

Software Defined "Superfluid" Wireless Network

"What" - Challenges + Innovations

- Build a modular hybrid fixed and wireless front-haul system that enables high level of programmability.
- Integrate front-haul in a fully automated cluster based provisioning system for RFB's deployment.
- Provide instantaneous deployments and instantiation of RFBs to have an minimum downtime.
- Adapt resource usage to user need in near real-time.
- Build a full software wireless network with a common REST based interface for simpler & better programmability.
- Demonstrate flexibility base capabilities of RFBs (RFBs can be redeployed independently over time).

SDN based dynamic re-programmable front-haul transport network increases the network flexibility and the performance in the context of 5G Simplified front-haul forwarding plan reconfiguration via Intent based programming

- Re-programmable and automatic deployment of front-haul network
- Deploy and orchestrate different RFBs (RAN and CORE) over Central/EDGE/Front-End cloud
- Allow to support heterogeneous front-haul technologies (Eblink wireless system, CRPI over Ethernet...)



- RFBs based wireless system brings:
 - Scalability (scale out/in)
 - Resiliency (load balancing/Failover)
 - Cost and performance optimization (locating RFBs in the specific geographic area)
 - Real-time Services: offers a direct access to real-time network information (e.g. radio status, statistics) for low-latency and high-bandwidth services deployed at the edge.
- Platform provides additional layer of abstraction, automation and orchestration of RFBs (Swarm, Kubernetes)

- network running in a cloud environment.
- Deploy a fully reprogrammable (via SDN) hybrid *fixed* and front-haul system.
- a cloud environment.

 I/O like CPRI, 10-25 Gbits ethernet Specialized embedded equipment • x86

(ARM, x86) With acceleration capability (SoC, FPGA) Large memory capacity (flash) Have the right connectivity to antenna

signal processing Much more memory storage capacity Poor antenna connectivity

5G network infrastructure is based on different Clouds

