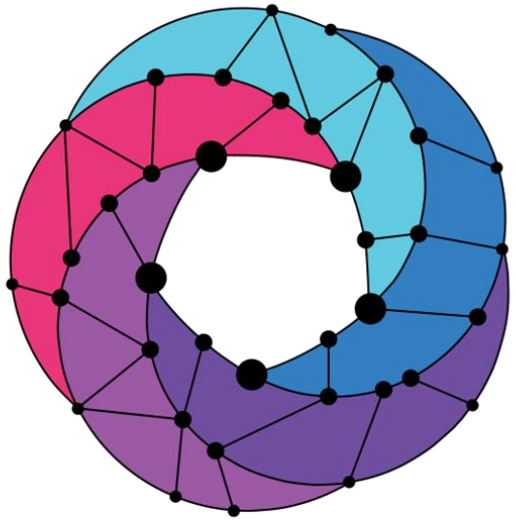


Open Source
MANO

OSM Release EIGHT

Overview & Demos

Francisco-Javier Ramón (Telefónica, ETSI OSM Chair)
Guillermo Calviño (Canonical)
Gianpietro Lavado (WhiteStack)

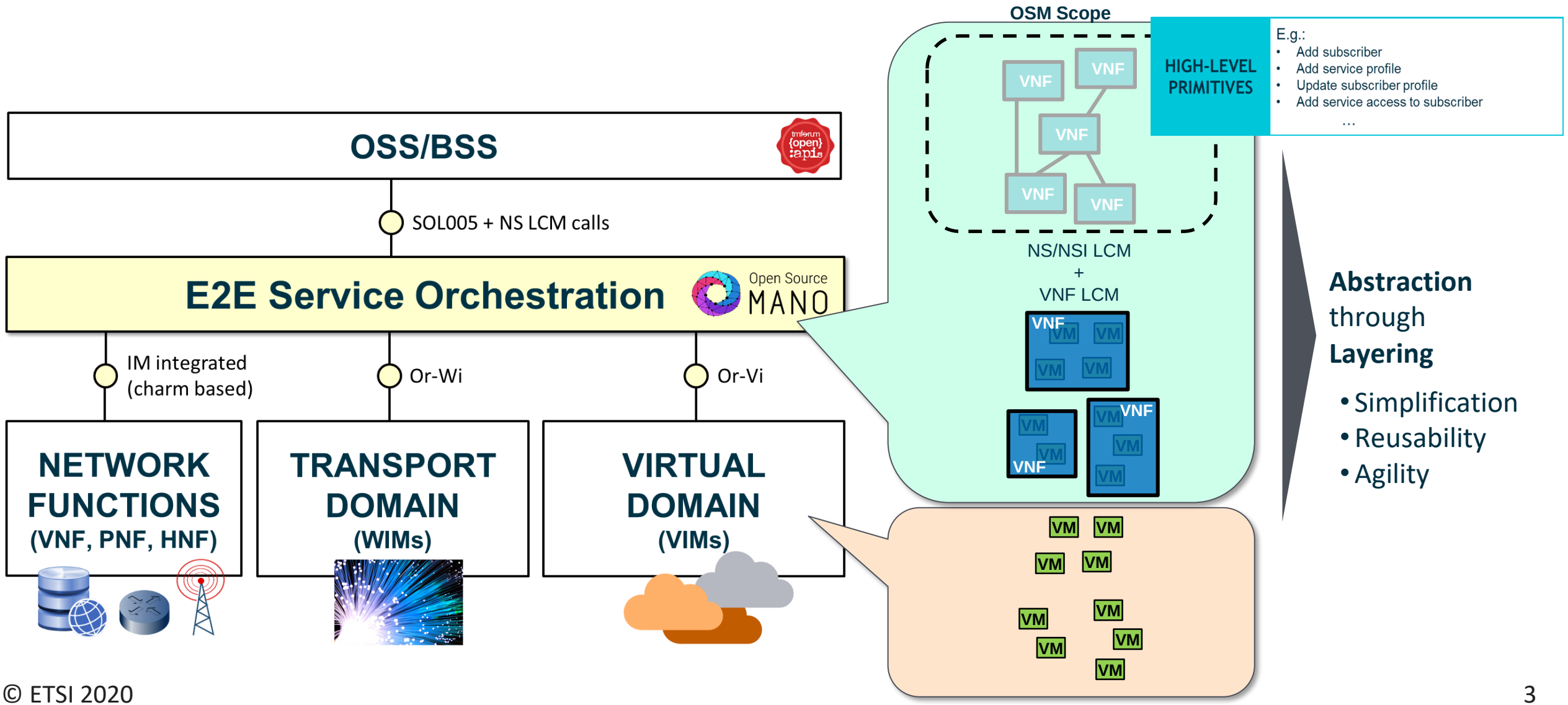
ETSI

Open Source MANO

Understanding what OSM provides

OSM provides a platform to create **Networks as a Service** and to manage them conveniently later

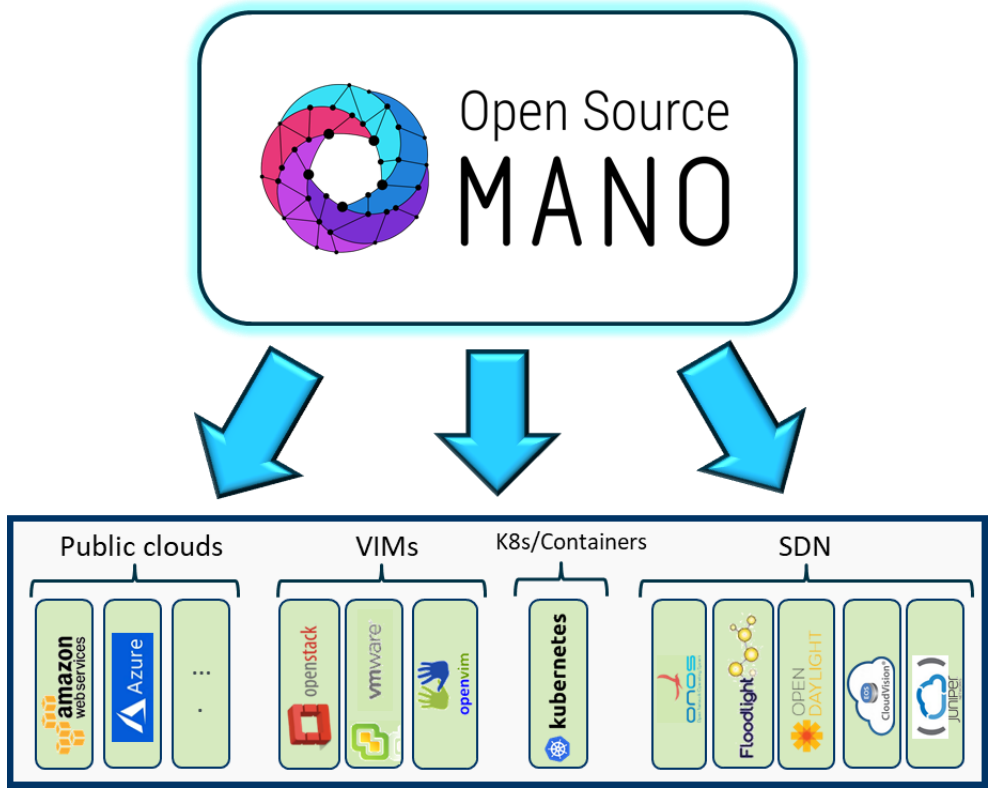
Open Source MANO



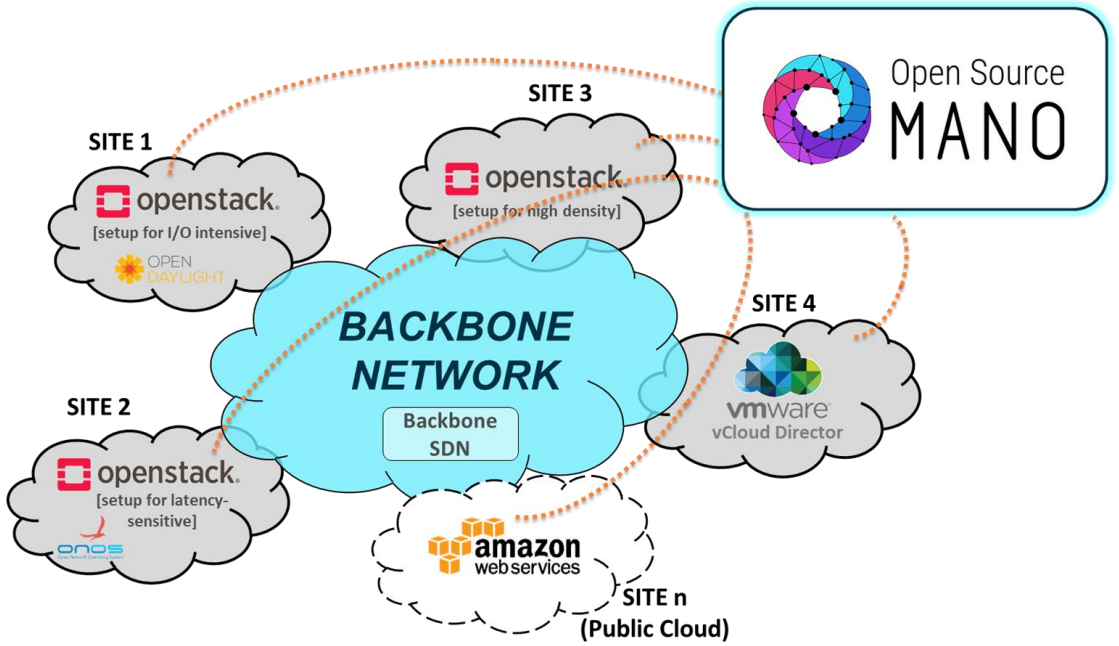
… on different types of infrastructure and across different locations…

Open Source MANO

MULTI-VIM & MULTI-SDN



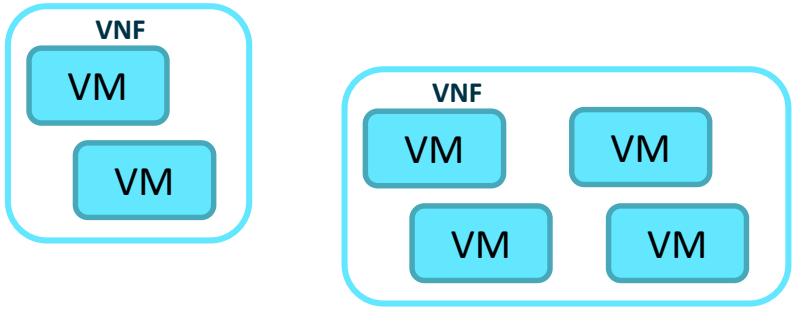
MULTI-SITE



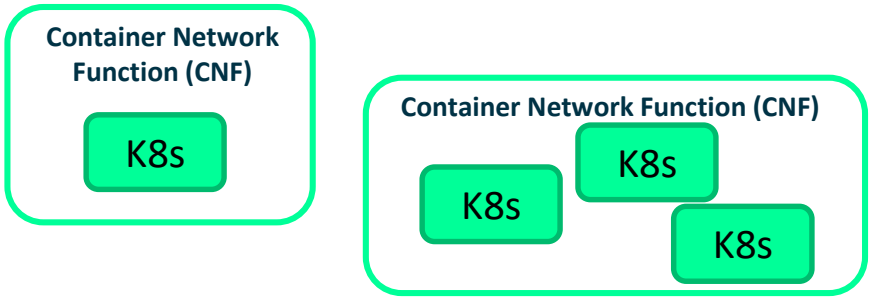
… with VNFs composed of VMs, containers and/or physical elements…

Open Source MANO

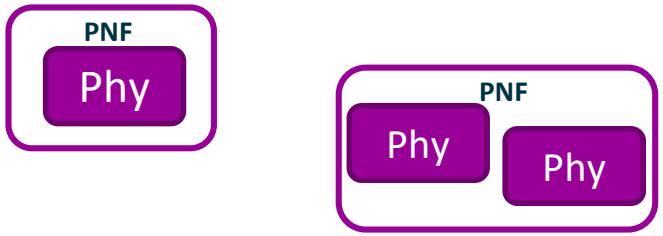
a) All VMs



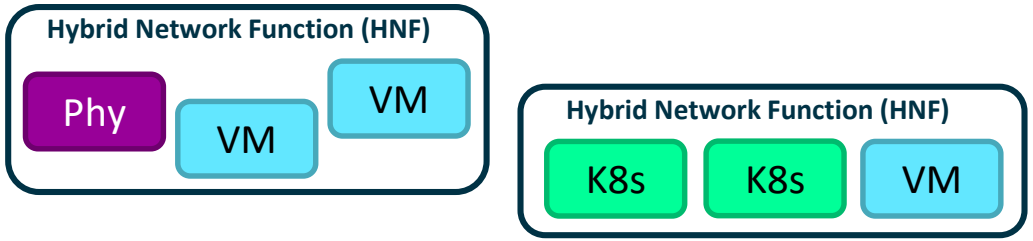
b) All Containers



c) All Physical

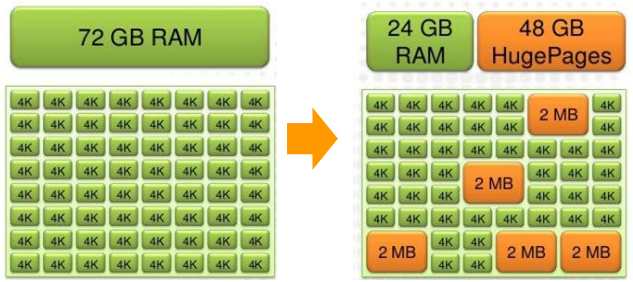


d) Hybrid cases

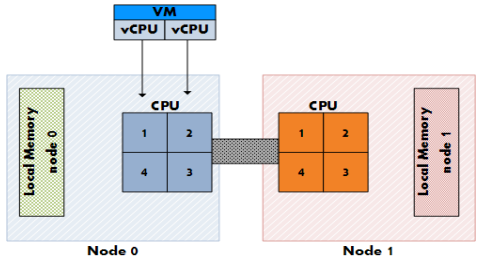


… and ready for network-specific workloads whenever needed

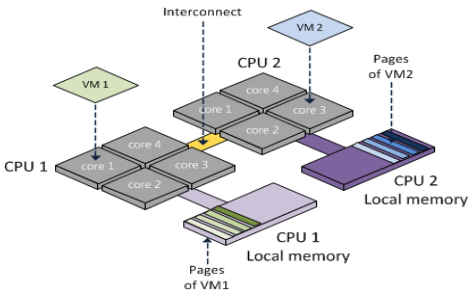
Huge Pages



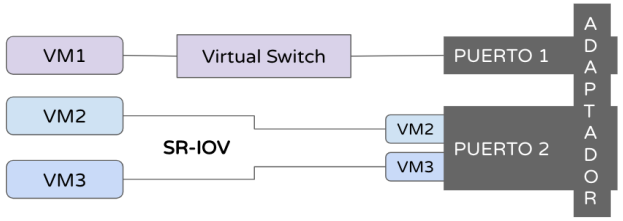
NUMA Topology Awareness

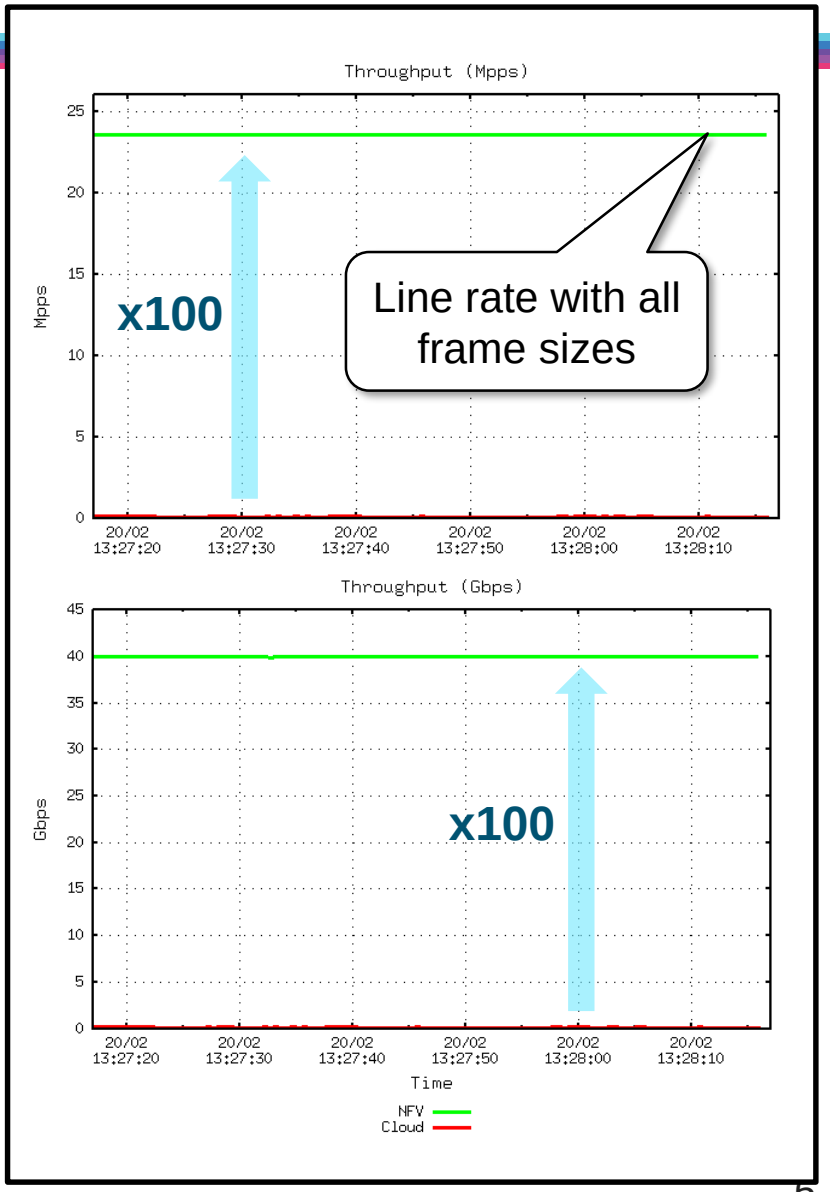


CPU Pinning



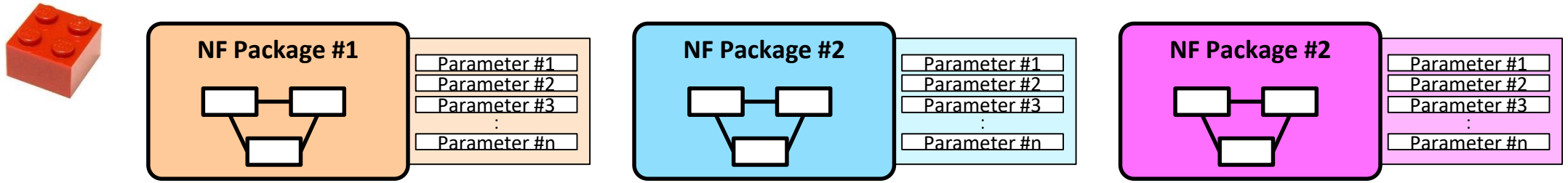
Data Plane assignment





All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

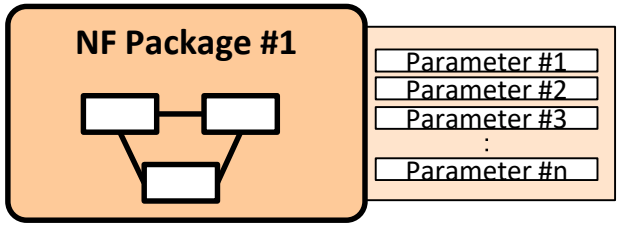
(V)NF PACKAGES:

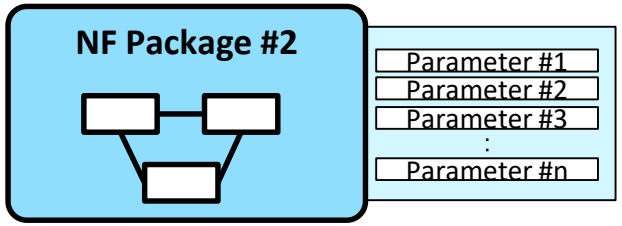


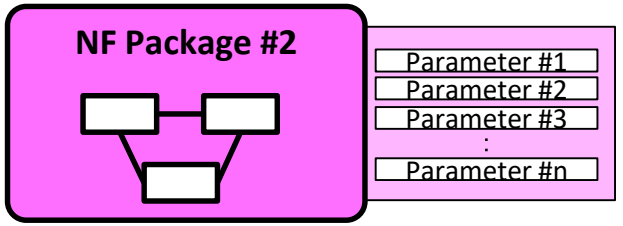
- **Provided by the vendor**, fully describe their own product:
  - Topology
  - Parametrized
  - Actions for Day-0, Day-1, and Day-2
- **Doesn't** need to know any detail about :
  - The target infrastructure
  - Other components that will be part of the scenario

All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

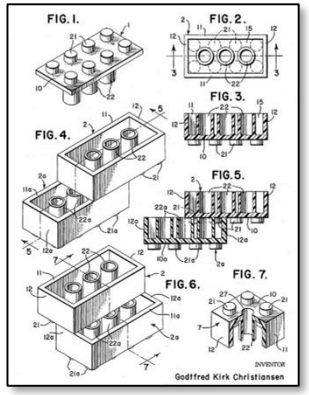
(V)NF PACKAGES:

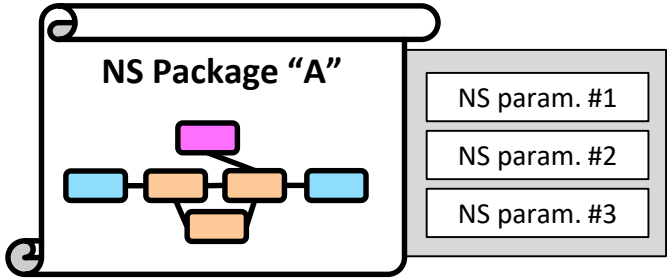






NS PACKAGES / SLICE PACKAGES:





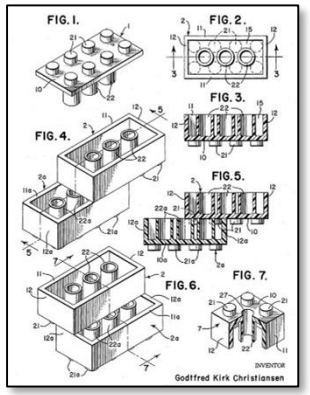
Slice Packages work similarly, but using NS as building blocks(*)

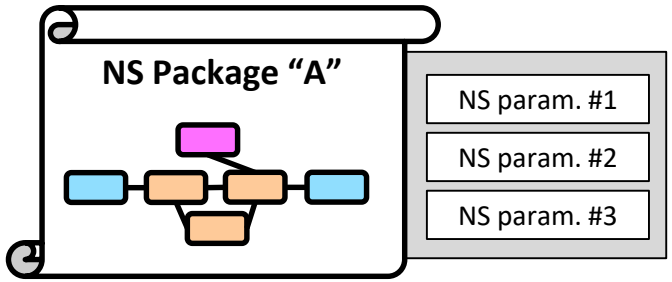
(*) NS instances play the role of Slice Subnets of a given slice. Some of them may be shared by more than one slice instance. This is taken into account by OSM, so a slice is more sophisticated than just a "NS of NS".

All in OSM is model-driven to make VNFs and scenarios as portable and reusable as possible

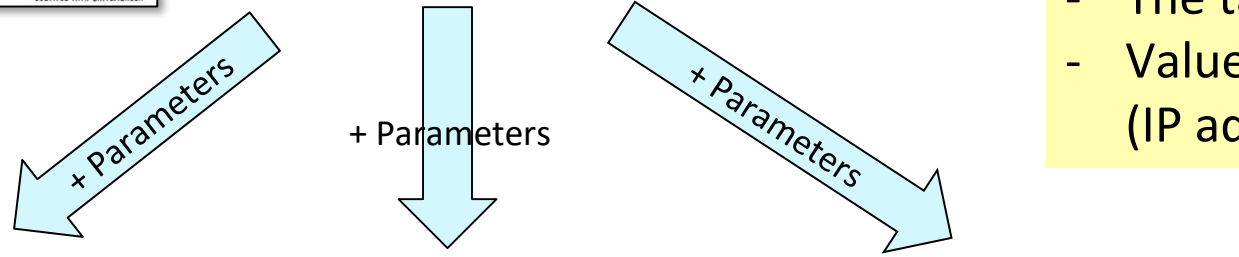
Open Source MANO

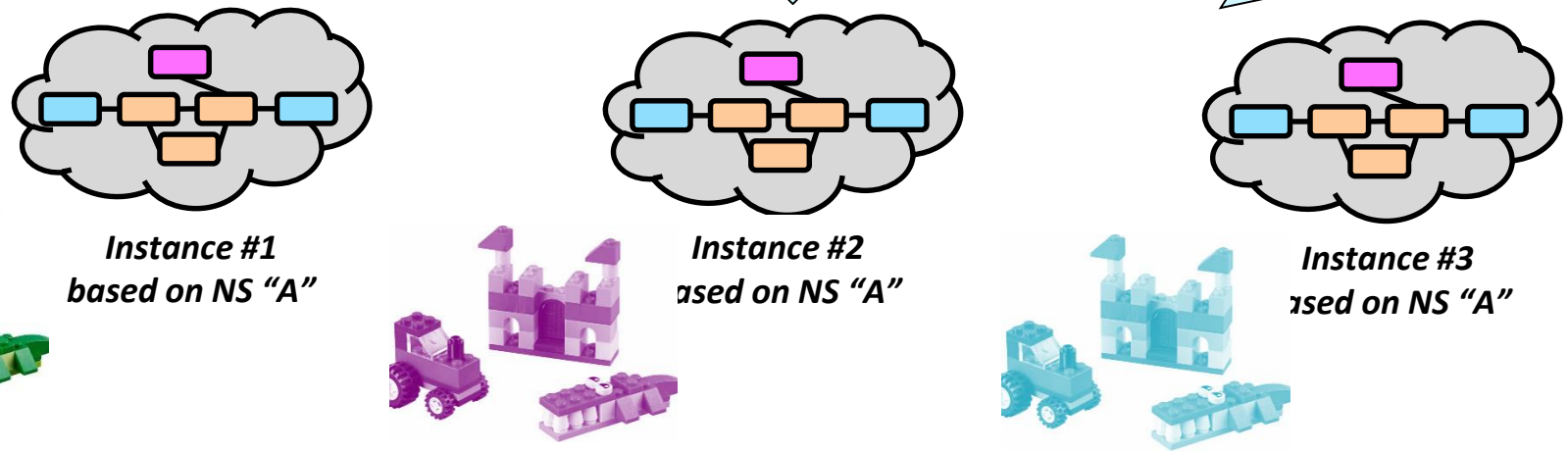
NS PACKAGES / SLICE PACKAGES:





DEPLOYED INSTANCES:





Instance #1 based on NS "A"

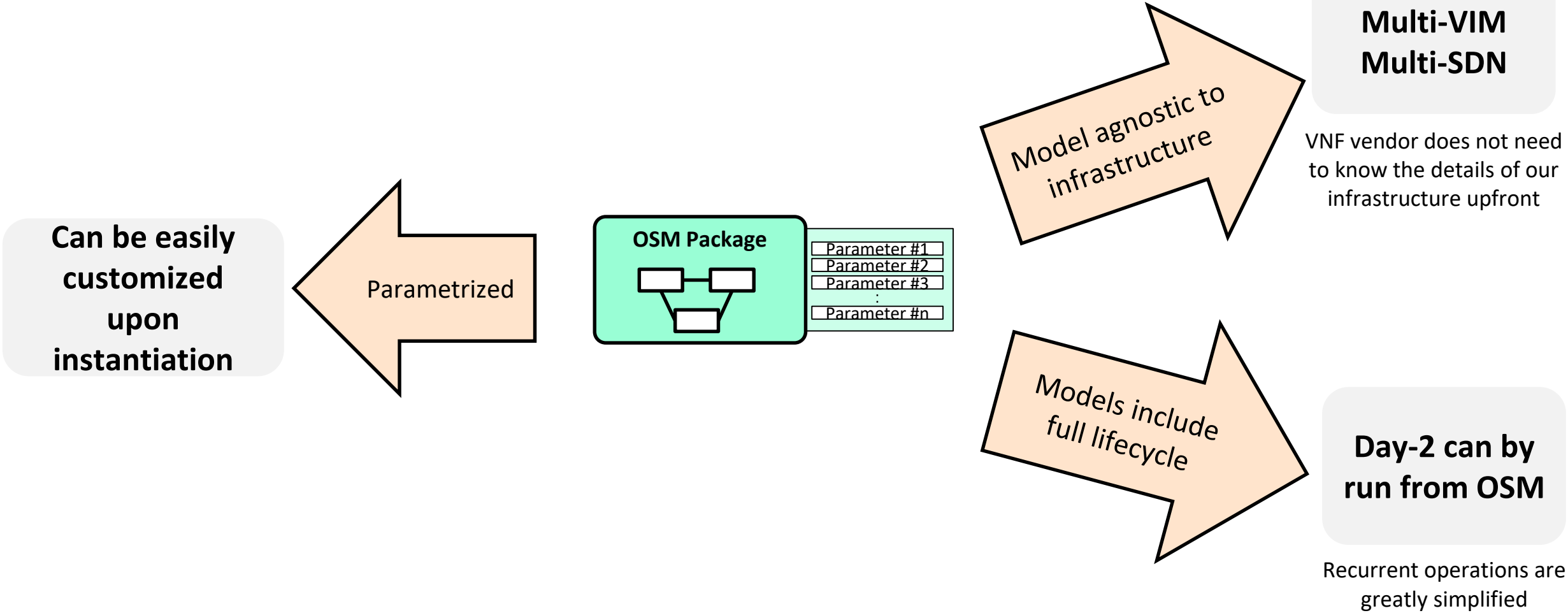
Instance #2 ased on NS "A"

Instance #3 ased on NS "A"

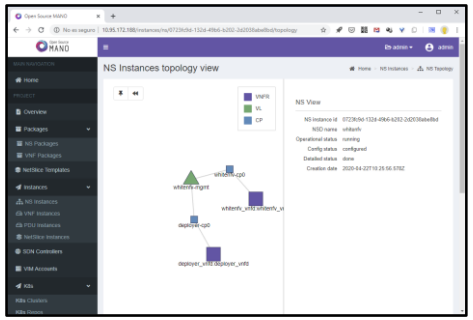
Upon instantiation, you just need to decide:

- The target VIM (or VIMs)
- Values for the parameters (IP addresses, keys, etc.)

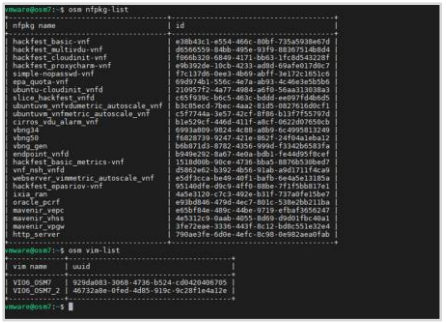
All these OSM packages are oriented to maximize reusability for multiple scenarios



OSM is used by its Northbound Interface

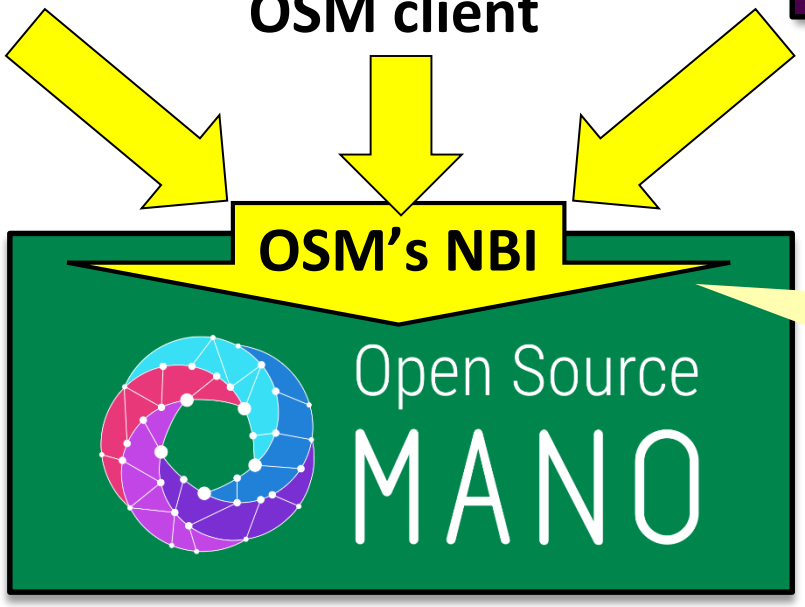


OSM GUI



OSM client

OSS/BSS



Guarantees consistency regarding:
- Authentication
- RBAC & authorized actions
- Project contexts & visibility
- State
- Etc.

Release EIGHT gives brings key features to maximize resilience & ease operation at scale

Open Source MANO

Open Source MANO
Release EIGHT

Available at:
osm.etsi.org

Catalogue of VNF/NS Packages

- VNF repositories

Improved usability

- New angular-based GUI

Improved onboarding workflow

- Simplified package development workflow over Git.
- On the fly translation of packages to EPA/non-EPA

Readiness for HA deployments

- VCA readiness for HA deployments
- HA proxy charms

Improved lifecycle and feedback

- RO runtime data in common OSM database.
- Project quotas.

Fault & Performance Management

- VNF indicator collection w/ Prometheus exporters

New installation options

- Charm-based OSM installation
- Ansible-based OSM installation

Multi-VIM and multi-SDN support

- Plugin for Arista CloudVision
- Plugin for Juniper Contrail

OSM community is really **LARGE AND DIVERSE**, with **140** members today, but always **OPEN** to new participants

Open Source MANO

(*) Names & brands may be claimed as the property of others

OSM Ecosystem

Companies listing their products and offers related to OSM (like “OSM Yellow pages”)

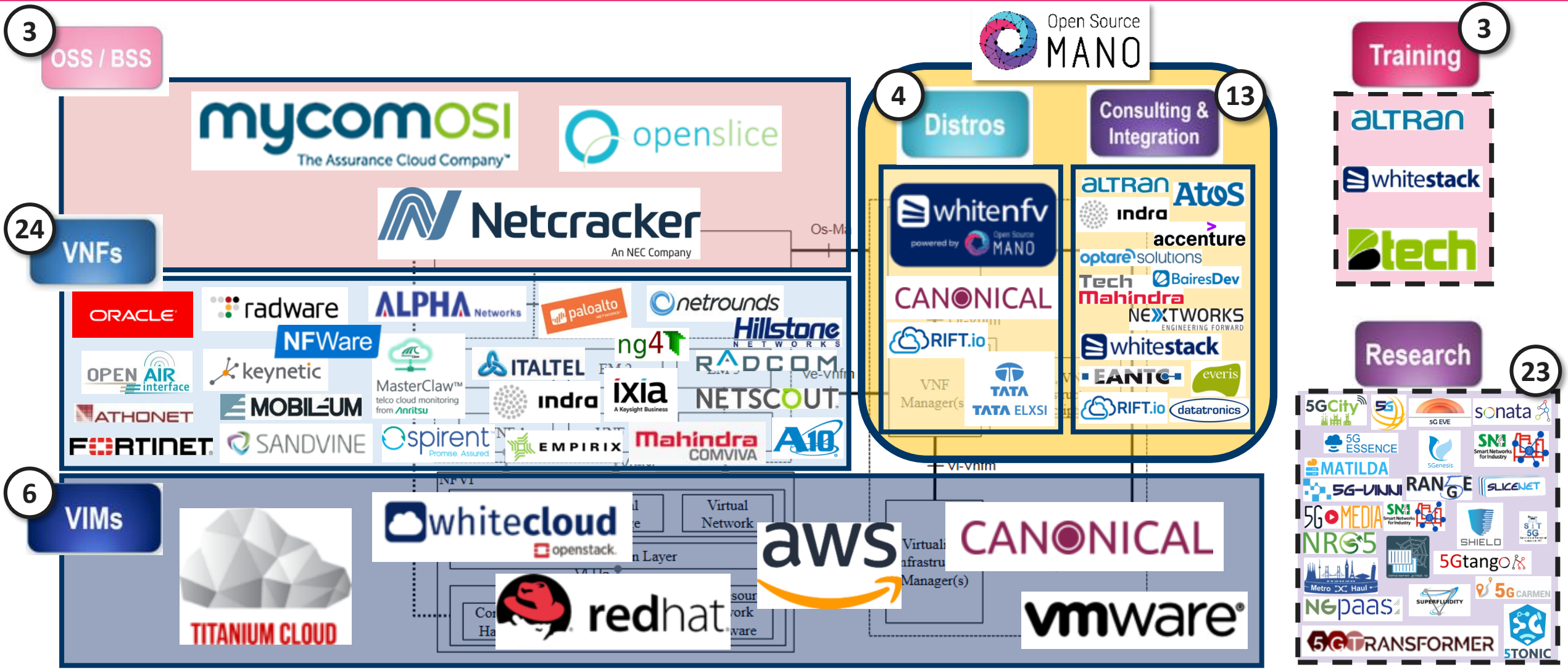
- Searchable by potential customers looking for OSM-related products
- Only with demonstrable OSM-related products/offers
- Opt-in process, continuously open

https://osm.etsi.org/wikipub/index.php/OSM_Ecosystem

OSM Ecosystem
(as of today)

https://osm.etsi.org/wikipub/index.php/OSM_Ecosystem

Open Source MANO



Overview of the webinar

DEMO #1:
OSM System Features in action

by Guillermo Calviño (Canonical)

- **High Availability**
- **Next Generation User Interface**
- **System Quotas**
- **System Monitoring**

DEMO #2:
Network Service Deployment with OSM

by Gianpietro Lavado (Whitestack)

- **VNF Catalog**
- **Magma EPC Deployment**
- **High Performance Network Functions**

and, if you want to learn even more...

… you can join us to our upcoming OSM Hackfest!

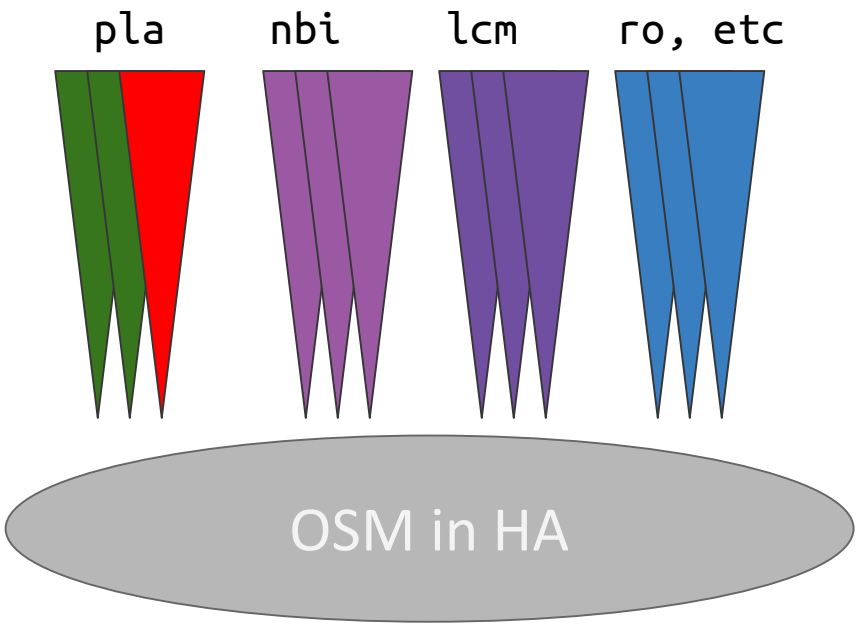
Open Source MANO

OSM System Features

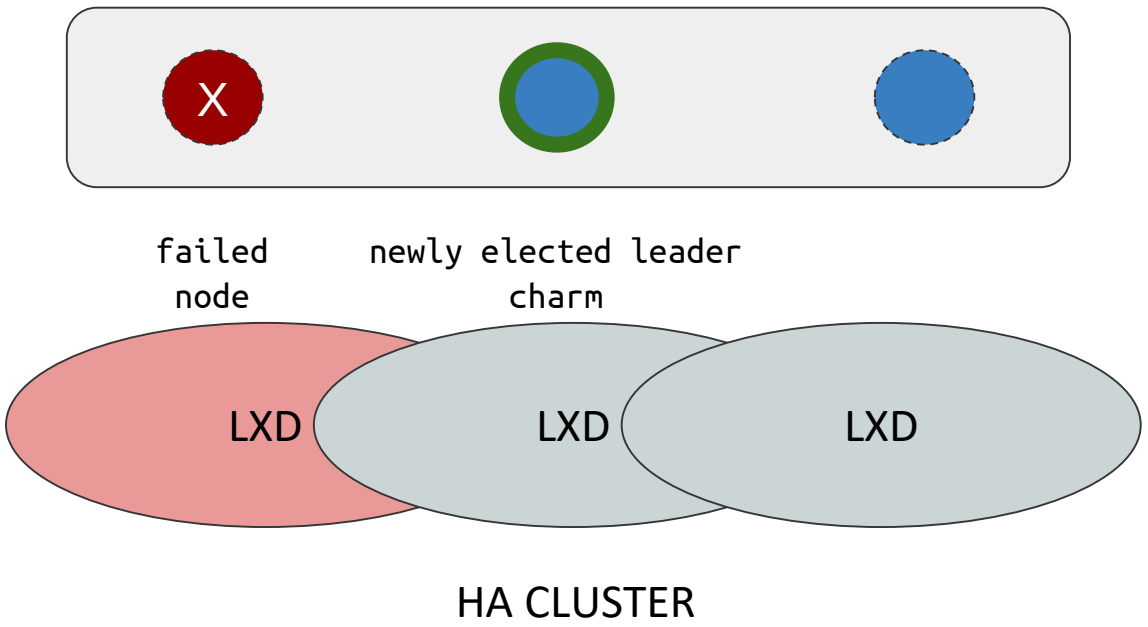
- High Availability
- NG-UI
- System Quotas
- System Monitoring

OSM in High Availability: Demo

OSM POD failure



HA Proxy Charms



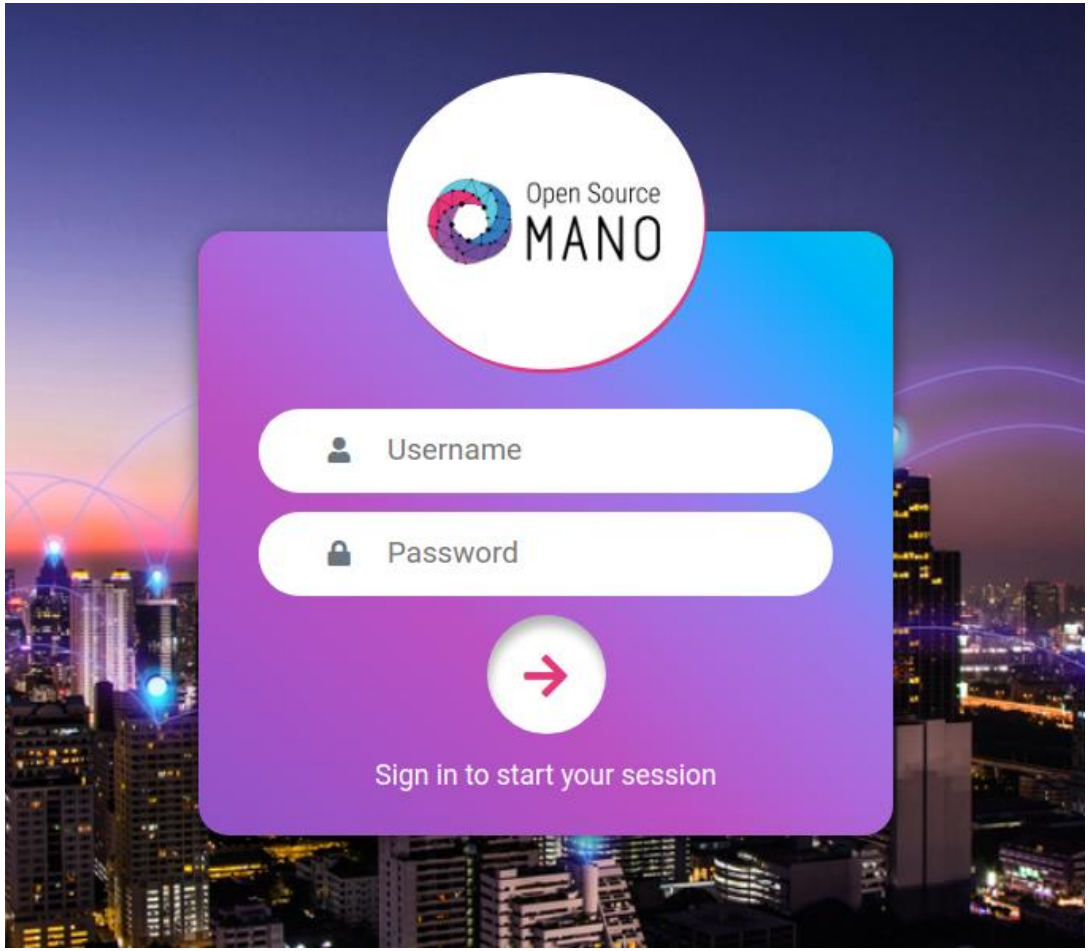
Open Source MANO

HA built into the upstream Charmed installer

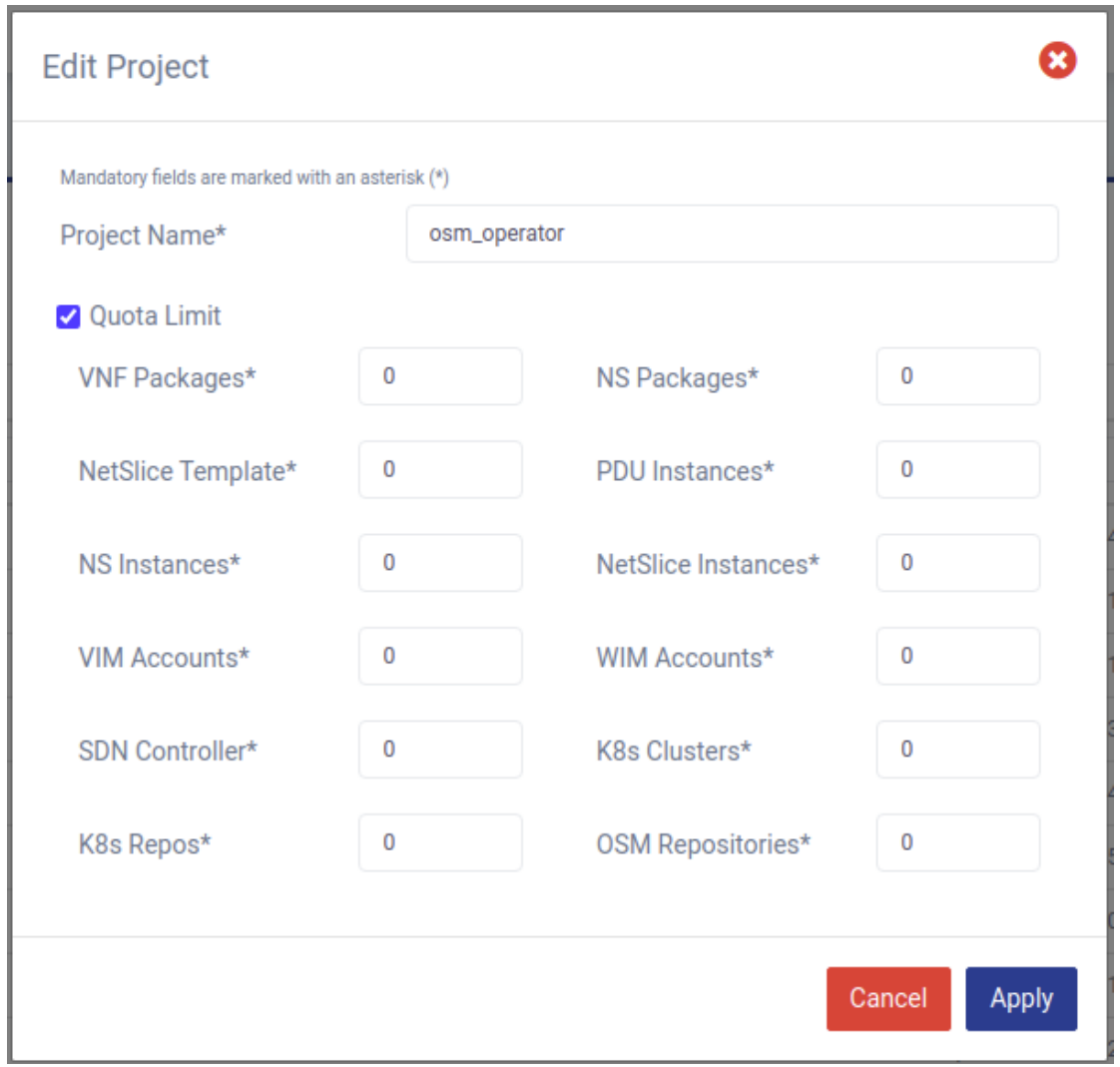
```
$ ./install_osm.sh --charmed --ha
                   --lxd
                   --lxd-cred
                   --vca
                   --k8s
```

NG-UI: New UI for an improved user experience!

- Available since release 8.0.0
- Multi-language support (English, German, Spanish, Portuguese)
- It can be easily reskin & scalable
- Reduces the manual inputs
- Extensive usage of NBI APIs with RBAC implementation
- New dashboard provides an overview of the application

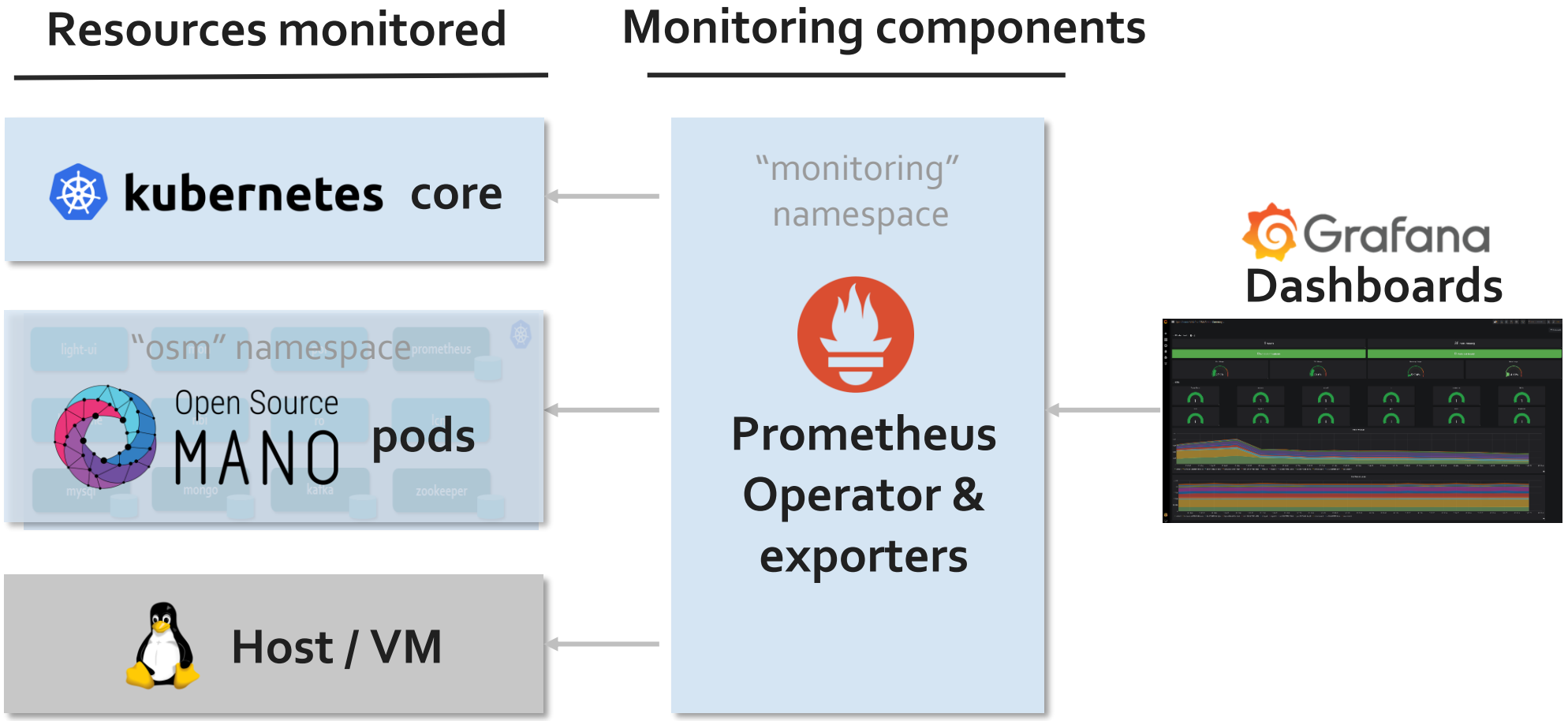


System Quotas



Limit the resources that can be allocated in a project

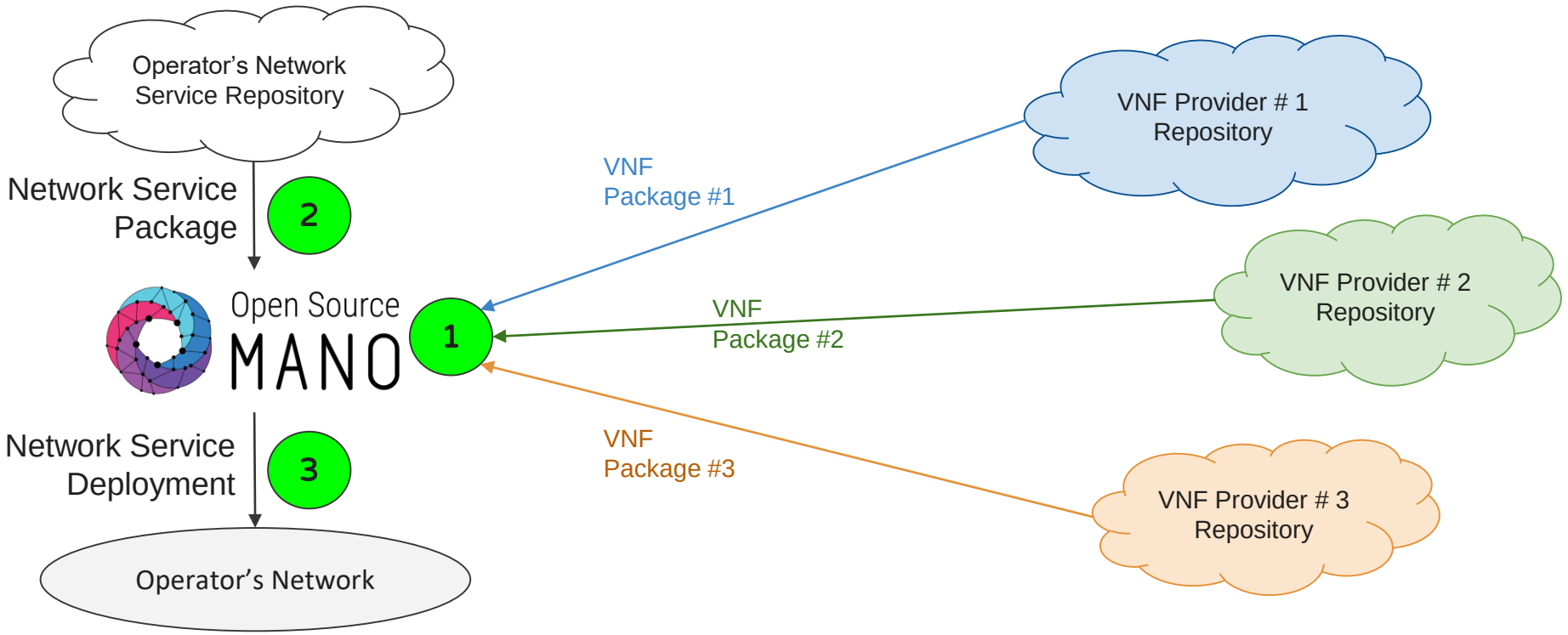
System Monitoring



Open Source MANO

Network Service Deployment with OSM

OSM VNF Catalogues

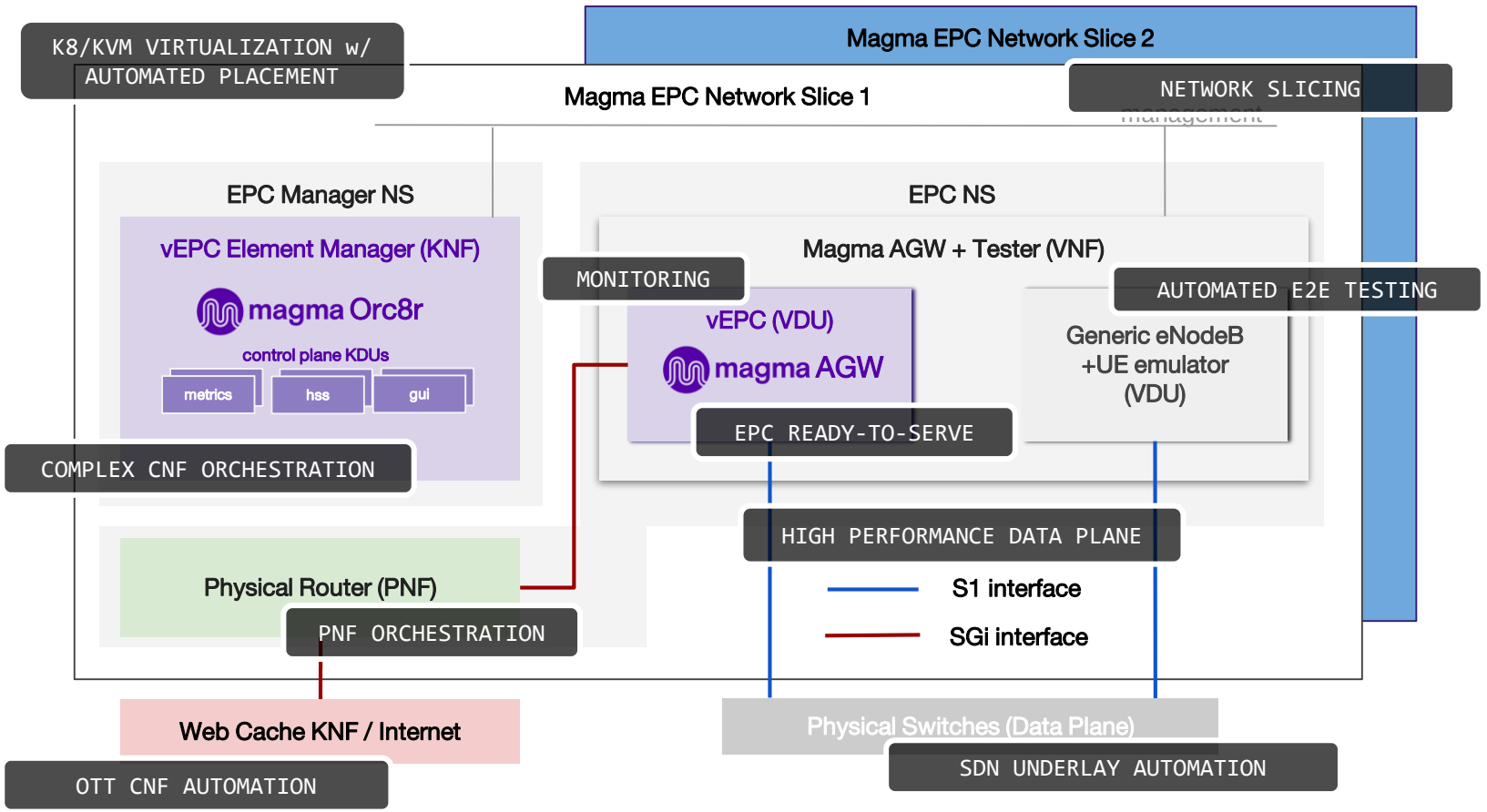


1 Operator onboards VNFs directly from provider's repo

2 Operator onboards own Network Service composed by those VNFs

2 Operator launches the Network Service!

Fully operational EPC in minutes!

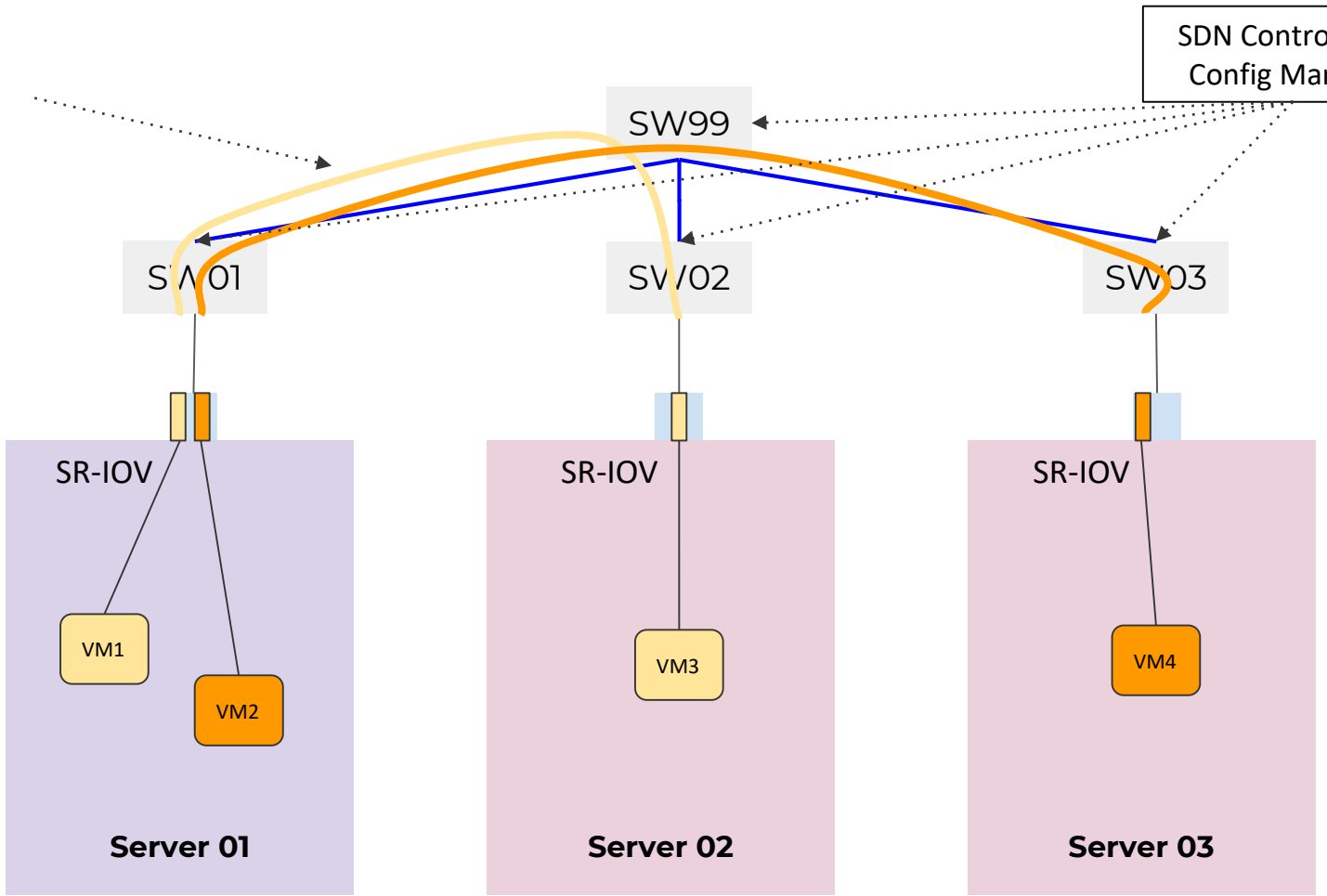


- Docker and VM-based virtualization lifecycle management
- Complex KNF deployment in minutes
- Physical Network Function automation
- VNF Monitoring
- Automatic Horizontal Scaling
- High performance techniques activation
- Underlay network automation
- Network Function Day-0, Day-1 and Day-2 operations
- Network Slicing with shared services

A note on SDN Assist

Automating connectivity between data plane VNFs

Underlay connectivity:
VXLAN, OpenFlow, VLAN, etc.
(depends on the SDN Controller or Manager)



OSM's SDN Assist feature takes care of the "underlay" connectivity **whenever it sees VLDs with SR-IOV or PASSTHROUGH ports that need to connect between each other.**

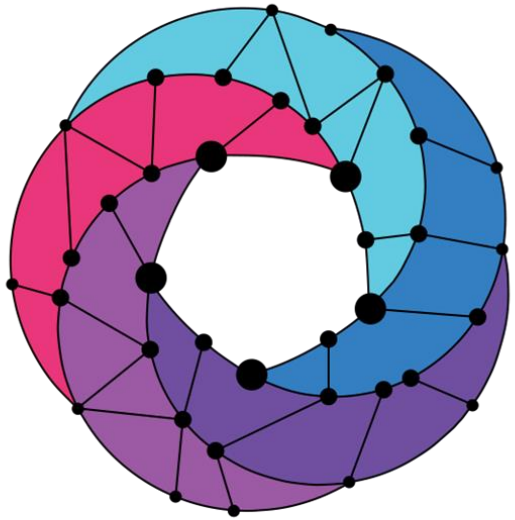
* Supported as of REL8 → Arista, Juniper Contrail, Floodlight, ONOS and Open Daylight

Closing remarks

- **Zero Touch is here!** An end-to-end network service automated deployment is possible with Open Source MANO.

- **NFV MANO is a must!** NFV MANO Orchestration is key to fulfill multi-vendor Hybrid NF onboarding & automation, from instantiation to operations, given the increased modularity and distributed nature of network functions.

- **Rich VNF Onboarding!** OSM Release EIGHT bring rich onboarding possibilities to cover complex use cases like the mobile network functions use case.



Open Source MANO

Find us at:

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