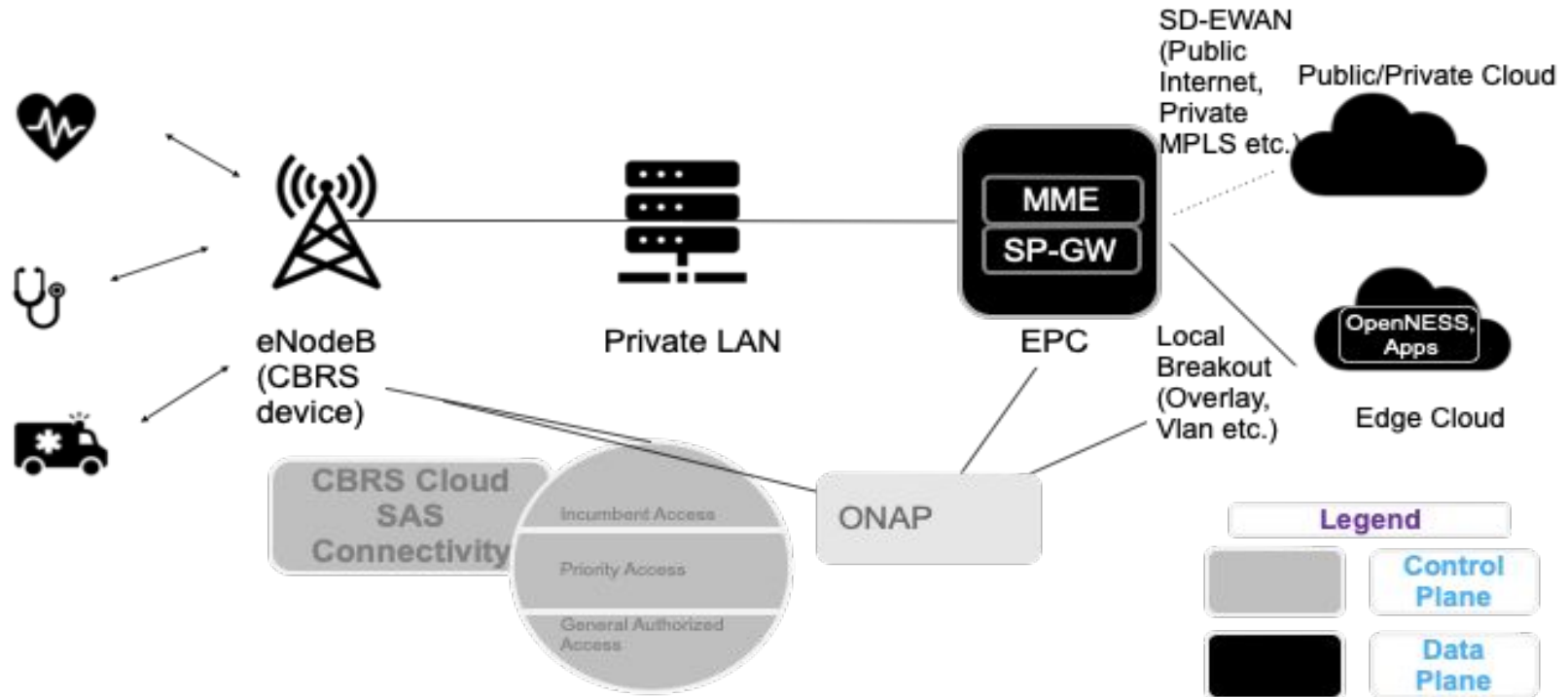


Akraino Private LTE/5G ICN - Release 4

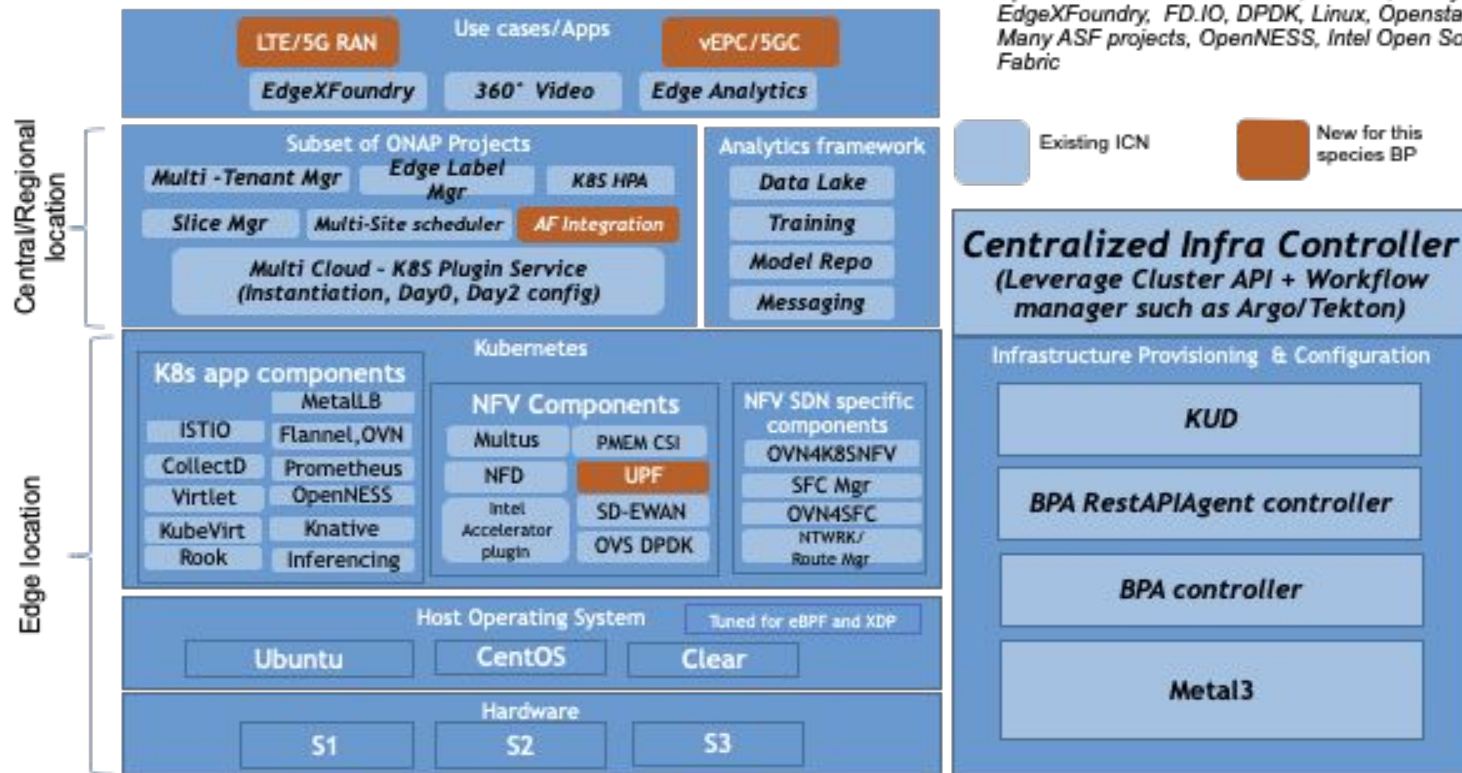
Prem Sankar Gopannan - Cohere Technologies
Sukhdev Kapur - Juniper Networks
Sandeep Sharma - Aarna Networks



Akraino Private LTE/5G - Overview



Private LTE/5G ICN Stack



Upstream communities: ONAP, OPNFV, Many CNCF projects, EdgeXFoundry, FD.IO, DPDK, Linux, Openstack Ironic, OVS, Many ASF projects, OpenNESS, Intel Open Source, Tungsten Fabric

Partners

End Users:

- Airbus
- Globe
- Orange
- Tata Communications
- T-Mobile
- Verizon

Vendors:

- Aarna Networks
- ATS Systems
- Intel
- NetNumber
- Juniper Networks
- Polaris
- Rebeca Technologies
- Wavelabs
- FreedomFi

Akraino Private LTE/5G - Planned

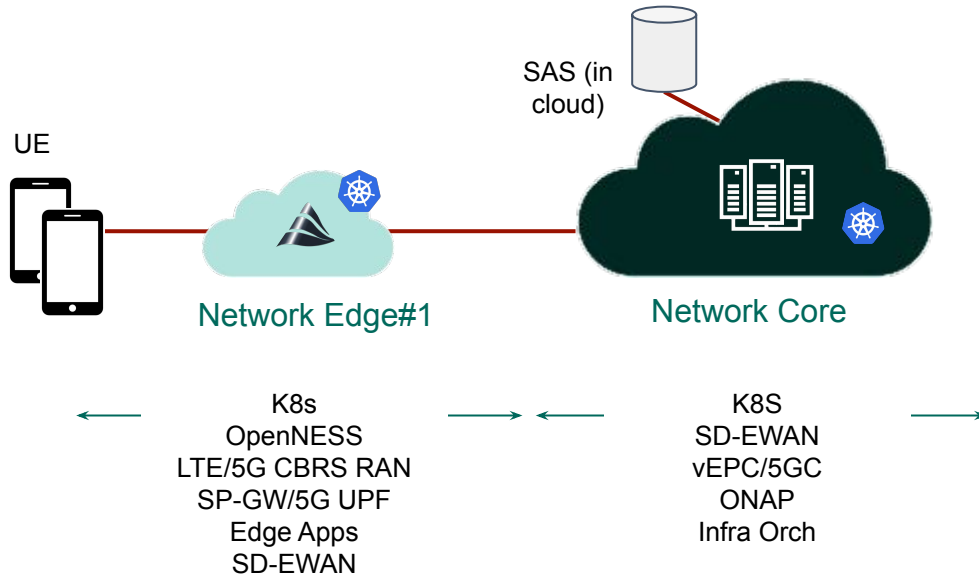
- Goal
 - Package and provide well tested Private LTE/5G stack over ICN BP
- Plan
 - Integrate components needed for Private LTE/5G with Akraino ICN family
 - i. Start with EPC - Facebook Magma
 - ii. Subsequently transition to 5GC - Free5GC
 - Show local breakout to edge computing
 - i. Continue to support MICN apps: 360° video, EdgeXFoundry, AI/ML edge analytics
 - ii. **Tungsten Fabric for K8s networking needed for UPF and breakout**
 - iii. Tight integration with OpenNESS edge platform/controller
 - iv. Network/app slicing
- Use cases addressed
 - Long-range connectivity solutions instead of conventional ones like Wifi
 - Novel cost-effective connectivity options
 - Differentiated customer Quality of Experience (QoE)

Akraino Private LTE/5G - Planned

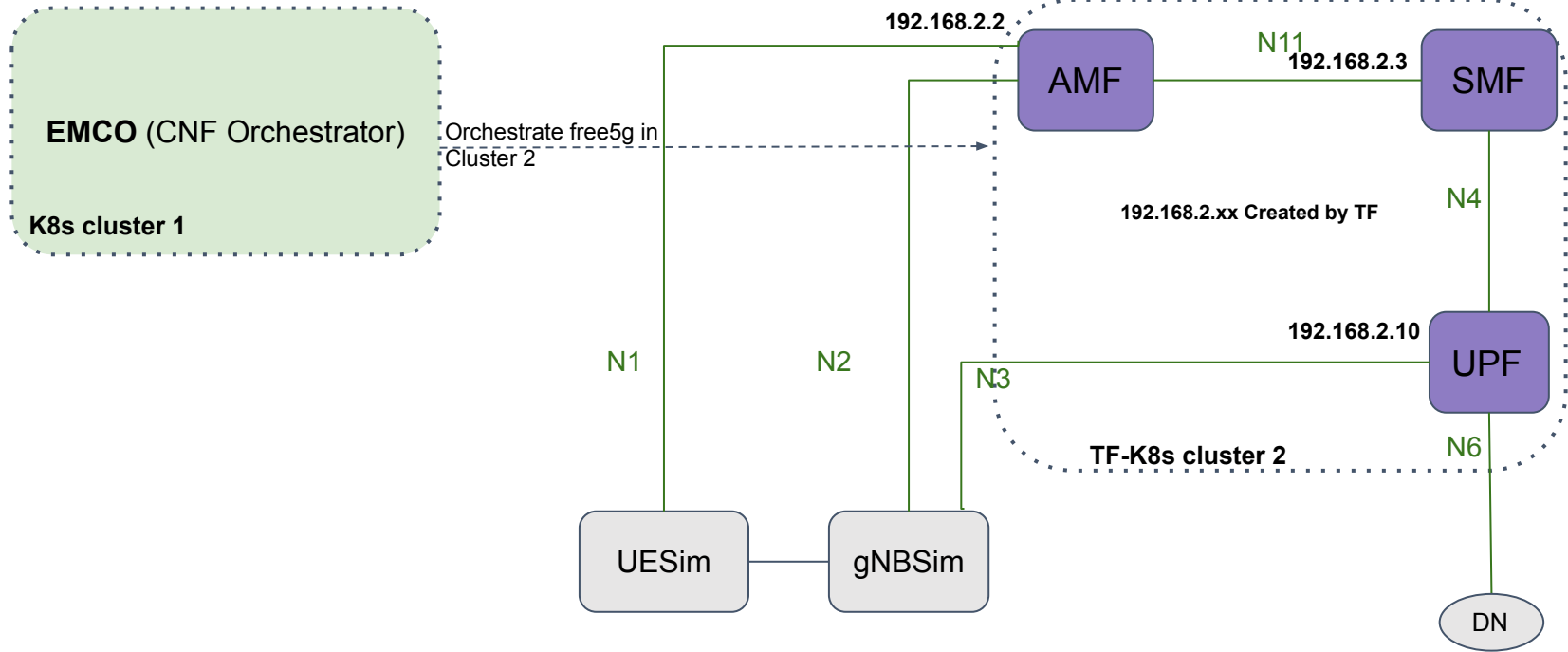
Scope for R4 release

- Integrate components needed for Private LTE/5G with Akraino ICN family
 - i. LTE - Facebook Magma
 - 1. Started port Magma to ICN and stalled due to roadmap changes to Magma
 - ii. 5GC -
 - 1. Development
 - a. Helm chart creation of UPF, SMF and AMF - In progress (Dev complete)
 - b. Integration of EMCO Orchestrator for CNF orchestration - In progress (Dev complete)
 - c. Support for **other** dataplanes
 - i. Integration with Tungsten Fabric - **Completed**
 - 2. Testing
 - a. Lab setup for testing - Currently leveraging UNH-IOL lab
 - b. Simulators for testing
 - i. Tool identification - Done
 - c. Test plan - In progress
- Challenges
 - i. Long term lab availability

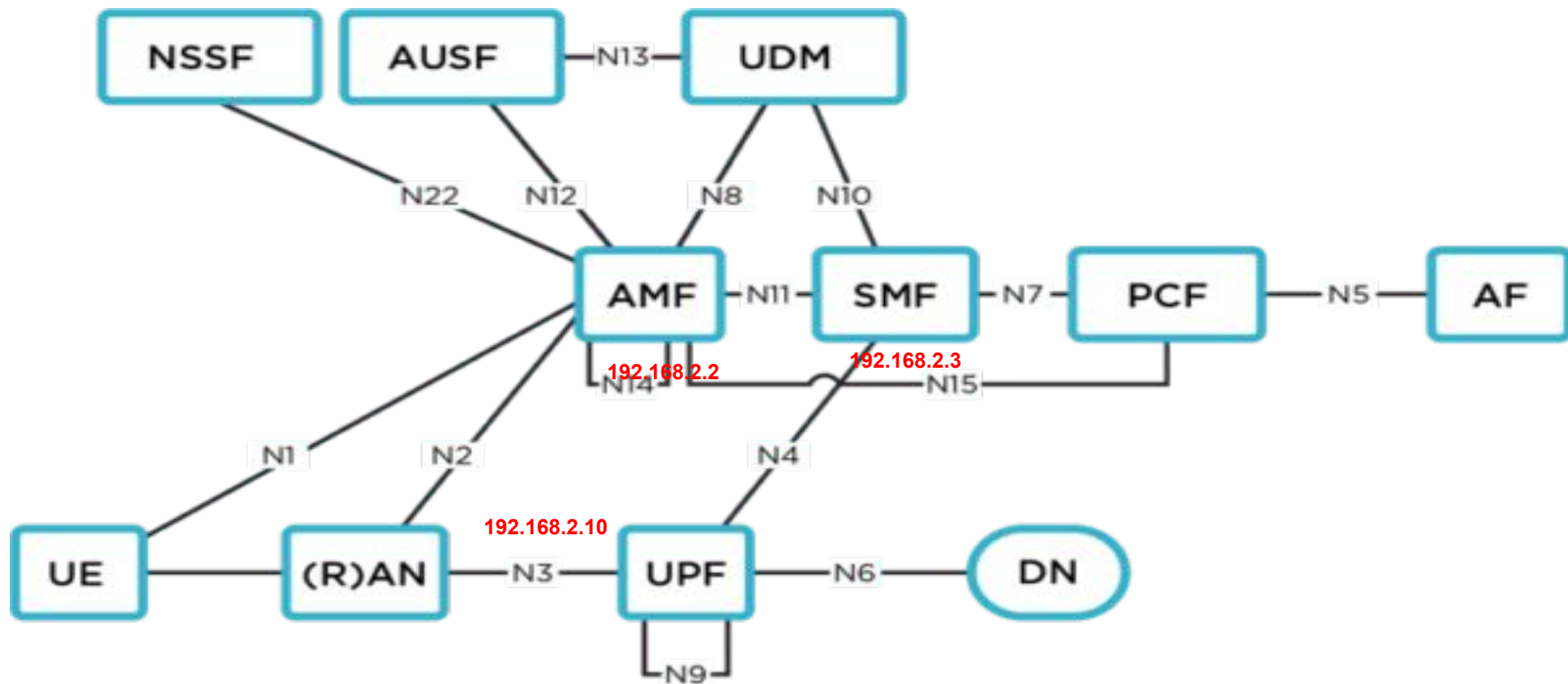
High Level Diagram



Enterprise Private 5G Usecase



Deployment Information



Activity list

- Helm Chart creation for 5GC
- Integration of TF
 - Config changes
- Orchestration of 5GC including network plumbing
- Installation of UE and gNB simulators
- Packaging
- Testing
- Documentation

Thank you

