Introduction to Juju Relations

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1. Performance monitor overview
2. Basics of Juju relations
3. Add node exporter to squid
4. Descriptors and onboarding to OSM
5. Deployment
6. Execute actions
7. Validation
Performance monitor overview
Performance Monitor

Kubernetes

Prometheus

Grafana

Node Exporter

Squid

Virtual Desktop

This is a KNF with relations
Focus of this session

Prometheus → Node Exporter → Virtual Desktop

Grafana enterprise
Basics of Juju relations
OSM orchestrates Network Functions

Physical    Virtual    Container
Understand the challenge of integration
The integrations is done at the operator level
Relations are integration between operators
Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
...

Provides database

Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
...

Requires database
Matching endpoints can be related

**Operator Charm**
- Install scripts
- Upgrade scripts
- Custom action scripts
- Scaling scripts
- Configuration scripts

**MySQL**

**Operator Charm**
- Install scripts
- Upgrade scripts
- Custom action scripts
- Scaling scripts
- Configuration scripts

**WordPress**

Typed endpoints
Operator Charm
  Install scripts
  Upgrade scripts
  Custom action scripts
  Scaling scripts
  Configuration scripts
  …
  Integration scripts

Operator Charm
  Install scripts
  Upgrade scripts
  Custom action scripts
  Scaling scripts
  Configuration scripts
  …
  Integration scripts
Endpoint

An endpoint is used to connect to another application’s endpoint in order to form a relation.

- **Requires**: The endpoint can make use of services represented by another charm’s endpoint. These can be optional.
- **Provides**: Represents a service that another charm can make use of over a given interface
- **Peers**: only used between units of the same application
Relation: Provides-requires
Relation: Peer

Application: mysql

mysql/0

mysql/1

mysql/2
Interfaces

Is the communication protocol used over a relation between applications (i.e. http)

- Interfaces express which data must be exchanged in the relation
- Only endpoints with the same interface can be related
Haproxy
Operator charm

Mysql
Operator charm

Wordpress
Operator charm

apache2
Operator charm

mysql

http

mysql

http

http

http
Reality is messy and mixed
Charms are universal operators
Add node exporter to squid
Kubernetes Pod

My pod

Container 1

Container 2
Kubernetes Pod

Prometheus

Node Exporter

Squid

My pod
Descriptors and onboarding to OSM
Referencing the juju-bundle (VNFd)

vnfd:
  [...]  
  kdu:  
    - name: squid-metrics-kdu  
      juju-bundle: bundle.yaml
bundle: kubernetes
applications:
  grafana:
    charm: ../charms/grafana-operator
    scale: 1
  prometheus:
    charm: ../charms/prometheus-operator
    scale: 1
  squid:
    charm: ../charms/squid-operator
    scale: 1
relations:
  - prometheus:grafana-source
  - grafana:grafana-source
  - squid:prometheus-target
  - prometheus:target
Adding day-2 operations (VNFd)

vnfd:
    description: K8s container deployment of Squid Web Proxy
df:
    - id: default-df
      lcm-operations-configuration:
        operate-vnf-op-config:
          day1-2:
            - id: squid-metrics-kdu
              config-primitive:
                - name: addurl
                  parameter:
                    - name: application-name
                      data-type: STRING
                      default-value: squid
                    - name: url
                      data-type: STRING
                      default-value: ''

[...]
Adding day-2 operations (VNFd)

vnfd:
    description: K8s container deployment of Squid Web Proxy
df:
    - id: default-df
      lcm-operations-configuration:
        operate-vnf-op-config:
          day1-2:
            - id: squid-metrics-kdu
              config-primitive:
                [...
                - name: deleteurl
              parameter:
                - name: application-name
                  data-type: STRING
                  default-value: squid
                - name: url
                  data-type: STRING
                  default-value: ''
Onboarding to OSM

$ cp -R ~/Hackfest/HD2.6-Juju-relations ~/HD2.5-CNF-Juju
$ cd ~/HD2.5-CNF-Juju
$ osm upload-package hackfest_squid_metrics_cnf.tar.gz
$ osm upload-package hackfest_squid_metrics_cnf_ns.tar.gz
Deployment
$ osm ns-create --ns_name webproxy-metrics \
   --nsd_name squid_metrics_cnf_ns \
   --vim_account $OSM_USER \
   --config '{
    vld: [{
      name: mgmtnet,
      vim-network-name: osm-ext
    }]
  }'
Check Network Service State

$ watch osm ns-list  # Wait until it is in ready state
Execute actions
Execute addurl action

```bash
$ osm ns-action --action_name addurl \
  --v nf_name squid_metrics_cnf \
  --kdu_name squid-metrics-kdu \
  --params '{url: osm.etsi.org}' \
  webproxy-metrics
```
Validation
Validation steps

$ osm vnf-list --filter squid_metrics_cnf
$ osm vnf-show <id> --kdu squid-metrics-kdu
$ osm vnf-show <id>  # Get the loadbalancer ip
$ kubectl -n <ns-id> get svc  # Get the loadbalancer ip
$ https_proxy=<squid-ip>:3128 curl https://google.com  # Error 403
$ https_proxy=<squid-ip>:3128 curl https://osm.etsi.org
Any questions?