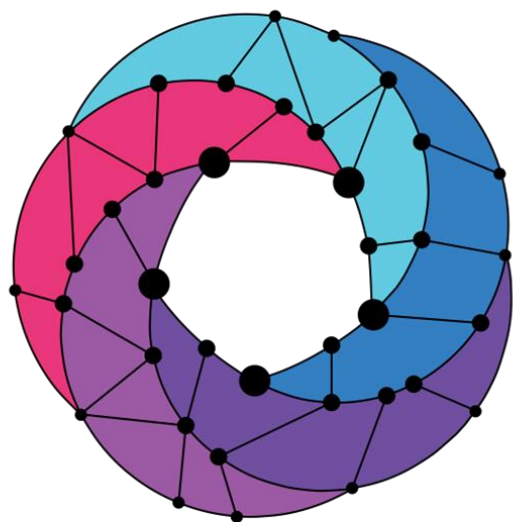




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OSM#9 Hackfest – Day 2

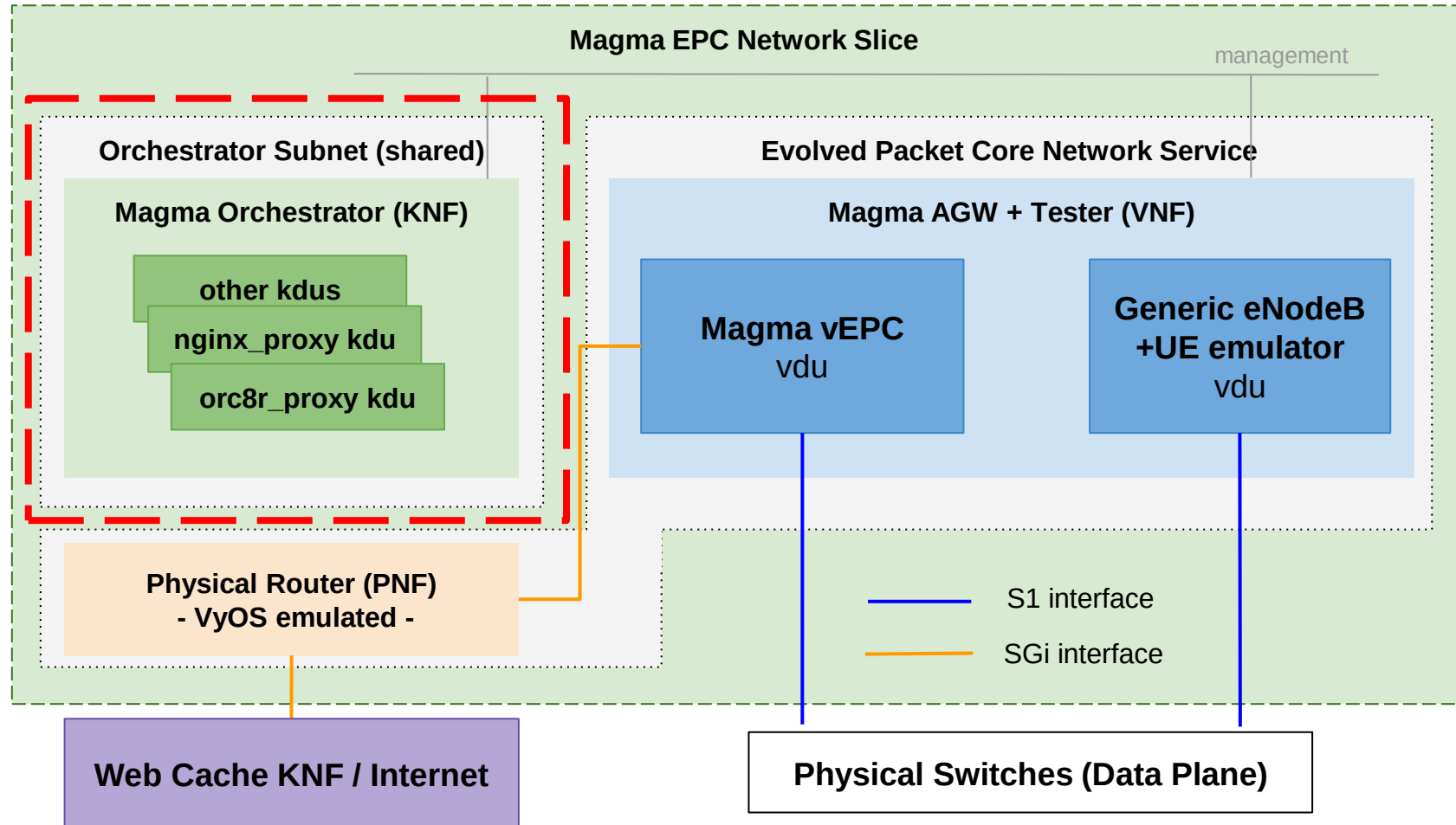
Part 2. Orchestrating a CNF in OSM - Magma Orch

Gerardo García (Telefónica)
Felipe Vicens (Atos)



Hands-on session.

Context: Magma Orchestrator KNF



Session schedule

- We will follow these guides:
 - [User Guide - Using Kubernetes-based VNFs](#)
 - [VNF Onboarding Guidelines - KNF walkthrough](#)



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 - 5.1. Deploying your first Network Service
 - 5.2. Advanced instantiation: using instantiation parameters
 - 5.3. Understanding Day-1 and Day-2 Operations
 - 5.4. Monitoring and autoscaling
 - 5.5. Using Network Slices
 - 5.6. Using Kubernetes-based VNFs (KNFs)
 - 5.6.1. Kubernetes installation
 - 5.6.2. OSM Kubernetes requirements
 - 5.6.3. Adding Kubernetes cluster

5.6. Using Kubernetes-based VNFs (KNFs)

From Release SEVEN, OSM supports Kubernetes-based Network Functions (KNF). This feature unlocks more than 20.000 packages that can be deployed besides VNFs and PNFs. This section guides you to deploy your first KNF, from the installation of multiple ways of Kubernetes clusters until the selection of the package and deployment.

5.6.1. Kubernetes installation

KNFs feature requires an operative Kubernetes cluster. There are several ways to have that Kubernetes running. From the OSM perspective, the Kubernetes cluster is not an isolated environment, but it facilitates the connection to the baremetal environment.

For OSM you can use:

1. OSM Kubernetes
2. Self-managed Kubernetes
3. Kubernetes baremetal

5.6.2. OSM Kubernetes

After the Kubernetes

1. Kubernetes Load Balancing
2. Kubernetes deployment

5.6.3. Adding Kubernetes cluster

In order to test Kubernetes installation of Kubernetes



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Onboarding Requirements

Day 0: VNF Instantiation & Management setup

Day 1: VNF Services Initialization

Day 2: VNF Runtime Operations

Reference NSD/VNFD & Charms

VNF Onboarding Walkthrough

KNF Onboarding Walkthrough (Work in Progress)

Introduction

KNF Requirements

Building the KNF Descriptor

Launching the KNF Package

Testing the KNF Package

Testing functionality

Advanced Charm Development

Additional References

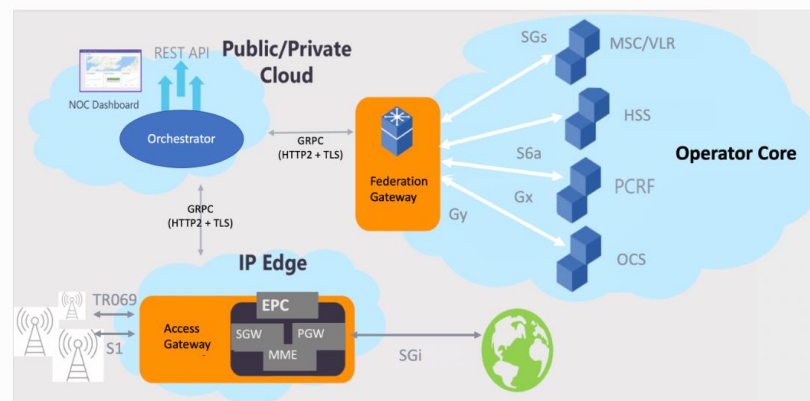
Docs » KNF Onboarding Walkthrough (Work in Progress)

[View page source](#)

KNF Onboarding Walkthrough (Work in Progress)

Introduction

This section uses Facebook's Magma, an open-source software platform that gives network operators an open, flexible and extendable mobile core network solution.



- Add a K8s cluster
- Add a Helm-chart repo
- Onboard KNF and NS packages from VNF repository
- Instantiate and check status
- Running implicit primitives
- Terminate NS

First of all, we need a K8s cluster

Installation: [K8s cluster installation guide](#)

Your Kubernetes cluster needs to meet the following requirements:

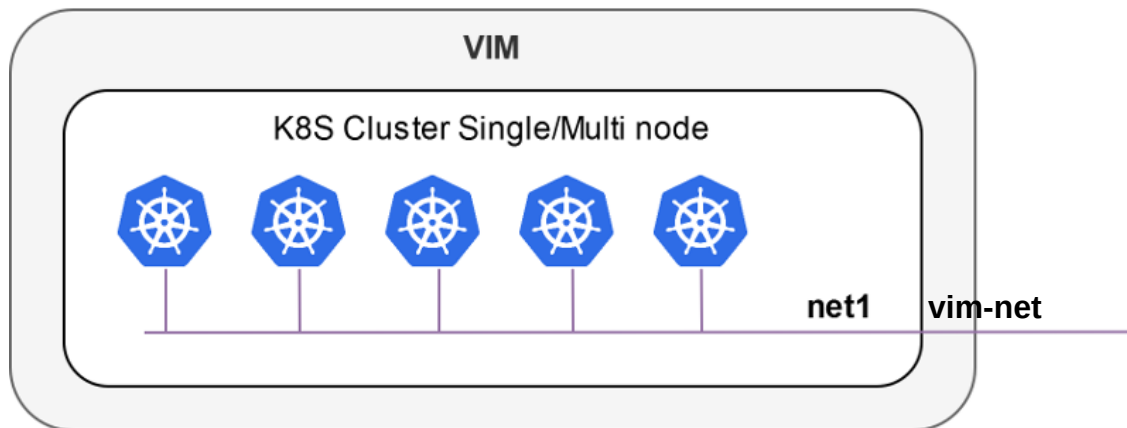
- Kubernetes Loadbalancer, to expose your KNFs to the network
- Kubernetes default Storageclass, to support persistent volumes.

A K8s cluster has already been created for you!

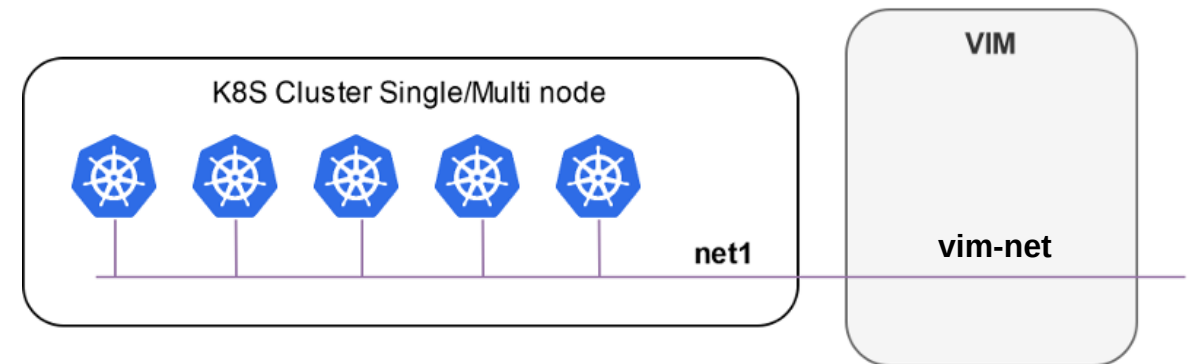
Association of K8s cluster to VIM

A K8s cluster is expected to be connected

K8s cluster deployed inside a VIM



K8s cluster deployed outside a VIM,
connected to a VIM network



```
osm k8scluster-add --creds ... \  
                  --version ... \  
                  --vim <VIM> \  
                  --k8s-nets '{"net1": "vim-net"}' \  
                  <CLUSTER_NAME>
```

- Information to create the cluster:
 - Credentials file: kube.yaml
 - Version: 1.15
 - VIM: osm_hackfest_X
 - K8s nets:
 - net1: osm-ext
 - ClusterName: osm_cluster_X
- Please check that the status of the k8s cluster shown with `osm k8scluster-list` and `osm k8scluster-show` is `ENABLED`.

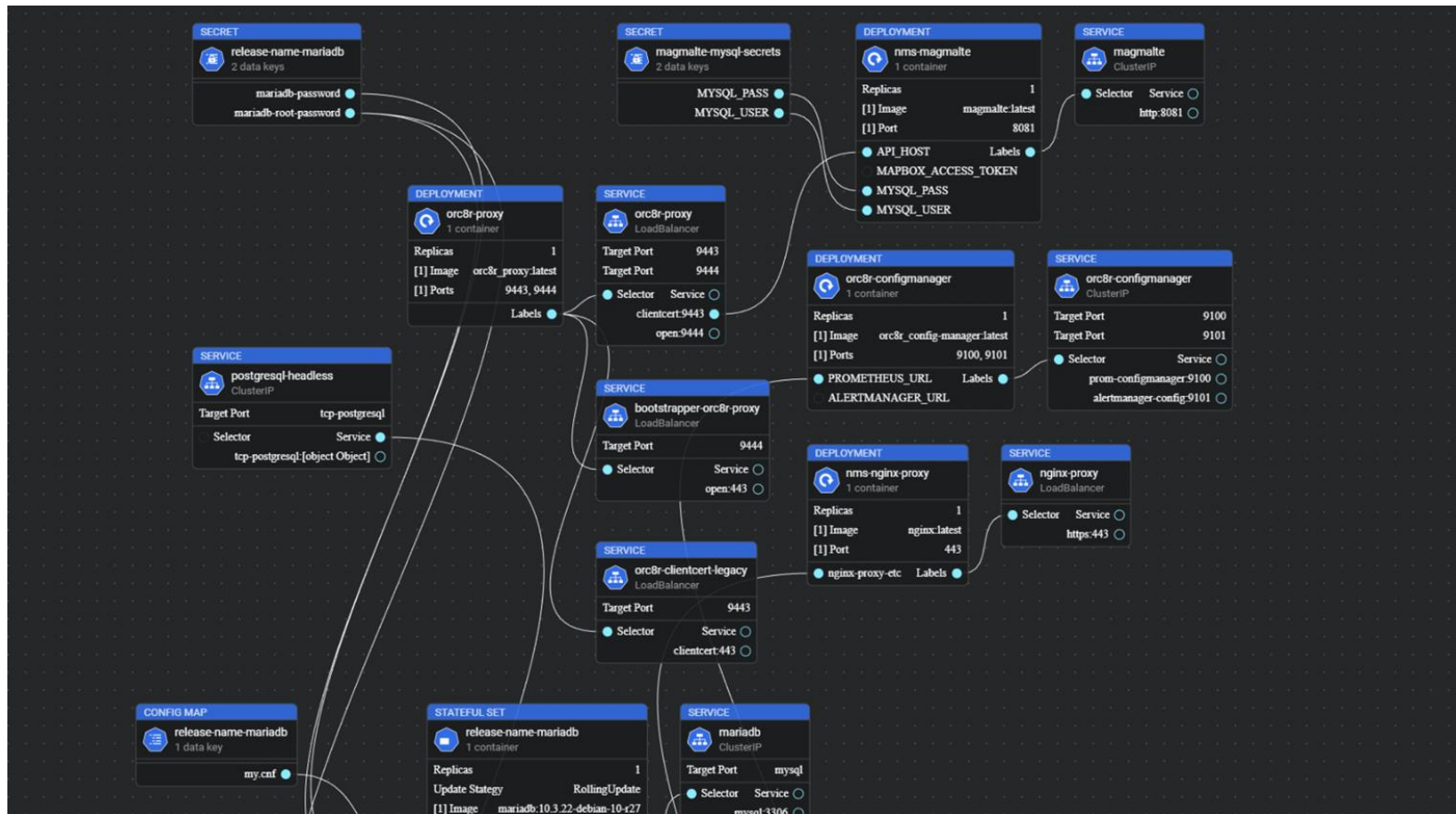
Searching the packages in VNF repo

- Search the following packages in the repo:
 - fb_magma_knf
 - fb_magma_ns

```
osm nfpkg-repo list
osm nfpkg-repo show ...
osm nspkg-repo list
osm nspkg-repo show ...
```

The Magma Orchestrator helm chart

- Magma Orchestrator helm chart structure



Adding a helm-chart repo

- Information to add the Helm-chart repo where Magma Orc8r is located:
 - URI: <https://felipevicens.github.io/fb-magma-helm-chart/>
 - Repo name: magma

```
osm repo-add --type helm-chart \  
            --description "... " \  
            [NAME] [URI]
```

- Check that the repo has been added

Onboarding KNF and NS packages

```
osm nfpkg-create ...  
osm nspkg-create ...
```

Instantiation config file

```
---  
  
additionalParamsForVnf:  
- member-vnf-index: 'orc8r'  
  additionalParamsForKdu:  
  - kdu_name: orc8r  
    additionalParams:  
      proxyserviceloadBalancerIP: '172.21.250.199' # MetalLB IP Address
```

Instantiation. Checking status of the KDU instance

- Launch NS

```
osm ns-create ...  
osm ns-list  
osm vnf-list --ns ...  
osm vnf-show <VNF_ID> --kdu orc8r
```

- Check status in OSM and in the K8s cluster

IS IT WORKING?
LET'S FIX IT!

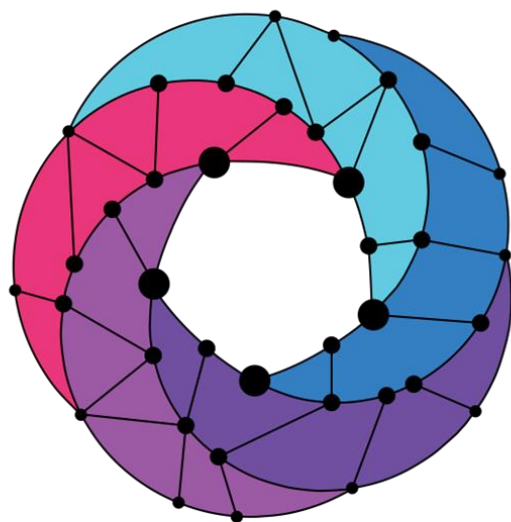
- Upgrade and rollback are implicit operations in KNFs
- Running a NS primitive

```
osm ns-action ...  
osm ns-op-list ...  
osm ns-op-show ...
```

- More info in next sessions

- Delete the NS instance

```
osm ns-delete ...
```



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osm.etsi.org
osm.etsi.org/docs
osm.etsi.org/wikipub

