Hackfest #13
On-boarding Magma 1.7 5G Core With OSM

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# Task Progress

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On-board Magma ORC with OSM.</td>
<td>Done</td>
<td>Tuesday 6/14</td>
</tr>
<tr>
<td>2. On-board Magma AGW with OSM.</td>
<td>Done</td>
<td>Wednesday 6/15</td>
</tr>
<tr>
<td>3. On-board SRS-LTE simulators for gnb and UE.</td>
<td>Done</td>
<td>Thursday 6/16</td>
</tr>
<tr>
<td>4. Connect it all together to see traffic in Magma Orchestrator – OSM day 2 action.</td>
<td>Done</td>
<td></td>
</tr>
<tr>
<td>5. Implementing 2 additional lifecycle actions (disconnect / connect simulators).</td>
<td>Done</td>
<td></td>
</tr>
<tr>
<td>6. Implementing 2 additional lifecycle actions (connect / disconnect AGW to/from ORC).</td>
<td>Done</td>
<td></td>
</tr>
<tr>
<td>7. Additional Developments (Extra tasks)</td>
<td>Done</td>
<td></td>
</tr>
</tbody>
</table>
Magma Orchestrator GUI

** System restart required **
Last login: Tue Jun 14 20:19:20 2022 from 69.201.90.222

```
$ osm ns-action magma_orc_cnf
  > --vrf-name magma_orc_cnf
  > --kdu-name magma-orc-kdu
  > --action-name get-admin-credentials
  fefaba38-a457-4362-8435-6dadd54791d

$ osm ns-op-show fefaba38-a457-4362-8435-6dadd54791d
```

Credentials 1

```
$ osm ns-op-show fefaba38-a457-4362-8435-6dadd54791d
```

Credentials 2 (top)
Magma Orchestrator GUI
We have now accessed the web portal
# Configuring Magma Access Gateway

<table>
<thead>
<tr>
<th>Component</th>
<th>CMO 1</th>
<th>CMO 2</th>
<th>CMO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>magmagate</td>
<td>magmagate</td>
<td>magmagate</td>
<td>magmagate</td>
</tr>
<tr>
<td>Magma Agw 2</td>
<td>magmagate</td>
<td>magmagate</td>
<td>magmagate</td>
</tr>
<tr>
<td>Gateway ID</td>
<td>magmaagw2</td>
<td>magmaagw2</td>
<td>magmaagw2</td>
</tr>
<tr>
<td>Hardware UUID</td>
<td>d7c91130-c8aa-4a0c-99d0-3fa891551781</td>
<td>d7c91130-c8aa-4a0c-99d0-3fa891551781</td>
<td>d7c91130-c8aa-4a0c-99d0-3fa891551781</td>
</tr>
<tr>
<td>Version</td>
<td>1.7.0-1648117787-73e61141</td>
<td>1.7.0-1648117787-73e61141</td>
<td>1.7.0-1648117787-73e61141</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health</th>
<th>Good</th>
<th>Good</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Check in</td>
<td>6/16/2022, 12:17:22 PM</td>
<td>6/16/2022, 12:17:22 PM</td>
<td>6/16/2022, 12:17:22 PM</td>
</tr>
<tr>
<td>CPU Usage</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Event Aggregation</td>
<td>Enabled</td>
<td>Enabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>Log Aggregation</td>
<td>Enabled</td>
<td>Enabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>CPE Monitoring</td>
<td>Disabled</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
The subscribers from the given CSV in Magma Orchestrator

The table shows the subscribers with their respective IMSI numbers, service status (ACTIVE), current usage, daily average, and last reported time. Each row represents a different subscriber with their details.
Magma AGW PNF and NS Packages

Packages procured using SCP from local host

PNF and NS package creation
PDU Descriptor File Creation

This is what the default configuration of the PDU.yaml file looks like:

```
name: MagmaAGW
description: Magma Access GW
vim_accounts: ["<VIM-ID>"]
shared: false
interfaces:
  - name: eth0
    ip-address: <Magma AGW SGi IP>
    mgmt: false
  - name: eth1
    ip-address: <Magma AGW S1 IP>
    mgmt: false
```

We changed the values for the VIM ID, and Interfaces IPs:

```
name: MagmaAGW
description: Magma Access GW
type: gateway
vim_accounts: ["d1dee15-6a45-486a-84a9-752f88602f5f"]
shared: false
interfaces:
  - name: eth0
    ip-address: 192.168.04.115
    mgmt: true
  - name: eth1
    ip-address: 192.168.91.95
    mgmt: false
```

Descriptor file created

```
ubuntu@ip-192-168-72-101:~$ vim pdu.yaml
ubuntu@ip-192-168-72-101:~$ osm pdu-create --descriptor_file pdu.yaml 32fe2ba1-c854-4ca0-aec6-cb4bb7473c99
ubuntu@ip-192-168-72-101:~$ 
```
Someone feel free to add detail here******
Magma AGW Configuration

We used SCP and SSH commands to copy the CA file to the Magma AGW VM.

We then configured the Magma AGW with the appropriate domain and path for the CA file.
srsLTE Setup

The creation of the NS, linking it to the AGW

```
$ osm ns-create --ns_name enb --nsd_name srs-lte-enb_nsd --vim_account aws-site --config "{"vld: [name: mgmt, vim-network-name: subnet-0163d010c9f3b88c8], additionalParamsForVnf: [{member-vnf-index: 'srsLTE', additionalParams: {bind_address_subnet: '192.168.64.0/19', mme_addr: '192.168.91.95', enb_mcc: '722', enb_mnc: '71'}}]}
```

The deployment of attach-ue charm of the NS

```
$ osm ns-action enb --vnf_name "srsLTE" --vdu_id srsLTE-vdu --action_name attach-ue --params '{"usim-imsi: "722170000000008", usim-k: "c8eba87c1074ed3d0885cbde48678341", usim-opc: "17b6c0157895ba1e4c1cef55033f5f" }
```
This confirms that the launch was successful.
Challenges and Constraints We Faced

❖ Security Group rule was missing, leading to srsLTE network service failing to be configured.
❖ Communication between orc8r-orchestrator and orc8r-certifier components was broken, preventing us from creating a tenant to configure srsLTE with the AGW/add the subscribers.
❖ Our original cluster got corrupted forcing us to switch to team7’s cluster.
❖ Our AWS Gateway became unreachable/broken.
❖ Route53 was not properly configured.
❖ We found out about the event 3 days prior to the start of the event.
❖ There is a 6 hour time zone difference behind the CEST.

These challenges and constraints took lot of our time to address, the OSM team helped us as much as they could to address these issues.
Additional Developments

- Creation of script to attach/detach the UE through ns-action
- Script to create and deploy the VIM
- Script to create the srsLTE NS
Goals outside of Hackfest

We are working on some experiments using OSM.

One of these is based on 5Growth as it has been used to support multi domain deployments specifically with a private 5G network and a public network.

Additionally it supports the use of multiple MANO platforms.
5Growth Dashboard
Configuration

Local VS Config File

```
[vns]
    name=ns1
    VSD=10.0.200.227
    VSD=10.0.200.22
    VSD=10.0.308
    VSD=10.0.306.225
    VSD=10.0.200.234
```

Provider Domain Config File

```
[PE strangely]
    name=ns
    VSD=10.0.200.228
    VSD=10.0.200.256
    VSD=10.0.200.234
    VSD=10.0.308
    email=ns@ns.com
    wni:port=4905
```

NTP Config File

```
[ntp]
    ntp=192.168.0.1
    ntp=192.168.0.2
```

Monitoring Config File

```
[monitoring]
    NMONITORING_ip=10.0.200.228
    NMONITORING_port=9000
    NMONITORING_base_path=/var/mon
    NMONITORING_pushgate=mgw
    NMONITORING_pushgateway=mgw
    NMONITORING_kafka_ip=10.0.200.228
    NMONITORING_kafka_port=9092

[alerts]
    NMONITORING_platform_ip=10.0.200.228
    NMONITORING_platform_port=9000
    NMONITORING_platform_base_path=/var/mon
```

© ETSI
Configuration Continued

**ROE Config File**

```
[PA]
pa.ip=18.6.280.231
pa.port=6161
pa.path=/bgt/sa/v2/PAComp
pa.enable=yes
```

**CoreMano Config File**

```
[coreMano]
namespace
ip=162.168.1.139
[S5M]
release=11
r3_host=192.168.1.126/24
user=adina
password=admin
project=admin
[PA]
pa.enable=true
pa.simulate=false
```

**MongoDB Config File**

```
[MongoDB]
db_ip=localhost
db_port=27017
```
Visualization of NSDs
Uploaded NSD
5Growth Converter

nsd:nsd-catalog:
  nsd:
    - connection-point:
      - floating-ip-required: true
        member-vnf-index-ref: '2'
        name: mgtSap_0
        type: VPORT
        vnfd-connection-point-ref: spr1MgtExt
        vnfd-id-ref: spr1
      - floating-ip-required: true
        member-vnf-index-ref: '1'
        name: videoSap_0
        type: VPORT
        vnfd-connection-point-ref: webDistExt
        vnfd-id-ref: webserver
      - floating-ip-required: true
        member-vnf-index-ref: '3'
        name: videoSap_1
        type: VPORT
        vnfd-connection-point-ref: spr21DistExt

| test      | fgt-1f32b0-1f0d-4d1f-9390-220e8c4f5139 | INSTANTIATING | vCDN_v02 | cf_vCDN / li_vCDN_big |
Thank you for the Hackfest13 event.
Thank you to all the mentors!
Thank you to the teams and team members!
We are looking forward to working with all of you