OSM 7th Hackfest – Demo 0
OSM in action!
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TNO

- Dutch national research institute, ~3500 people, 9 Units
- Connects business, academia and government for research and innovations
OSM in action!

- From standards and models to applications
- Please note this is demo session, hands-on sessions will follow
Design, deploy, operate – from one place

• **OSM ambition: provide end-to-end solution for services:**
  • Design: components, functions, constraints
  • Deploy: initial configuration and actual instantiation
  • Operate: run-time (re-)configuration
Composition: VNFD

- VNFD – Virtual Network Function Descriptor
  - VNF ≈ Virtual Machine, performing certain function (e.g., HTTP server)
  - VNFs – building blocks of Network Service
  - Descriptor: VNF characteristics
    - CPU/memory/storage/network interfaces
    - Configuration script
    - Relations with other VNFs

```
cmd = ['sudo apt install webfs -y']
log('trying command')
log(cmd)
result, err = charms.sshproxy.run(cmd)
```
Composition: NSD

- **NSD: Network Service Descriptor**
  - Groups VNFs to provide service (e.g., HTTP server and HTTP client)
  - Provides topology information
  - Structured text file – fulfils Infrastructure-as-a-Code Principle
    - Versioning, sharing, reproducibility
Instantiation

• Composed model in instantiated in cloud backend
  • Create VMs, create networks, configure VMs
• The same model good for Openstack, VMware, AWS, ...

New Instance

<table>
<thead>
<tr>
<th>Name</th>
<th>http_client_server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>http_client_server</td>
</tr>
<tr>
<td>Nsd Id</td>
<td>httpserver_httpclient_nsd</td>
</tr>
<tr>
<td>Vim Account Id</td>
<td>openstack2-CloudHi5</td>
</tr>
</tbody>
</table>
Instantiated VMs are configured and operated by *juju charms*.
Actions: interaction with VNF

- Actions
  - Allow to expose certain operations

- Examples
  - Create new file on HTTP server
  - Stop HTTP server
Advanced service deployment

- Service for experimenting with 6DOF VR video...
- ...running on top of Fraunhofer Open5GCore
- ...with emulated eNB and emulated UE
- Outcome of TNO activities in:
  - 5Groningen Project
  - OSM PoC#4 (w/Canonical)
  - H2020 5GINFIRE 5GMedia Vertical
5G Edge Masker

- 6DOF VR – bandwidth hungry and delay sensitive
- Instead of sending full spherical video, send only interesting part and mask the rest
- If delay is too large, ask network to switch to faster path
VR over 5G NSD

Control plane

Data plane

VR service

Emulated radio and clients

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App and relations

- Deployed service consists of several apps
  - 5G specific
  - Media specific
- Model describes *relations* between apps
  - eNB provides connection parameters to UE etc.
Summary

• Welcome to OSM!
• After this week you will be able to develop basic network service
• Join the community (it’s “free” as “free lunch” and “free speech”)
  • OP, DEV, PoC, spread the word,...