

Open Source  
**MANO**

# OSM#9 Hackfest

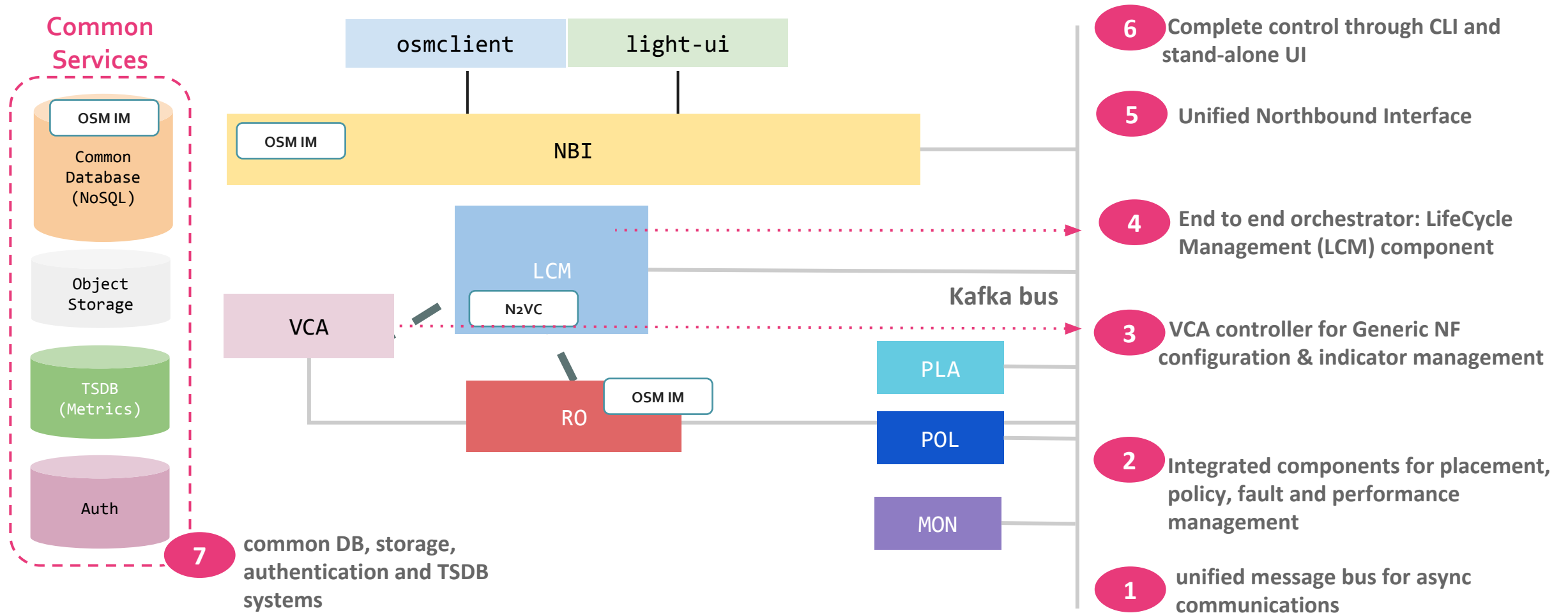
## Hack 1: Architecture & Installation



# OSM Architecture Review

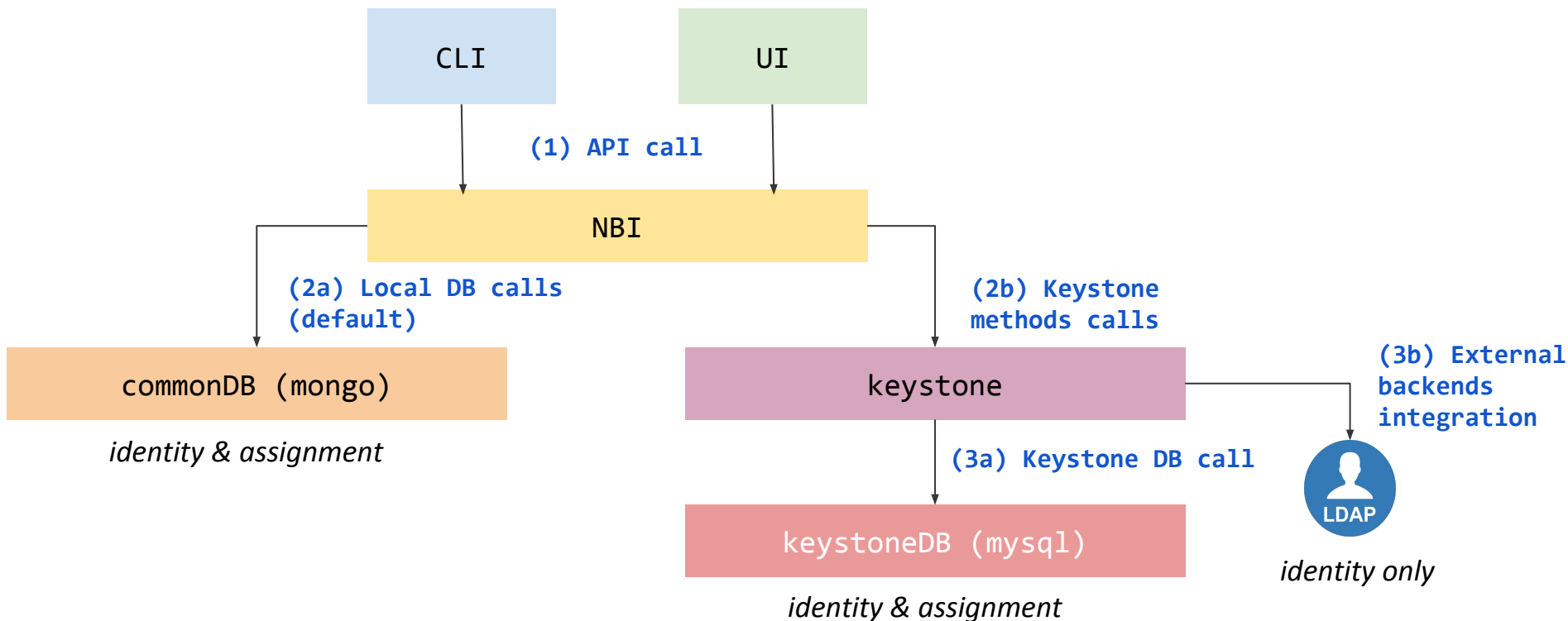


# OSM Architecture overview



# Identity & Assignment Operations

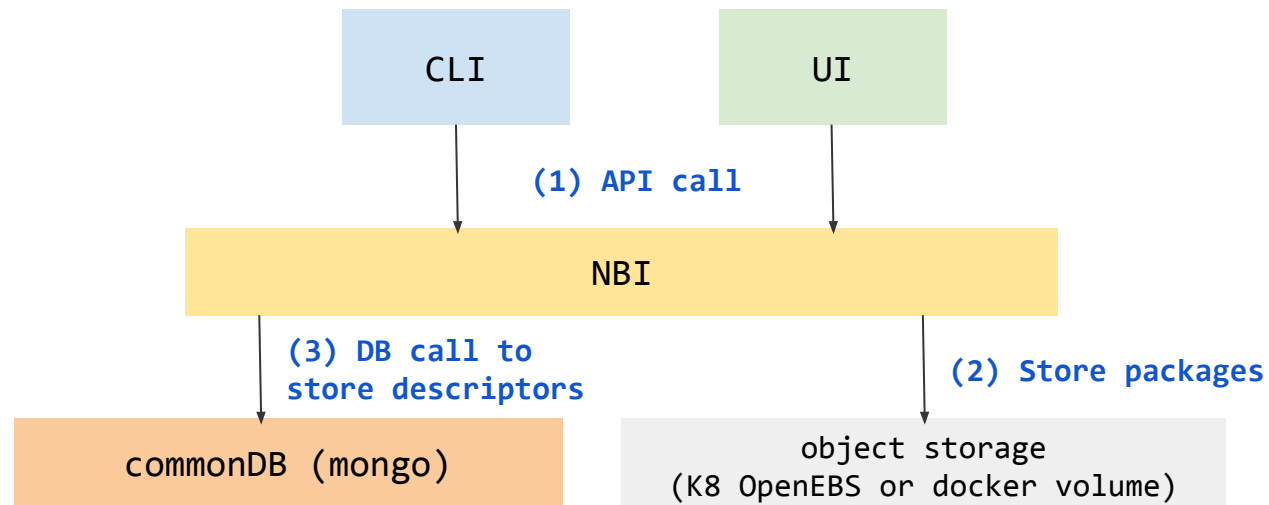
When dealing with the creation, modification or deletion of users, projects and roles, the interacting components vary according to the selected backend.



# Uploading Packages

When reading, uploading, modifying and deleting a Network Slice Template, Network Service Package or VNF Package, the following components interact.

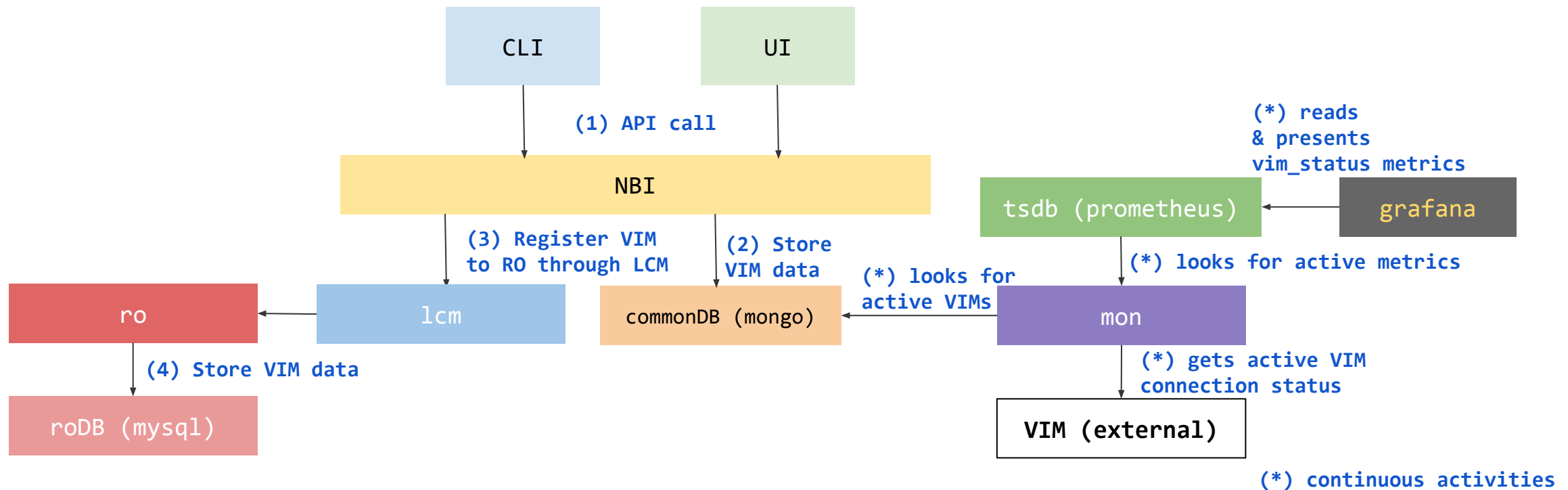
CLI Example: `osm vnfpkg-create myvnfpackage.tar.gz`



# Adding VIM/SDNC Sessions

When registering new sessions with VIMs or SDN Controllers, the following components interact.

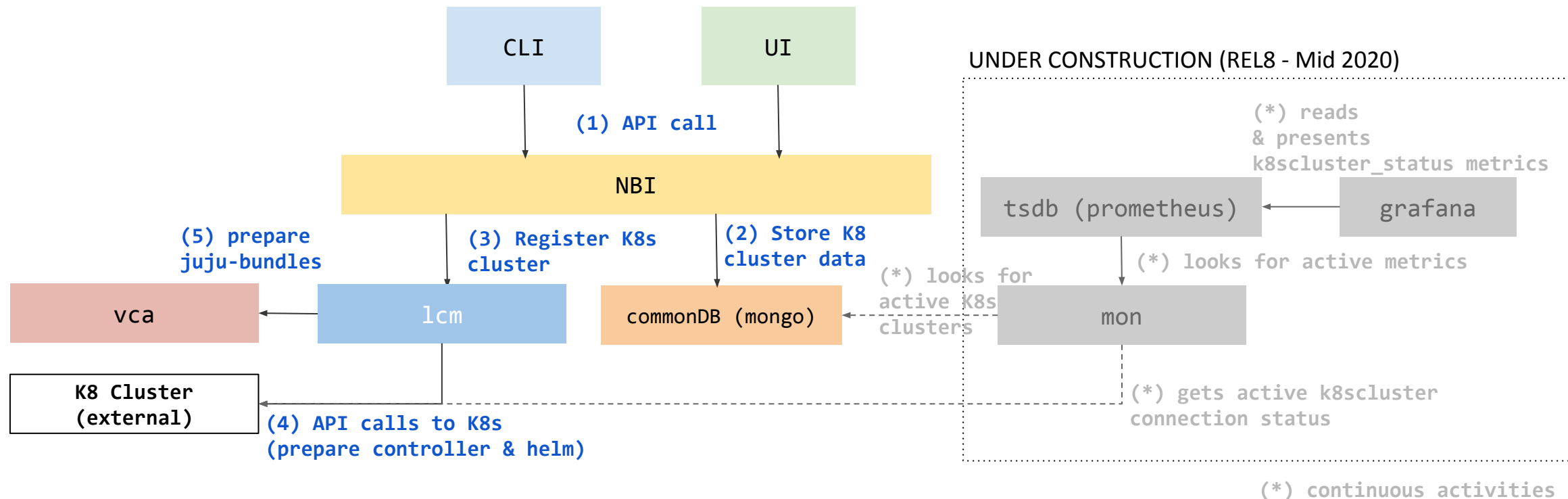
CLI Example: `osm vim-create --name myVIM --user myuser --password myprecious --auth_url http://172.21.7.5:5000/v3 --tenant mytenant --account_type openstack`



# Adding a K8 Cluster

When registering new sessions with Kubernetes clusters, the following components interact.

CLI Example: `osm k8scluster-add --creds myCredentials.yaml --version '1.15' --vim myVIM --description "My K8s cluster" --k8s-nets '{"net1": "myVIMnet"}' myK8Cluster`

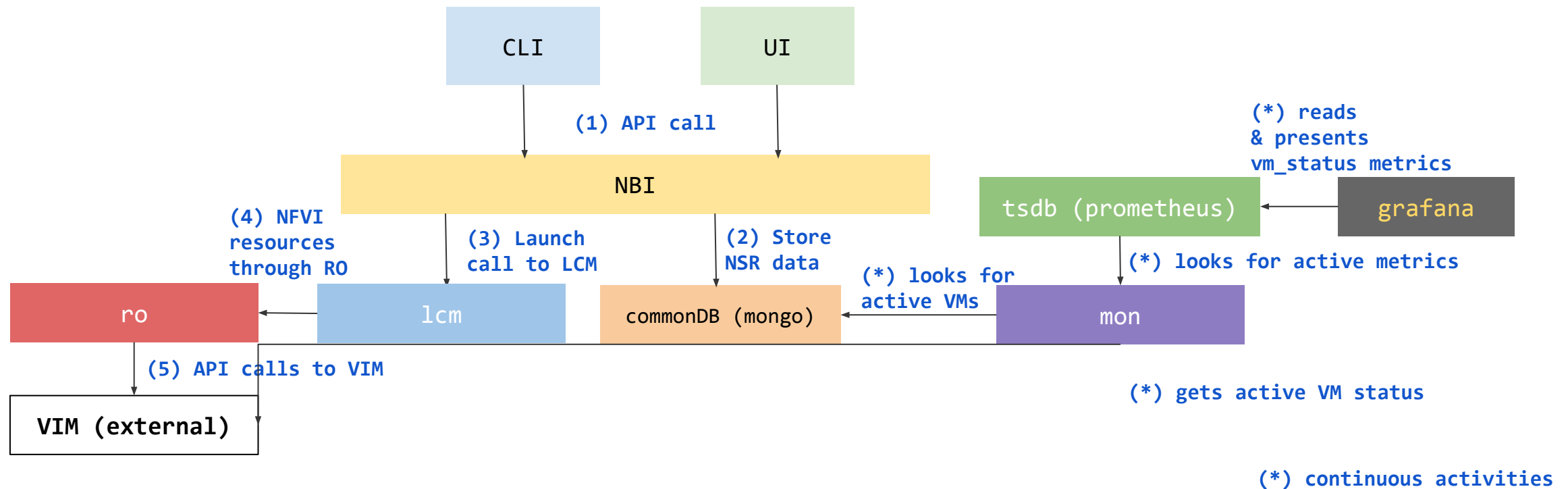




# VNf Instantiation

When launching a new instance of a Network Service or Slice Instance ( $n \times$  VNfS), the following components interact.

CLI Example: `osm ns-create --ns_name myNS --nsd_name myNSD --vim_account myVIM`

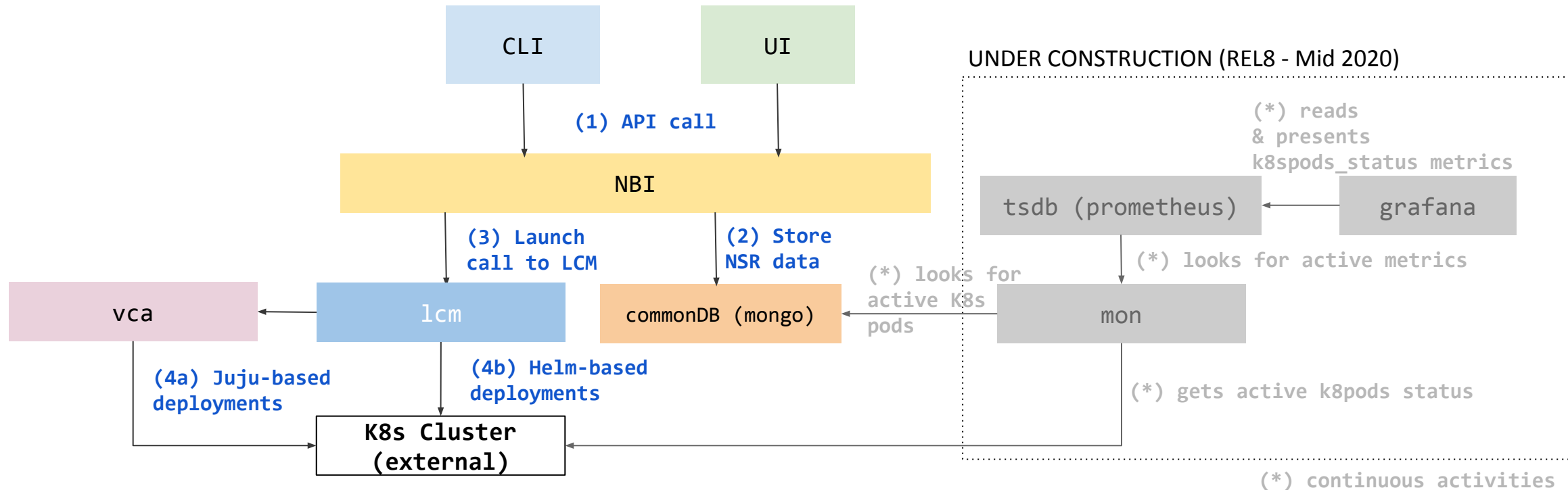




# KNF Instantiation

When launching a new instance of a Network Service or Slice Instance ( $n \times$  VNFs), the following components interact.

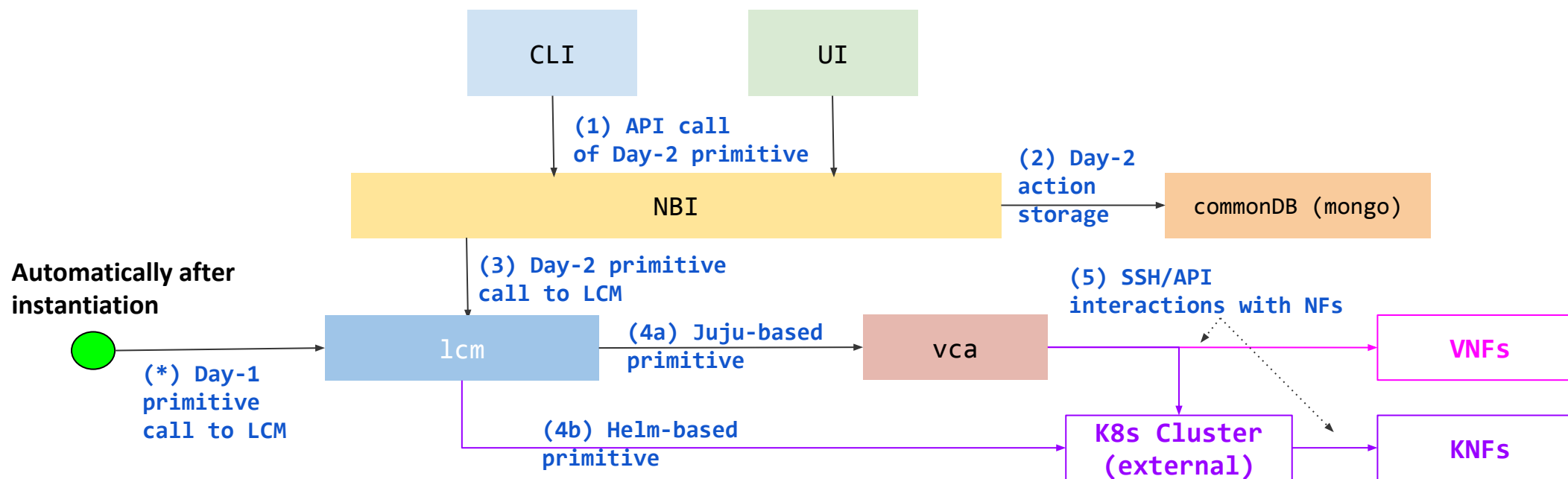
CLI Example: `osm ns-create --ns_name myNS --nsd_name myNSD --vim_account myVIM`



# Instantiating with Primitives

When launching a new instance of a Network Service or Slice Instance ( $n \times$  VNFs), with Day-1/2 automation, direct interaction with the NF is needed, so the following components interact.

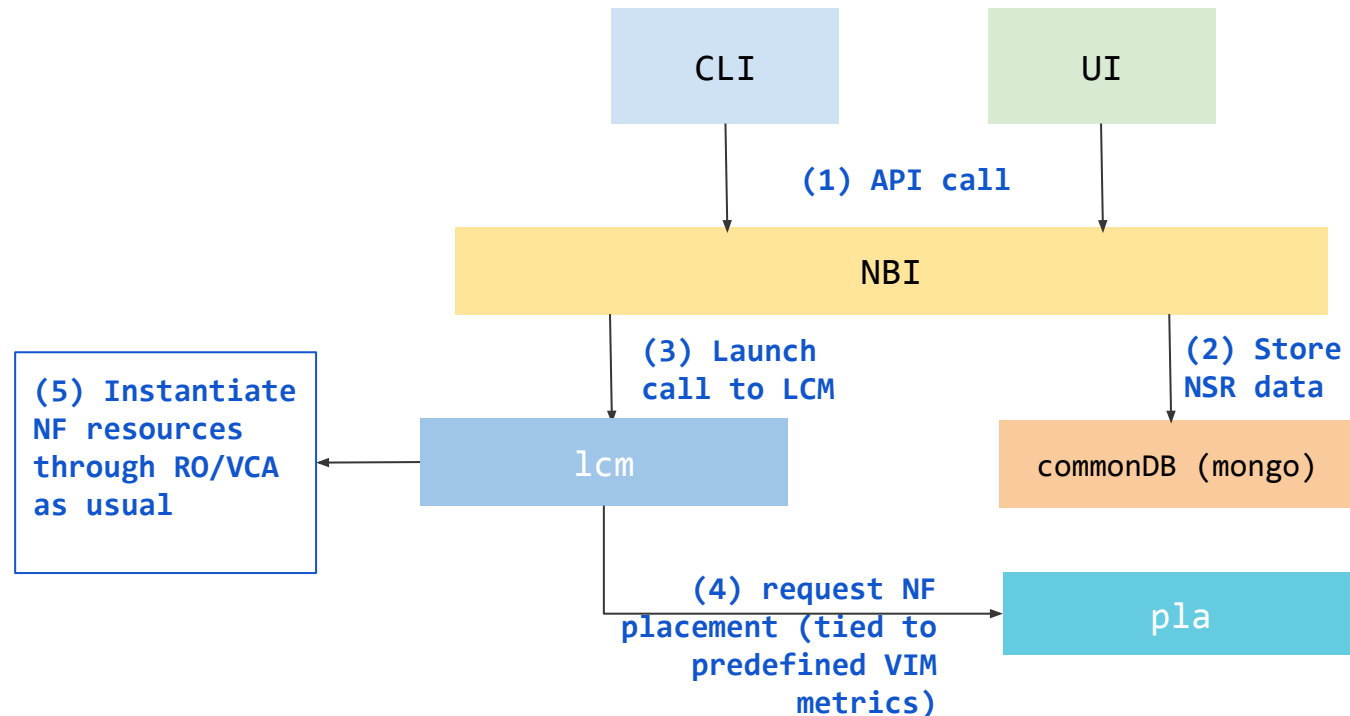
CLI Example of Day-2 primitive: `osm ns-action myNS --vnf_name 1 --action_name myAction`



# Instantiating with Placement

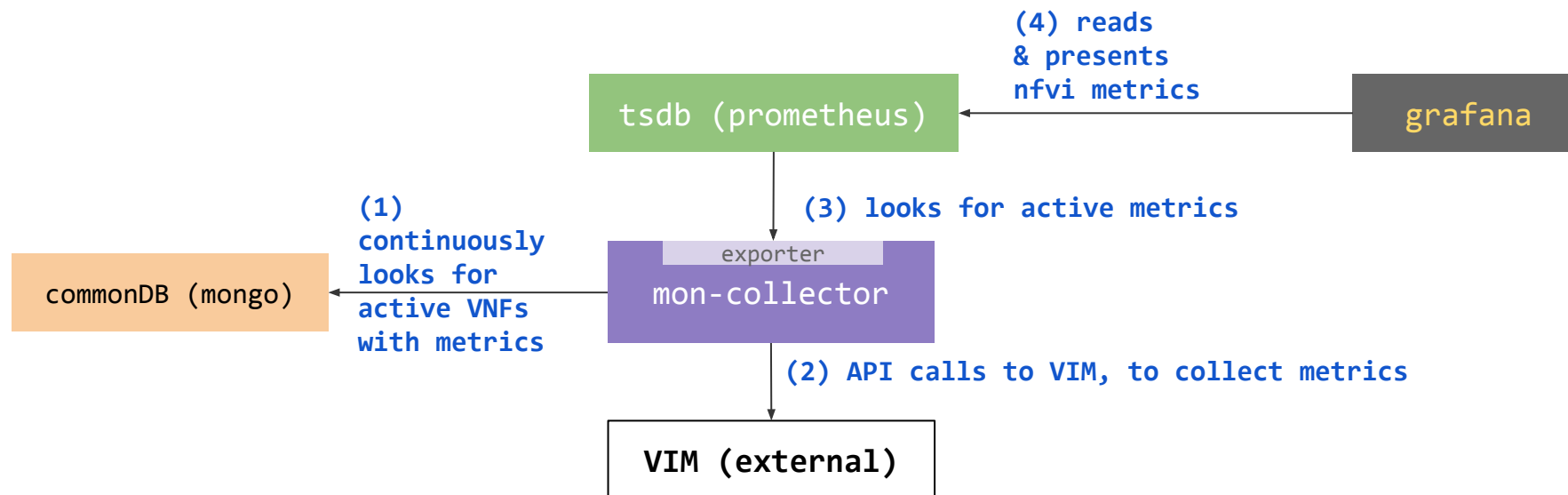
When launching a new instance of a Network Service or Slice Instance ( $n \times$  VNFs), with placement support, the following components interact.

CLI Example: `osm ns-create --ns_name myNS --nsd_name myNSD --vim_account myVIM --config '{placement-engine: PLA, placement-constraints: {...}}'`



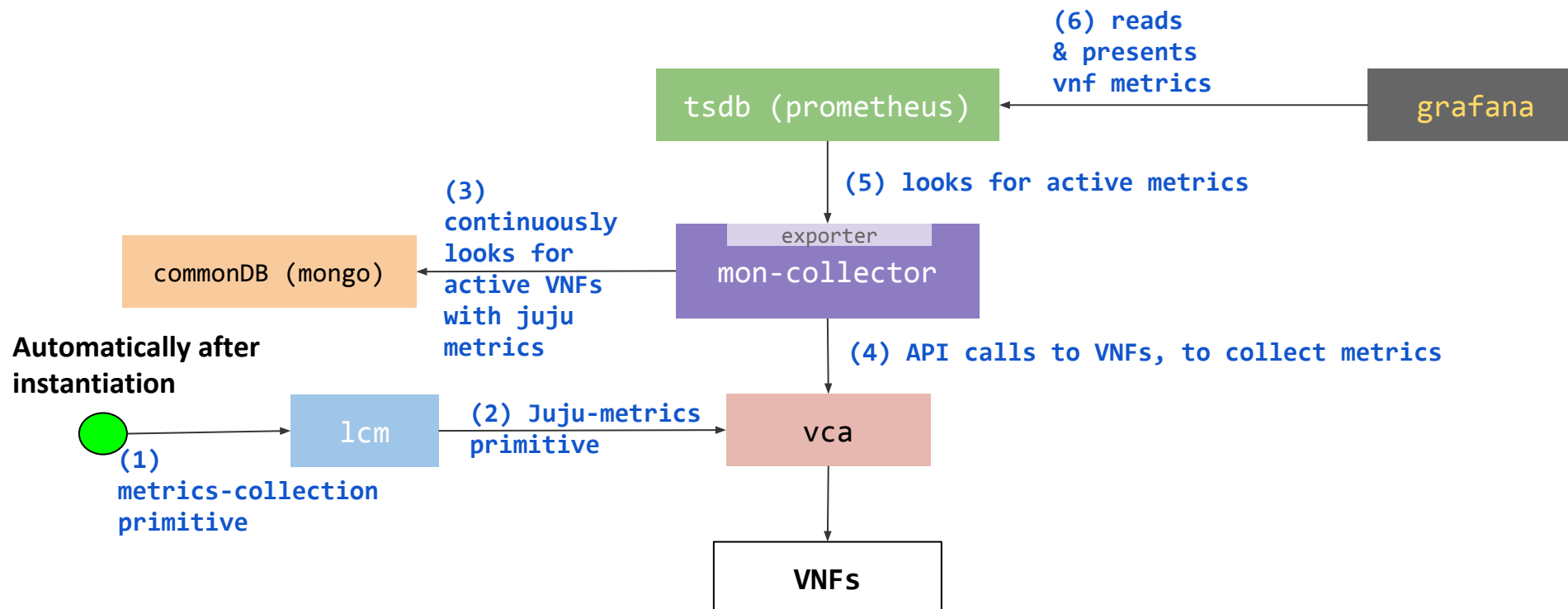
# Collecting VNF Metrics (NFVI)

When launching a new instance of a Network Service or Slice Instance (n x VNFs) which is described with the collection of VNF Metrics that come from infrastructure (NFVI), the following components interact.



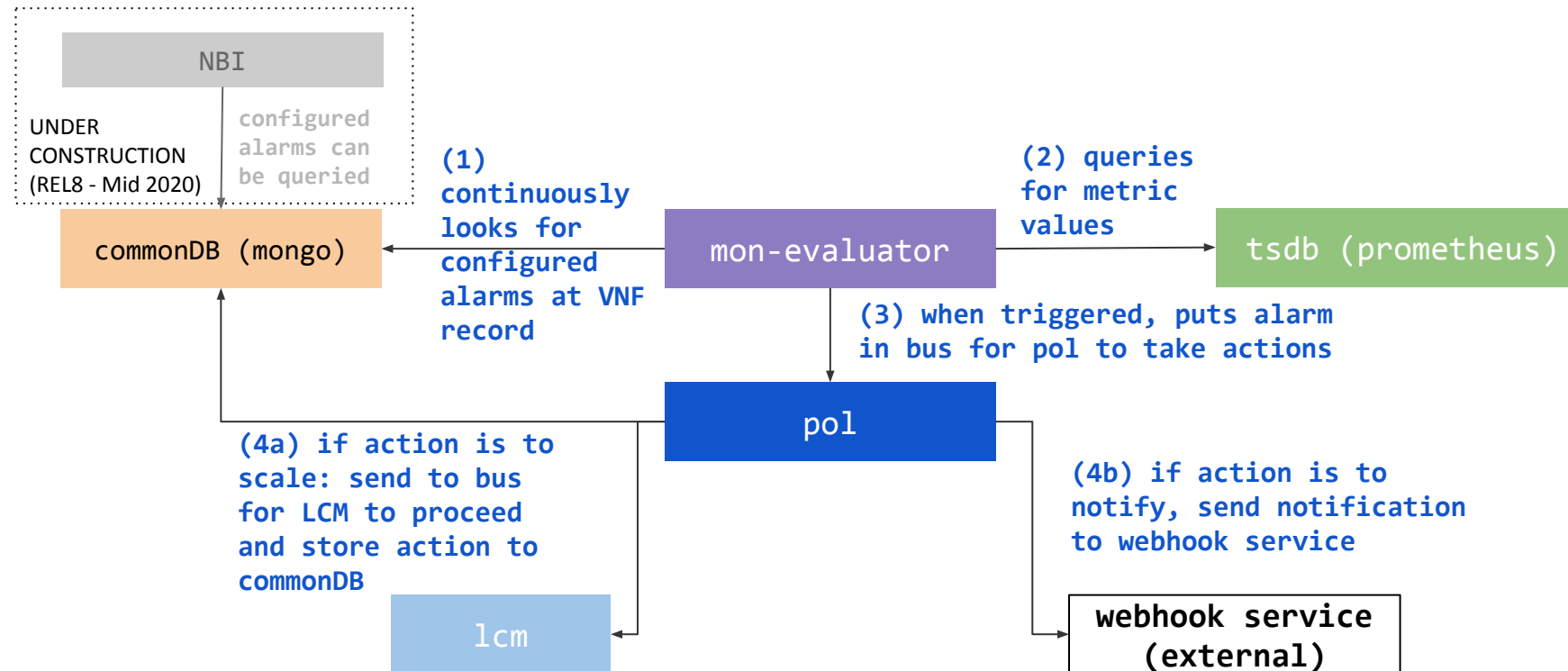
# Collecting VNF Metrics (VNF)

When launching a new instance of a Network Service or Slice Instance (n x VNFs) which is described with the collection of VNF Metrics that come from the VNF itself, the following components interact.



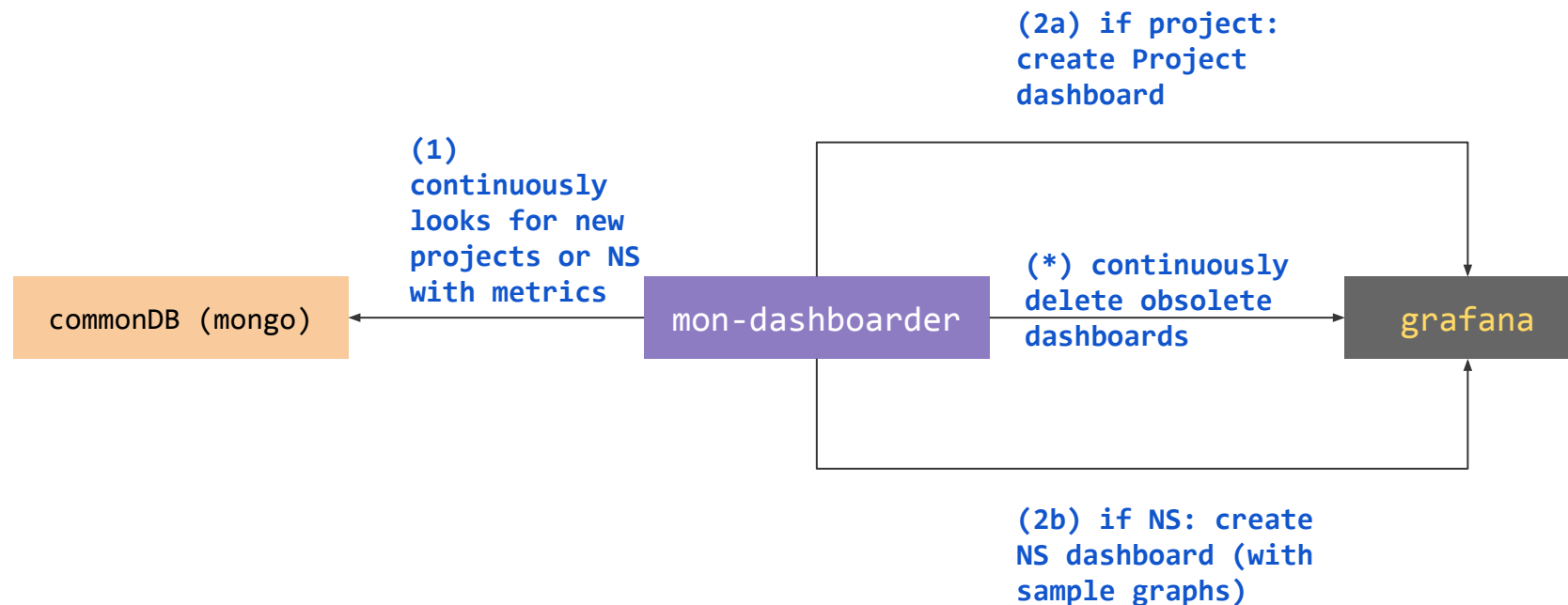
# Alarms & AutoScaling

When configuring alarms associated to scaling actions or just webhook notifications (through the VNFD), the following components interact.



# Automatic Dashboards

When creating Projects or Network Services, Grafana dashboards are created automatically and the following elements interact.





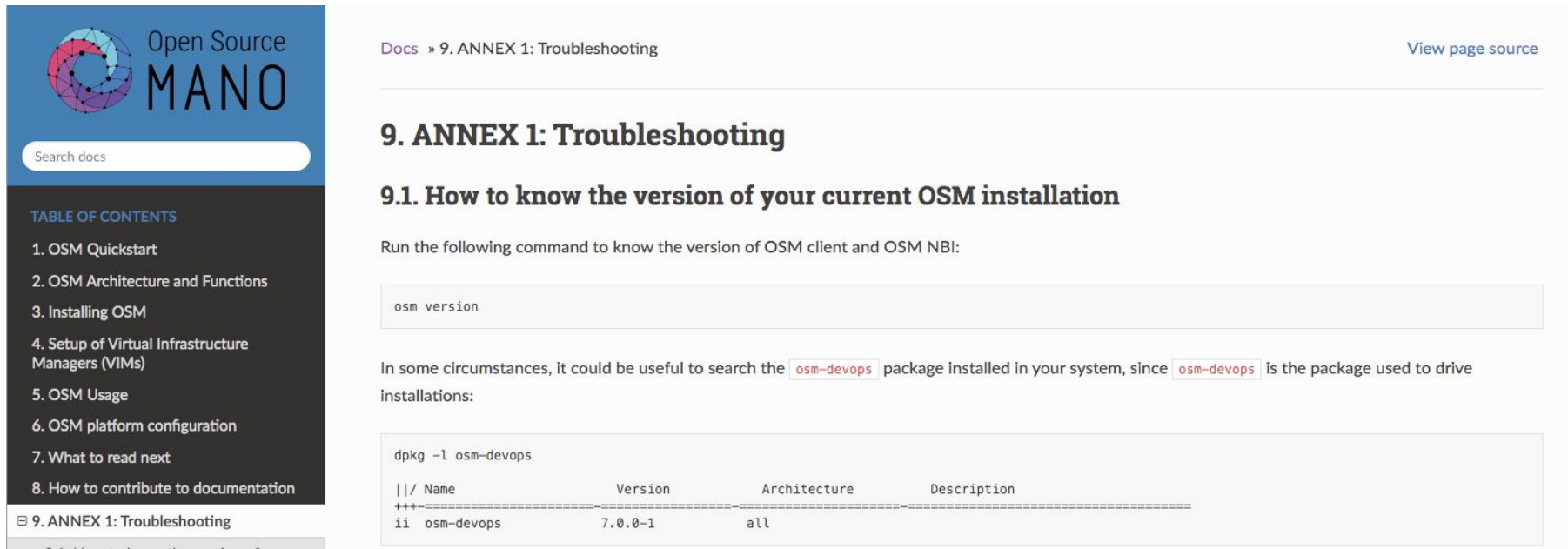
# Troubleshooting OSM

A general approach for OSM Troubleshooting is to first look for error messages in “show” commands, as in:

```
osm ns-show [ns]
osm vim-show [vim]
```

Besides that, knowing which components interact for each operation, you can troubleshoot by looking at the logs of each component. All troubleshooting tips are being documented in the user guide, here:

<https://osm.etsi.org/docs/user-guide/09-troubleshooting.html>



The screenshot shows the Open Source MANO documentation website. On the left is a sidebar with a search bar and a table of contents. The main content area displays the '9. ANNEX 1: Troubleshooting' section, specifically '9.1. How to know the version of your current OSM installation'. It includes a code block for 'osm version' and a terminal output for 'dpkg -l osm-devops'.

**Open Source MANO**

Search docs

**TABLE OF CONTENTS**

- 1. OSM Quickstart
- 2. OSM Architecture and Functions
- 3. Installing OSM
- 4. Setup of Virtual Infrastructure Managers (VIMs)
- 5. OSM Usage
- 6. OSM platform configuration
- 7. What to read next
- 8. How to contribute to documentation
- 9. ANNEX 1: Troubleshooting

**9. ANNEX 1: Troubleshooting**

**9.1. How to know the version of your current OSM installation**

Run the following command to know the version of OSM client and OSM NBI:

```
osm version
```

In some circumstances, it could be useful to search the `osm-devops` package installed in your system, since `osm-devops` is the package used to drive installations:

```
dpkg -l osm-devops
```

ii	Name	Version	Architecture	Description
ii	osm-devops	7.0.0-1	all	



# OSM Installation methods



# OSM Installation methods

1. OSM can be installed in a single server or VM with the following requirements:

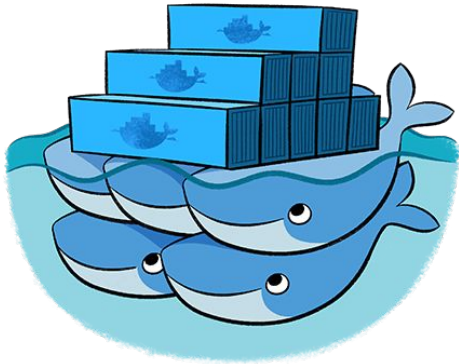
	CPU	RAM	DISK	NIC	Internet	SO
MINIMUM	2	4GB	20GB	1	Yes	Ubuntu18.04 (64-bit variant required)
RECOMMENDED	2	8GB	80GB	1	Yes	Ubuntu18.04 (64-bit variant required)

2. Once you have prepared the host with the previous requirements, all you need to do is:

```
wget https://osm-download.etsi.org/ftp/osm-7.0-seven/install\_osm.sh  
chmod +x install_osm.sh
```

# OSM Installation methods

OSM R7 can be installed using these main options:



## Docker Swarm

```
./install_osm.sh
```



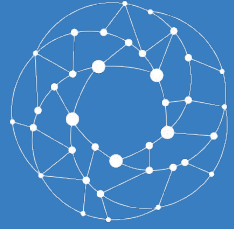
## kubernetes

```
./install_osm.sh -c k8s
```

```
./install_osm.sh -c charmed
```

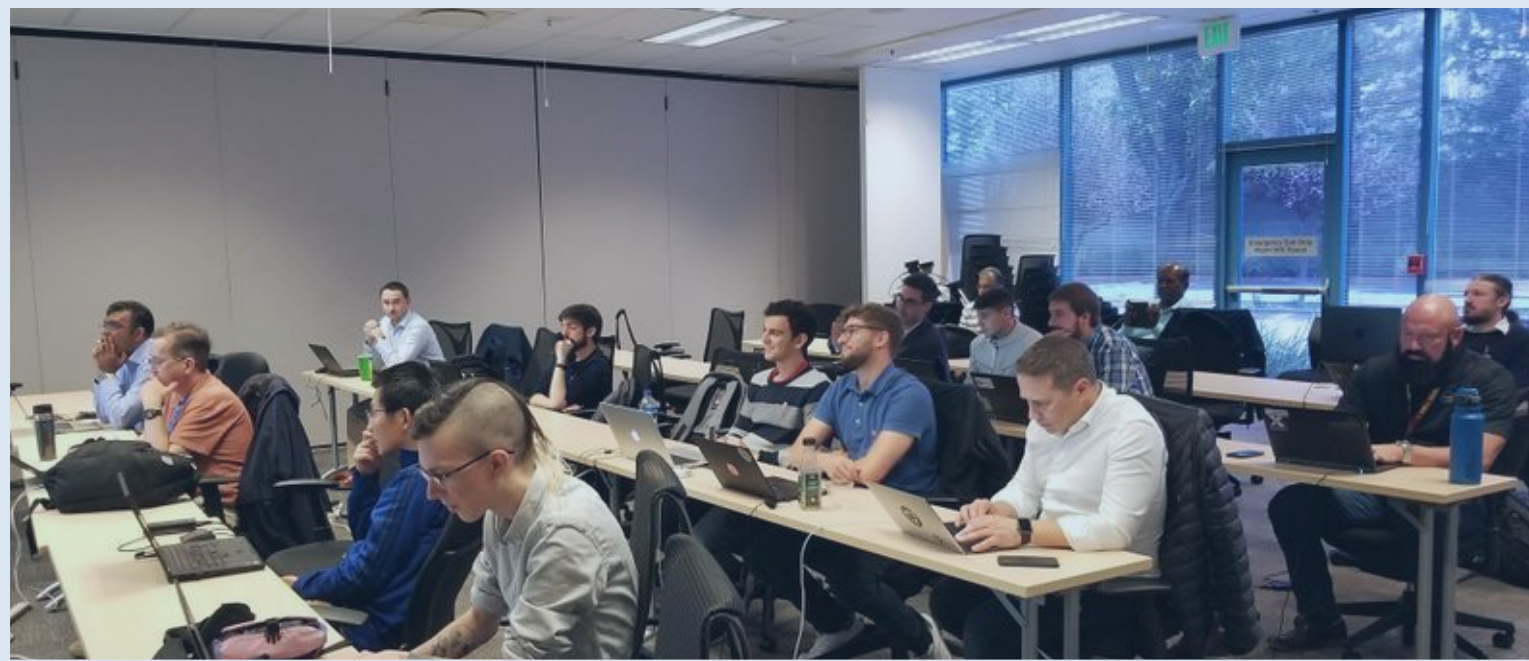
For more information go to <https://osm.etsi.org/docs/user-guide/01-quickstart.html#installing-osm>





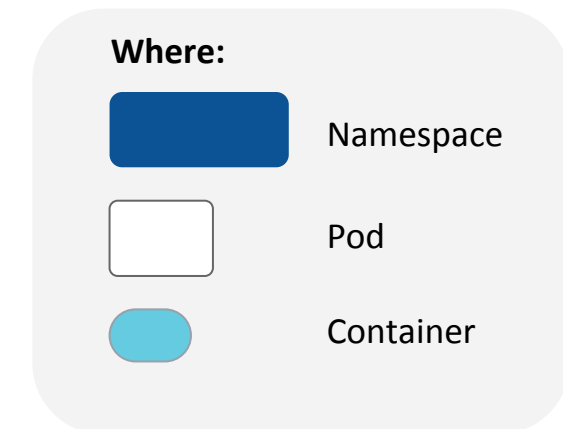
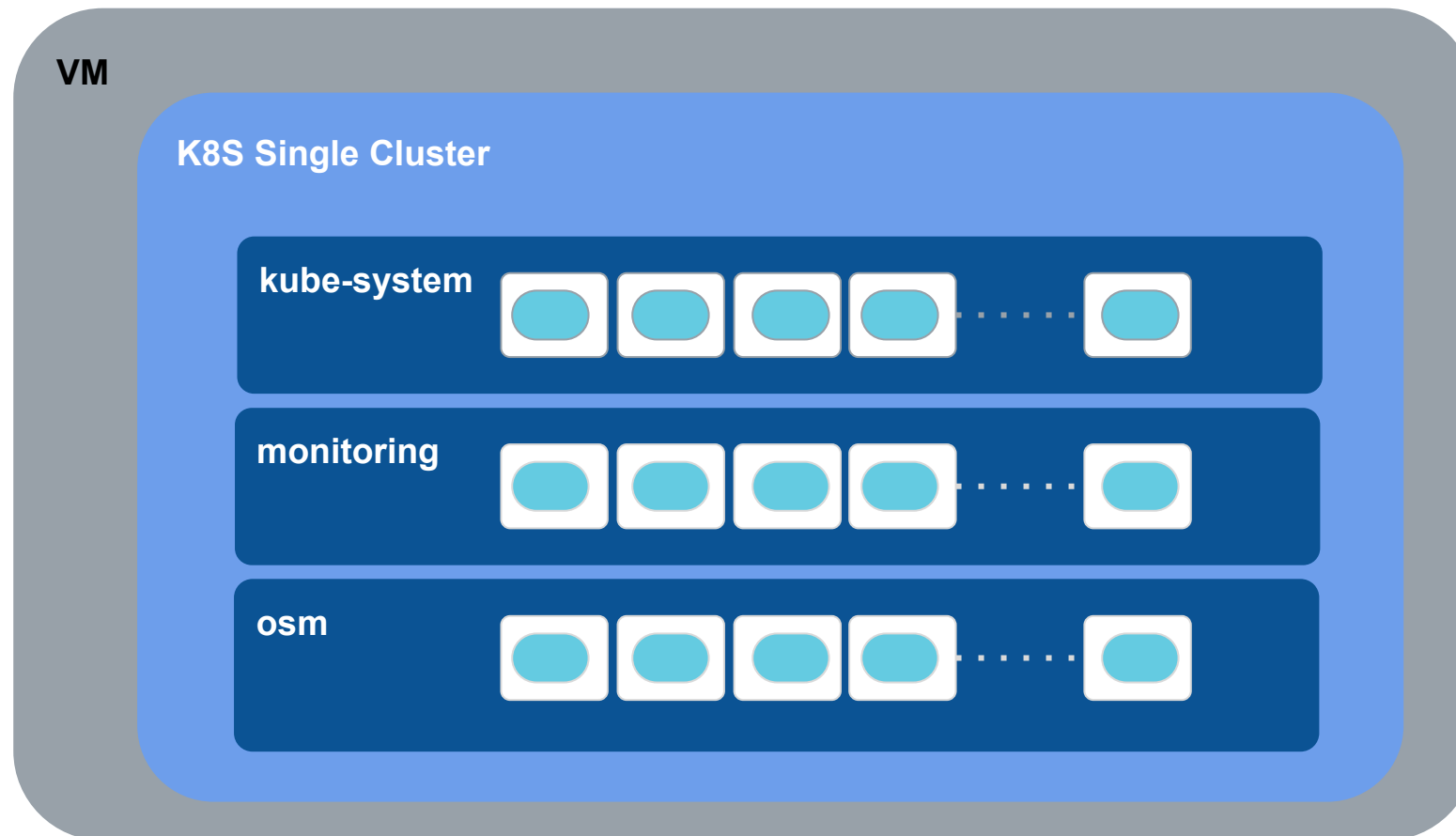
Open Source  
**MANO**

# Hands-on: OSM Installation over Kubernetes

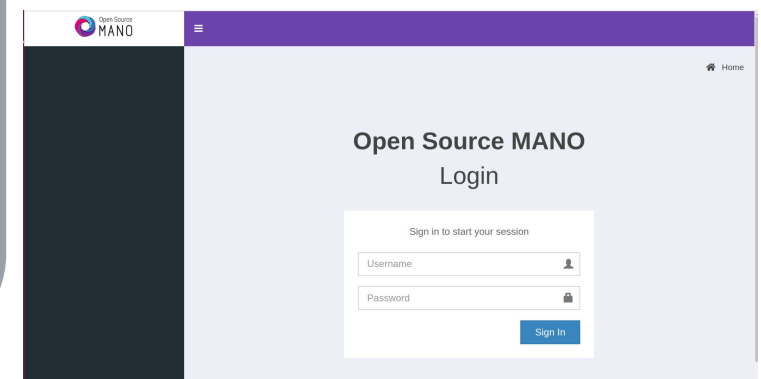


# Hands-on: OSM Installation over Kubernetes

## Scenario



OSM GUI



# Hands-on: OSM Installation over Kubernetes

1. Follow the user-guide at:  
<https://osm.etsi.org/docs/user-guide/01-quickstart.html#installing-osm>
2. Prepare a VM with the requirements.
3. Download the installer for OSM R7

```
wget https://osm-download.etsi.org/ftp/osm-7.0-seven/install\_osm.sh
```

4. Make the installer executable

```
chmod +x install_osm.sh
```



# Hands-on: OSM Installation over Kubernetes

5. Run the installer with -c k8s flag

```
./install_osm.sh -c k8s
```

6. You will be asked to confirm the installation of the following components:

```
The installation will do the following
  1. Install and configure LXD
  2. Install juju
  3. Install docker CE
  4. Disable swap space
  5. Install and initialize Kubernetes
  as pre-requirements.
  Do you want to proceed (Y/n)? Y
```

# Hands-on: OSM Installation over Kubernetes

7. When installation is finished, execute the following commands to check k8s installation:

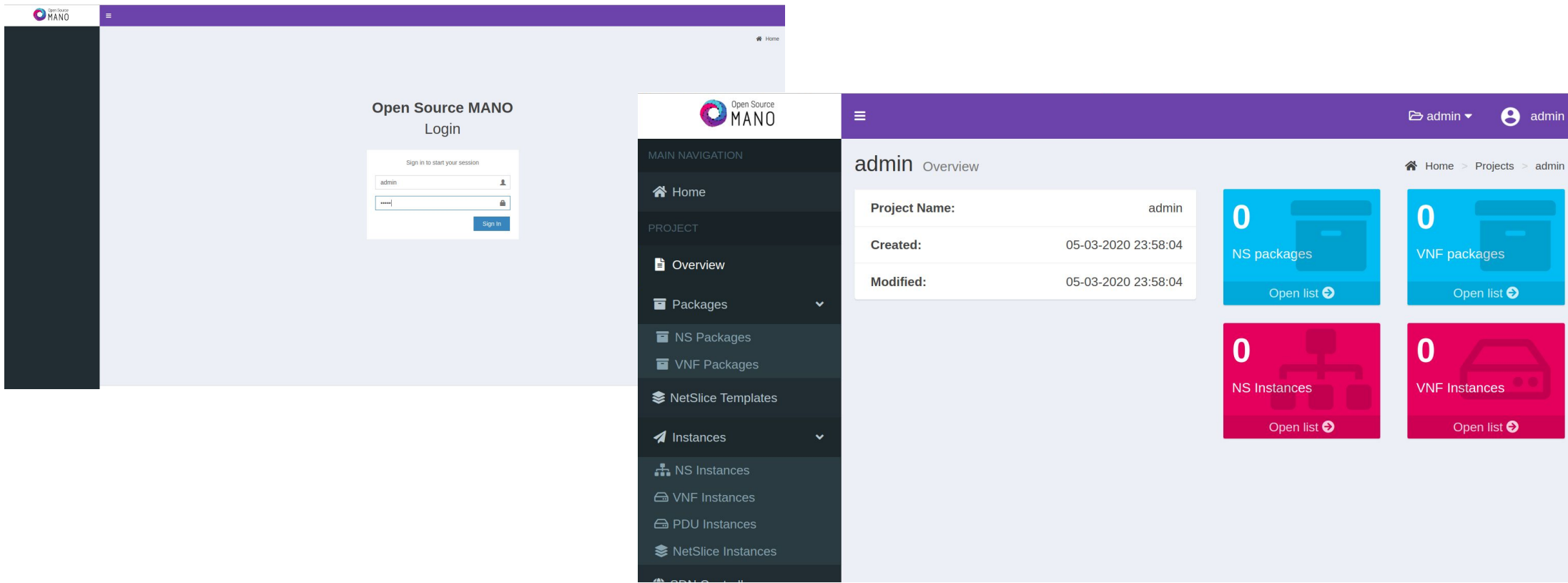
```
kubectl get nodes  
kubectl get namespaces  
kubectl get pods --all-namespaces  
kubectl get all -n kube-system  
kubectl get all -n osm  
kubectl describe pod light-ui-xyz -n osm
```

8. Test the OSM client:

```
osm --help  
osm user-list
```

# Hands-on: OSM Installation over Kubernetes

9. Go to OSM GUI at <http://<VM-IP>> and access with admin/admin

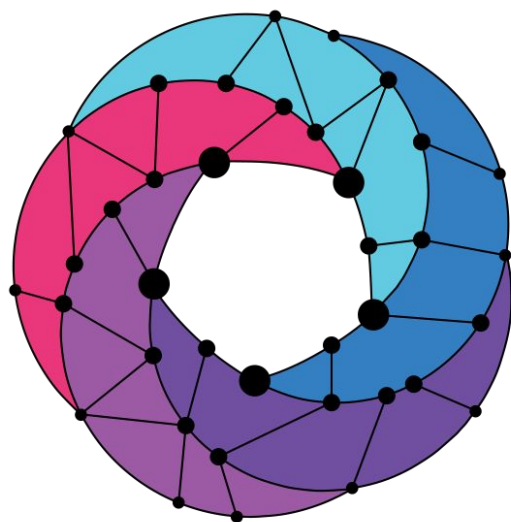


The image displays two overlapping screenshots of the Open Source MANO (OSM) GUI. The background screenshot shows the login page with the title "Open Source MANO Login" and a sign-in form. The foreground screenshot shows the "admin Overview" page after successful login. The foreground page features a dark sidebar with a "MAIN NAVIGATION" menu containing links for Home, Overview, Packages, NS Packages, VNF Packages, NetSlice Templates, Instances, NS Instances, VNF Instances, PDU Instances, and NetSlice Instances. The main content area displays the "admin Overview" with a table of project details and four summary cards.

admin Overview	
Project Name:	admin
Created:	05-03-2020 23:58:04
Modified:	05-03-2020 23:58:04

Count	Category	Action
0	NS packages	Open list
0	VNF packages	Open list
0	NS Instances	Open list
0	VNF Instances	Open list



# Open Source MANO

Find us at:

[osm.etsi.org](https://osm.etsi.org)  
[osm.etsi.org/wikipub](https://osm.etsi.org/wikipub)