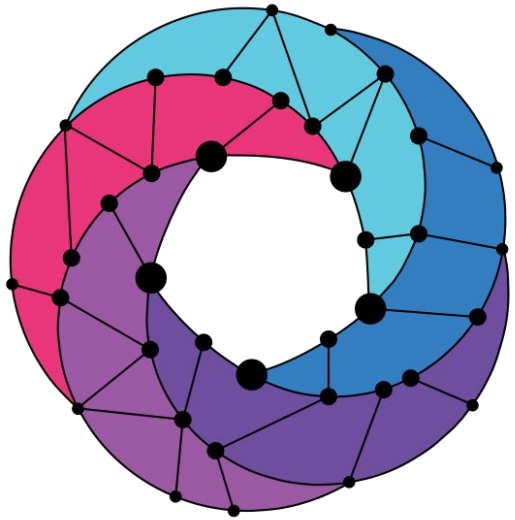

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Introduction to Juju Relations

David Garcia (Canonical)

ETSI

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OSM orchestrates Network Functions

Physical Virtual Container

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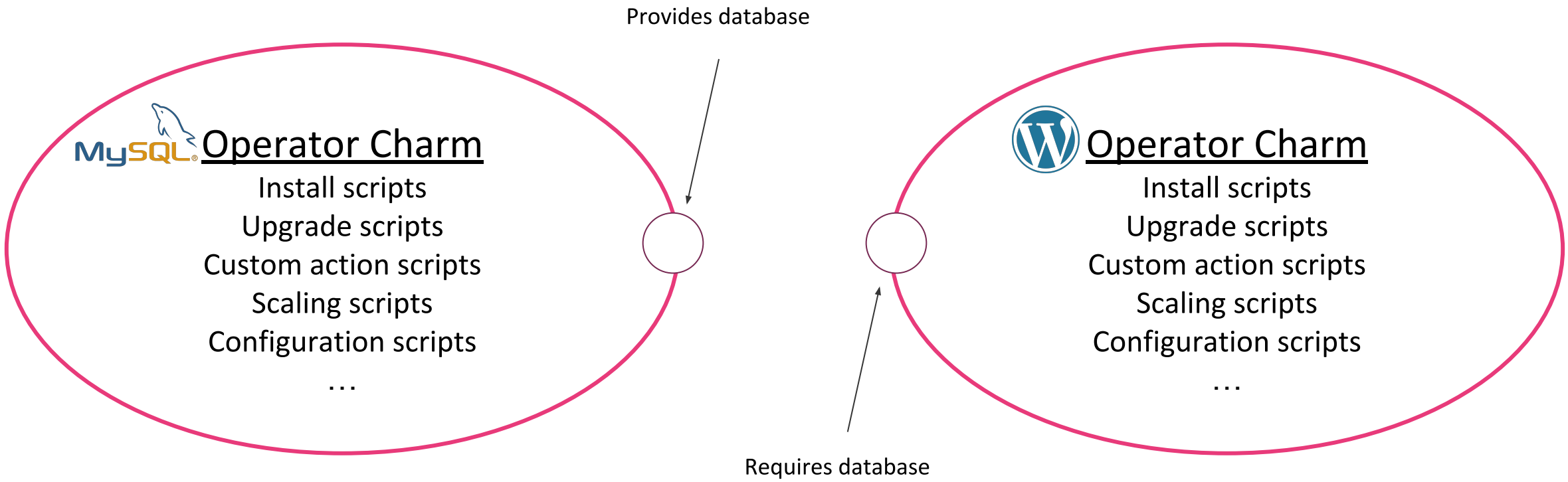
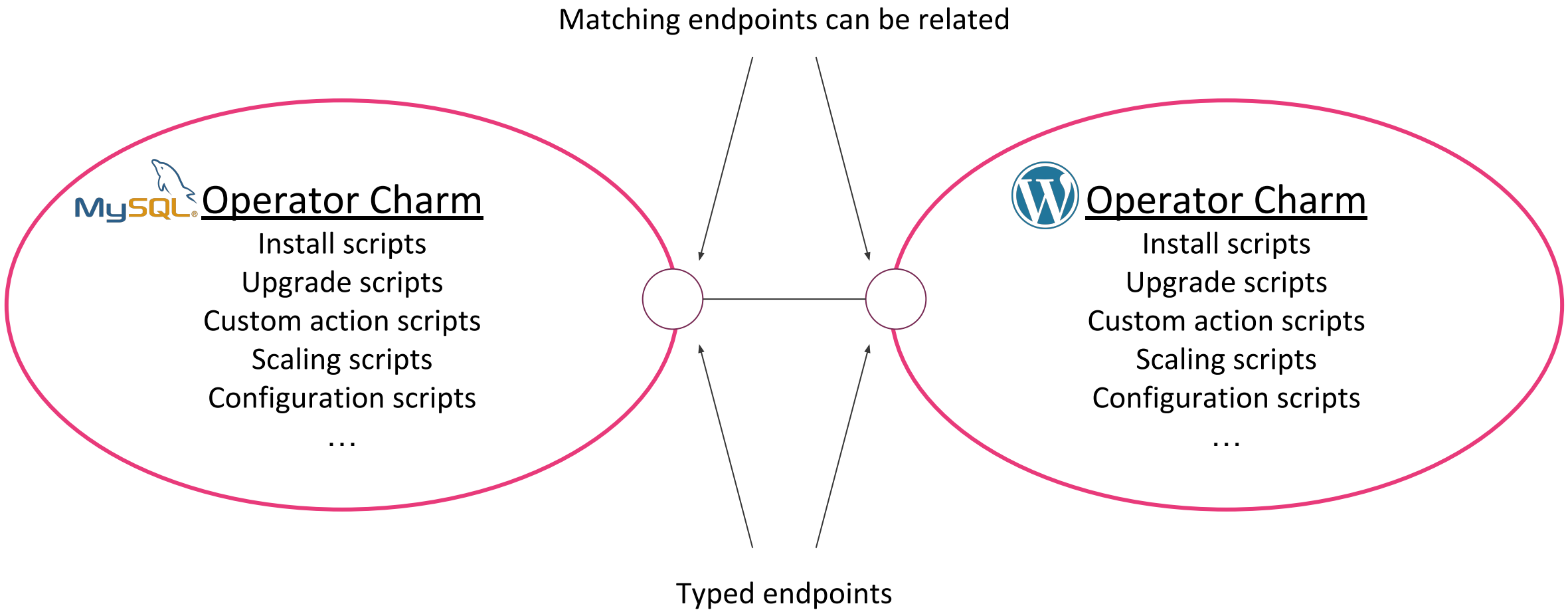
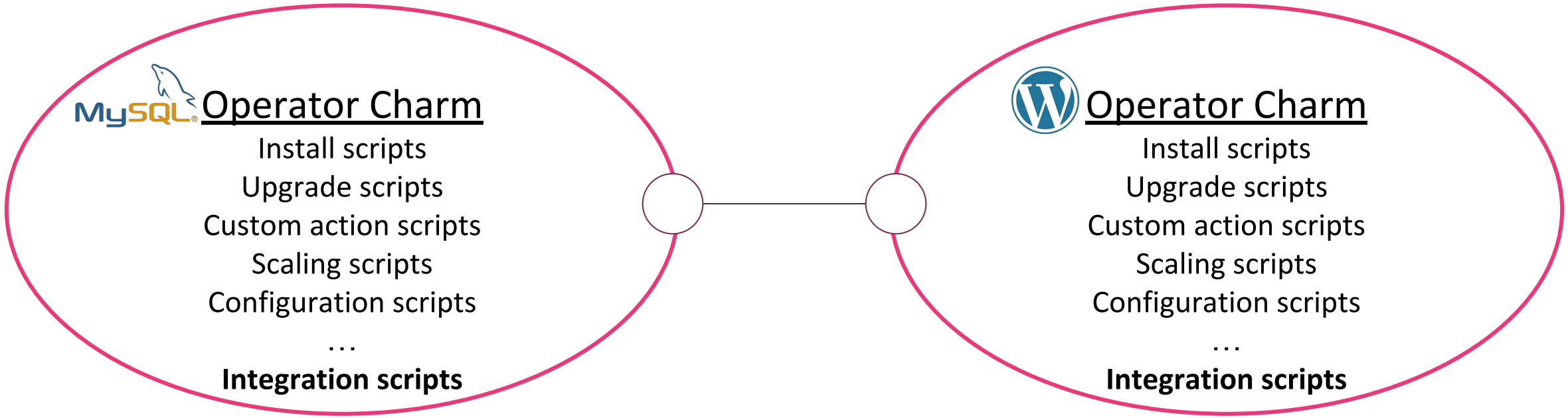
Understand the challenge of integration

The integrations is done at the operator level

Relations are integration between operators


Provides database
Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
…
Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
…
Requires database

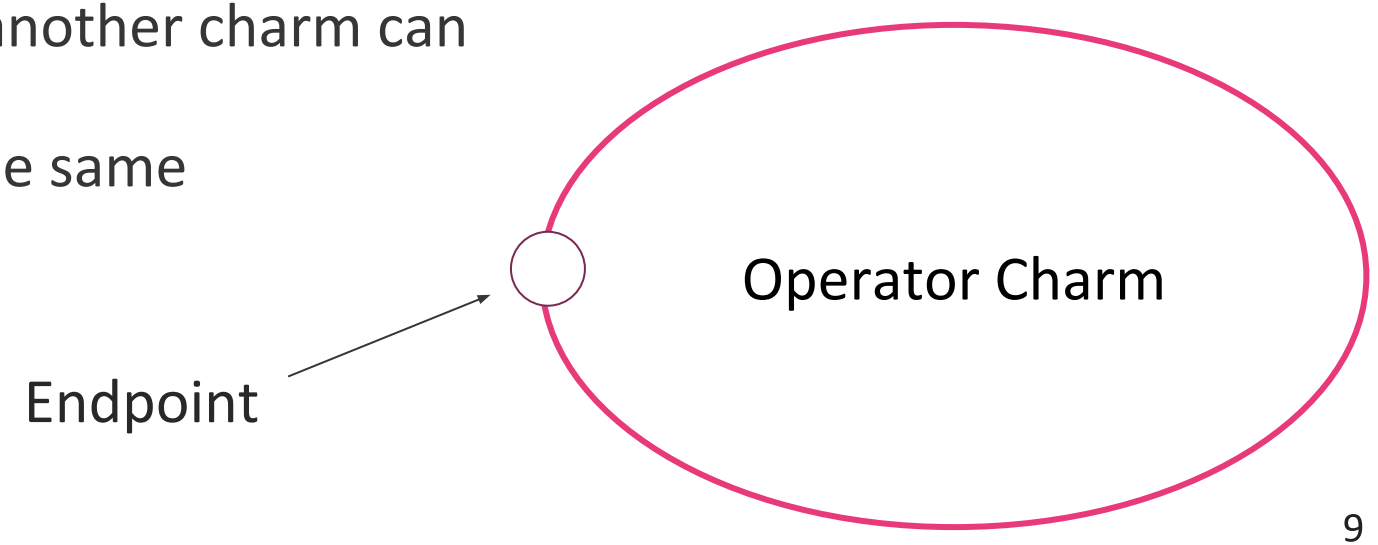

Matching endpoints can be related
MySQL
Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
…
Operator Charm
Install scripts
Upgrade scripts
Custom action scripts
Scaling scripts
Configuration scripts
…
Typed endpoints


MySQL
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

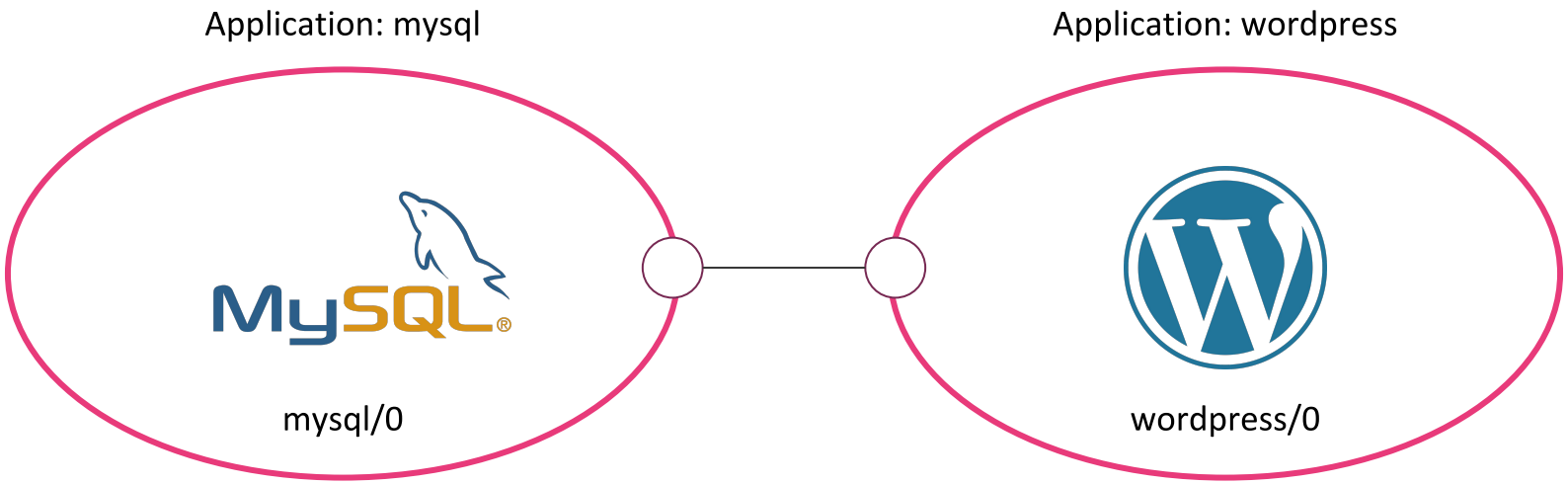
Endpoint

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

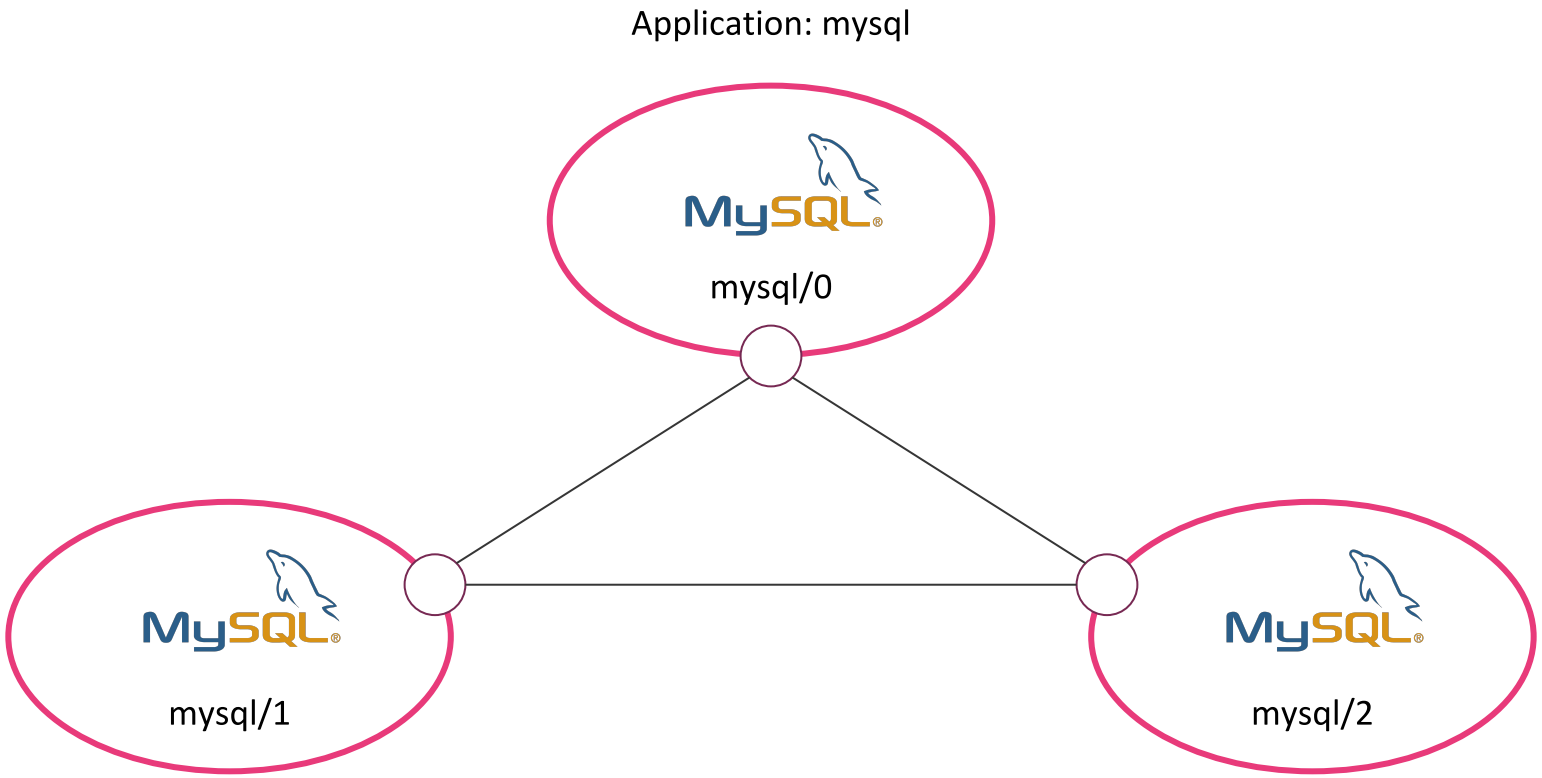
- Requires: The endpoint can make use of services represented by another charm's endpoint. These can be optional.
- Provides: Represents a service that another charm can make use of over a given interface
- Peers: only used between units of the same application



Relation: Provides-requires



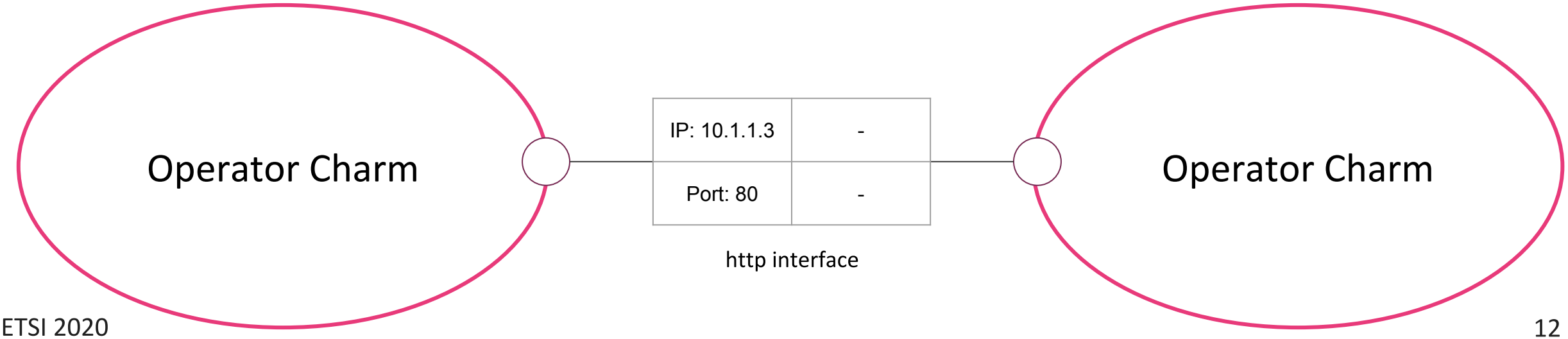
Relation: Peer

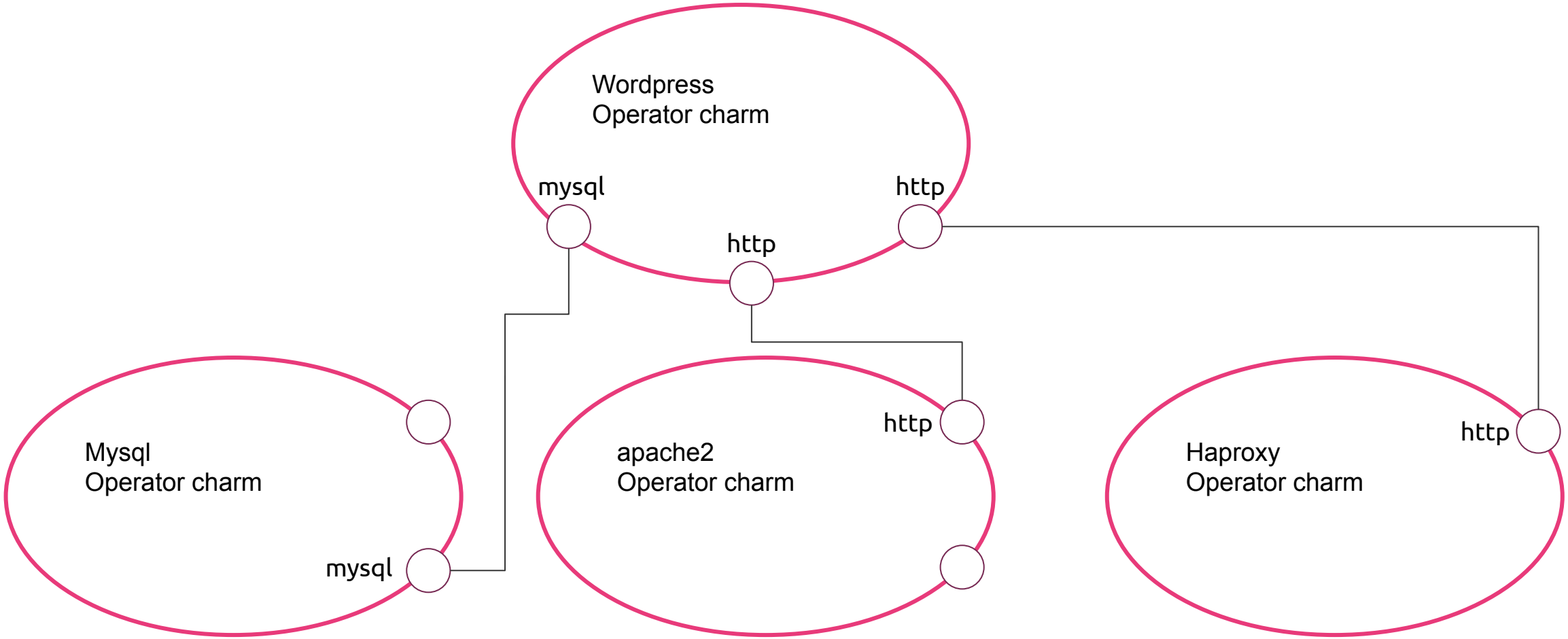


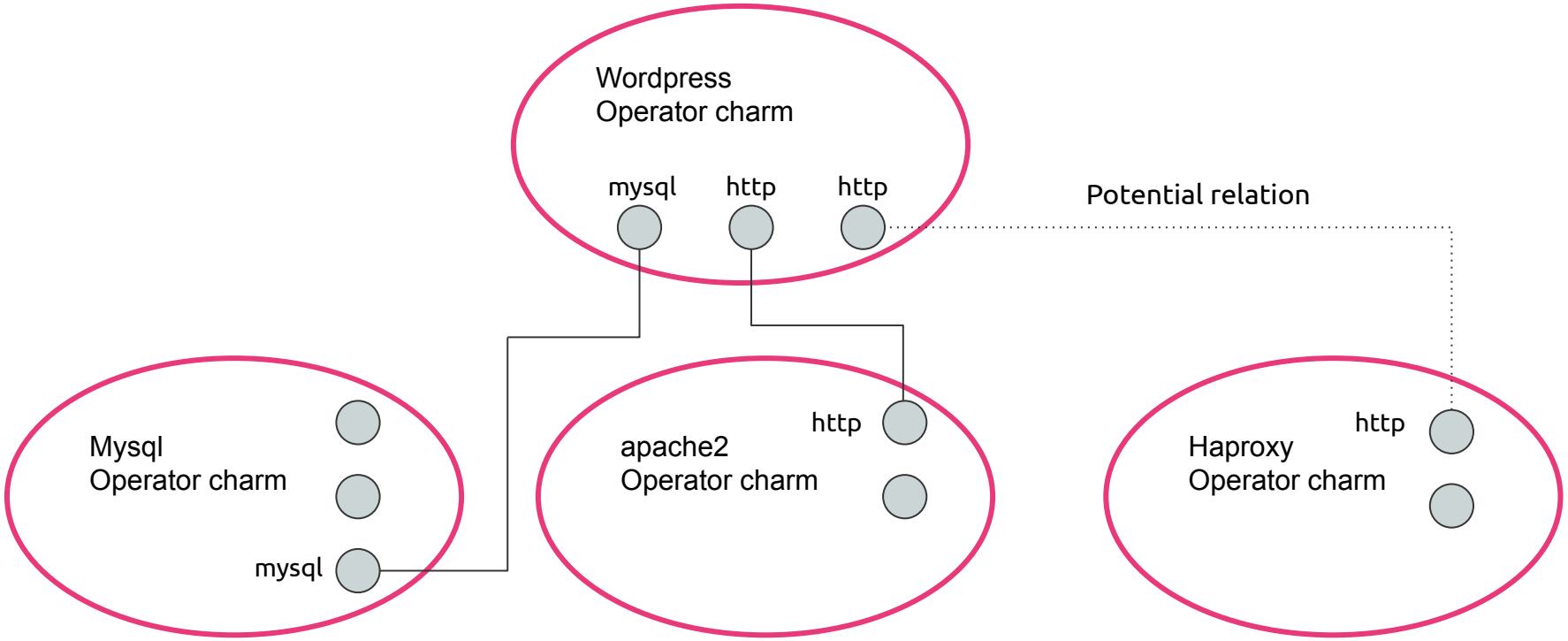
Interfaces

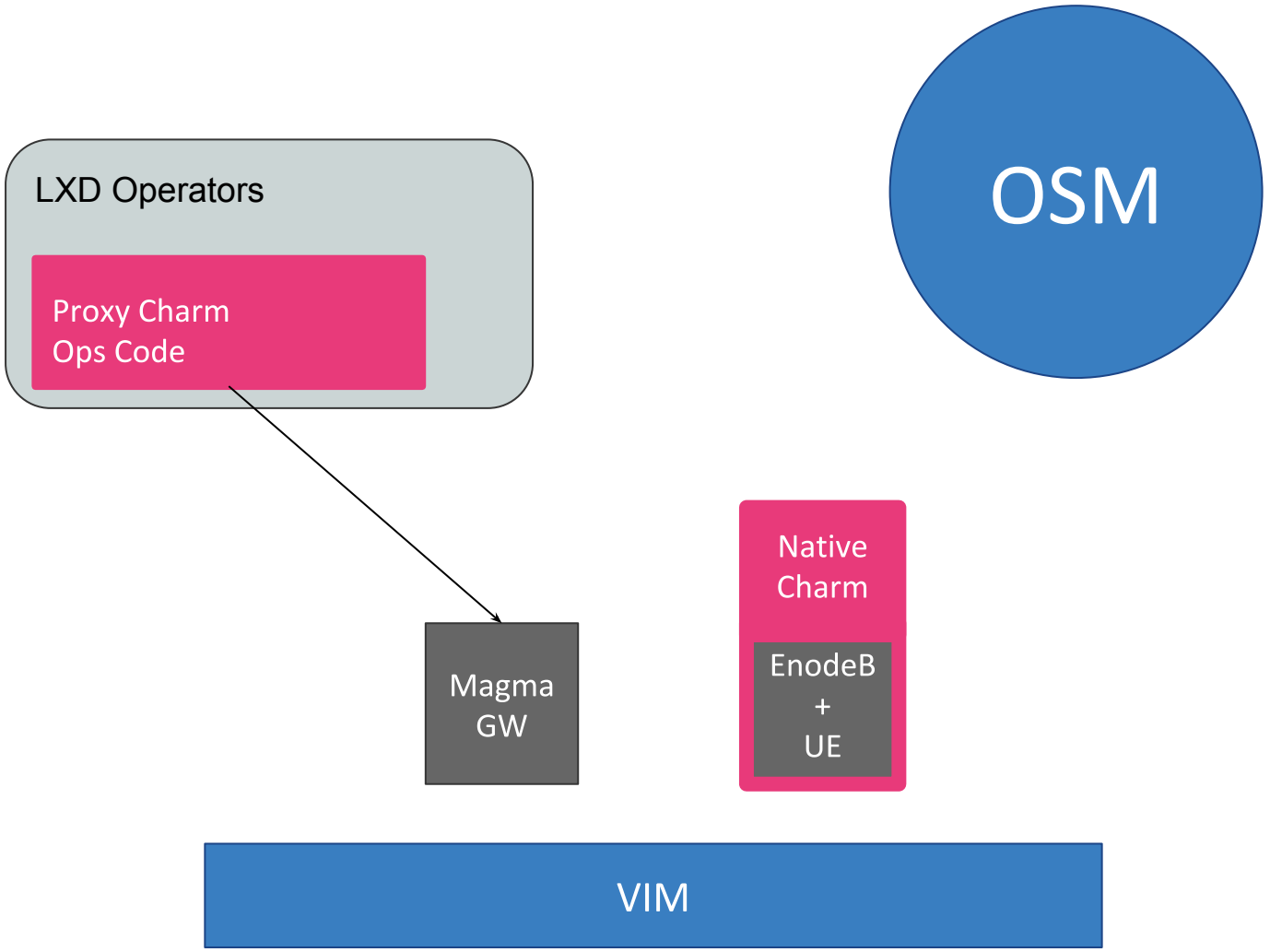
Is the communication protocol used over a relation between applications (i.e. http)

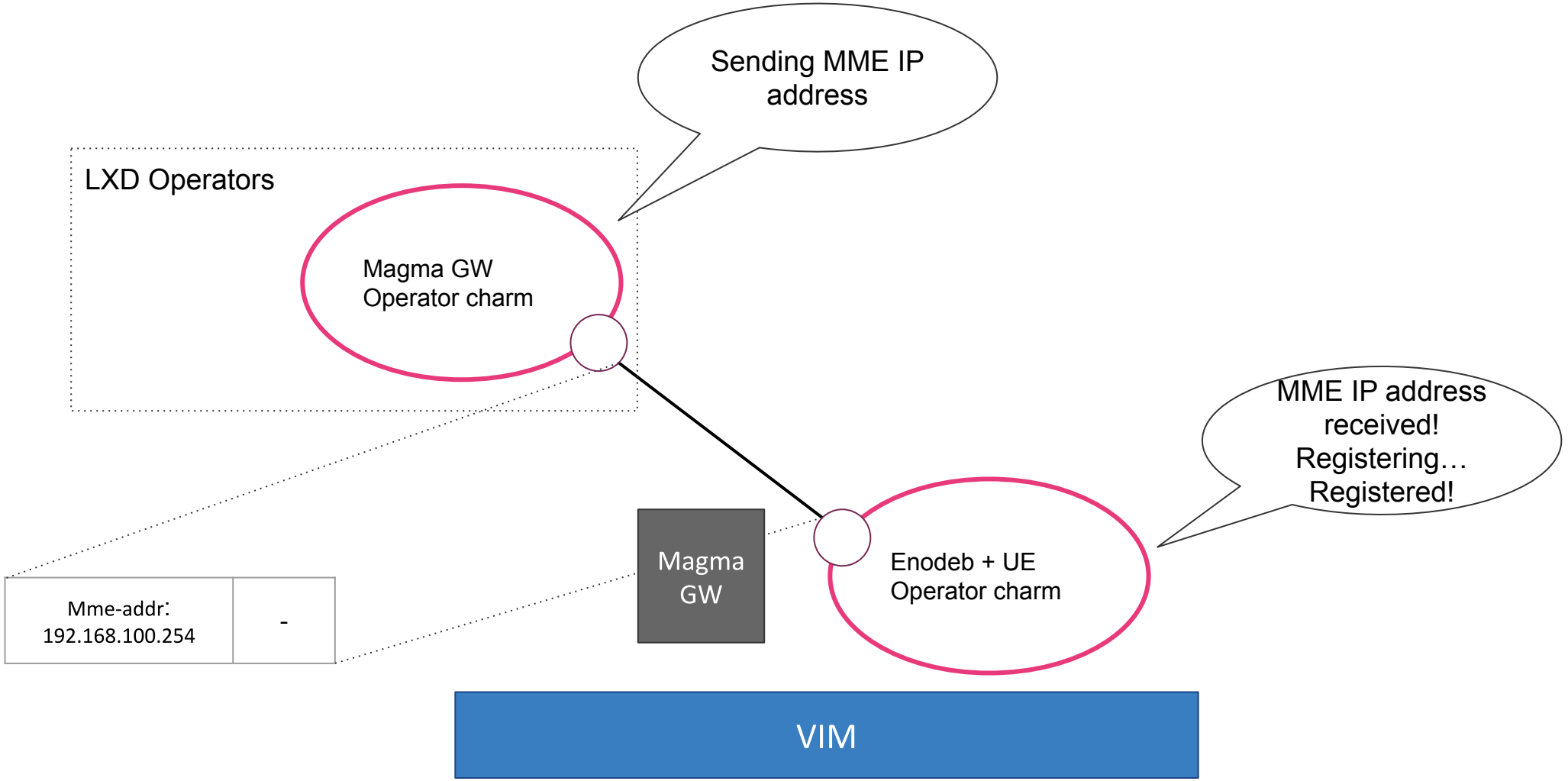
- Interfaces express which data must be exchanged in the relation
- Only endpoints with the same interface can be related

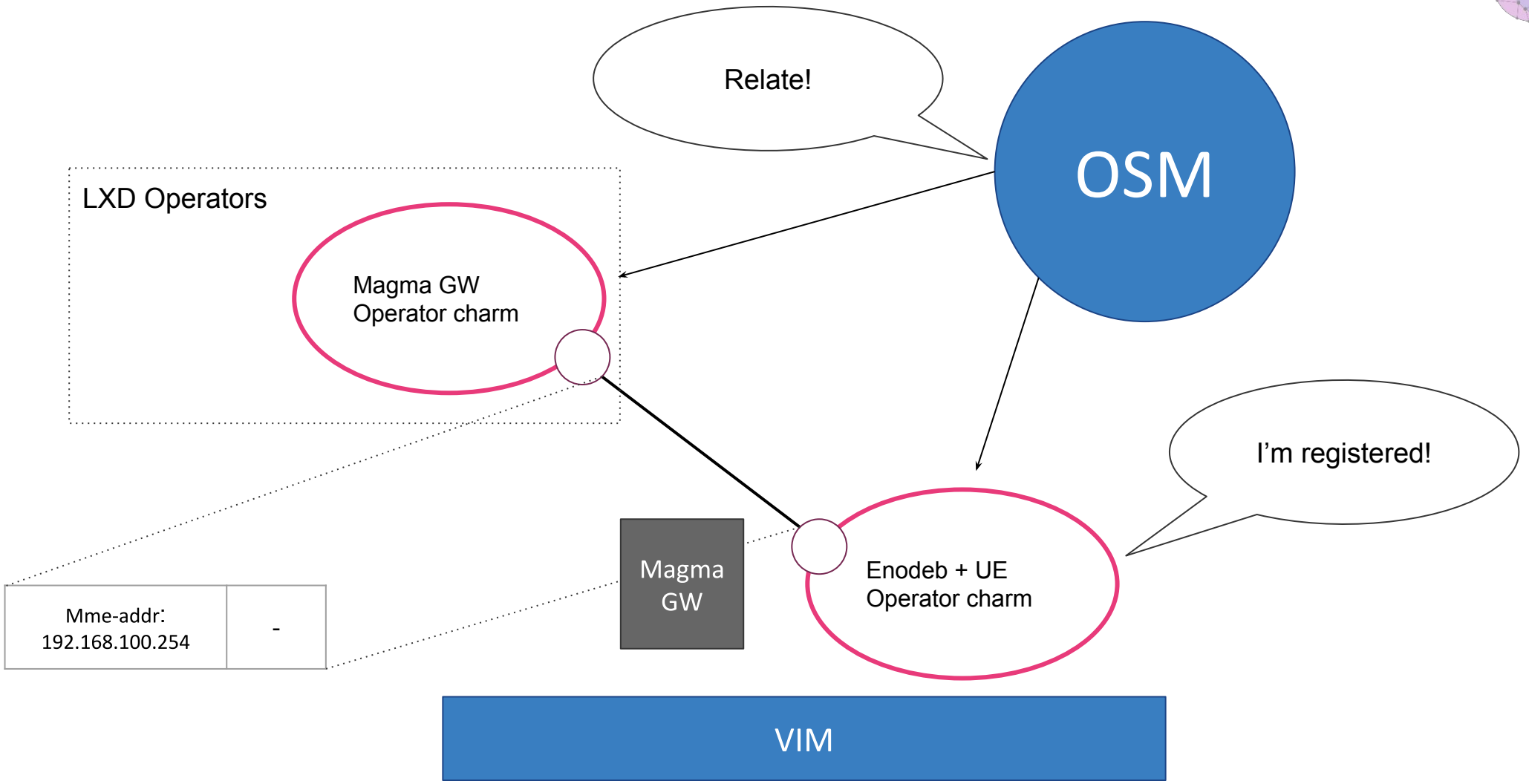



Wordpress
Operator charm
mysql
http
http
Mysql
Operator charm
mysql
apache2
Operator charm
http
Haproxy
Operator charm
http

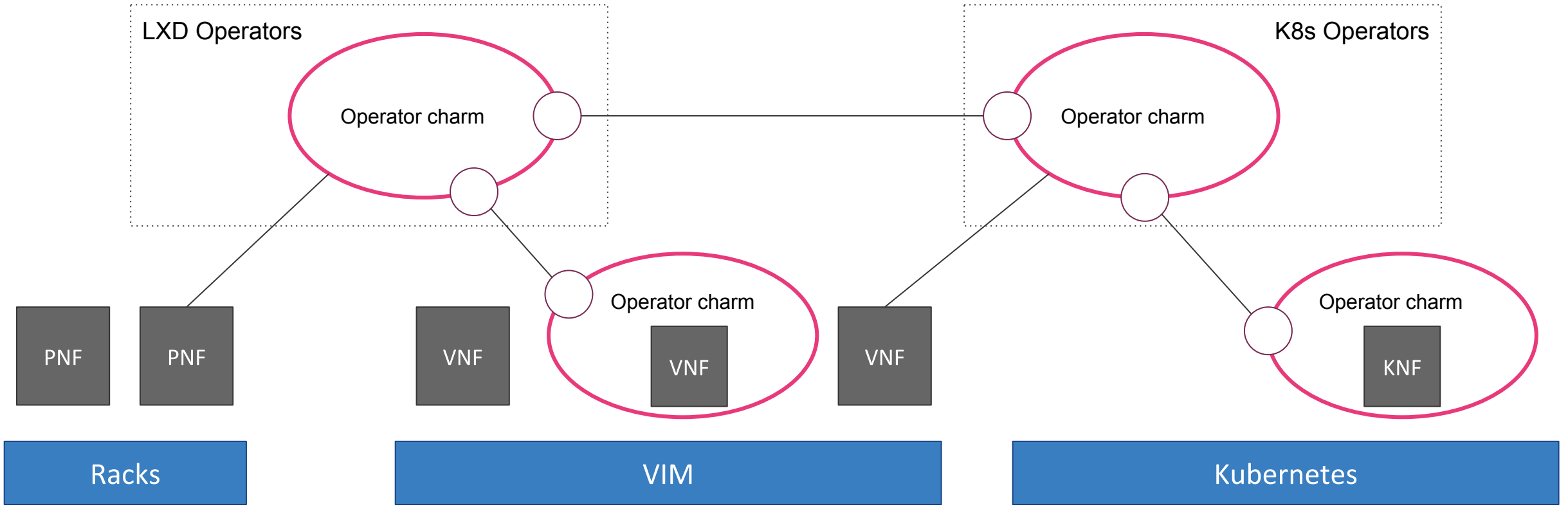

Wordpress
Operator charm
mysql
http
http
Potential relation
Mysql
Operator charm
mysql
apache2
Operator charm
http
Haproxy
Operator charm
http


LXD Operators
Proxy Charm
Ops Code
OSM
Native
Charm
EnodeB
+
UE
Magma
GW
VIM


Sending MME IP address
LXD Operators
Magma GW Operator charm
MME IP address received! Registering… Registered!
Mme-addr: 192.168.100.254
-
Magma GW
Enodeb + UE Operator charm
VIM


Relate!
OSM
LXD Operators
Magma GW
Operator charm
I'm registered!
Mme-addr:
192.168.100.254
-
Magma
GW
Enodeb + UE
Operator charm
VIM

Reality is messy and mixed



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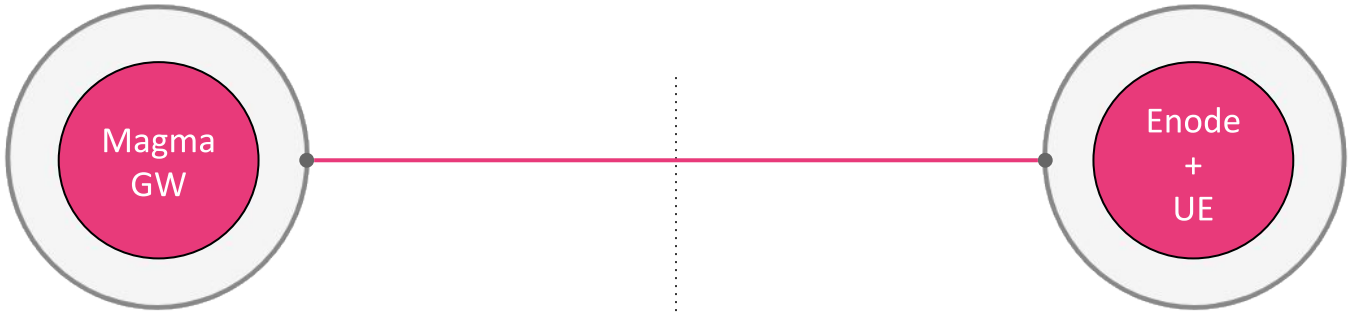
Charms are universal operators

- When a relation is established, relation_joined event is triggered in both charms
- After relation_joined, relation_changed will be trigger
- Any time a charm writes into the relation_data, relation_changed event will be triggered in the other side of the relation



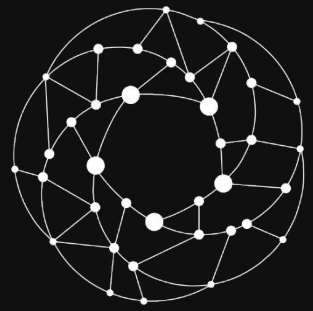

```
def on_relation_joined(self, event):
    rel = self.model.get_relation("agw")
    if rel is None:
        event.defer()
        return
    if not self.state.ready:
        return
    rel.data[self.unit]["mme-addr"] = get_ip()
```

```
def on_relation_changed(self, event):
    rel = self.model.get_relation("agw")
    if rel is None:
        event.defer()
        return
    mme_addr = rel.data[event.unit].get("mme-addr")
    if mme_addr:
        ...
```

VNFD: Relation

- In the vnf configuration we need to specify the relations we want to add.
- The entities key is a two-element array that includes both endpoints of the relation.
- The id of the entity is the VDU id, and the endpoint is the name of the interface/endpoint provided by the charm

```
vnf-configuration:
  relation:
    - name: agw
      entities:
        - id: srsLTE-vdu
          endpoint: mme
        - id: magma-agw-vdu
          endpoint: agw
```



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Any questions?

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