



UNIVERSITÄT
PADERBORN



Future Internet - SS19

Complex Service Orchestration with OSM and OpenStack

Mini-Project Intermediate Presentation

Goals

- Hands-on experiments with tools
 - Open Source MANO (OSM) / Sonata
 - OpenStack
 - Ubuntu Cloud Image
 - Cloud-init
 - ...

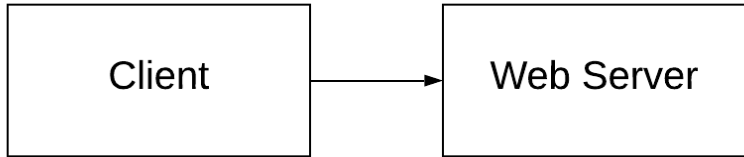
Goals

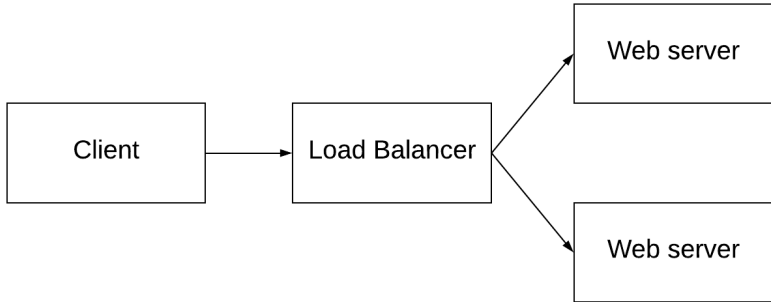
- Hands-on experiments with tools
 - Open Source MANO (OSM) / Sonata
 - OpenStack
 - Ubuntu Cloud Image
 - Cloud-init
 - ...
- Build and deploy a complex service in virtual environment

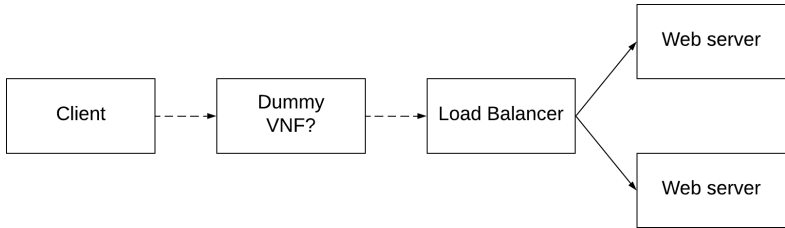
Goals

- Hands-on experiments with tools
 - Open Source MANO (OSM) / Sonata
 - OpenStack
 - Ubuntu Cloud Image
 - Cloud-init
 - ...
- Build and deploy a complex service in virtual environment
- Get **Service Function Chaining**: VNF Forwarding Graph to work (?)
 - Currently unstable in OSM, could lead to a pull request

Scenario









Progress so far...

Progress so far...

1. Environment Setup

- OSM Release 5
- DevStack Ocata (OpenStack for dev)

Progress so far...

1. Environment Setup

- OSM Release 5
- DevStack Ocata (OpenStack for dev)

2. Virtual Function Preparation

- Base Image - Ubuntu Cloud Image 16.04
- Load Balancer - HAProxy
- Web Server - Nginx

Progress so far...

1. Environment Setup

- OSM Release 5
- DevStack Ocata (OpenStack for dev)

2. Virtual Function Preparation

- Base Image - Ubuntu Cloud Image 16.04
- Load Balancer - HAProxy
- Web Server - Nginx

3. Descriptor Creation

- Network Service Descriptor (NSD)
- Virtual Network Function Descriptor (VNFD)
- OSM provides a tool

vdu:

```
- id: ubuntu-cloudinit_vnfd-VM
  name: ubuntu-cloudinit_vnfd-VM
  description: ubuntu-cloudinit_vnfd-VM
  count: 1
  cloud-init-file: cloud-init.cfg
```

vm-flavor:

```
  vcpu-count: 2
  memory-mb: 2048
  storage-gb: 10
```

Image including the full path

```
image: 'ubuntu1604'
```

interface:

```
- name: eth0
  type: EXTERNAL
  virtual-interface:
    type: PARAVIRT
  external-connection-point-ref: vnfd-cp0
```

```
constituent-vnfd:
-   member-vnf-index: 1
    vnfd-id-ref: ubuntu-cloudinit_vnfd

vld:
# Networks for the VNFs
-   id: mgmtnet
    name: mgmtnet
    short-name: mgmtnet
    type: ELAN
    mgmt-network: 'true'
# vim-network-name: <update>
vnfd-connection-point-ref:
-   member-vnf-index-ref: 1
    vnfd-id-ref: ubuntu-cloudinit_vnfd
    vnfd-connection-point-ref: vnf-cp0
```

What's Left?

What's Left?

1. Integration — 1 week

- NSD and VNFD
- cloud-init scripts

What's Left?

1. Integration — 1 week

- NSD and VNFD
- cloud-init scripts

2. Forwarding Graphs — 2 weeks

- Investigate further..

What's Left?

1. Integration — 1 week

- NSD and VNFD
- cloud-init scripts

2. Forwarding Graphs — 2 weeks

- Investigate further..

3. Testing and Documentation — 1 week

GitHub



ashwinprasadme/Future-Internet-SS19-Mini-Project