OSM Release EIGHT
Overview & Demos

Francisco-Javier Ramón (Telefónica, ETSI OSM Chair)
Guillermo Calviño (Canonical)
Gianpietro Lavado (WhiteStack)
Understanding what OSM provides
OSM provides a platform to create **Networks as a Service** and to manage them conveniently later.
... on different types of infrastructure and across different locations...
... with VNFs composed of VMs, containers and/or physical elements...

a) All VMs

b) All Containers

Container Network Function (CNF)

K8s

K8s

K8s

K8s

c) All Physical

d) Hybrid cases

Hybrid Network Function (HNF)
... and ready for network-specific workloads whenever needed

**Huge Pages**

- 72 GB RAM
- 24 GB RAM
- 48 GB HugePages

**CPU Pinning**

- CPU 1
- CPU 2
- CPU 3
- CPU 4

**Data Plane assignment**

- VM1
- VM2
- VM3

**NUMA Topology Awareness**

- Node 0
- Node 1

**Throughput (Mpps)**

- x100

**Line rate with all frame sizes**

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All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

- Provided by the vendor, fully describe their own product:
  - Topology
  - Parametrized
  - Actions for Day-0, Day-1, and Day-2
- Doesn’t need to know any detail about:
  - The target infrastructure
  - Other components that will be part of the scenario
All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

(V)NF PACKAGES:

(NS PACKAGES / SLICE PACKAGES:

Slice Packages work similarly, but using NS as building blocks(*))

(*) NS instances play the role of Slice Subnets of a given slice. Some of them may be shared by more than one slice instance. This is taken into account by OSM, so a slice is more sophisticated than just a "NS of NS".)
All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

**NS PACKAGES / SLICE PACKAGES:**

Upon instantiation, you just need to decide:
- The target VIM (or VIMs)
- Values for the parameters (IP addresses, keys, etc.)
All these OSM packages are oriented to maximize reusability for multiple scenarios.

Can be easily customized upon instantiation

Parametrized

OSM Package

Parameter #1
Parameter #2
Parameter #3
Parameter #n

Model agnostic to infrastructure

Multi-VIM Multi-SDN

VNF vendor does not need to know the details of our infrastructure upfront

Day-2 can by run from OSM

Recurrent operations are greatly simplified

Can be easily customized upon instantiation

Parametrized

Models include full lifecycle
OSM is used by its Northbound Interface

- OSM GUI
- OSM client
- OSM’s NBI

Guarantees consistency regarding:
- Authentication
- RBAC & authorized actions
- Project contexts & visibility
- State
- Etc.
Release EIGHT gives brings key features to maximize resilience & ease operation at scale

**Catalogue of VNF/NS Packages**
- VNF repositories

**Improved usability**
- New angular-based GUI

**Improved onboarding workflow**
- Simplified package development workflow over Git.
- On the fly translation of packages to EPA/non-EPA

**Readiness for HA deployments**
- VCA readiness for HA deployments
- HA proxy charms

**Improved lifecycle and feedback**
- RO runtime data in common OSM database.
- Project quotas.

**Fault & Performance Management**
- VNF indicator collection w/ Prometheus exporters

**New installation options**
- Charm-based OSM installation
- Ansible-based OSM installation

**Multi-VIM and multi-SDN support**
- Plugin for Arista CloudVision
- Plugin for Juniper Contrail

Available at: [osm.etsi.org](http://osm.etsi.org)
OSM community is really **LARGE AND DIVERSE**, with **140** members today, but always **OPEN** to new participants

- 15 Global Service Providers
- Leading IT/Cloud players
- VNF providers

(*) Names & brands may be claimed as the property of others
Companies listing their products and offers related to OSM (like “OSM Yellow pages”)

- Searchable by potential customers looking for OSM-related products
- Only with demonstrable OSM-related products/offers
- Opt-in process, continuously open

https://osm.etsi.org/wikipub/index.php/OSM_Ecosystem
Overview of the webinar

**DEMO #1:** OSM System Features in action

*by Guillermo Calviño (Canonical)*

- High Availability
- Next Generation User Interface
- System Quotas
- System Monitoring

**DEMO #2:** Network Service Deployment with OSM

*by Gianpietro Lavado (Whitestack)*

- VNF Catalog
- Magma EPC Deployment
- High Performance Network Functions
and, if you want to learn even more...

... you can join us to our upcoming OSM Hackfest!
OSM System Features

- High Availability
- NG-UI
- System Quotas
- System Monitoring
OSM in High Availability: Demo

OSM POD failure

HA Proxy Charms

failed node
newly elected leader charm

OSM in HA
HA built into the **upstream Charmed installer**

```bash
$ ./install_osm.sh --charmed --ha
   --lxd
   --lxd-cred
   --vca
   --k8s
```
NG-UI: New UI for an improved user experience!

- Available since release 8.0.0
- Multi-language support (English, German, Spanish, Portuguese)
- It can be easily reskin & scalable
- Reduces the manual inputs
- Extensive usage of NBI APIs with RBAC implementation
- New dashboard provides an overview of the application
System Quotas

Limit the resources that can be allocated in a project

<table>
<thead>
<tr>
<th>Quota Limit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VNF Packages*</td>
<td>0</td>
</tr>
<tr>
<td>NetSlice Template*</td>
<td>0</td>
</tr>
<tr>
<td>NS Instances*</td>
<td>0</td>
</tr>
<tr>
<td>VIM Accounts*</td>
<td>0</td>
</tr>
<tr>
<td>SDN Controller*</td>
<td>0</td>
</tr>
<tr>
<td>K8s Repos*</td>
<td>0</td>
</tr>
</tbody>
</table>

[Image of a form with input fields for project name, VNF Packages, NetSlice Template, NS Instances, VIM Accounts, SDN Controller, and K8s Repos, with options to Cancel or Apply]
System Monitoring

**Resources monitored**

- **kubernetes** core
- "osm" namespace
- MANO pods
- Host / VM

**Monitoring components**

- "monitoring" namespace
- Prometheus Operator & exporters
- Grafana Dashboards
Network Service Deployment with OSM
OSM VNF Catalogues

1. Operator onboards VNFs directly from provider’s repo
2. Operator onboards own Network Service composed by those VNFs
3. Operator launches the Network Service!
Fully operational EPC in minutes!

- Docker and VM-based virtualization lifecycle management
- Complex KNF deployment in minutes
- Physical Network Function automation
- VNF Monitoring
- Automatic Horizontal Scaling
- High performance techniques activation
- Underlay network automation
- Network Function Day-0, Day-1 and Day-2 operations
- Network Slicing with shared services
A note on SDN Assist
Automating connectivity between data plane VNFs

Underlay connectivity:
VXLAN, OpenFlow, VLAN, etc.
(depends on the SDN Controller or Manager)

OSM's SDN Assist feature takes care of the “underlay” connectivity whenever it sees VLDs with SR-IOV or PASSTHROUGH ports that need to connect between each other.

* Supported as of REL8 → Arista, Juniper Contrail, Floodlight, ONOS and Open Daylight
● **Zero Touch is here!** An end-to-end network service automated deployment is possible with Open Source MANO.

● **NFV MANO is a must!** NFV MANO Orchestration is key to fulfill multi-vendor Hybrid NF onboarding & automation, from instantiation to operations, given the increased modularity and distributed nature of network functions.

● **Rich VNF Onboarding!** OSM Release EIGHT bring rich onboarding possibilities to cover complex use cases like the mobile network functions use case.
Open Source MANO

Find us at:

osm.etsi.org
osm.etsi.org/docs
osm.etsi.org/wikipub