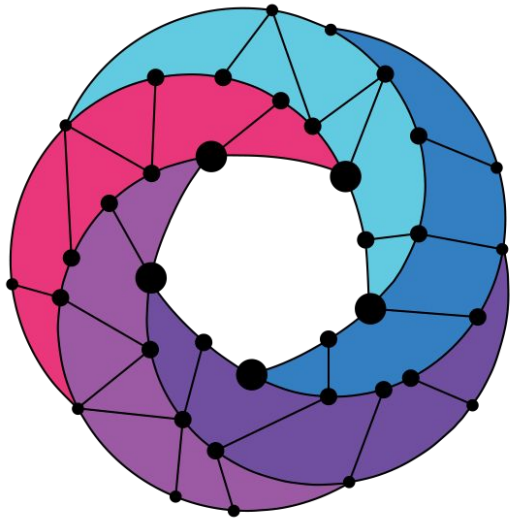

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Community-driven Production OSM Operations

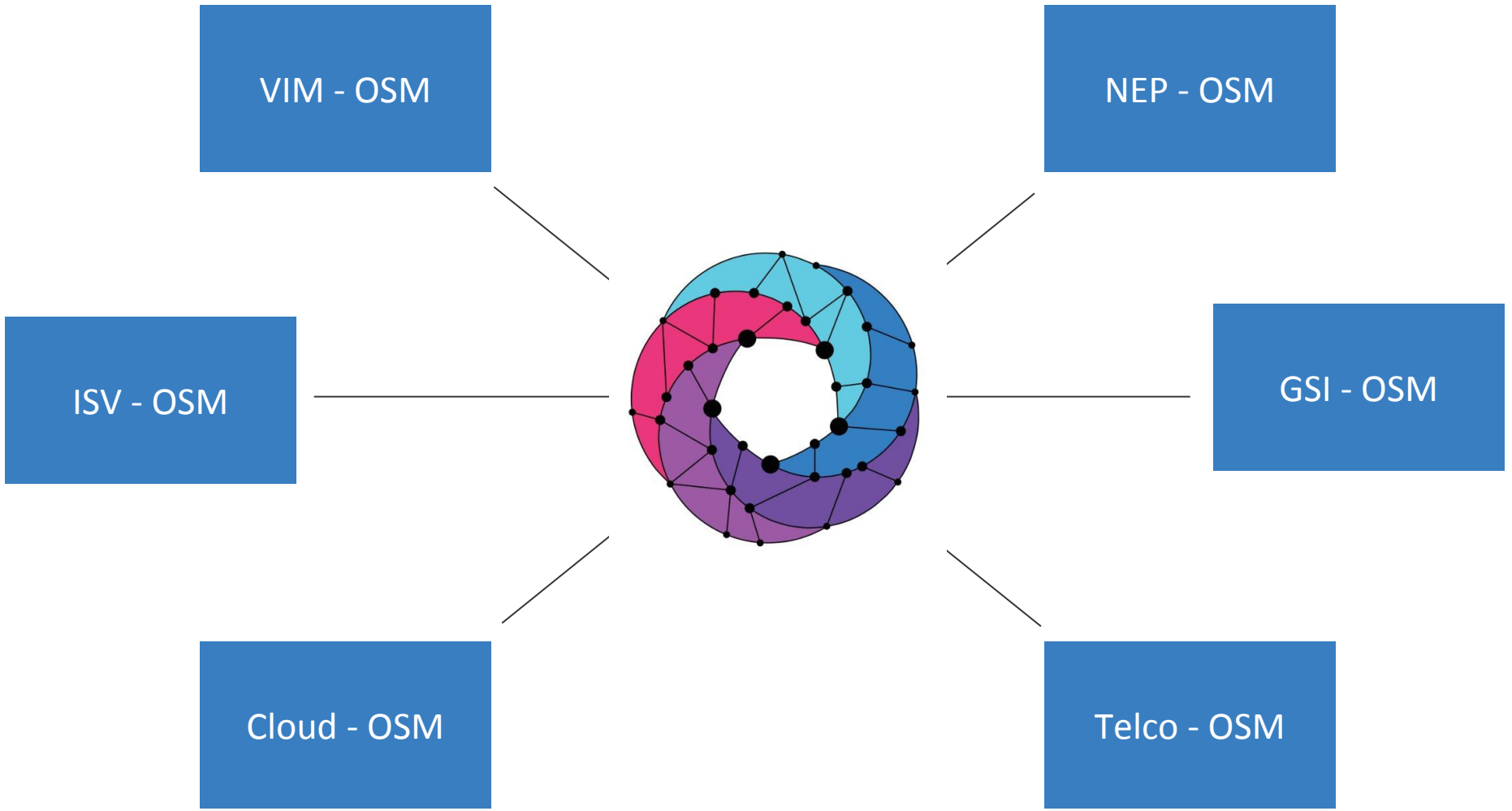
Mark Shuttleworth - Canonical

ETSI

Readiness assessment

- Feedback from customers
- Feedback from GSIs and NEPs
- “OSM in Production” session

Upstream OSM and Distributions



Production considerations for OSM

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- Availability
  - OSM components - NBI, LCM, RO, VCA, MON, POL
  - HA, geo-redundancy, backups and disaster recovery
- Integrations - authentication, monitoring, ext. systems
- Deployment - K8s substrates, proxy/air-gap
- Operations
  - Capacity - sizing, planning, scaling
  - Upgrades and patches
- Security - ETSI NFV-SEC, CIS, NCSC, NIST
  - Secret storage

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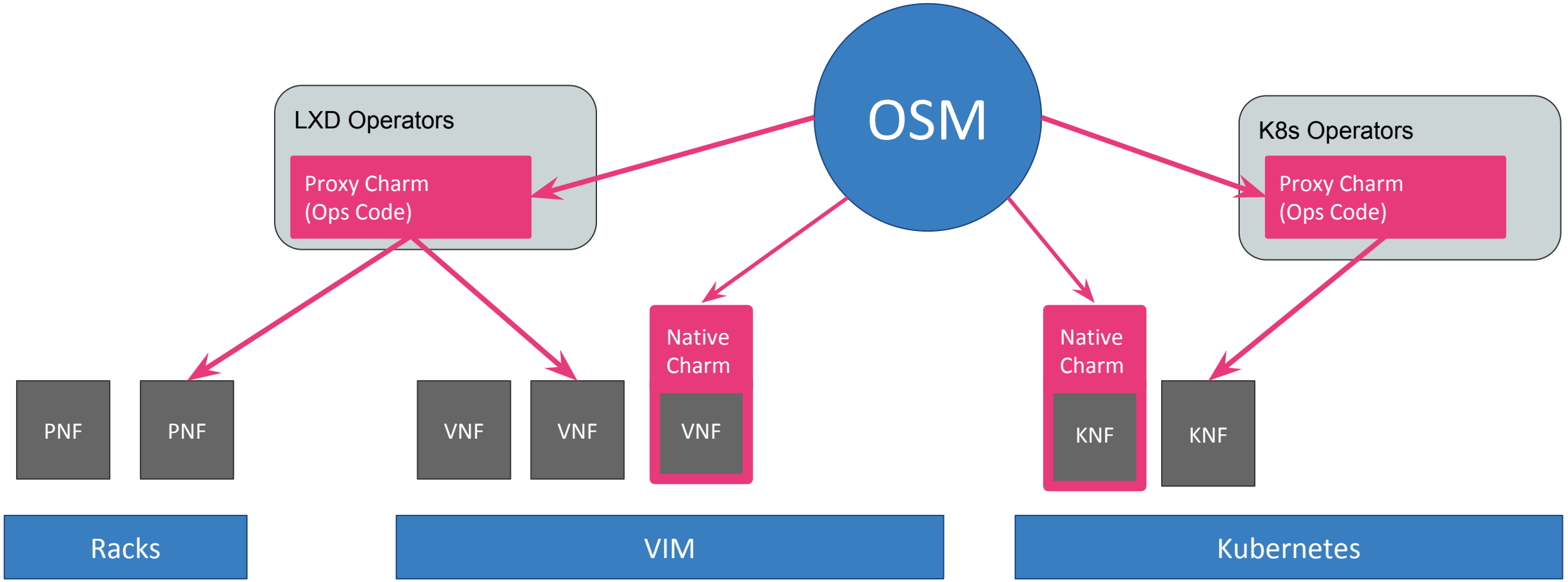
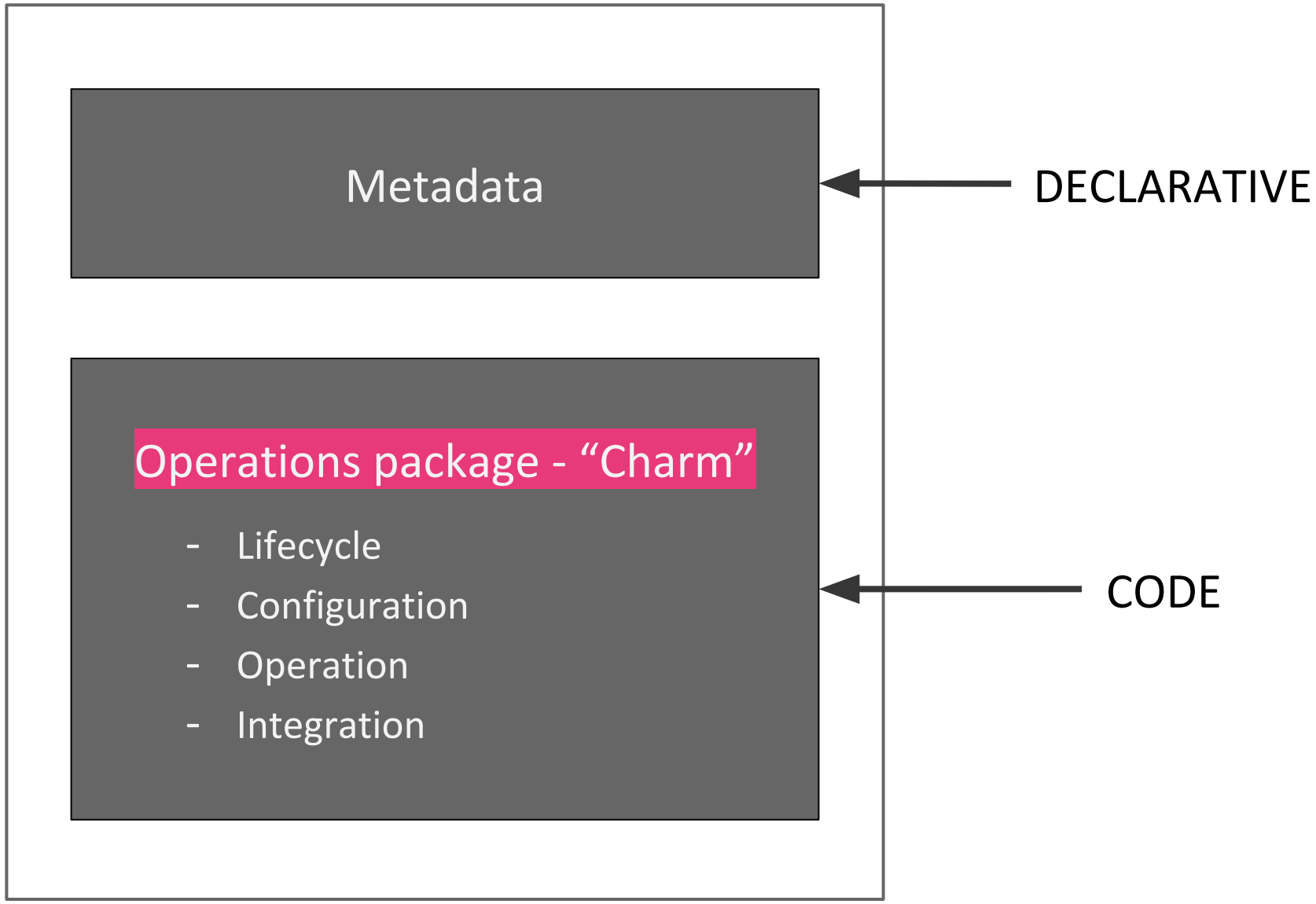
Shared open source is very cost-effective for everybody

Reality is messy and mixed



OSM VNFD



Charms are packages of scripts to drive apps

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Lifecycle scripts

- install
- config
- update
- remove
- scale

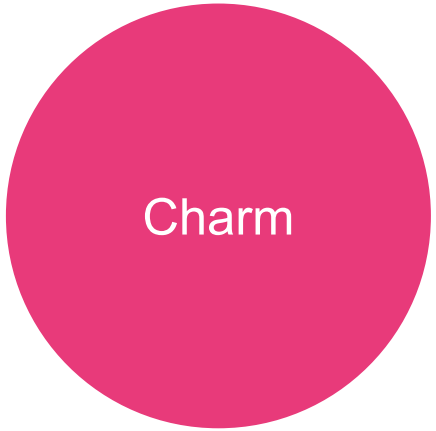
Integration scripts

- relate-mysql
- relate-ldap
- relate-proxy
- relate-...

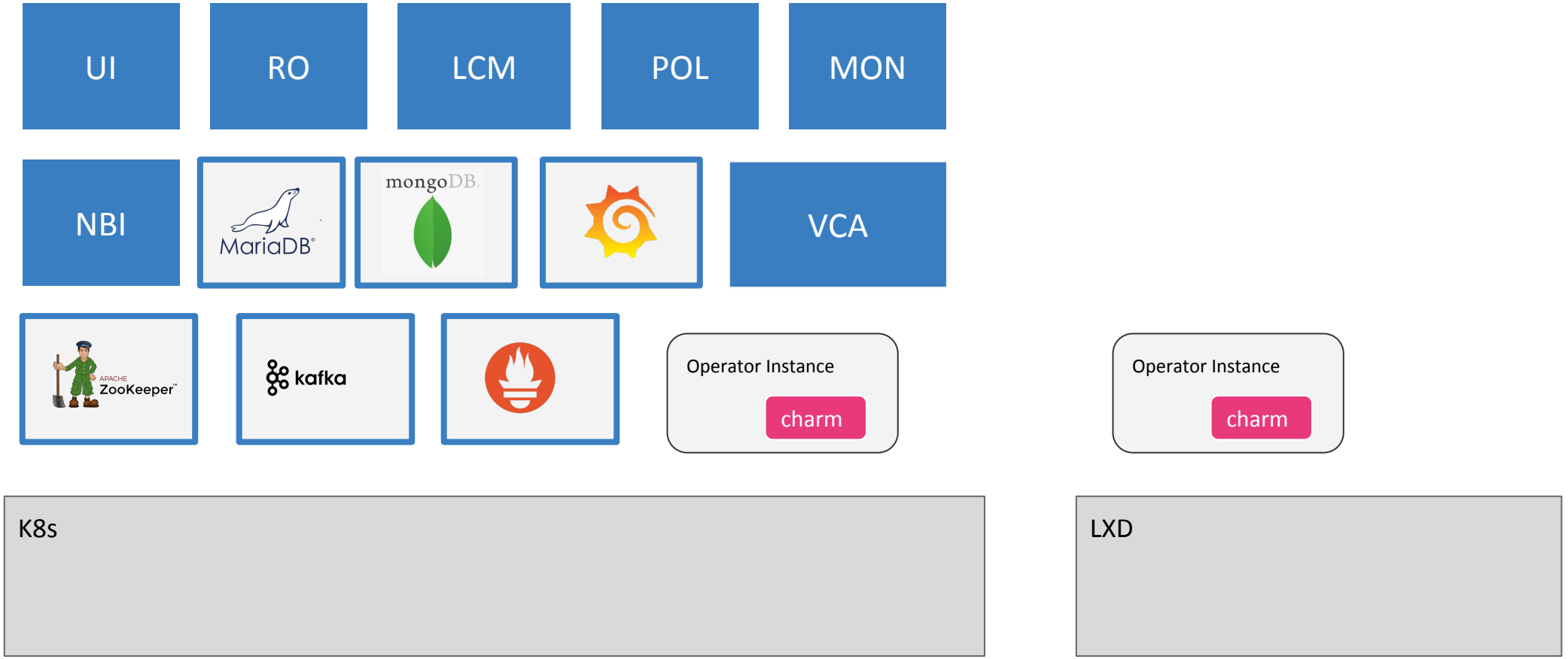
“Action” scripts are OSM Primitives

“action: backup”
“action: restore”
“action: scan-viruses”
“action: health-check”
“action: add-repo”
“action: ...”
“action: ...”
“action: ...”

These are your operations primitives.



OSM Architecture



OSM is big topology of services

- NBI. RO. POL. MON. Mongo. Kafka. Prometheus. MySQL.
- Many components have significant operational dimensions
  - Deploy. Scale. Make HA. Backup. Restore.
  - All of these have to be well done for OSM to have a great reputation
  - It is easier to collaborate on great ops if we share code
  - Currently this is hugely duplicated between distributions
- The VCA is always present in OSM

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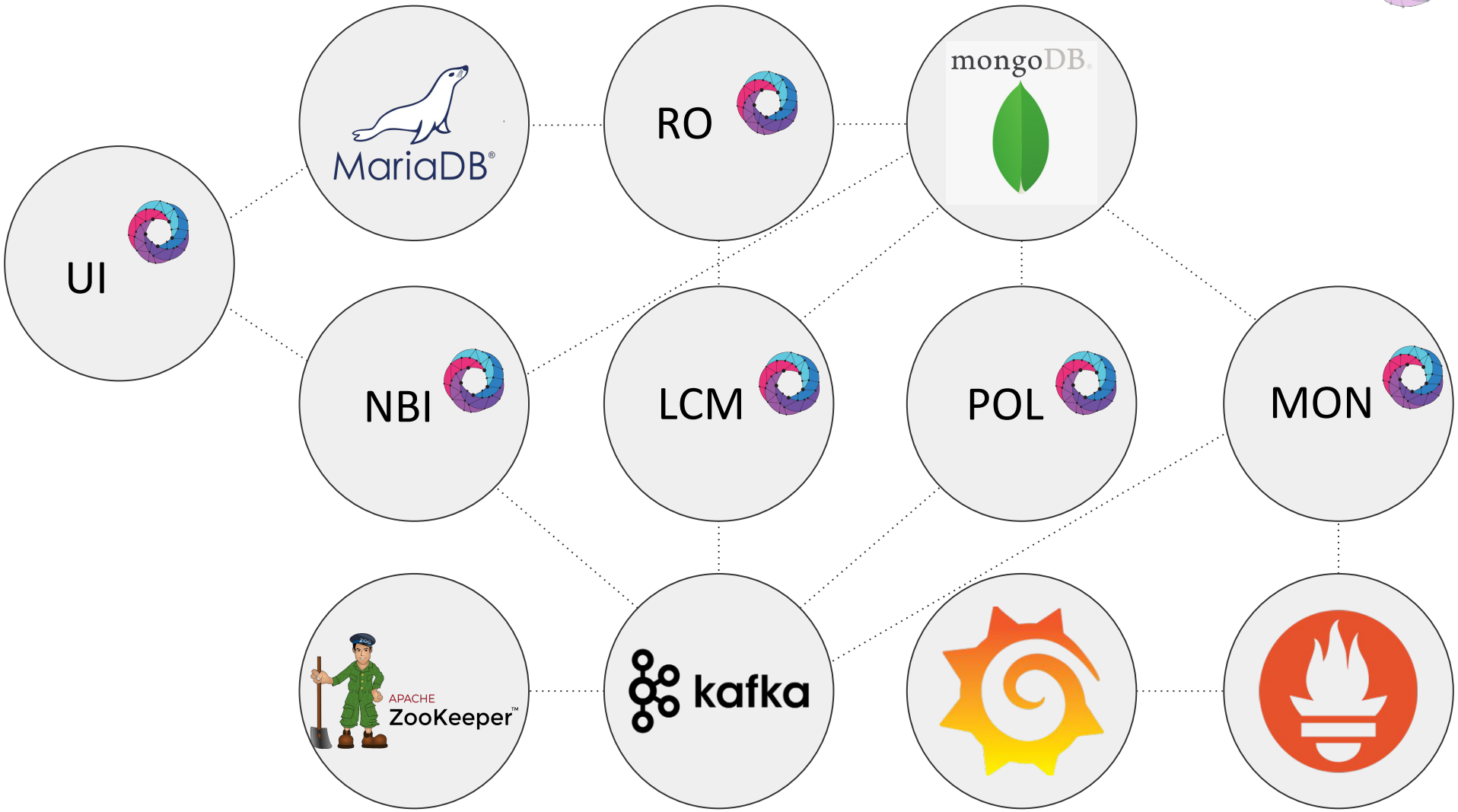


Example operations

```
scale-application kafka
run-action mysql/leader backup
relate osm-nbi nagios
upgrade-charm osm-ro
config osm-lcm image=opensourcemano/lcm:7.1.0
```

Example OSM charm operations

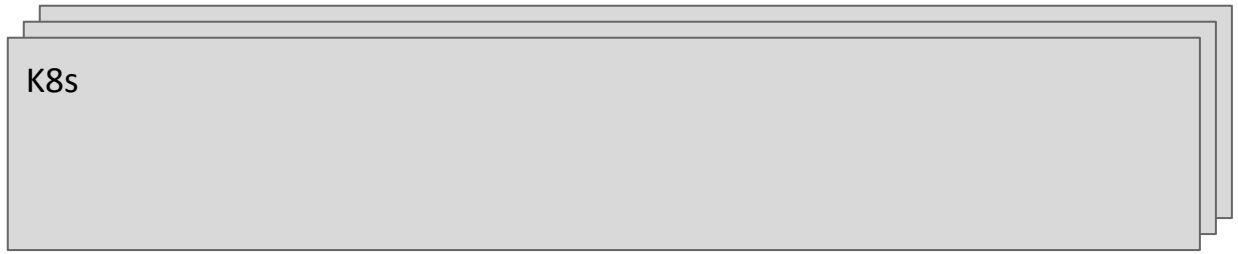
```
mysql:
  - scale
  - upgrade
  - backup
  - restore

mongodb:
  - scale
  - upgrade
  - backup
  - restore

osm-lcm:
  - scale
  - upgrade
```

```
osm-ro:
  - scale
  - upgrade

prometheus:
  - scale
  - upgrade

osm-nbi:
  - scale
  - upgrade

...
```

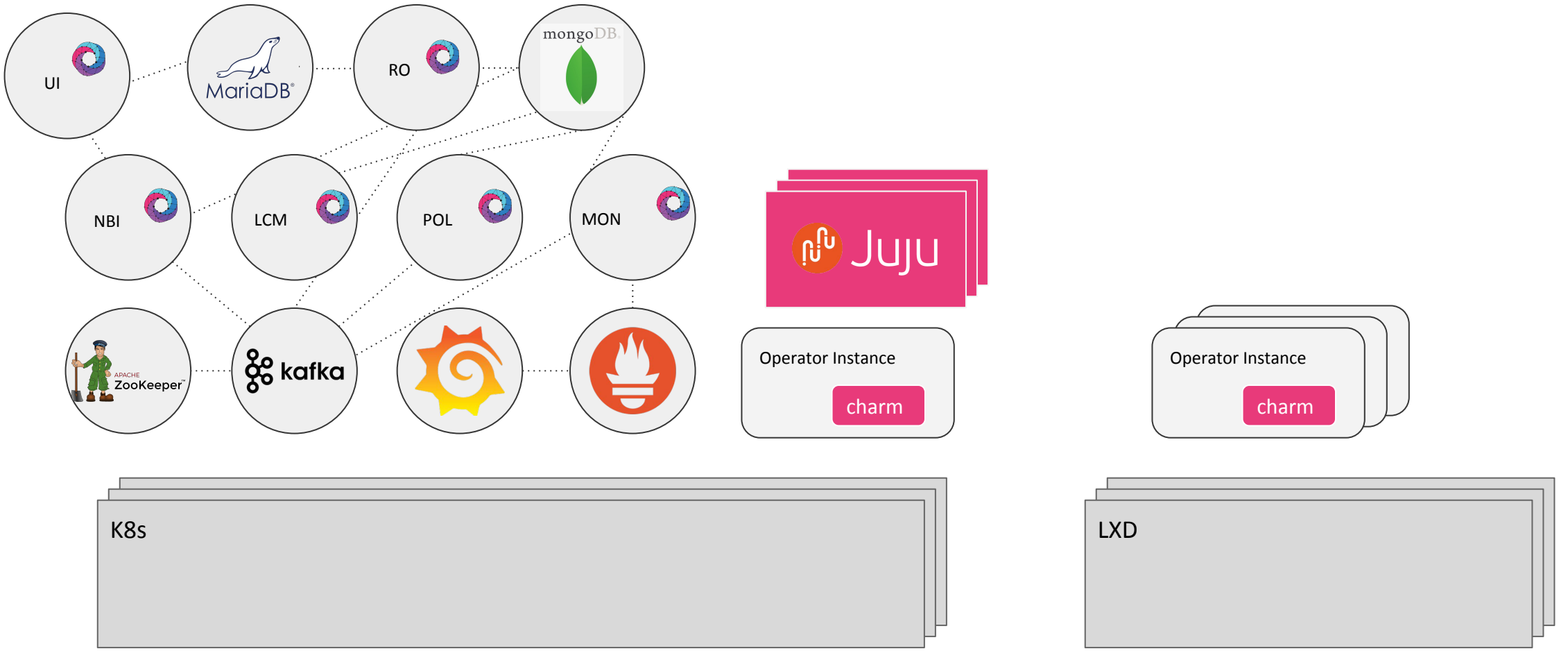
Shared collection of OSM operations scripts across distributions.

Upstream maintenance and collaboration on operations.

High availability substrates



High availability OSM on Kubernetes



High Availability

- OSM services high availability
- Using LXD clusters for proxy charm deployments
- Using K8s clusters for proxy charm deployments
- Highly available proxy charms
- Highly available VCA

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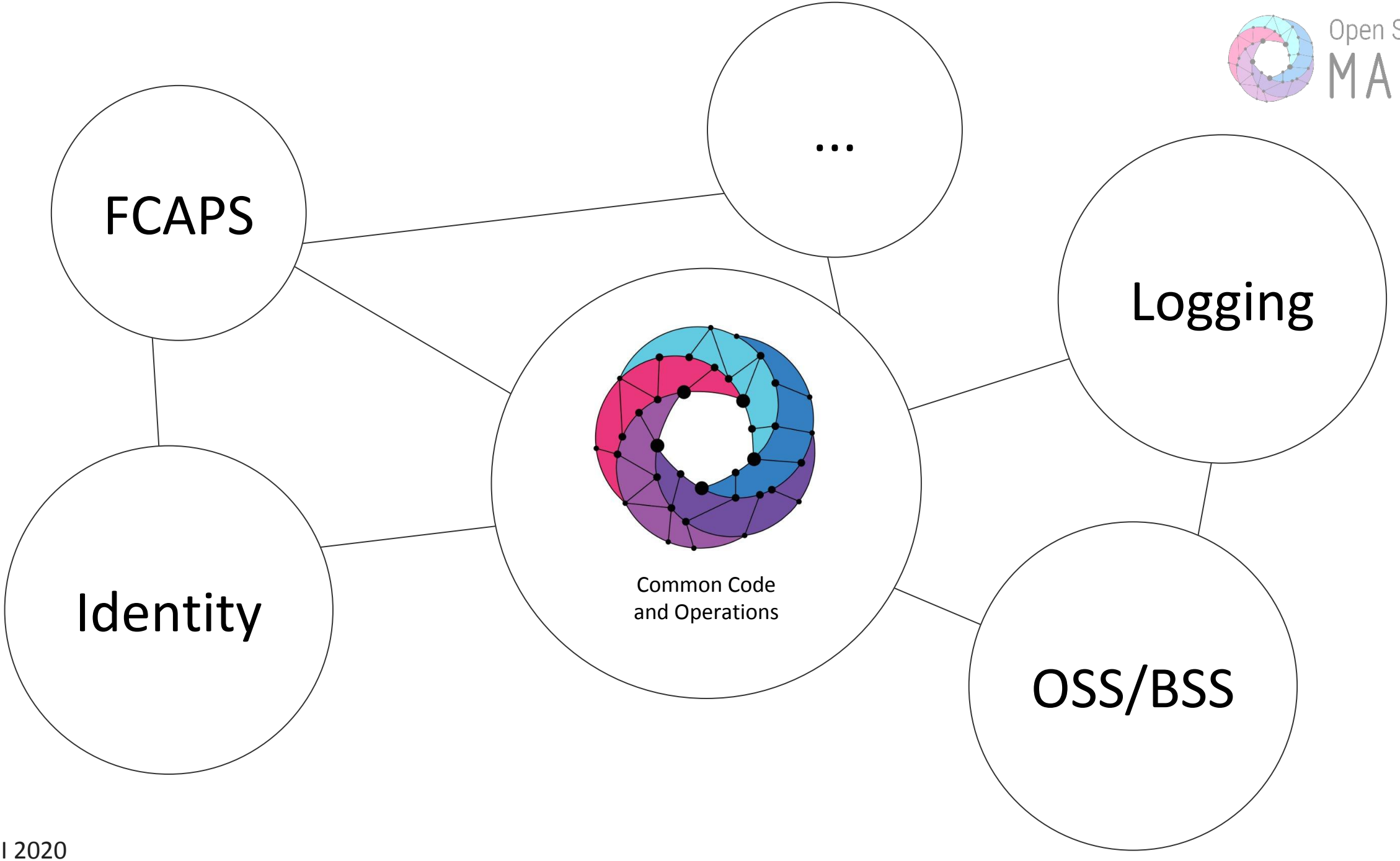
Better integration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...
FCAPS
Logging
Identity
Common Code
and Operations
OSS/BSS

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Community-driven roadmap

OSM charms are in devops repo

```
git clone https://osm.etsi.org/gerrit/osm/devops
cd installers/charm
```

```
├── bundles
│   ├── osm
│   └── osm-ha
├── lcm
├── mon
├── nbi
├── pol
├── ro
└── ui
```

[osm/devops.git] / installers / charm /

drwxr-xr-x		..
-rw-r--r--	5102	README.md
-rwxr-xr-x	770	build.sh
drwxr-xr-x	-	bundles
-rw-r--r--	2337	generate_bundle.py
drwxr-xr-x	-	interfaces
drwxr-xr-x	-	layers
drwxr-xr-x	-	lcm-k8s
-rwxr-xr-x	764	lint.sh
drwxr-xr-x	-	mon-k8s
drwxr-xr-x	-	nbi-k8s
drwxr-xr-x	-	pol-k8s
drwxr-xr-x	-	ro-k8s
drwxr-xr-x	-	ui-k8s

Community-driven roadmap

- Upstream maintenance of charms by Canonical
- Distributions may use upstream or differentiated charms
- Upstream contributions create shared operations codebase

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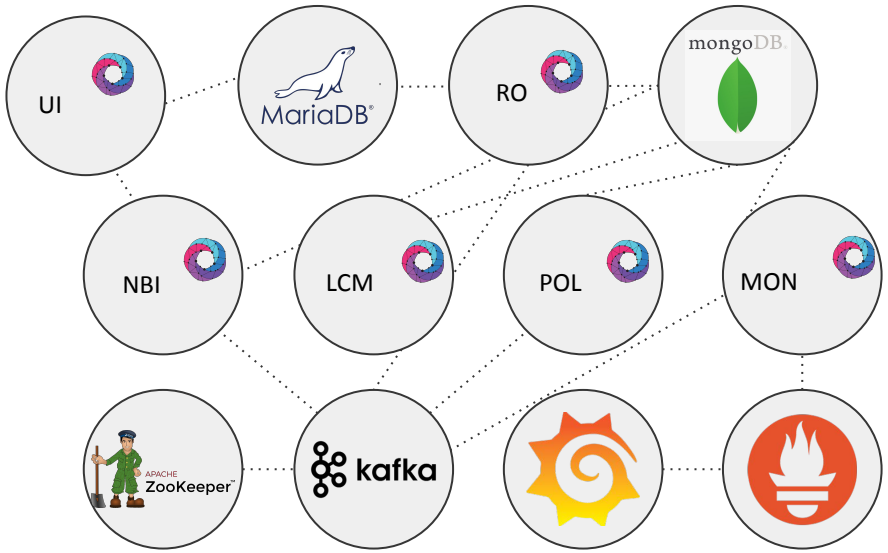
OSM 7.1 install with shared operations

```
$ ./install_osm.sh --charmed
                   [--k8s <kubeconfig> ]
                   [--vca <controller-name> ]
                   [--lxd <cluster-name> ]
                   [--openstack <novarc> ]
                   [--vsphere <vcfg> ]
```

Single-node experience

```
$ ./install_osm.sh --charmed
```



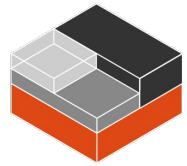
Juju

Operator Instance

charm

MicroK8s

LXD



OSM upstream charmed install

- Unified single-node, cloud and high-availability deploy
- Substrate-agnostic (Metal, AWS, Azure, VMware, OpenStack)
- All OSM and support components (db, messaging, monitoring)
- Simplified and consistent post-deployment operations

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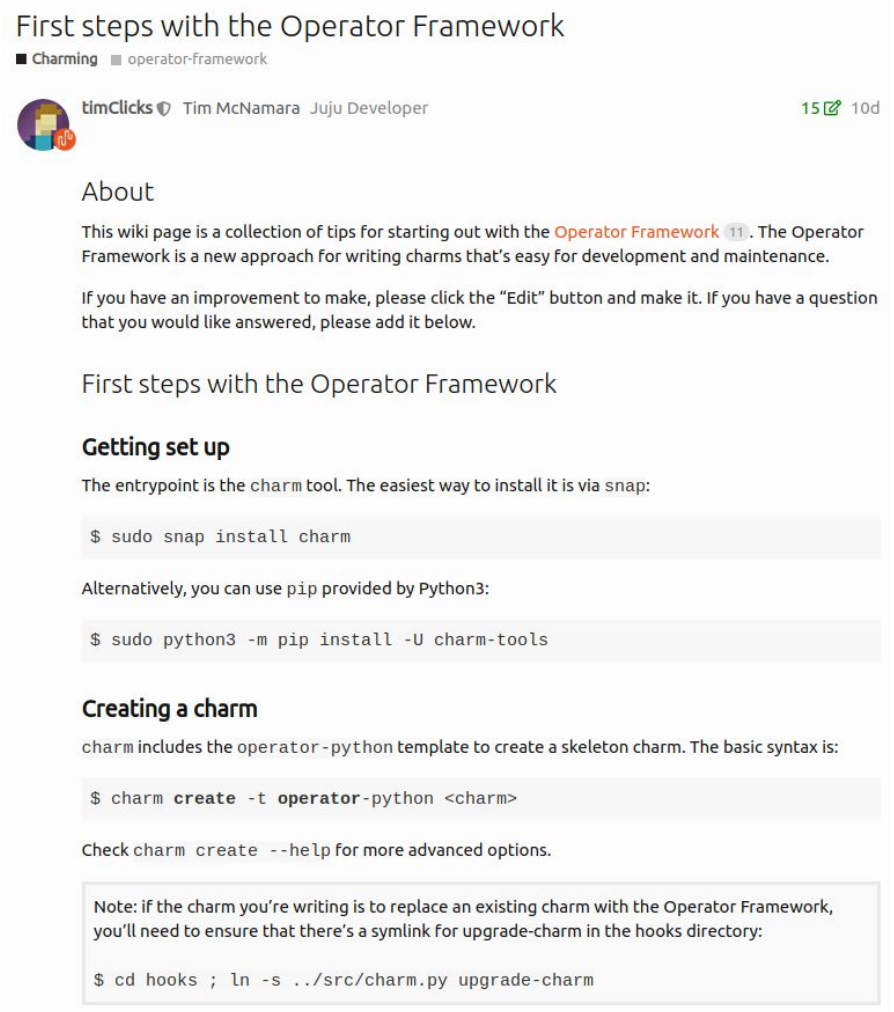
Documentation

Documentation

- Intro to Python Operator Framework

  https://discourse.juju.is/t/first-steps-with-the-operator-framework/3006

- R8 planned documentation:
  - Charmed OSM installation
  - Scaling OSM components
  - Upgrading OSM
  - Scaling VCA



First steps with the Operator Framework

Charming · operator-framework

timClicks Tim McNamara Juju Developer 15 10d

About

This wiki page is a collection of tips for starting out with the Operator Framework 11. The Operator Framework is a new approach for writing charms that's easy for development and maintenance.

If you have an improvement to make, please click the "Edit" button and make it. If you have a question that you would like answered, please add it below.

First steps with the Operator Framework

Getting set up

The entrypoint is the `charm` tool. The easiest way to install it is via `snap`:

```
$ sudo snap install charm
```

Alternatively, you can use `pip` provided by Python3:

```
$ sudo python3 -m pip install -U charm-tools
```

Creating a charm

`charm` includes the `operator-python` template to create a skeleton charm. The basic syntax is:

```
$ charm create -t operator-python <charm>
```

Check `charm create --help` for more advanced options.

Note: if the charm you're writing is to replace an existing charm with the Operator Framework, you'll need to ensure that there's a symlink for upgrade-charm in the hooks directory:

```
$ cd hooks ; ln -s ../src/charm.py upgrade-charm
```

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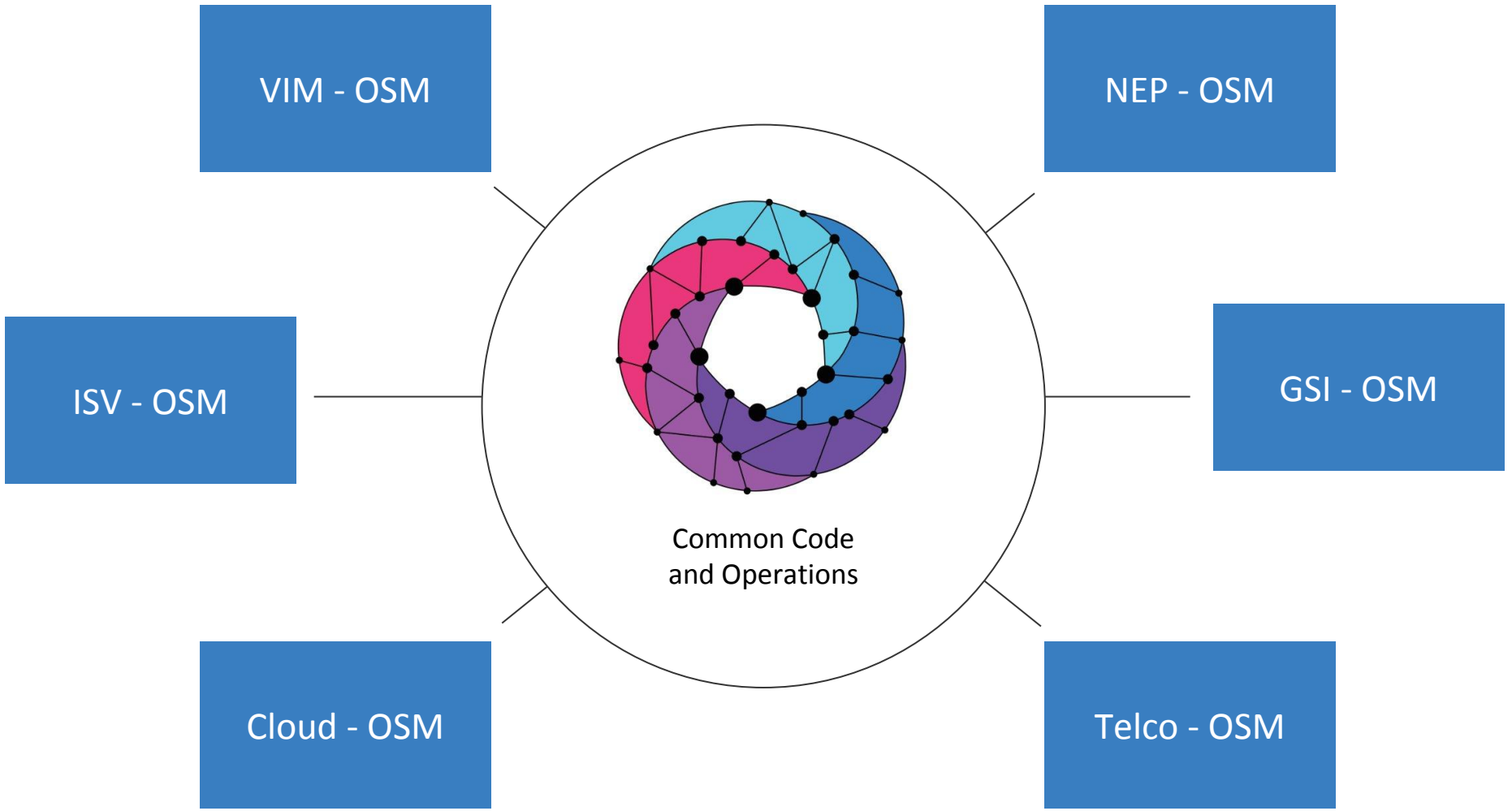
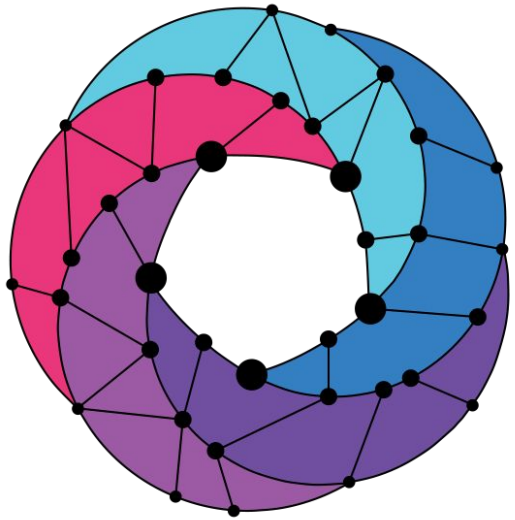
Cooperation

Cooperation

- TNO - OSM improvements
- Simula - Charm support
- Metaswitch - VNFs
- Parallel Wireless, Altiostar (OpenRAN) - Orchestration
- Juniper - SDN

Upstream OSM and Distributions





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