

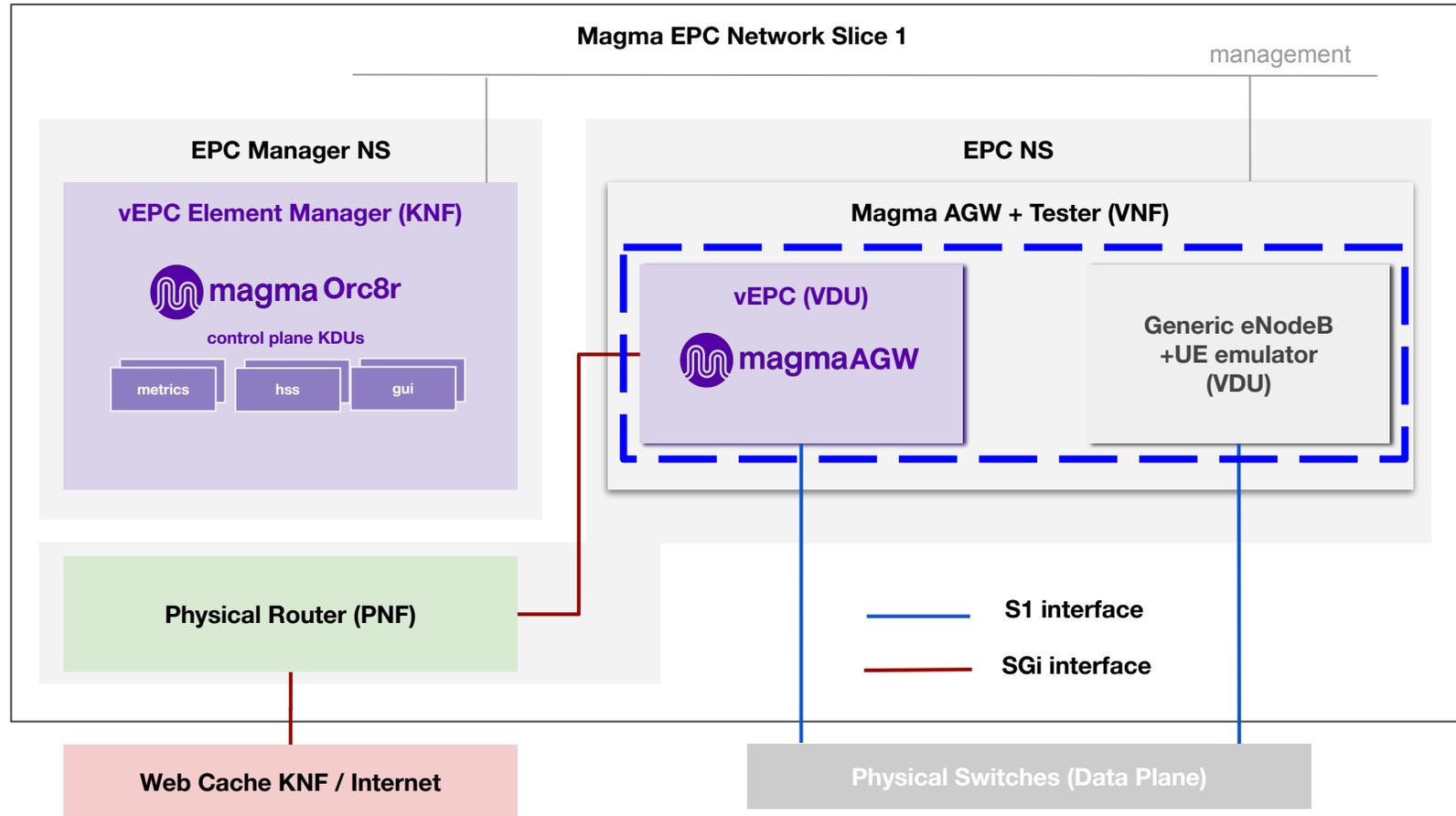
Open Source
MANO

OSM#10 Hackfest

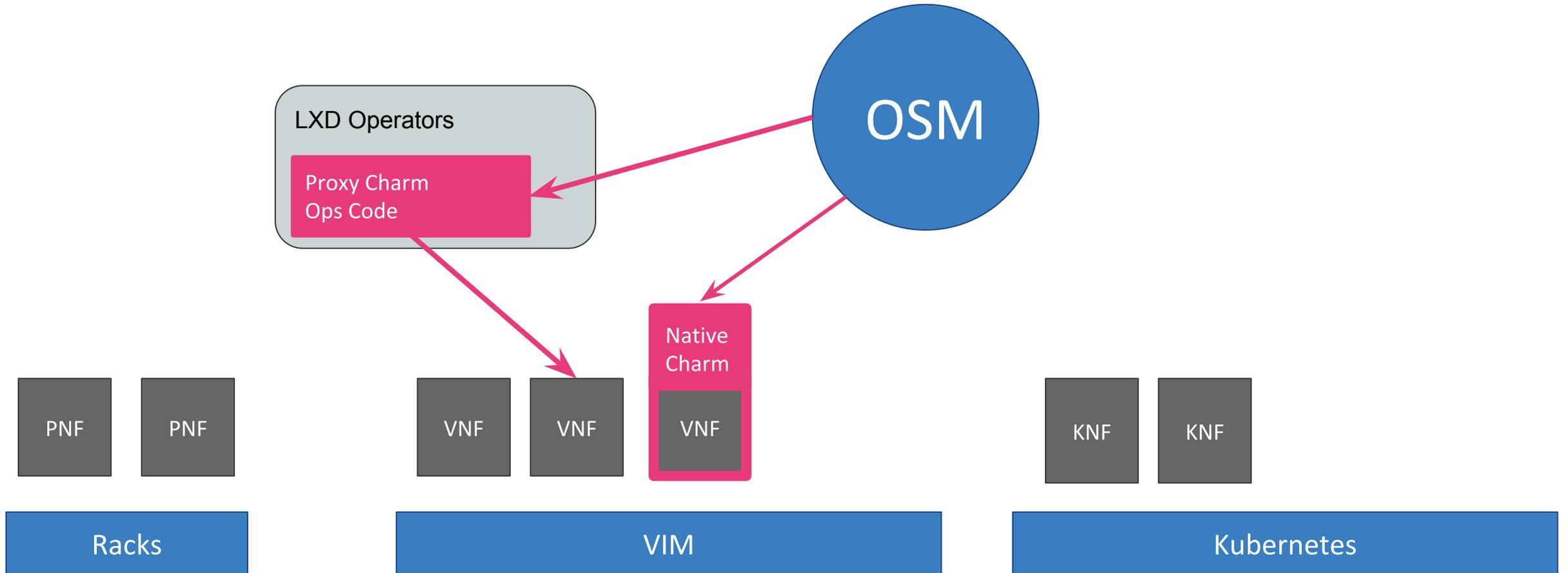
OSM Primitives for PNFs
Mark Beierl (Canonical)



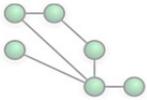
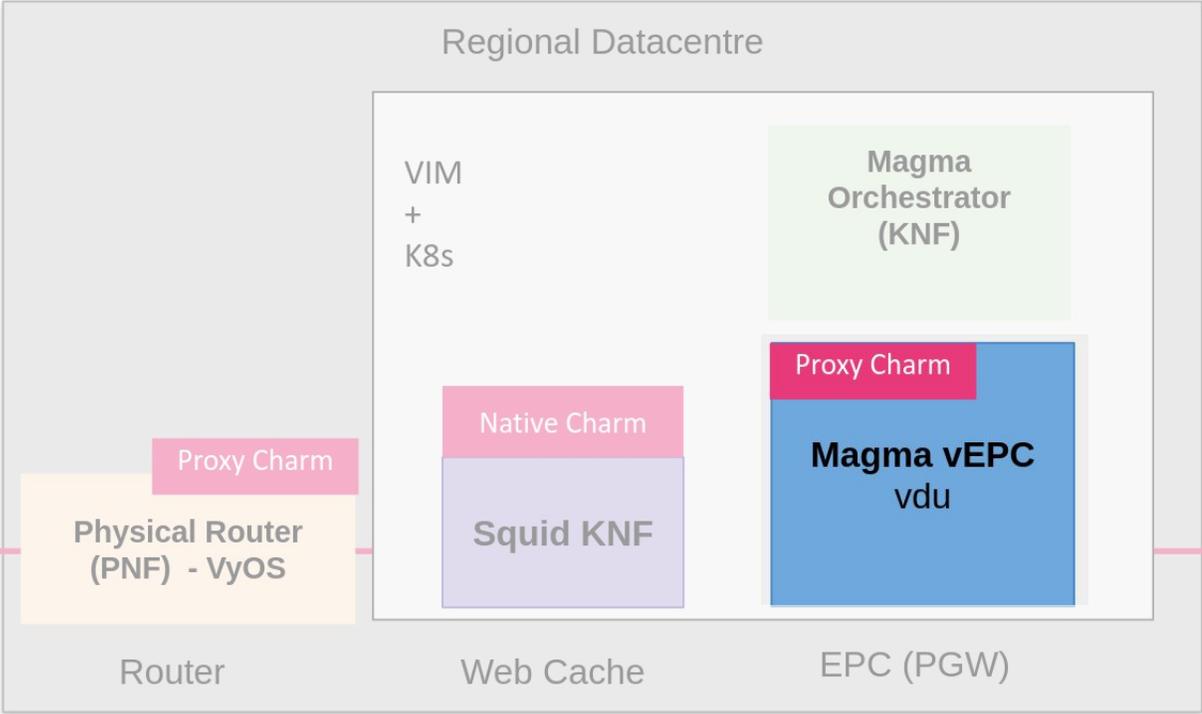
EPC, eNB, UE: Magma and srsLTE



Focus on Virtualised NF operations



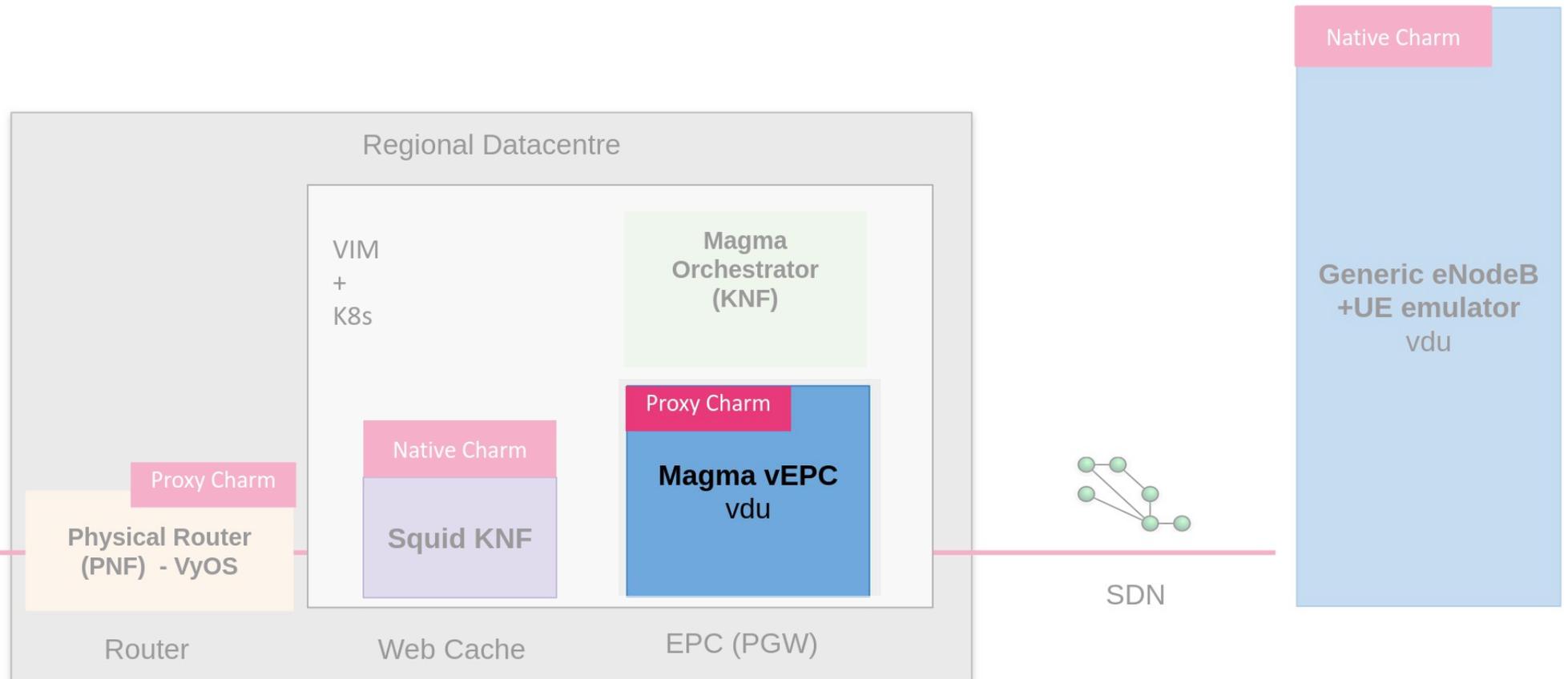
Cellular Data Path



SDN



Magma vEPC

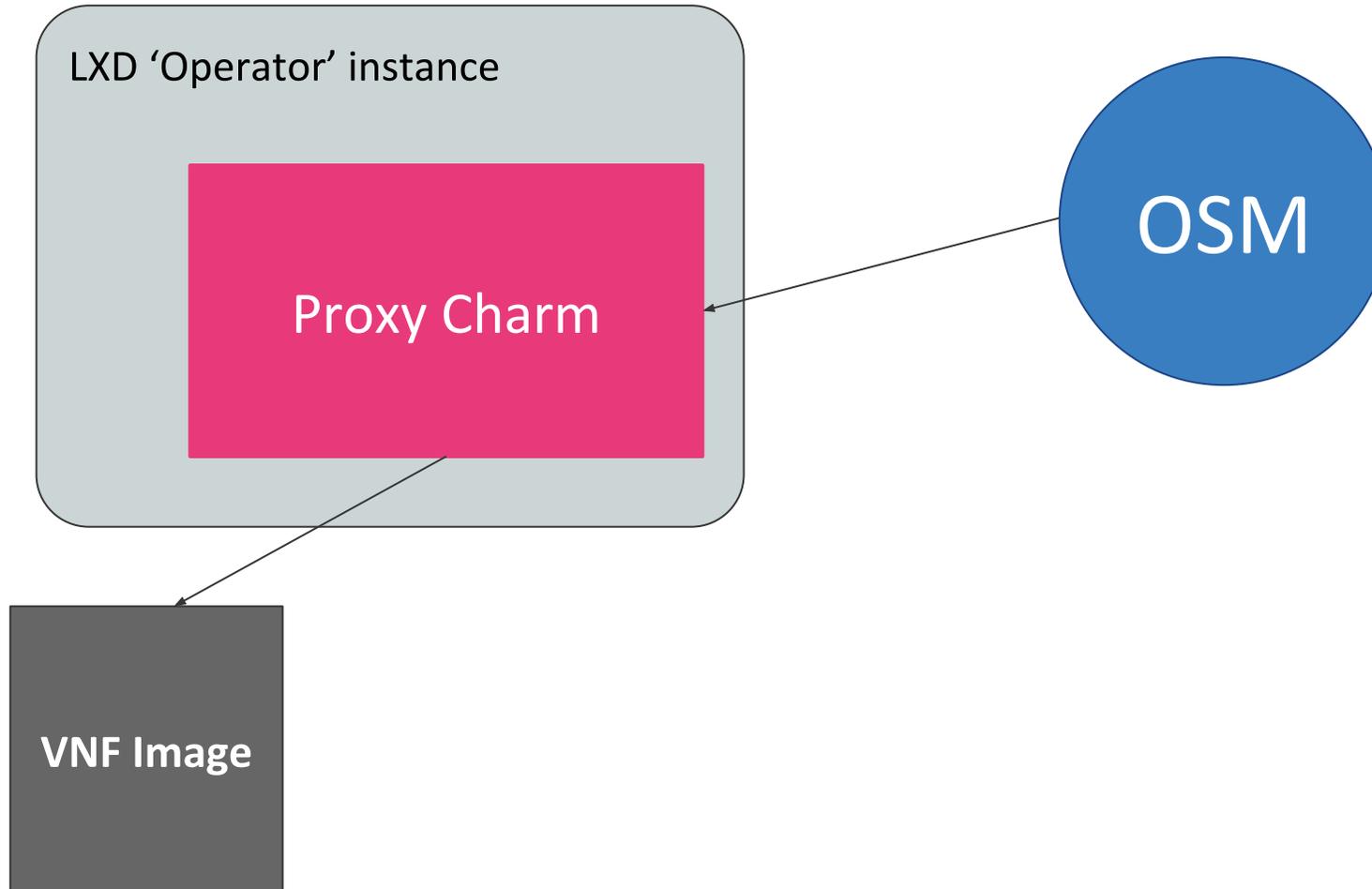


- Fixed VM image that pre-dates OSM and cannot be modified
 - Name: magma101_hf9
 - This image already has magma installed.
 - Requires a proxy charm because the image is static rather than being an installable app

Magma vEPC Operations

- Proxy Charm:
 - Name: magmagw
 - Actions:
 - Add network
 - Add gateway
 - Delete gateway
 - Add hosts
 - Add test subscriber
 - Restart magma
 - Reset ID

Magma vEPC



Magma AGW Configuration

- Proxy charm, built using SSH
 - OSM launches execution environment for charm code
 - SSH key is generated, injected into OpenStack VM launch
- Operations - Reading the descriptor
 - “initial-config-primitive” - deployment operations
 - “config-primitive” - day 2 operations

```
vdu-configuration:  
  juju:  
    charm: magmagw  
  config-access:  
    ssh-access:  
      required: true  
  initial-config-primitive:  
    [...]  
  config-primitive:  
    [...]
```

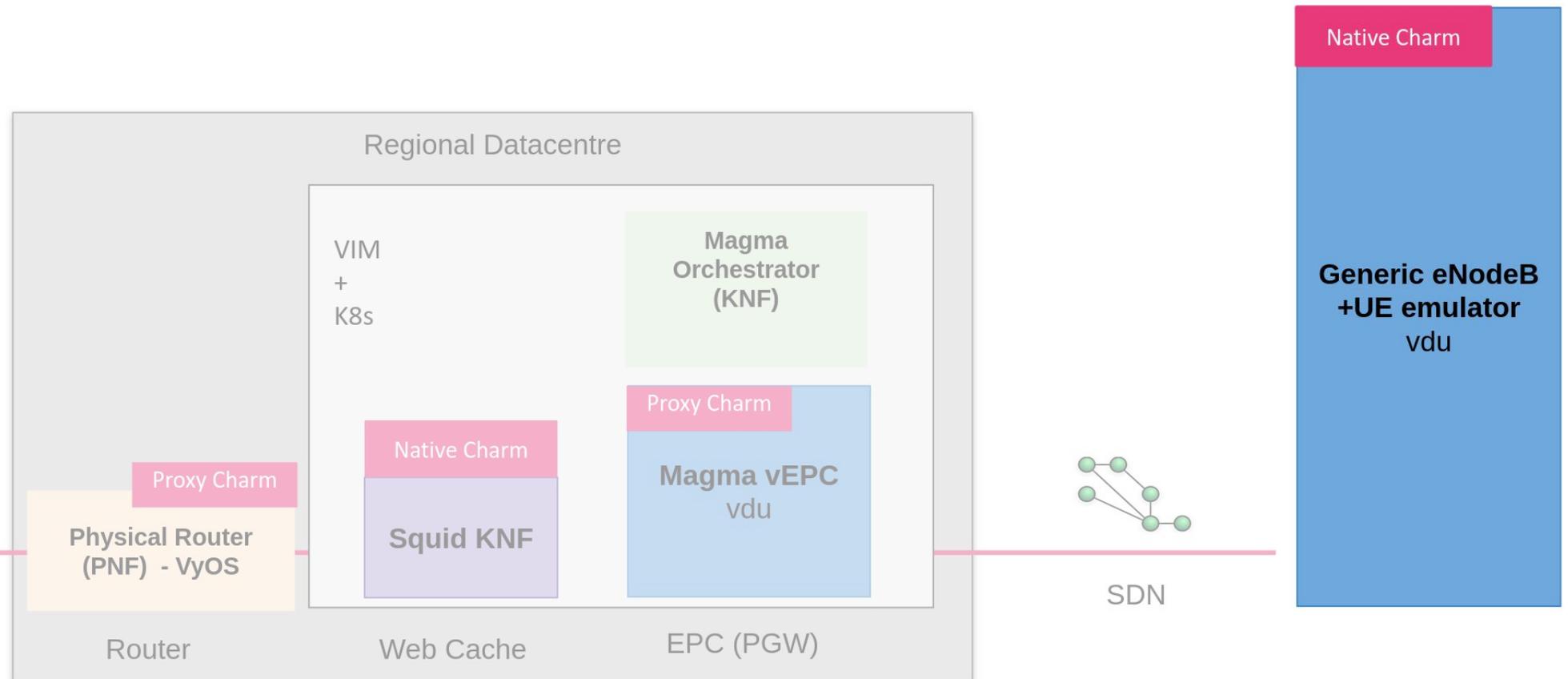
Magma AGW Initial Configuration

- Initial config primitive:
 - Reset ID
 - Add Network
 - Register AGW to Magma Orc8r
 - Add Hosts
 - Add Our Subscriber to Orc8r (HSS)
 - Restart Magma AGW

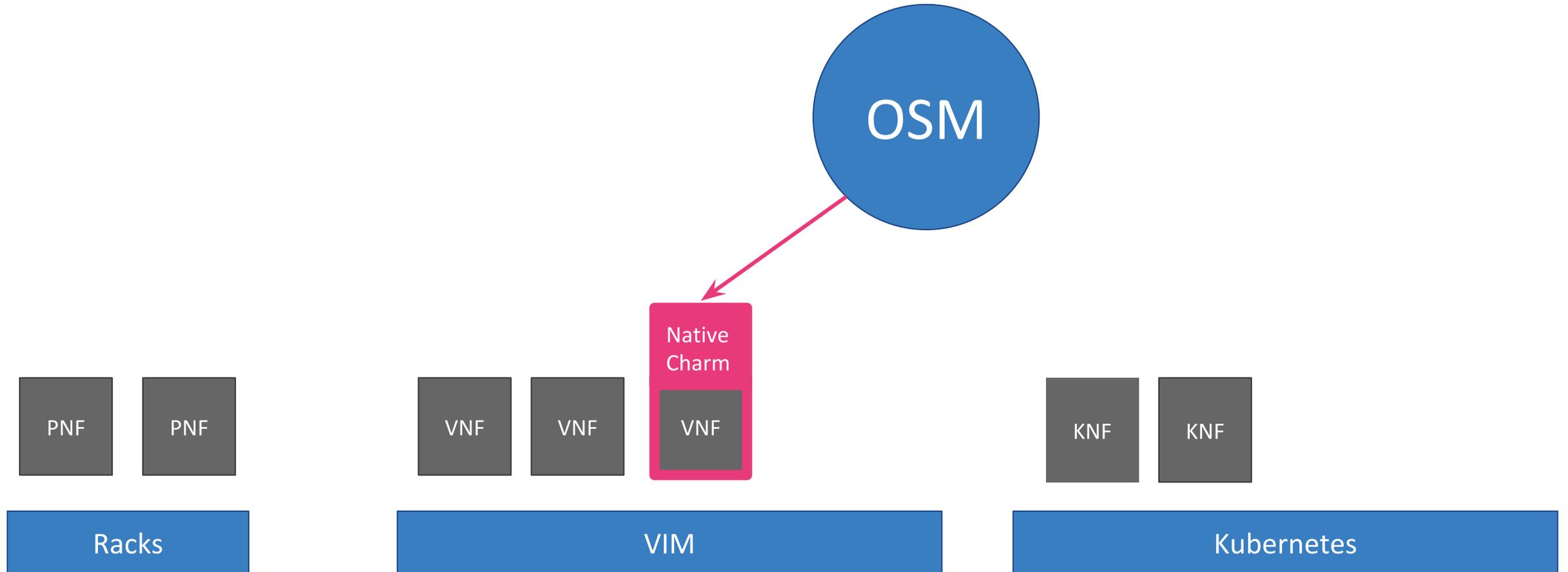
Magma AGW Day 2 Configuration

- Can be executed any time after instantiation
 - Register AGW to Magma Orc8r
 - Deregister AGW from Magma Orc8r
 - Reset ID
 - Restart Magma AGW

EnodeB + UE emulator



Primitives in EnodeB + UE emulator



eNodeB and UE Emulator VNF

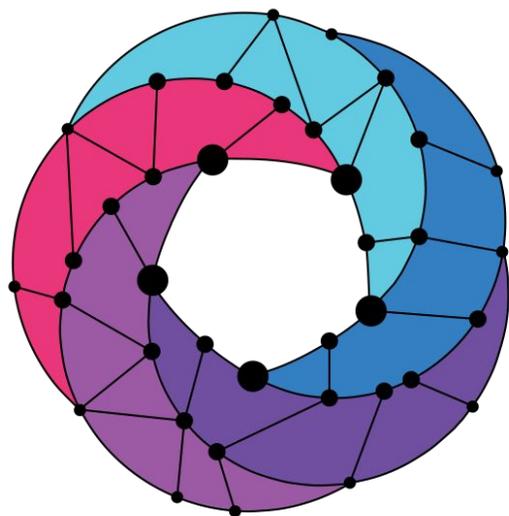
- Image: Ubuntu20.04 cloud image
 - Just Enough Operating System (JEOS)
 - Base OS with cloud init and ssh, very few packages installed
- All software is installed at deployment time

eNodeB and UE Emulator Operations

- Native charm:
 - Name: srsenbue
 - Actions:
 - Attach UE
 - Detach UE
 - Remove default gateway

Day 2: Bring the cell phone online

```
osm ns-action magma_slice.slice_hackfest_nsd_epc --vnf_name MagmaAGWsrsLTE --vdu_id srsLTE-vdu --action_name attach-ue  
--params '{usim-imsi: "722070000000008", usim-k: "c8eba87c1074edd06885cb0486718341", usim-opc:  
"17b6c0157895bcaa1efc1cef55033f5f"}' 4dfeed04-00b6-4bb2-8f63-fa42217eece7
```



Open Source MANO

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