

Open Source MANO

Charmed 5G deployment

Anand S, Deepika E

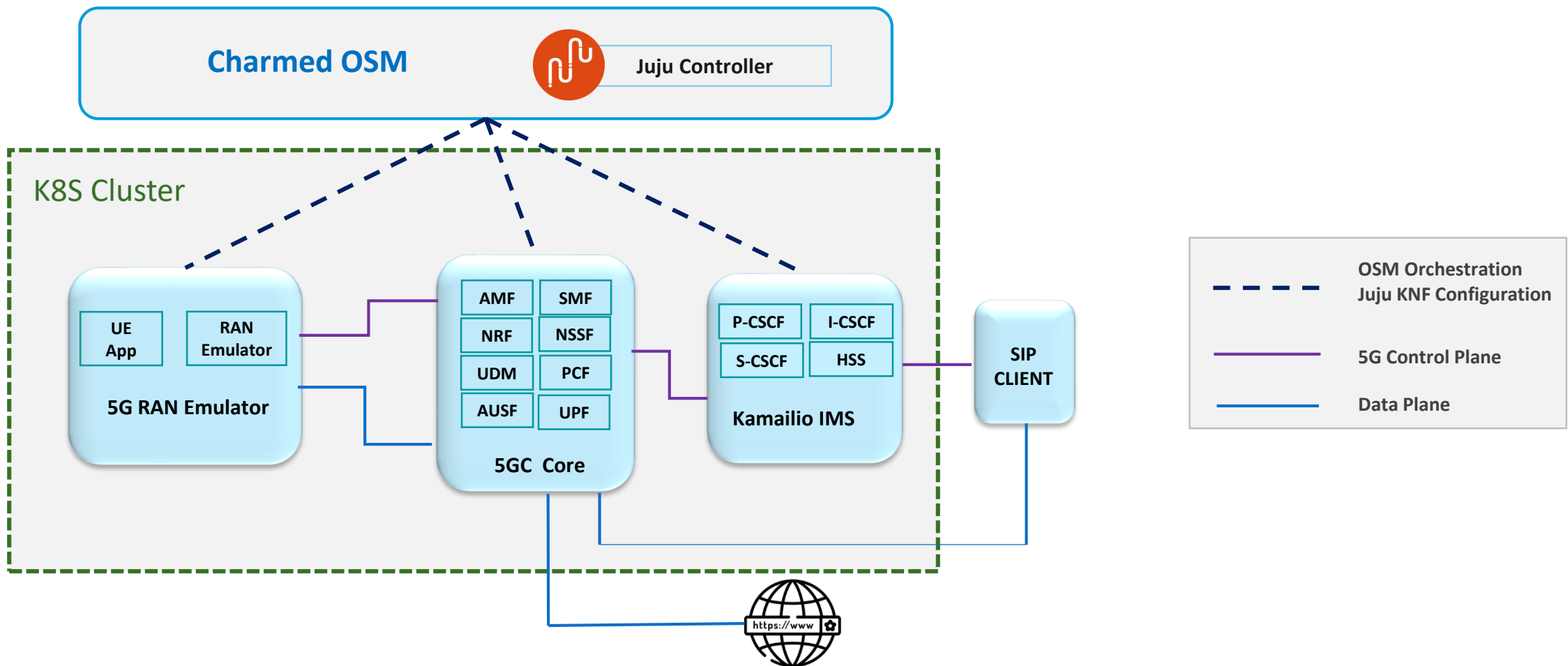
Tata Elxsi - CTO Office



Agenda

- Charmed 5G system overview
- 5G scenarios and configurations
- Components view
- Deployment View
- POD Services view
- Charms view
- KNF Package view
- Demo

Charmed 5G system overview



5G Scenarios and Configurations

- Scenarios that are planned to be demonstrated as part of this event
 - 5G components Deployment (KNFs deployment) – Charmed OSM, JUJU Controller, Microk8s
 - RAN Emulator
 - Core
 - IMS
 - Components Configurations (KNF configurations – Day-1 & 2)
 - 5G scenarios (Control and Data)
 - 5G User Registration
 - Internet Traffic flow
 - Voice traffic flow

- RAN Emulator Configurations

- gNB configurations
- UE configurations
- SCTP connection trigger

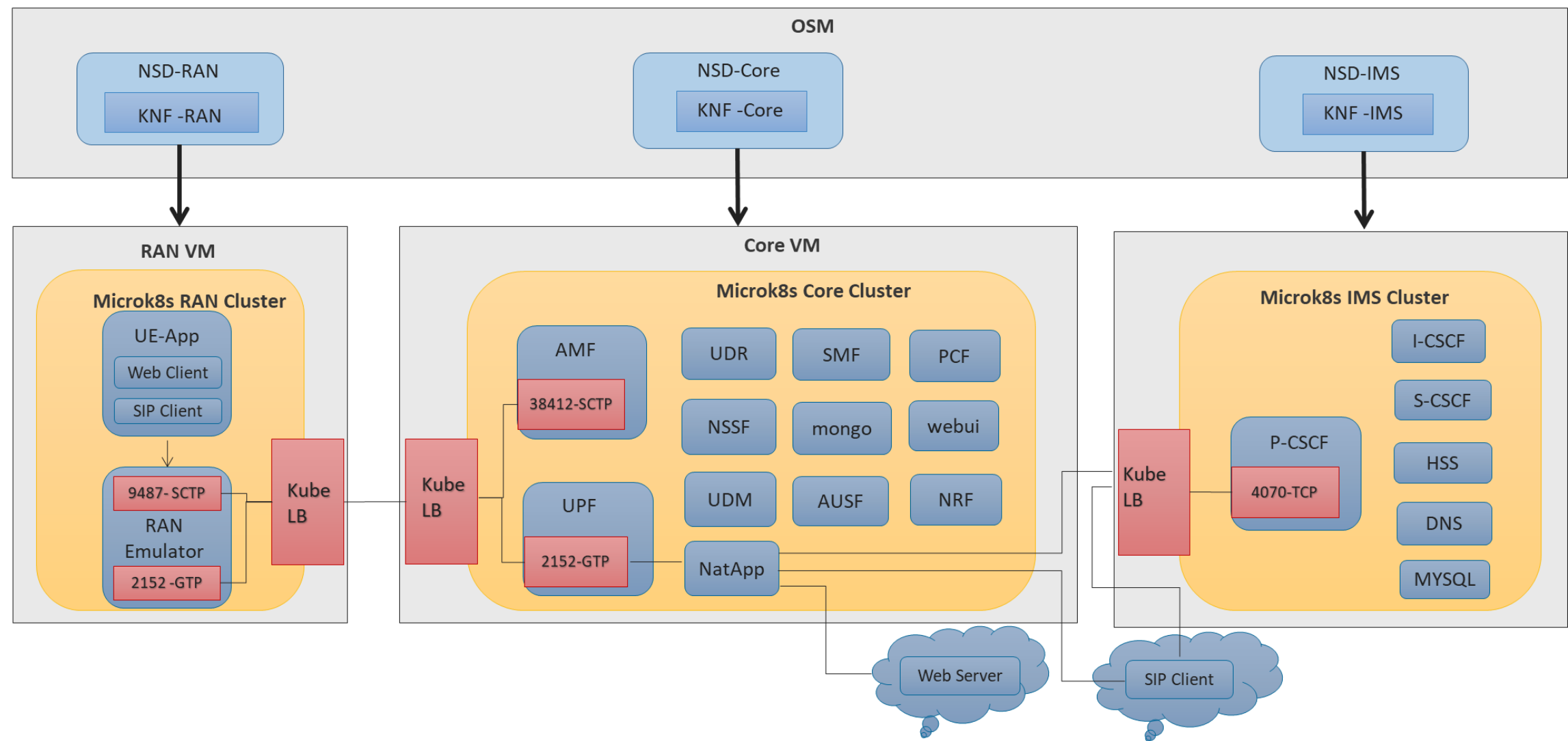
- Core Configurations

- Data path configurations
- Subscriber information
- Slice information

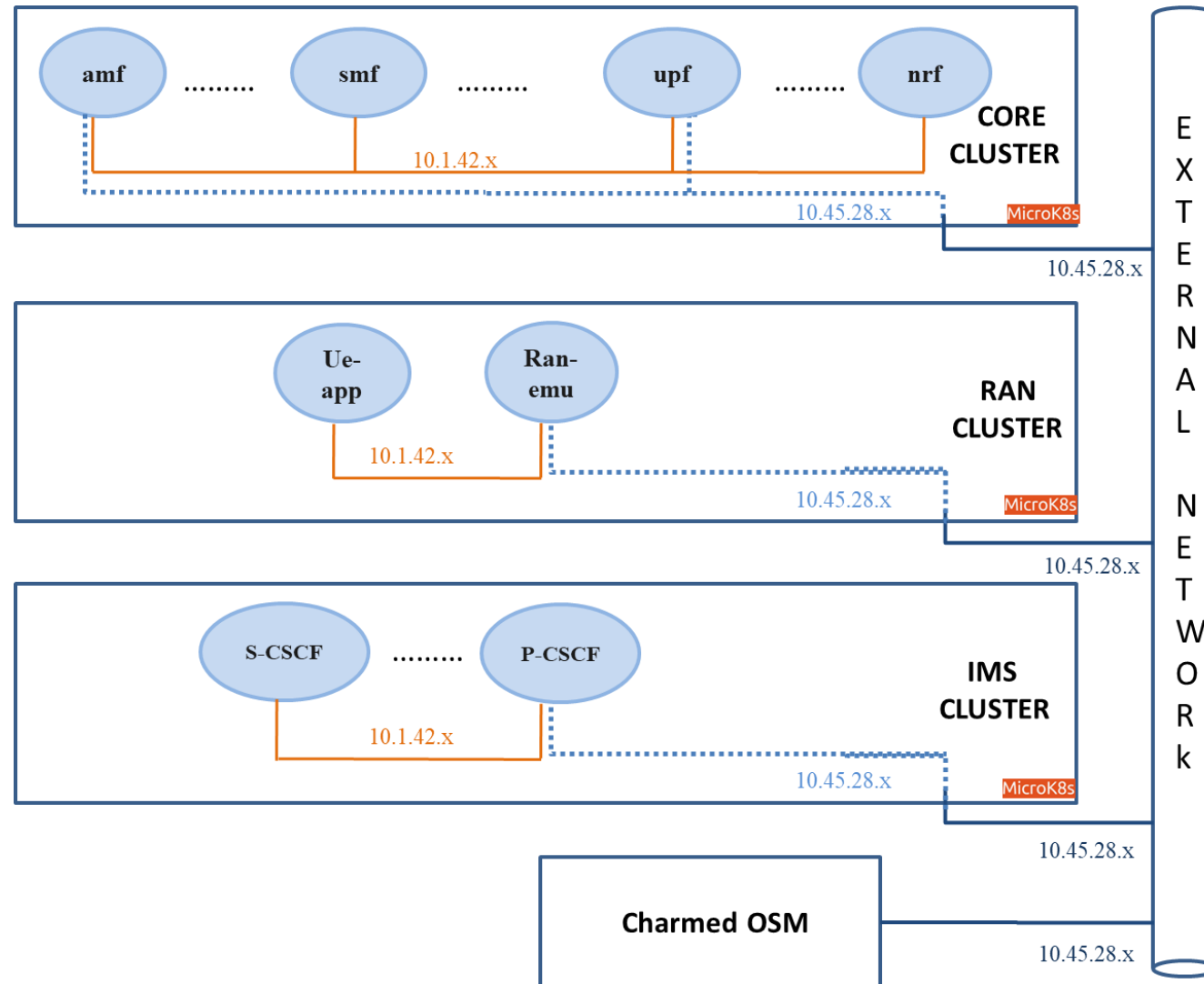
- IMS Configurations

- Subscriber information
- DNS configurations
- Domain name

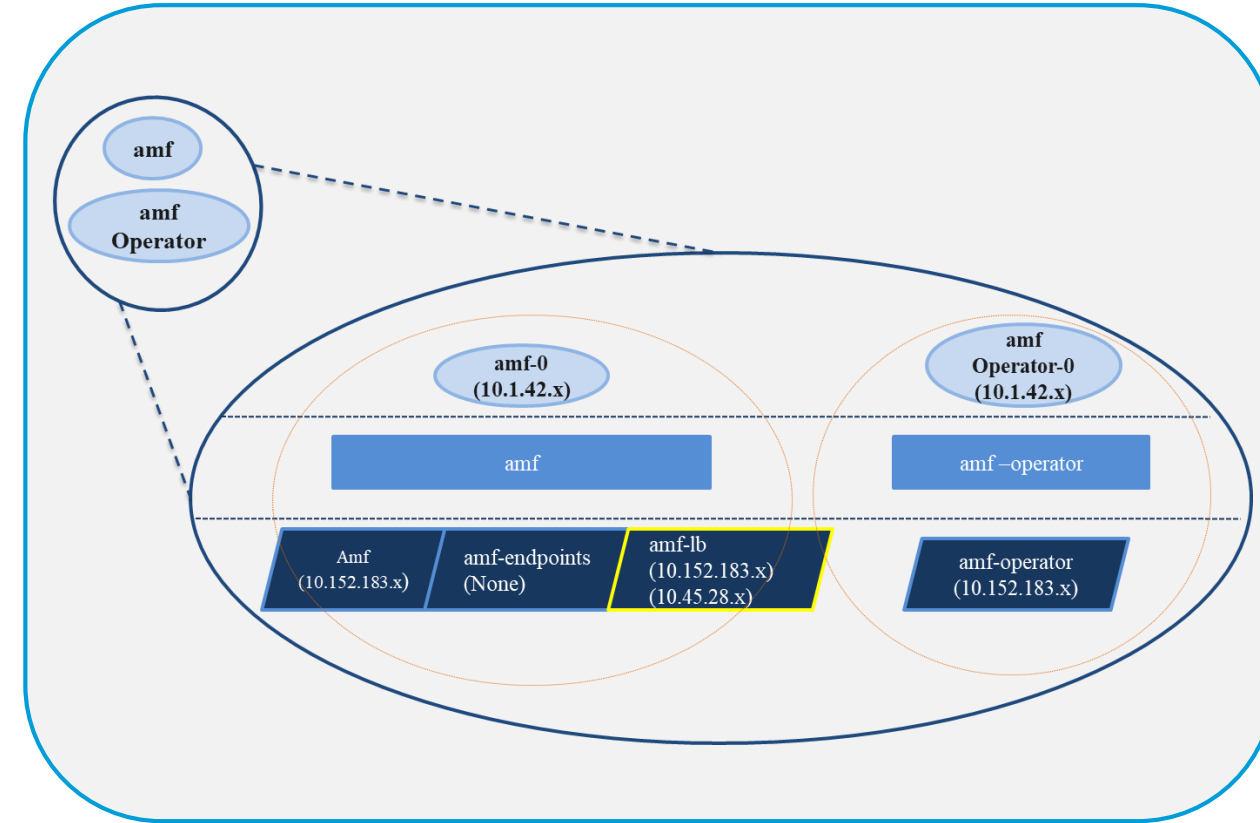
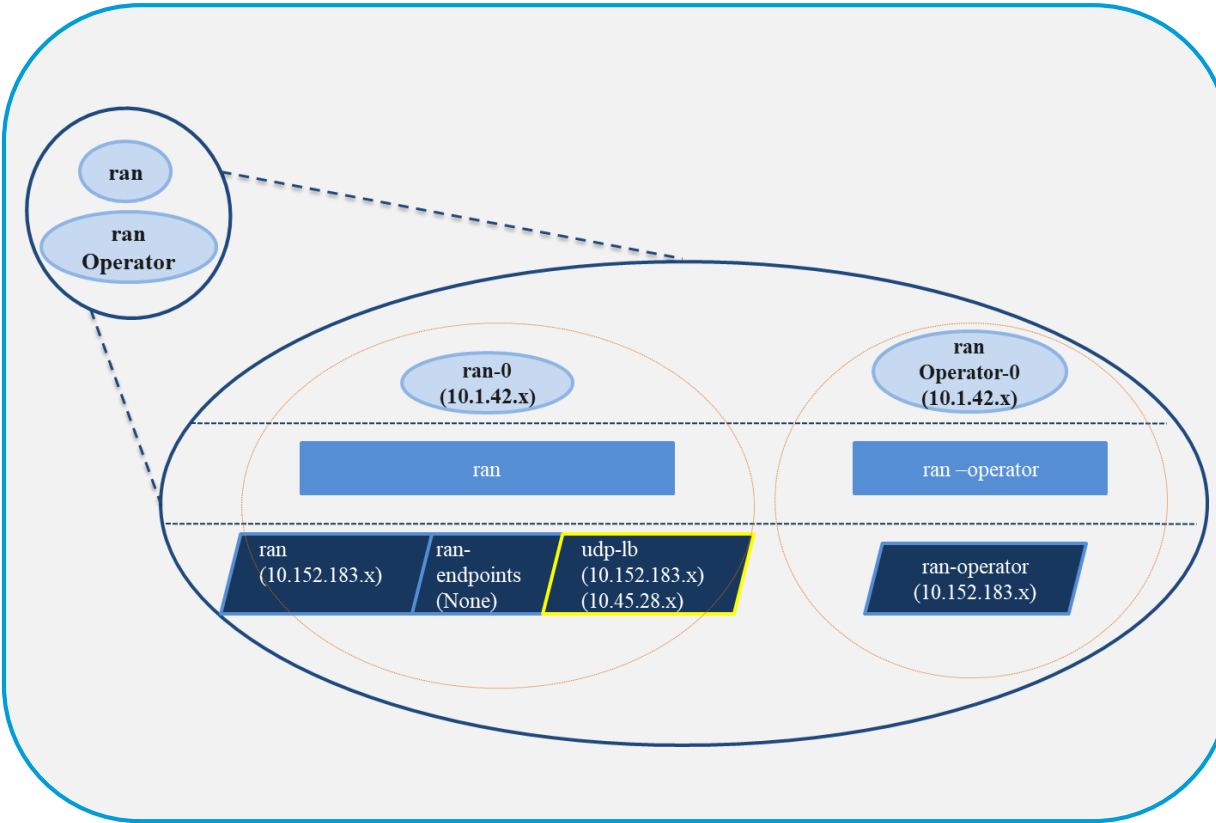
Components view



Deployment view



POD services view



Charms view

```
actions.yaml
build
config.yaml
LICENSE
metadata.yaml
nrf.charm
README.md
requirements-dev.txt
requirements.txt
run_tests
src
tests
```

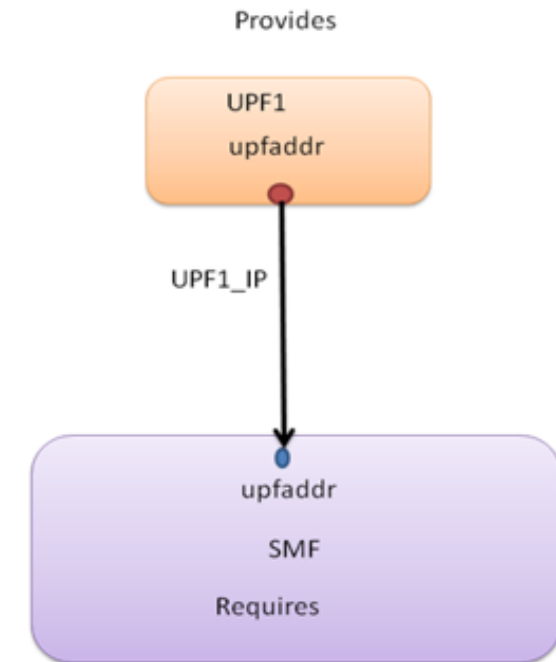
charm.py

- configure_pod
- upf_relation_changed
- upf_relation_departed
- smf_relation_joined

podspec.py

- make_pod_spec
- make_pod_ports
- make_pod_command
- make_pod_services

Relations



KNF Package View

RAN Package

```
description: RAN and UE Bundle
bundle: kubernetes
applications:
  ranosm:
    charm: '../charms/rancharm'
    scale: 1
  ueosm:
    charm: '../charms/uecharmnew'
    scale: 1
```

CORE Package

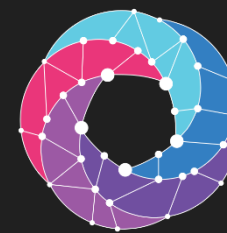
```
description: Core Bundle
bundle: kubernetes
applications:
  db:
    charm: '../charms/db'
    scale: 1
  nrf:
    charm: '../charms/nrf'
    scale: 1
  amf:
    charm: '../charms/amf'
    scale: 1
  ausf:
    charm: '../charms/ausf'
    scale: 1
  nssf:
    charm: '../charms/nssf'
    scale: 1
  pcf:
    charm: '../charms/pcf'
    scale: 1
  udm:
    charm: '../charms/udm'
    scale: 1
  udr:
    charm: '../charms/udr'
    scale: 1
  webui:
    charm: '../charms/webui'
    scale: 1
  upf1:
    charm: '../charms/upf1'
    scale: 1
  smf:
    charm: '../charms/smf'
    scale: 1
relations:
  - smf:upfaddr
  - upf1:upfaddr
```

IMS Package

```
description: Ims Bundle
bundle: kubernetes
applications:
  pcscf:
    charm: '../charms/pcscf'
    scale: 1
  scscf:
    charm: '../charms/scscf'
    scale: 1
  icscf:
    charm: '../charms/icscf'
    scale: 1
  hss:
    charm: '../charms/hss'
    scale: 1
  dns:
    charm: '../charms/dns'
    scale: 1
  mysql:
    charm: '../charms/mysql'
    scale: 1
relations:
  - pcscf:pcscfip
  - dns:pcscfip
  - scscf:scscfip
  - dns:scscfip
  - icscf:icscfip
  - dns:icscfip
  - hss:hssip
  - dns:hssip
```

5G deployment and configuration through Charmed OSM

Thank You



Open Source
MANO

Charmed 5G
deployment