlan tags (per corporation) directly. This is configured from SO.
  - This requires giving the interface to the VNF with passthrough
- VNFs in a specific corporate network are attached to the specific VLAN tag for that corporation in each PE. This is configured from RO.
- The PE passthrough interfaces connect to these corporate networks by using point to multipoint networks

Inter data center connection

- Physical connection between the data plane switch (where the PEs are deployed) and the management switch (where Openstack compute nodes are connected)
- Openstack provider networks with VLAN segmentation are used to connect the IMS VNF deployed in Openstack to the Openvim interDC external network where PE3 is connected
**REAL OPERATION IS MULTI-LAYERED BY NATURE, SO MANO NEEDS TO EMBRACE IT TO HAVE REAL OPERATIONAL IMPACT**

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>OPERATOR/DEPARTMENT</th>
<th>NETWORK CREATION</th>
<th>FULFILLMENT</th>
<th>ASSURANCE</th>
</tr>
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<tbody>
<tr>
<td>(L3)</td>
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<td></td>
<td>• Add users to VPN</td>
<td>QoE monitoring</td>
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<tr>
<td>(L1)</td>
<td>NETWORK DEPARTMENT</td>
<td>Network scenario creation &amp; deployment (PE per site)</td>
<td>Network scenario provisioning</td>
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<td>NFVI OPERATOR</td>
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<td>• Tenant creation. • Allocation of tenant quotes.</td>
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**SCOPE OF CURRENT MANO APPROACHES**

**STATIC / TRADITIONAL OPERATION**

**CLOUD OPERATION**
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• Allocation of tenant quotes. | Monitoring of usage of resources by tenants.  
• Monitoring of NFVI infrastructure |
STEP 0: NFVI+VIM ARE AVAILABLE AT DIFFERENT LOCATIONS (L0)
STEP 1: PE CORE IS DEPLOYED AND CONFIGURED (L1)
STEP 2: MONITORING VPN IS PROVISIONED (L1)

Corporation SP 10.0.1.0/24

VLAN 3000

mwc16data1

mwc16data2

Corp. SP 10.0.2.0/24

VLAN 3000

mwc
STEP 3: CONNECTIVITY IS VALIDATED WITH TRAFFIC GENERATOR (L1)
STEP 4: VPN FOR CORPORATION A IS CREATED (L2)

VIM 1

- Corp. A 10.0.1.0/24
- mwc 10.0.1.0/24
- VLAN X
- mwc16data1
- VLAN 3000
- Corp. SP 10.0.1.0/24

VIM 2

- Corp. A 10.0.2.0/24
- VLAN 10.0.2.0/24
- mwc16data2
- VLAN 3000
- Corp. SP 10.0.2.0/24

PE 1

- mgmt
- VLAN Z

PE 2

- mgmt
- VLAN Z

PE 3

- mgmt
- VLAN Z

interDC

- Multi-tenant VNF
- Single-tenant VNF
- VIM tenant
- L2 connection for dataplane
- L2 connection for low BW
STEP 5: SSL ACCESS FOR CORPORATION A IS ADDED IN 2 SITES (L3)
STEP 6: CORPORATE VOIP SERVICE ADDED TO CORPORATION A (L3)

VIM 1

SSL VPN 1

Corporation

VLAN 3000

mwc16data1

VLAN X

Corporation SP
10.0.1.0/24

Network

mgmt

mwc

mgmt

SSL VPN 2

Corporation SP
10.0.2.0/24

VLAN 3000

mwc16data2

VLAN Y

Corporation A
10.0.2.0/24

Network

mgmt

mwc

mgmt

VIM 2

SSL VPN 1

Corporation

VLAN Z

Net-mgmtOS

IMS-corpA

MetaSwitch

Networks

Single-tenant VNF

Multi-tenant VNF

VIM tenant

L2 connection for dataplane

L2 connection for low BW

mgmt

mwc

mgmt

mwc
STEP 7: USER IS PROVISIONED IN CORPORATE VOIP SERVICE (L3)

VIM 1

SSL VPN 1

VLAN X

Corp. SP 10.0.1.0/24

mwc16data1

mwc

mgmt

PE 1

Corp. A 10.0.1.0/24

VLAN 3000

mgmt

mgmt

PE 2

Corp. SP 10.0.2.0/24

mwc16data2

mwc

mgmt

PE 3

Corp. A 10.0.2.0/24

VLAN Y

SSL VPN 2

mgmt

mgmt

VIM 2

VLAN Z

Corp. A 10.0.4.0/24

net-mgmtOS

IMS-corpA

(domain, users)

VIM tenant

Multi-tenant VNF

Single-tenant VNF

L2 connection for dataplane

L2 connection for low BW
STEP 8: VOIP CALL IN CORPORATION A (L3)
Open Source MANO

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