CANONICAL

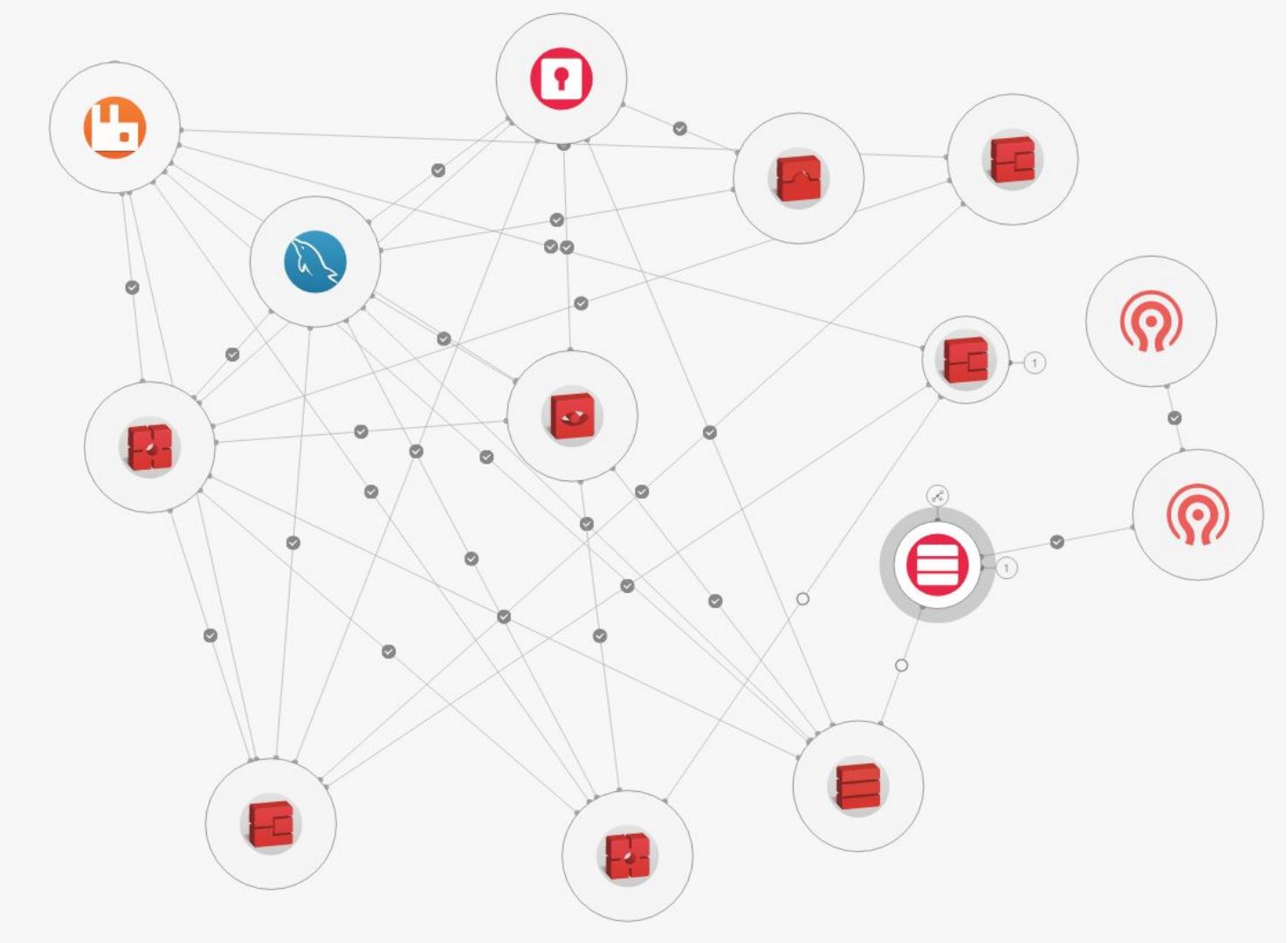
juju demo - OpenStack deployment

Paul Sim
Technical Account Manager
paul.sim@canonical.com

Index

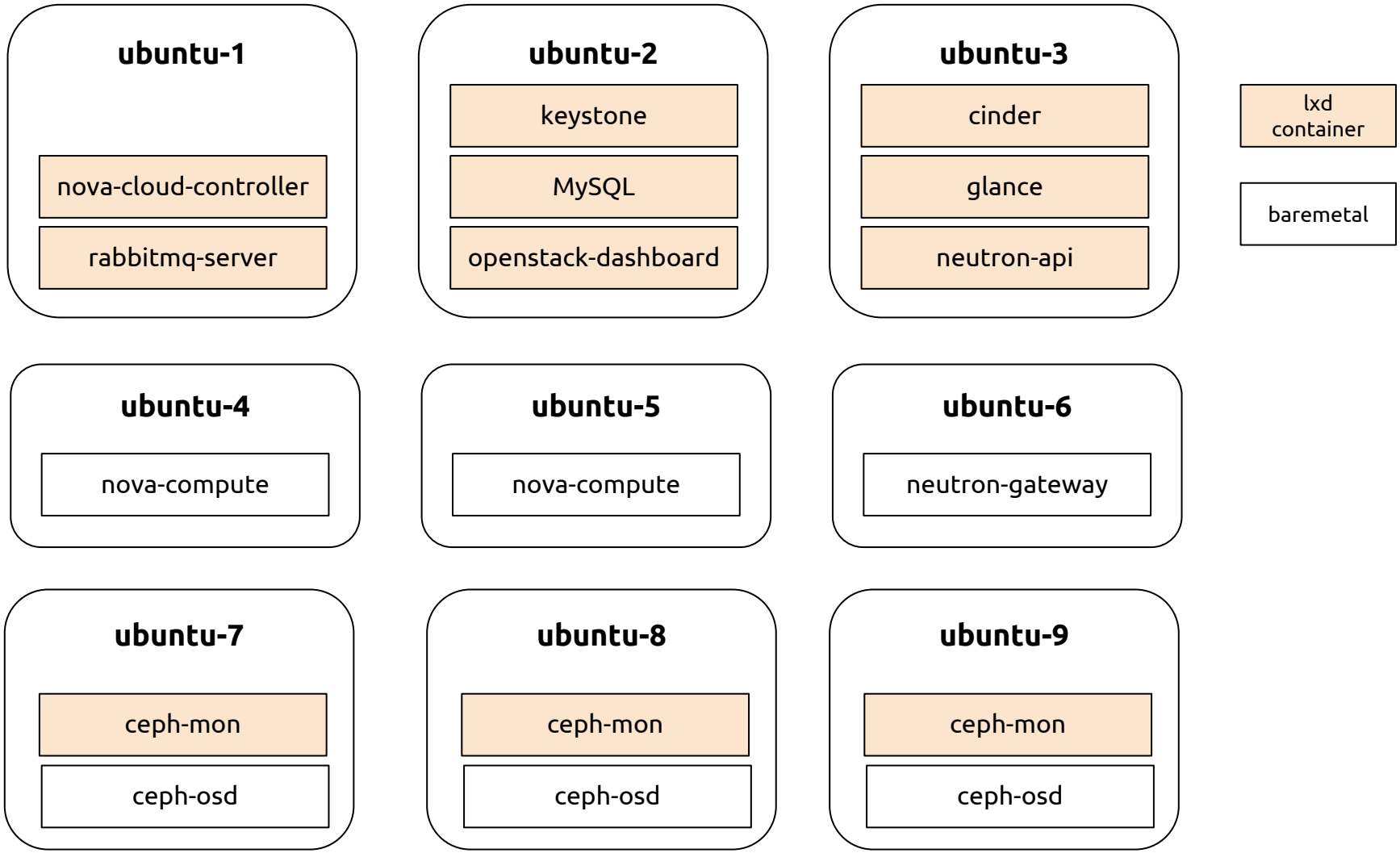
- Juju demo
    - OpenStack
    - OpenStack H/A
- Juju & MAAS
- Juju charm & bundle
- Conjure-up

OpenStack deployment



CANONICAL

Juju demo - OpenStack



Juju demo - OpenStack

$juju deploy ./newton-neutron-bundle.yaml

OpenStack deployment H/A

Stateless vs Stateful

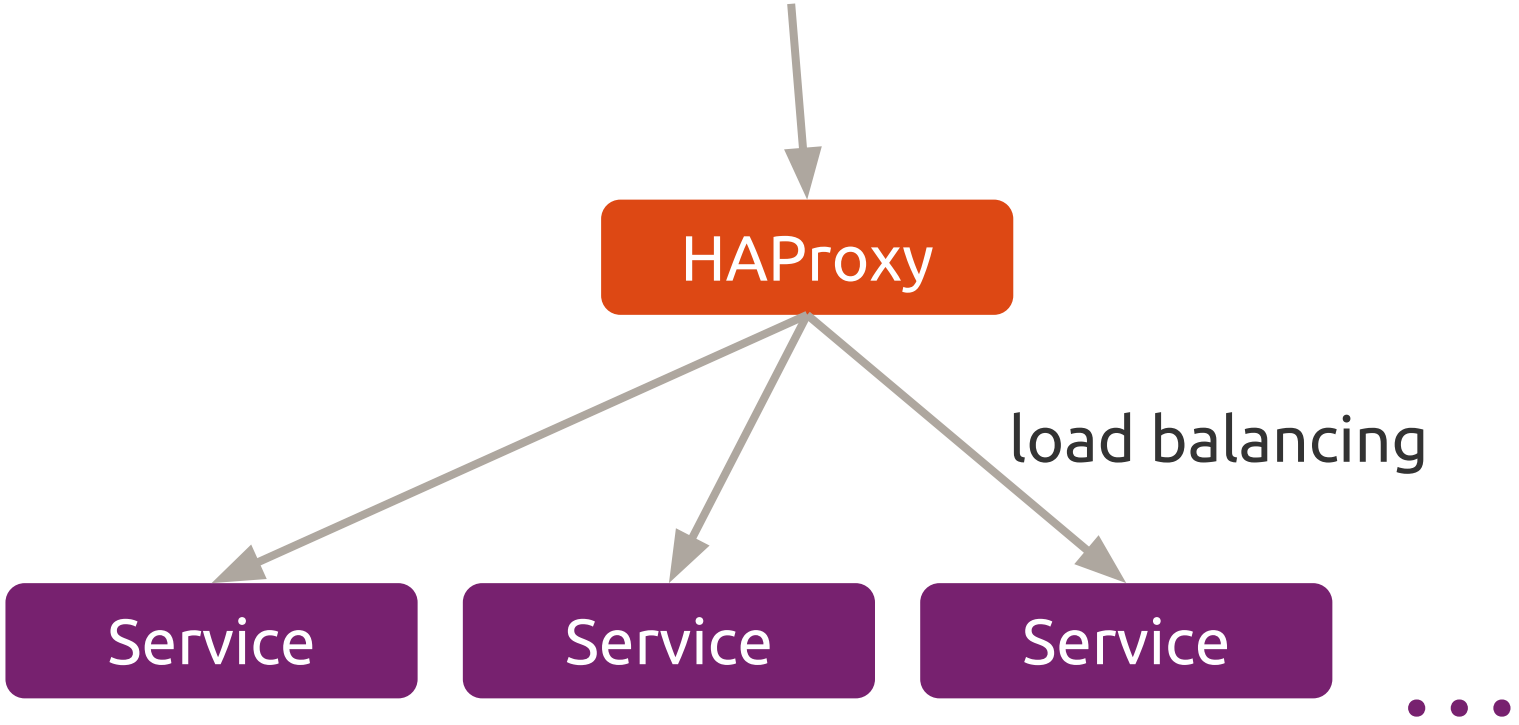
The way to achieve HA depends on stateless or stateful services

- Stateless
  - Services which do not hold any state, i.e. Horizontally scalable
  - e.g. API services (Keystone API, Nova API, etc.), Swift proxy, Ceph RADOS gateway
  - VIP + HAproxy model (Active/Active) can be applied
- Stateful
  - Services which hold states
  - e.g. Database, Messaging queue(RabbitMQ)
  - Native clustering mechanisms (Active/Active) can be applied

OpenStack deployment H/A

VIP (Virtual IP) + HAProxy model

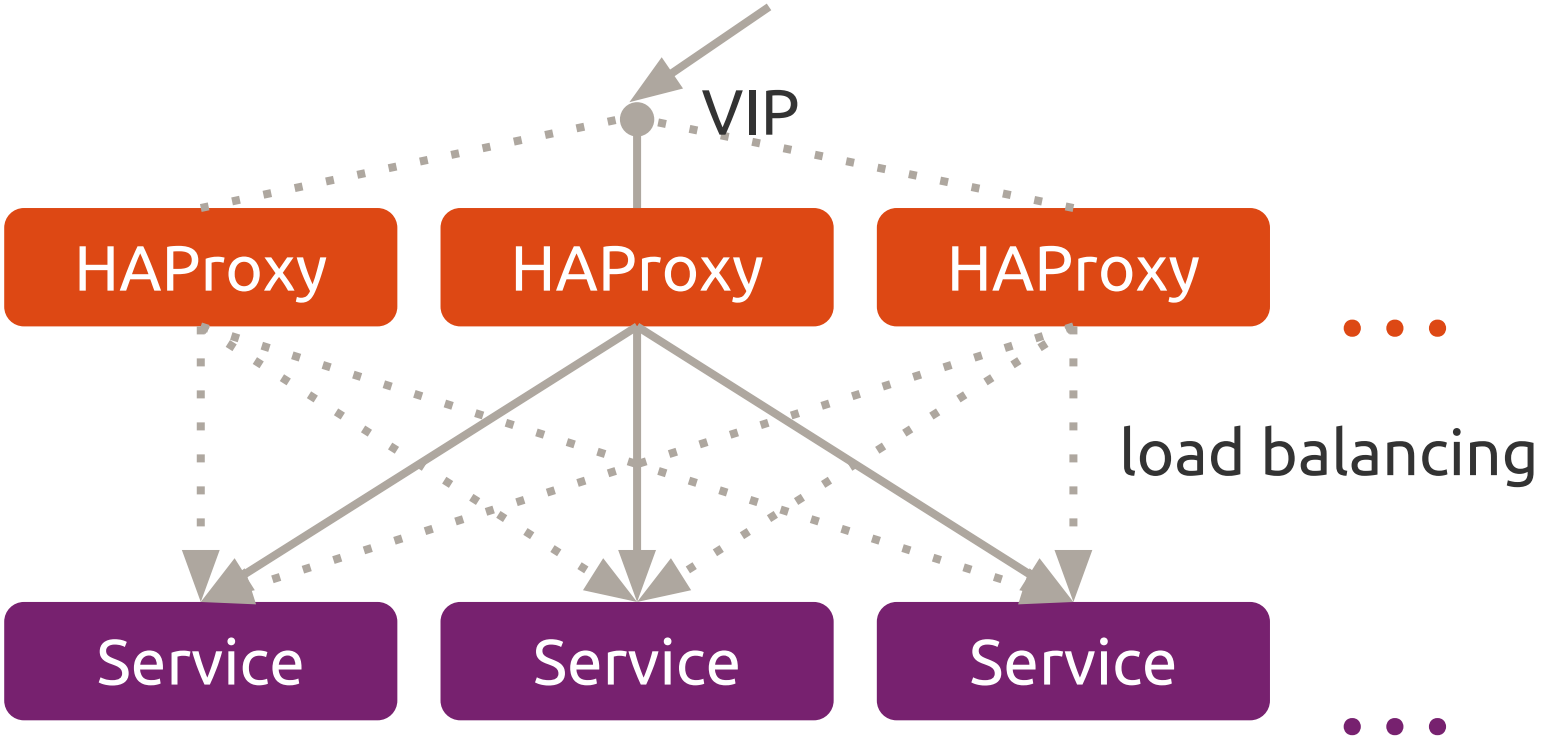
For stateless services (e.g Keystone API, Nova API, etc.)



OpenStack deployment H/A

VIP (Virtual IP) + HAProxy model

For stateless services (e.g Keystone API, Nova API, etc.)

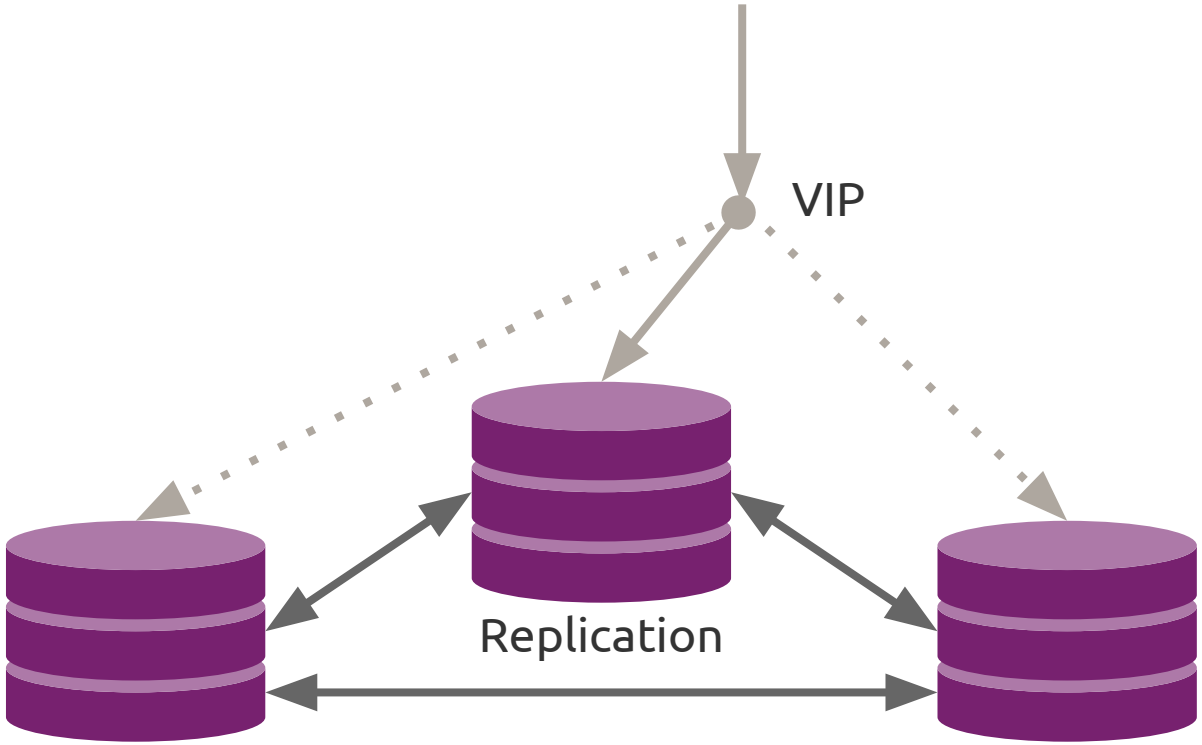


To remove the SPOF, one of the active units will own the VIP of the service.

OpenStack deployment H/A

Percona XtraDB Cluster

MySQL highly available Active/Active cluster

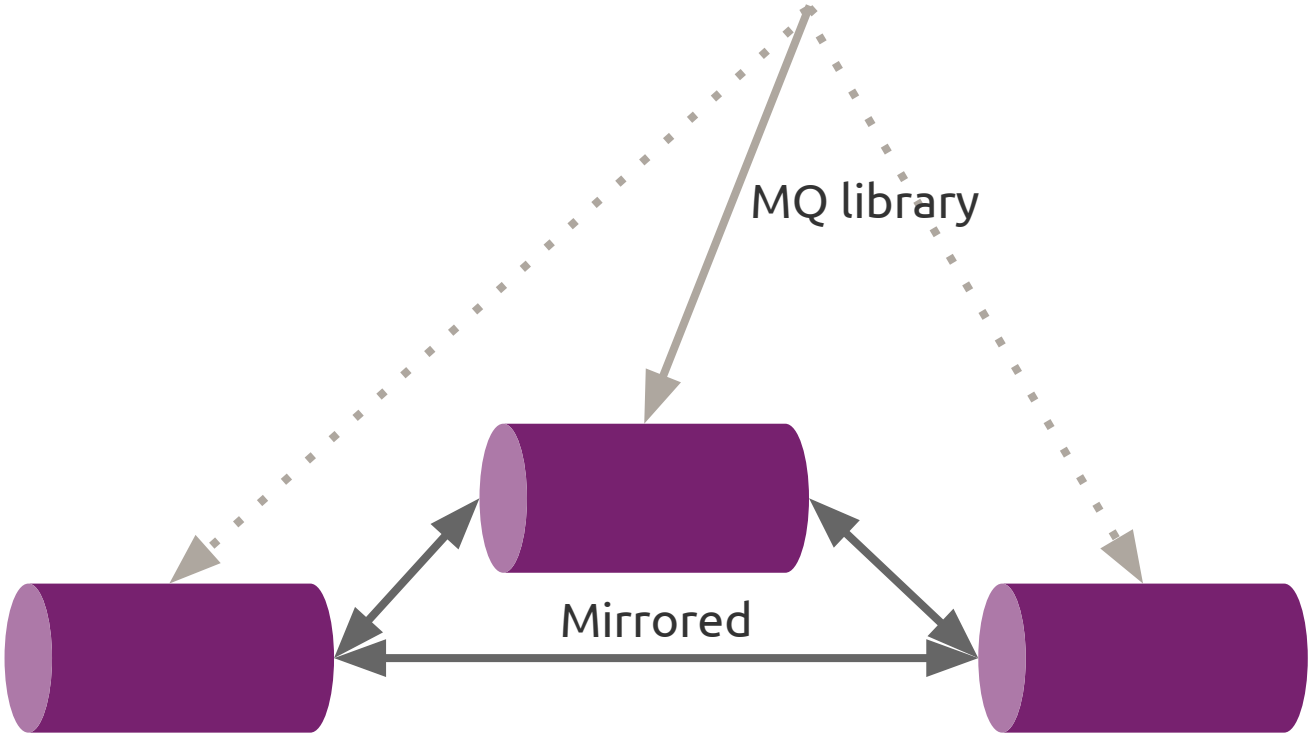


One of the active units will own the VIP. Database will be replicated across the cluster.

OpenStack deployment H/A

RabbitMQ

Mirrored queue



Messaging queues will be mirrored across the cluster.

OpenStack deployment H/A

For instance, keystone

$juju add-unit keystone *--to lxd:0*

$juju add-unit keystone *--to lxd:2*

$juju config keystone vip=*172.30.1.177*

$juju deploy hacluster hacluster-keystone

$juju add-relation hacluster-keystone keystone

OpenStack deployment H/A

Percona XtraDB

$juju add-unit percona-cluster *--to lxd:1*

$juju add-unit percona-cluster *--to lxd:2*

$juju config percona-cluster vip=*172.30.1.178*

$juju config percona-cluster min-cluster-size=3

$juju deploy hacluster hacluster-percona

$juju add-relation hacluster-keystone keystone

RabbitMQ

$juju add-unit rabbitmq-server *--to lxd:1*

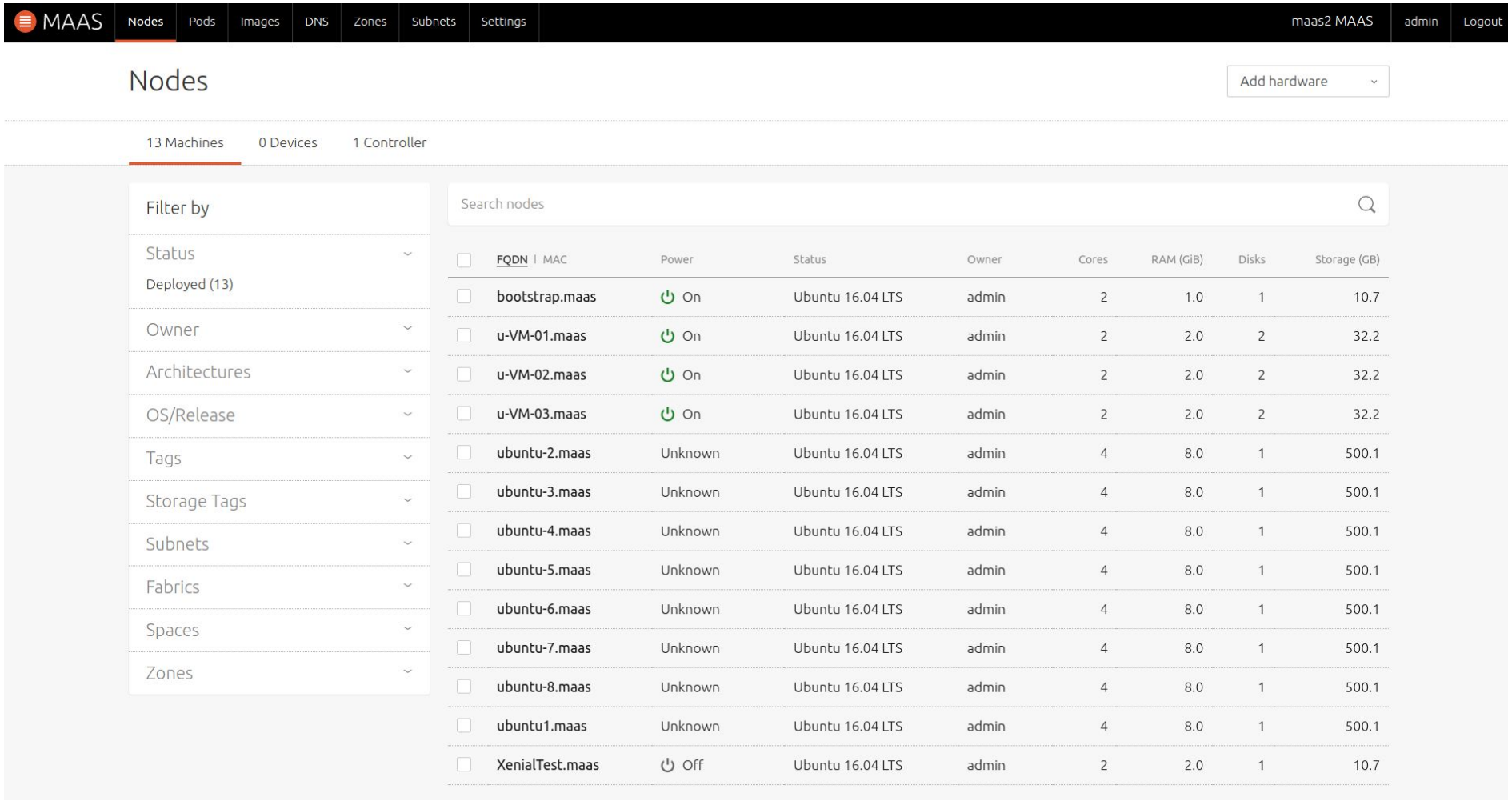
$juju add-unit rabbitmq-server *--to lxd:2*

$juju config rabbitmq-server min-cluster-size=3

$juju config rabbitmq-server *cluster-partition-handling=pause_minority*

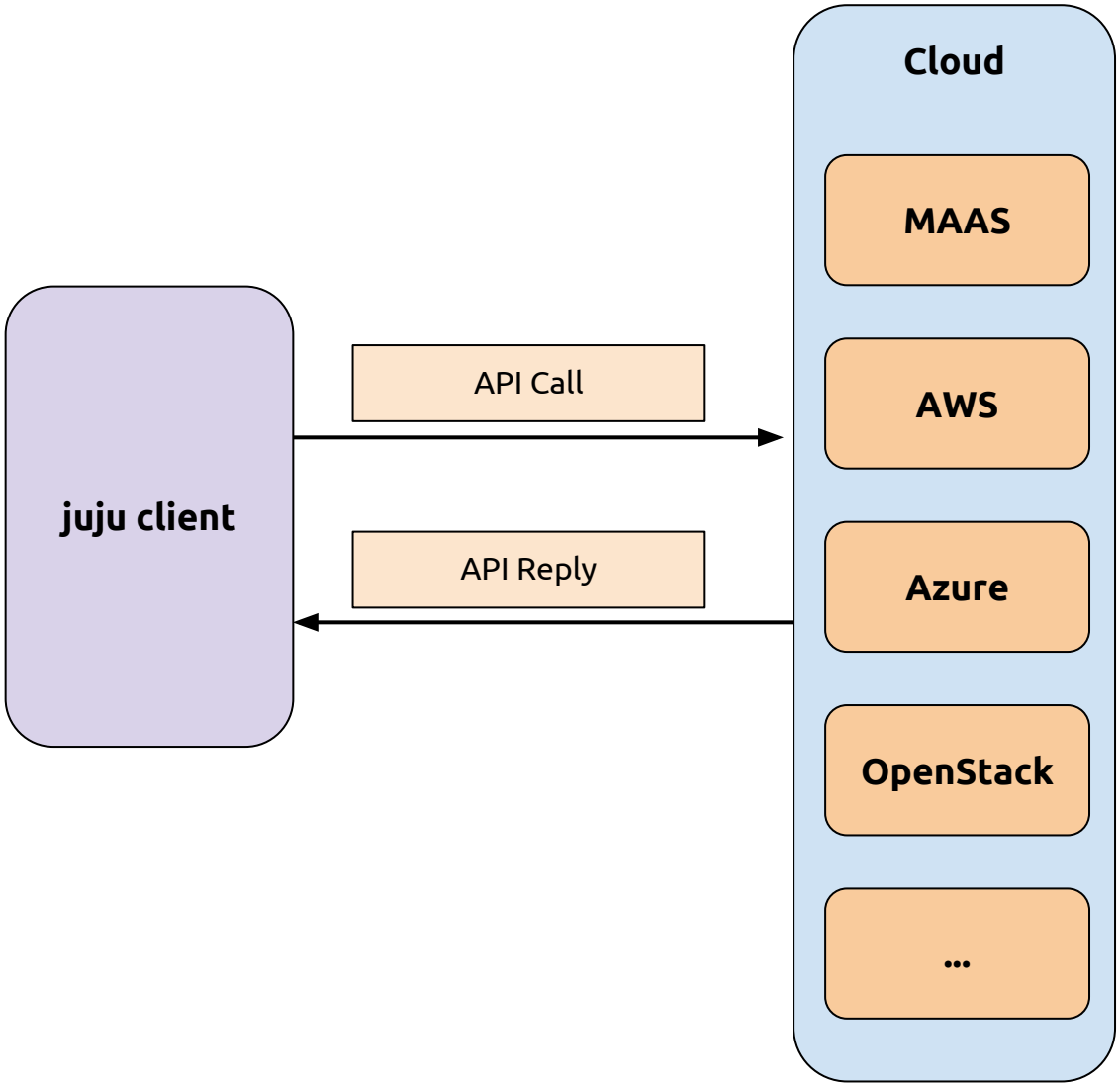
Juju & MAAS

MAAS (Metal as a Service)



https://docs.ubuntu.com/maas/2.3/en/

Juju & MAAS


Cloud
MAAS
AWS
Azure
OpenStack
...
juju client
API Call
API Reply

Juju & MAAS

```
janghoon@juju2:~/apps$ juju clouds
Cloud       Regions  Default          Type        Description
aws              14  us-east-1        ec2         Amazon Web Services
aws-china         1  cn-north-1       ec2         Amazon China
aws-gov           1  us-gov-west-1    ec2         Amazon (USA Government)
azure            26  centralus        azure       Microsoft Azure
azure-china       2  chinaeast        azure       Microsoft Azure China
cloudsigma        5  hnl              cloudsigma  CloudSigma Cloud
google            8  us-east1         gce         Google Cloud Platform
joyent            6  eu-ams-1         joyent      Joyent Cloud
oracle            5  uscom-central-1  oracle      Oracle Cloud
rackspace         6  dfw              rackspace   Rackspace Cloud
localhost         1  localhost        lxd         LXD Container Hypervisor
maas-hw           0                   maas        Metal As A Service
```

https://jujucharms.com/docs/stable/clouds

Juju charm & bundle

Charm

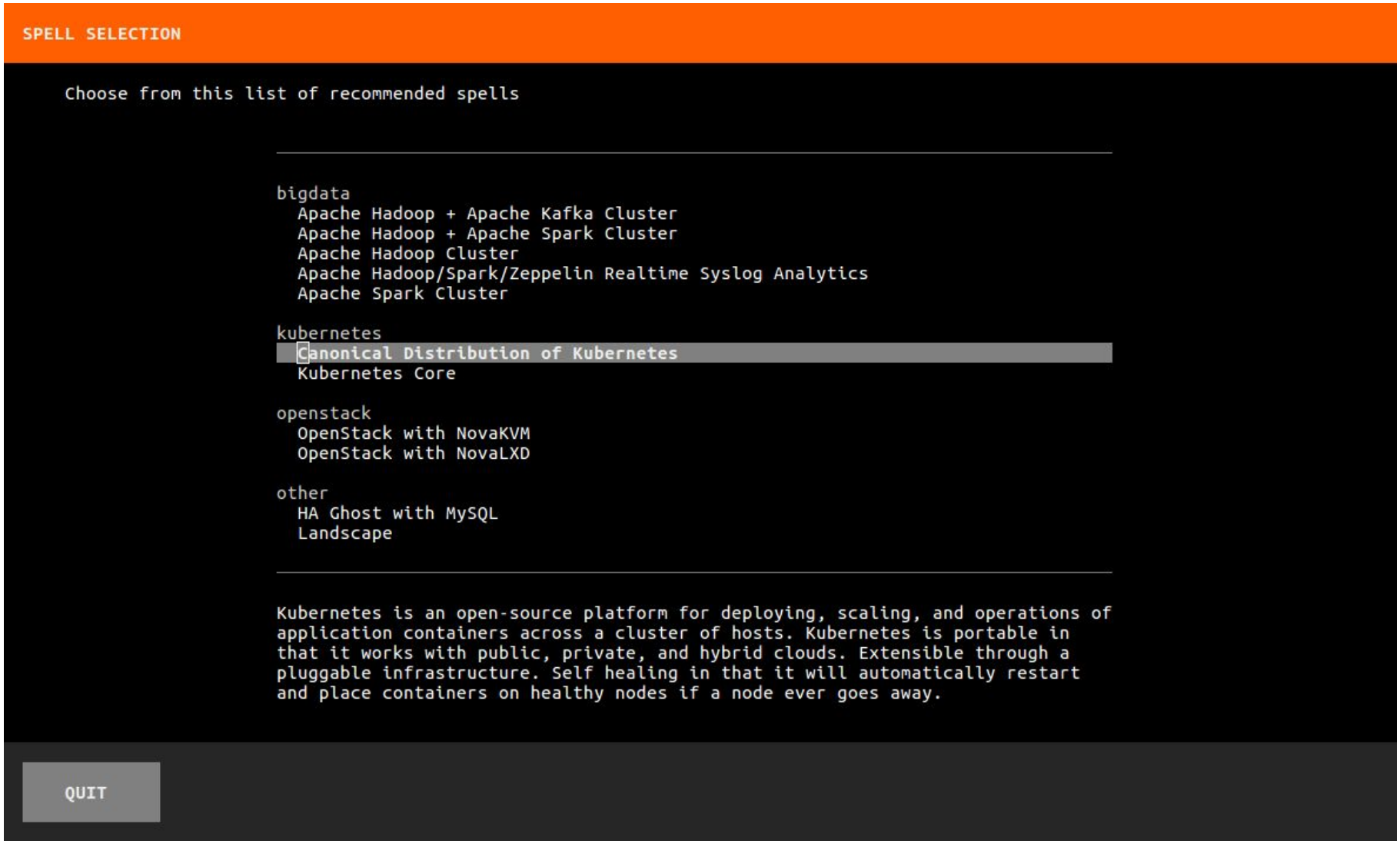
- Charms are sets of scripts that simplify the deployment and management tasks of a service. They are regularly reviewed and updated.

Bundle

- Bundles are collections of charms that link applications together, so you can deploy whole chunks of infrastructure in one go.

https://jujucharms.com/store

Conjure-up



https://www.ubuntu.com/download/cloud/try-openstack

Useful links

- OpenStack on MAAS 1.9+ with Juju
  - https://insights.ubuntu.com/2016/01/21/introduction-deploying-openstack-on-maas-1-9-with-juju/
- juju
  - https://jujucharms.com/docs/stable/getting-started
  - https://jujucharms.com/q/?text=openstack
- MAAS
  - https://docs.ubuntu.com/maas/2.3/en/
- etc
  - https://jujucharms.com/openstack-base/
  - https://www.youtube.com/results?search_query=juju+maas