Open Source MANO

CNF and Juju bundles
David Garcia (Canonical)
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Performance monitor overview
Performance Monitor

This is a KNF with relations
Focus of this session

Virtual Desktop

Squid
Basics of Kubernetes operators
Recap: Operators

Charms are universal operators

Physical  Virtual  Container
Recap: Operators

Operator
(code)

Application
Kubernetes operators run in a Pod
Kubernetes Pod

My pod

Container 1

Container 2
Kubernetes Operators

Operator Pod (charm) → Application Pod
Kubernetes operators are deployed using OSM with juju-bundles
What are juju bundles?

- Bundles are collections of charms.
- They represent an entire model, rather than a single application.
- From a technical point of view, a bundle is a YAML file.

```
bundle: kubernetes
applications:
  mariadb-k8s:
    charm: cs:~juju/mariadb-k8s-2
    scale: 1
  mediawiki-k8s:
    charm: cs:~juju/mediawiki-k8s-3
    scale: 1
options:
  debug: true
relations:
  - mariadb-k8s:server
  - mediawiki-k8s:db
```
Squid overview
Squid

- Kubernetes Operator/Charm
- It will act as a firewall and cache
- It will include two primitives:
  - addurl: add a URL to the allowed urls
  - deleteurl: remove a URL from the allowed urls
Descriptors and onboarding to OSM
Referencing the juju-bundle (VNFD)

vnfd:
   [...] kdu:
   - name: squid-metrics-kdu
     juju-bundle: bundle.yaml
bundle: kubernetes
applications:
squid:
  charm: ../charms/squid-operator
  scale: 1
# ...
# ...
# ...
# ...
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/HD2.5-CNF-Juju ~/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
Create Network Service

```bash
$ osm ns-create --ns_name webproxy \
   --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

$ osm ns-action --action_name addurl
   --vnnf_name squid_metrics_cnf
   --kdu_name squid-metrics-kdu
   --params '{url: osm.etsi.org}'
webproxy
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
Thanks!