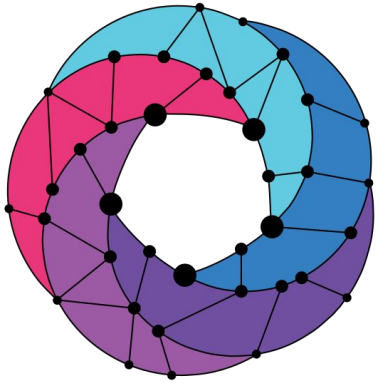

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OSM Hackfest – Session 2
Creating a basic VNF and NS

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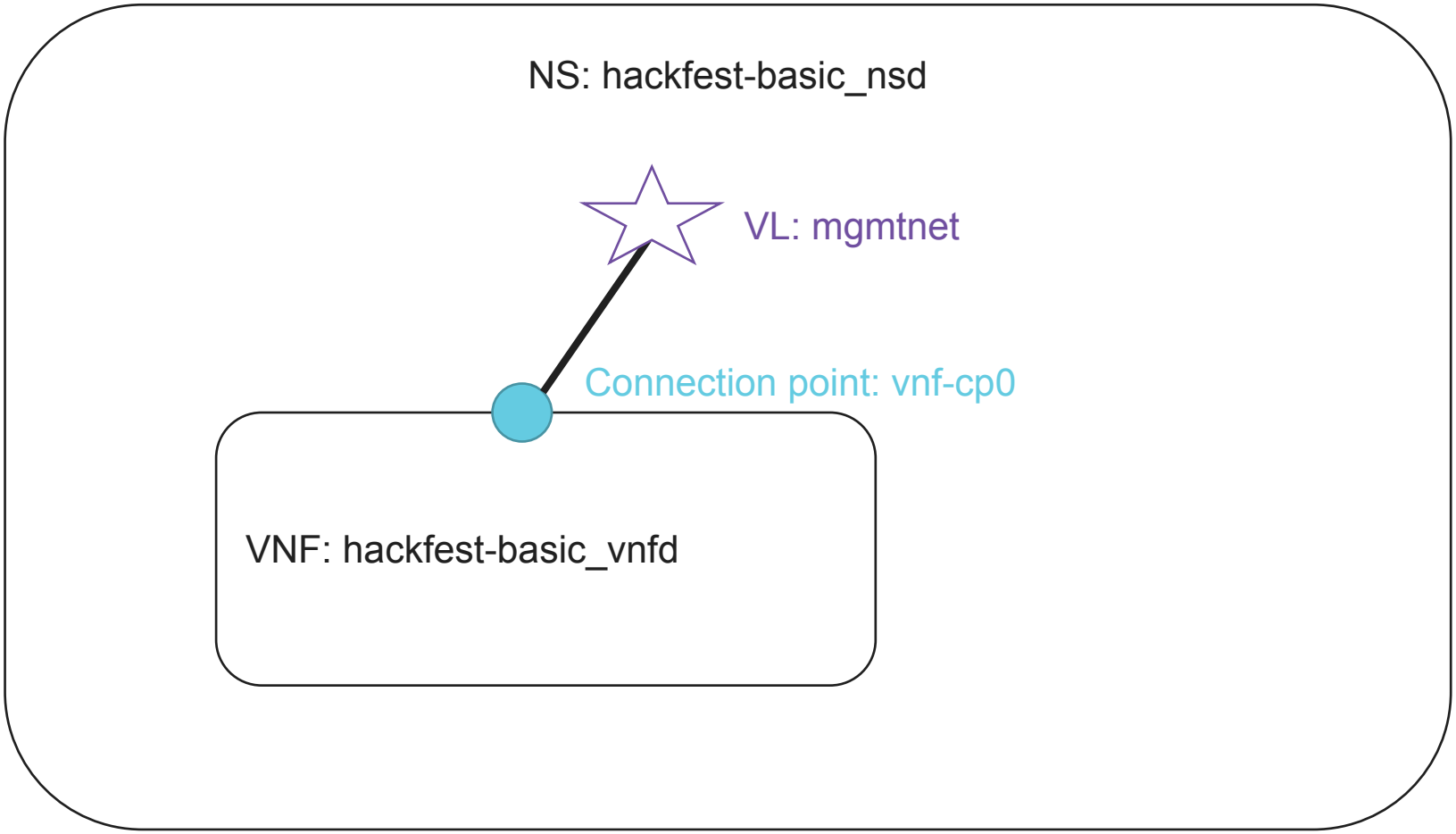
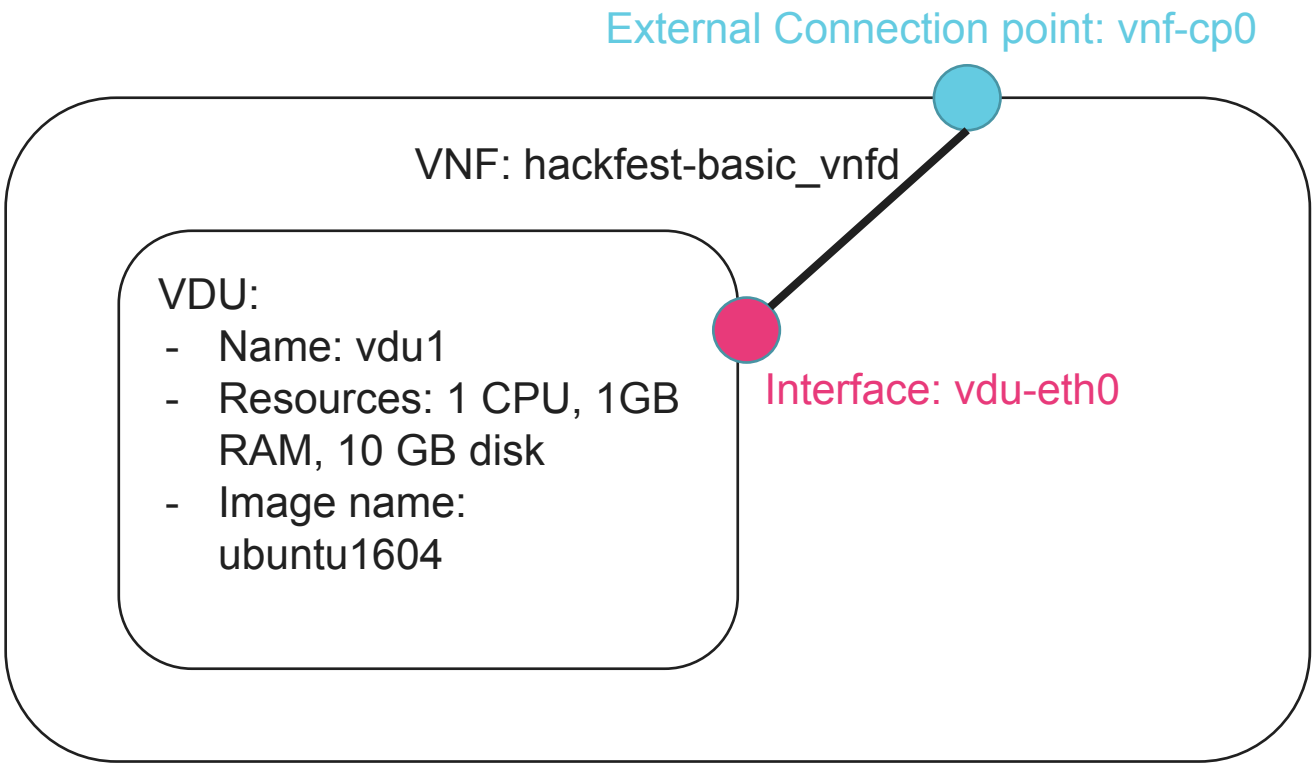
ETSI

NS diagram



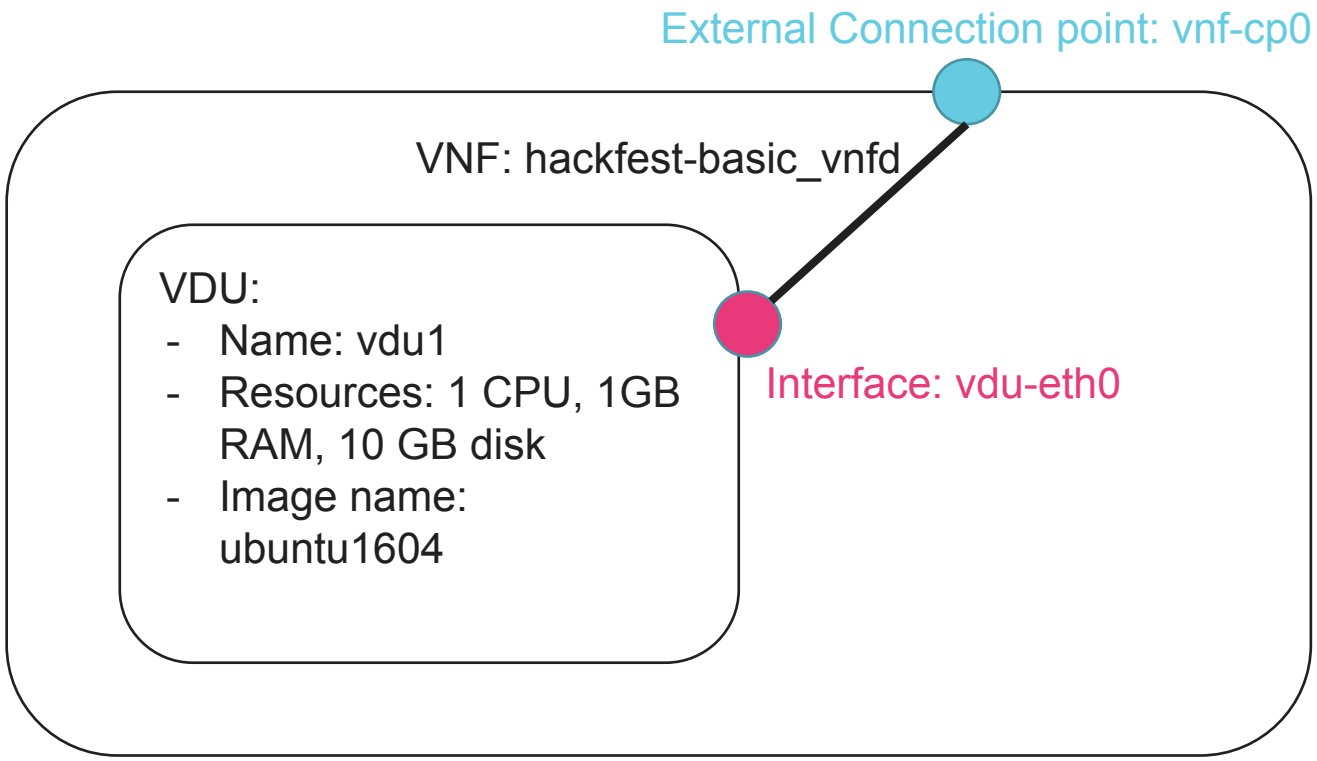
VNF diagram



Creating the VNF with the client

- git clone https://osm.etsi.org/gerrit/osm/devops.git devops
- Generate skeleton folder (VNF with only 1 VDU)
  - devops/descriptor-packages/tools/generate_descriptor_pkg.sh -t vnfd --image ubuntu1604 -c hackfest-basic
- Go to hackfest-simple_vnfd folder and edit the descriptor:
  - Use the IM tree representation of VNFD as a reference:
    - http://osm-download.etsi.org/ftp/osm-doc/vnfd.html
  - Descriptor language is YAML:
    - Indentation is part of the markup
    - Use always the same indentation characters (TAB, 4 spaces, 2 spaces)
      - Recommendation: 2 spaces is the preferred indentation

VNF diagram



Editing the VNF descriptor

```
vnfd:
-   id: hackfest-basic_vnfd
    name: hackfest-basic_vnfd
    ...
    mgmt-interface:
        cp: vnf-cp0
    vdu:
    -   id: hackfest-basic_vnfd-VM
        name: hackfest-basic_vnfd-VM
        vm-flavor:
            vcpu-count: 1
            memory-mb: 1024
            storage-gb: 10
        image: ubuntu1604
        cloud-init-file: cloud-config.txt
        interface:
        -   name: eth0
            virtual-interface:
                type: VIRTIO
                ...
            external-connection-point-ref: vnf-cp0
    connection-point:
    -   name: vnf-cp0
        …
```

Cloud Init

- In the VNFD package inside the “cloud_init” folder download the cloud-config.txt file:
  - wget https://osm-download.etsi.org/ftp/osm-5.0-five/5th-hackfest/other/cloud-config.txt

Validate the VNF descriptor and generate VNF package

- https://osm.etsi.org/wikipub/index.php/Creating_your_own_VNF_package#Validate_descriptors
- The first time we need to install the python OSM IM package:

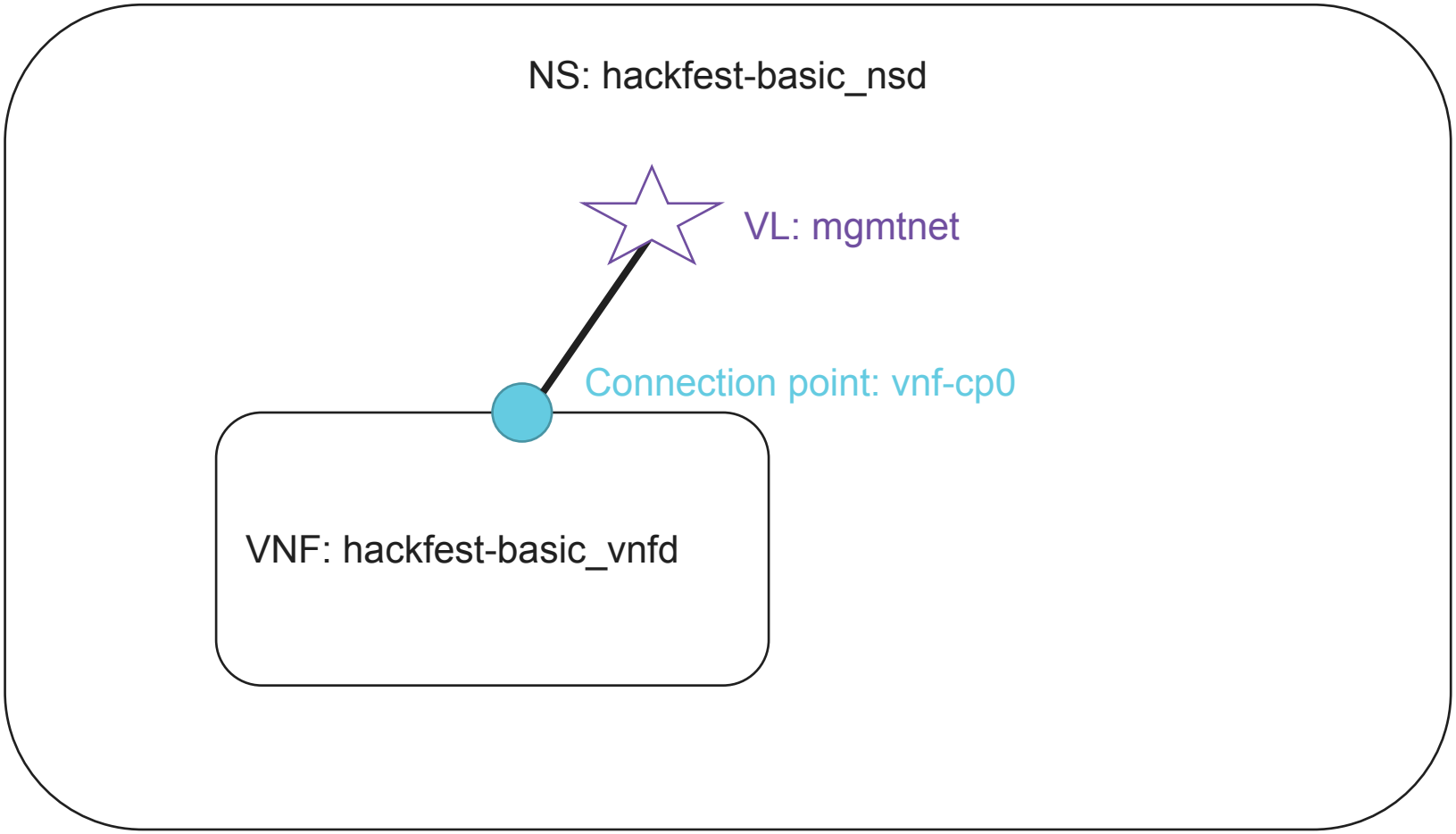
```
curl "https://osm-download.etsi.org/repository/osm/debian/ReleaseFIVE/OSM%20ETSI%20Release%20Key.gpg" |
sudo apt-key add - && sudo apt-get update && sudo add-apt-repository -y "deb [arch=amd64]
https://osm-download.etsi.org/repository/osm/debian/ReleaseFIVE stable IM osmclient devops"

# Install/update python-osm-im and its dependencies
apt-get update
apt-get install python-osm-im
sudo -H pip install pyangbind
```

- Validate VNF descriptor
  - `devops/descriptor-packages/tools/validate_descriptor.py <DESCRIPTOR_FILE>`
- Generate VNF package (from parent folder)
  - `devops/descriptor-packages/tools/generate_descriptor_pkg.sh -t vnfd -N <VNFD_FOLDER>`

Creating the NS with the client

- Generate skeleton folder (NS with only 1 VNF)
  - devops/descriptor-packages/tools/generate_descriptor_pkg.sh -t nsd -c hackfest-basic
- Go to hackfest-basic_nsd folder and edit the descriptor:
  - Use the IM tree representation of NSD as a reference:
    - http://osm-download.etsi.org/ftp/osm-doc/nsd.html
  - Descriptor language is YAML:
    - Indentation is part of the markup
    - Use always the same indentation characters (TAB, 4 spaces, 2 spaces)
      - Recommendation: spaces preferred over tab

NS diagram



Editing the NS descriptor


```
nsd:
-   id: hackfest-basic_nsd
    name: hackfest-basic_nsd
    ...
    constituent-vnfd:
    -   member-vnf-index: 1
        vnfd-id-ref: hackfest-basic_vnfd
    vld:
    -   id: mgmtnet
        name: mgmtnet
        type: ELAN
        mgmt-network: true
        vnfd-connection-point-ref:
        -   member-vnf-index-ref: 1
            vnfd-connection-point-ref: vnf-cp0
            vnfd-id-ref: hackfest-basic_vnfd
```

Validate the NS descriptor and generate NS package

- https://osm.etsi.org/wikipub/index.php/Creating_your_own_VNF_package#Validate_descriptors
- The first time we need to install the python OSM IM package:

```
curl "https://osm-download.etsi.org/repository/osm/debian/ReleaseFIVE/OSM%20ETSI%20Release%20Key.gpg" |
sudo apt-key add - && sudo apt-get update && sudo add-apt-repository -y "deb [arch=amd64]
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# Install/update python-osm-im and its dependencies
apt-get update
apt-get install python-osm-im
sudo -H pip install pyangbind
```

- Validate NS descriptor
  - `devops/descriptor-packages/tools/validate_descriptor.py <DESCRIPTOR_FILE>`
- Generate NS package (from parent folder)
  - `devops/descriptor-packages/tools/generate_descriptor_pkg.sh -t nsd -N <NSD_FOLDER>`

Before the deployment
Adding VNF and NS packages

- VNF package:
  - osm vnfd-list
  - osm vnfd-create hackfest-basic_vnfd.tar.gz
  - osm vnfd-show hackfest-basic_vnfd
  - osm vnfd-delete …
- NS package:
  - osm nsd-list
  - osm nsd-create hackfest-basic_nsd.tar.gz
  - osm nsd-show hackfest-basic_nsd
  - osm nsd-delete …

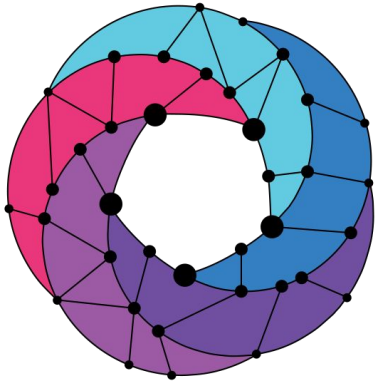
Deploying NS with the client

- osm ns-list
- osm ns-create --ns_name hf-basic --nsd_name hackfest-basic_nsd \
  --vim_account <VIM_ACCOUNT_NAME>|<VIM_ACCOUNT_ID> \
  --ssh_keys <KEY1_PUBKEY_FILE> \

  --config '{vld: [{name: mgmtnet, vim-network-name: MGMT_NET}] }'
- osm ns-show hf1
- osm ns-delete …
- Check VNF instances to see the instance and get the mgmt IP address of the VNF
  - osm vnf-list
  - osm vnf-show …
- Connect to the VNF:
  - ssh -i PRIV_KEY_FILE ubuntu@<IP>

Deploying NS with the UI

- Go to NS packages. In hackfest1-ns, click in “Actions: Instantiate NS”
- Complete the form
  - Add a name to the NS instance
  - Select the Datacenter where the NS will be deployed
  - Specify in the config section a default VIM network name to map “mgmtnet”:
    - {vld: [{name: mgmtnet, vim-network-name: PUBLIC}] }
  - Paste your SSH key
- Go to VNF instances to see the instance and get the mgmt IP address of the VNF, then connect to the VNF:
  - ssh -i <priv_key> ubuntu@<IP>



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