OSM Hackfest – Session 4
Adding day-0 configuration to VNFs
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What is cloud-init and what can it be used for?

• It is a Linux package used to automate initial configuration of a VM

• VM requirements:
  • Cloud-init package
  • Cloud-init configuration (data source) via /etc/cloud/cloud.cfg
    • Config drive
    • Openstack metadata server
    • …

• What can be done?
  • Setting a default locale
  • Setting an instance hostname
  • Generating instance SSH private keys
  • Adding SSH keys to a user’s .ssh/authorized_keys so they can log in
  • Setting up ephemeral mount points
  • Configuring network devices
  • Adding users and groups
  • Adding files

• Docs: http://cloudinit.readthedocs.io/en/latest/
Cloud-init support in OSM

- Cloud-init is available in Linux VMs and might be supported in other OS
- Not all VIMs support cloud-init via a metadata server
- While cloud-init is supported in OSM, it is not a silver bullet
NS: hackfest_cloudinit_nsd

VL: mgmtnet
CP: vnf-mgmt

VNF: hackfest_cloudinit_vnfd
CP: vnf-data

VL: datanet
CP: vnf-data
VNF: hackfest_cloudinit_vnfd
VNF diagram
Changes highlighted in yellow

VDU: mgmtVM
- Image name: hackfest3-mgmt
- VM Flavor: 1 CPU, 1GB RAM, 10 GB disk
- Interfaces:
  - mgmtVM-eth0: VIRTIO
  - mgmtVM-eth1: VIRTIO
- Cloud init input

VDU: dataVM
- Image name: hackfest3-mgmt
- VM Flavor: 1 CPU, 1GB RAM, 10 GB disk
- Interfaces:
  - dataVM-eth0: VIRTIO
  - dataVM-xe0: VIRTIO

External Connection point: vnf-mgmt
External Connection point: vnf-data

VNF: hackfest_cloudinit_vnfd
VL: internal
ICP: mgmtVM-internal
ICP: dataVM-internal
mgmtVM-eth0
mgmtVM-eth1
dataVM-eth0
dataVM-xe0
Creating the VNF (1/2)

• Go to the command line
• Copy & rename hackfest_multivdu_vnfd to hackfest_cloudinit_vnfd
• Modify the new VNF
  • Name: hackfest_cloudinit_vnfd
    • VIM trick: :g/text to substitute /new text/g
• Modify VDU mgmtVM:
  • Image name: hackfest3-mgmt
  • Cloud init input:
    • Filename
      • Cloud init file: cloud-config.txt
    • Inside the 'vdu' list at the VNFD, put a line referring to the file inside the "cloud_init" folder of the package:
      cloud-init-file: cloud-config.txt
Creating the VNF (2/2)

• Modify VDU dataVM:
  • Image name: hackfest3-mgmt

• Add a new asset:
  • CLOUD_INIT:
    • Upload file: cloud-config.txt
    • It can be downloaded from: https://osm-download.etsi.org/ftp/osm-5.0-five/5th-hackfest/other/cloud-config.txt

• Onboard your new VNFD to the system.
Let's explore the Cloud-init file

• Download it from here:
  • https://osm-download.etsi.org/ftp/osm-5.0-five/5th-hackfest/other/cloud-config.txt

• Content:

```yaml
#cloud-config
password: osm4u
chpasswd: { expire: False }
ssh_pwauth: True

write_files:
- content: |
  # My new helloworld file
  
  owner: root:root
  permissions: '0644'
  path: /root/helloworld.txt
```

A password is added for the default user (‘ubuntu’). This will be used by the charm in Hackfest session 7.

A new file ‘/root/helloworld.txt’ will be created at VM creation to illustrate the way this feature works.
NS diagram
Changes highlighted in yellow

NS: hackfest_cloudinit_nsd

VNF: hackfest_cloudinit_vnfd
CP: vnf-data
VL: datanet

VNF: hackfest_cloudinit_vnfd
CP: vnf-data
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VNF: hackfest_cloudinit_vnfd
CP: vnf-mgmt
VL: mgmtnet

VNF: hackfest_cloudinit_vnfd
CP: vnf-mgmt
VL: mgmtnet
Creating the NS (1/2)

• Add NSD
  • Name: hackfest_cloudinit_nsd

• Add 2 VNFs (hackfest_cloudinit_vnfd)

• Add a first VLD:
  • VLD1:
    • name (optional): mgmtnet
    • TYPE: ELAN
    • MGMT NETWORK: True
    • VIM NETWORK NAME
      • vim-network-name: PUBLIC

<- This is to have a default mapped VIM network
change accordingly
Creating the NS (2/2)

• Add a second VLD:
  • VLD2:
    • name (optional): datanet
    • TYPE: ELAN
    • MGMT NETWORK: False (default)

• Connect VNF Connection Points to the VLs:
  • vnf-mgmt to VLD:mgmtnet
  • vnf-data to VLD:datanet

• Onboard your NSD
Deploying NS in the UI

• Select hackfest_cloudinit_nsd and instantiate it

• Complete the form
  • Add a name to the NS
  • Select the Datacenter where the NS will be deployed
  • Add SSH key

• Go to the dashboard to see the instance and get the mgmt IP address of the VNF

• Connect to each VNF:
  • ssh ubuntu@<IP>

• Check that the cloud-config file was executed