OSM Release TWELVE Webinar

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Agenda

- Why OSM?
- Demo. Live upgrade of a CNF
- Demo. Healing and scaling in a massive sports event
What does OSM do...

... and how?
OSM provides a platform to create Networks as a Service and to manage them conveniently later...

OSM manages the low-level setup for Network Functions, so that they are ready for use.

- It covers in 100% the role of a kind of **specialized PaaS for Network Functions**, with 2 key features:
  1. Complex connectivity setup, including EPA and underlay scenarios.
  2. Solve inter-NF relations.

- Returns: **NS/NF ready for its use and properly connected**:  
  - Exposes the “function” and its lifecycle, not its components.  
  - Presented as a whole (i.e., abstracts from low-level details of the NF).  
  - Easy (standardized) access to NF's lifecycle operations, via **primitives**.

- This follows well-known paradigms in **IT** and **public clouds**.
... on different types of infrastructure and across different locations... 

MULTI-VIM & MULTI-SDN 

BACKBONE NETWORK 

MULTI-SITE 

... with NFs composed of VMs, containers and/or physical elements...

a) All VMs

b) All Containers

c) All Physical

d) Hybrid cases
... and ready for network-specific workloads whenever needed
All in OSM is model-driven to make NFs and scenarios as portable and reusable as possible.

NS PACKAGES / SLICE PACKAGES:

DEPLOYED INSTANCES:

Upon instantiation, you just need to decide:
- The target VIM (or VIMs)
- Values for the parameters (IP addresses, keys, etc.)
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

Models include full lifecycle

Multi-VIM Multi-SDN
VNF vendor does not need to know the details of our infrastructure upfront

Model agnostic to infrastructure

Day-2 can be run from OSM
Recurrent operations are greatly simplified
This approach leads to big operational benefits

- **Reduction of complexity**
  - Via abstraction & layering

- **Reliable deployment in multiple locations**

- **Independent of the type of cloud**

- **Vendor-agnostic**

- **Reliable and unambiguous testing**
  - Ideal for CI/CD

- **Error minimization**

- **Minimal Time to Market for second deployments**

- **Easier capacity growth among clouds**

- **Ability to move workloads between clouds**

- **Allows for advanced redundancy schemas**

- **Reduction of efforts**
A vibrant and thriving community
OSM community is really LARGE AND DIVERSE, with 150 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
OSM Ecosystem

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
OSM Ecosystem (as of today)

https://osm.etsi.org/wikipub/index.php/OSM_Ecosystem
And the new release!
Release TWELVE adds features well connected with key use cases and field demands

**NF Healing**
- VDU Healing
- Auto-healing

**SOL003 support**
- SOL003 support as G-VNFM
- SOL003 subscription to VNF-LCM interface

**NS Lifecycle**
- Upgrade of VNF instances (upgrade of charms and primitives).
- Removal of VNF instance from running NS.

**Additional support for Anti-Affinity**
- Anti-affinity groups per VNF

**Extensions for CNF/K8s support**
- Day-2 primitives for CNF with proxy charms.
- K8s cluster registration options.

**Security**
- Enforce password change on first login
- Expire password after preset number of days.

... and other improvements in usability and stability derived from the learnings of latest OSM production deployments
“Even” OSM releases now have Long Term Support (LTS)

<table>
<thead>
<tr>
<th>LTS Releases (Long Term Support)</th>
<th>STS Releases (Short Term Support)</th>
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<tbody>
<tr>
<td>24 months community support</td>
<td>6 months community support</td>
</tr>
<tr>
<td>Oriented to production</td>
<td>Oriented to innovation &amp; development</td>
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<tr>
<td>Focus on stability</td>
<td>Focus on innovation &amp; agility</td>
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<tr>
<td>Community grants upgrade between LTS’s</td>
<td>Upgrade on a best effort basis</td>
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- **Release TEN LTS**
- **Release ELEVEN STS**
- **Release TWELVE LTS**
- **Release THIRTEEN STS**
- **Release FOURTEEN LTS**
- **Release FIFTEEN STS**

Timeline:
- Dec 2021
- June 2022
- Dec 2022
- June 2023
- Dec 2023
- Dec 2024

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... which are added on top of an already long set of features...
At this point, it is becoming easier explaining OSM features in practice

MAGMA EPC DEMO (2020)

OSM#11 Hackfest

11 teams onboarding 8 NFs in just one week!

Release TEN Webinar

Edge orchestration with OSM

Release ELEVEN Webinar

Resolution of inter-NF relations

Multi-Cloud Deployments

OSM-MR#11 Hackfest

https://osm.etsi.org/gitslab/vnf-onboarding/osm-packages/tree/master/magma
Demo. Live upgrade of a CNF
Upgrade of NF rely on the new concept of descriptor revisions

New concept: descriptor revisions
• User can upload new versions of VNFD or NSD
• Existing instances continue to use original version
• Need to be able to track changes and revisions
Live upgrade of CNF

Steps
1. CNF up and running in K8s cluster
2. Execution of day-2 primitive over CNF
3. Upload new revision of CNF package
4. Live Upgrade
5. Execution of NEW day-2 primitive over CNF
Demo. Healing and scaling in a massive sports event
Sports Event
The VM instance in the VIM fails and OSM auto-heals the Network function and brings it back to service.
5G Network Function – NS Update (Scaling Policy)

Scaling Policy update required!!
NS update feature to the rescue
5G Network Function – Auto-scaling

- **5G Access Network**
  - Massive 5G throughput

- **5G Network Edge**
  - Low latency, ultra-reliable connections. Can co-locate with edge data center

- **Edge Data Center**

- **5G Core**
  - Latency-tolerant applications. Can co-locate with HQ data center

- **HQ Data Center**

- **Other Destinations**
Thank You!

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