OpenAirInterface FAPI split and Integration of OSC O-DU-high in OAI RAN stack

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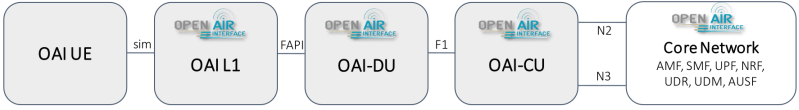
Context

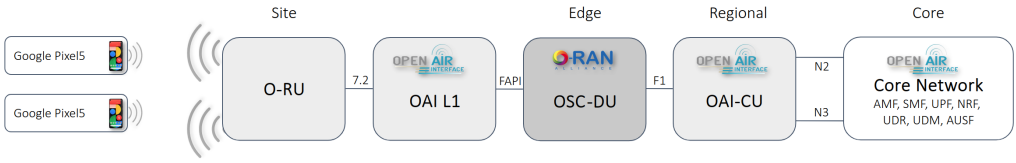
- OSC has no (open-source) O-CU – uses binary stub provided by Radisys
- OSC has no (open-source) L1 – need to use Intel FlexRAN/L1 binary
- Desirable to set up end-to-end system with OSC O-DU
  - Test interoperability for OAI
  - Provide fully open-source OSC-based RAN stack

OpenAirInterface

- OAI has full-stack L1/O-DU-low, O-DU-high, and O-CU
- Implements F1 split between O-DU and O-CU
  - e.g., interoperable with Accelleran CU and LITEON DU
- Implements (n)FAPI split between L1 and O-DU
  - e.g., interoperable with Nvidia Aerial platform



Stated end-goal

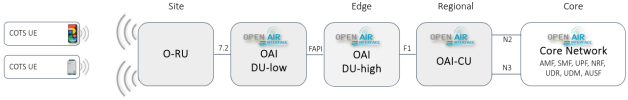


- 100 MHz, MIMO
- Commercial O-RU on 7.2 Fronthaul
- Multiple UEs
- …

Milestones

1. Shown in **Athens**: End-to-end simulation with OAI UE and OAI-DU – simulated RF

2. Here in **Incheon**: Pure OAI with nFAPI, 7.2, and F1 splits



3. Planned for **Montreal**: Integration of OSC O-DU-high through FAPI and F1, with COTS UE

Current Status

- FAPI/nFAPI in OAI: support for E2E COTS UE, interoperable with 3rd-party L1 (Nvidia Aerial)
- Works together with 7.2 Fronthaul, supports multiple UEs
- Integration of OSC O-DU ongoing: Currently working P5 interface (configuration messages); P7 interface (slot messages) to be done

Demo

- End-to-end connection through nFAPI split with COTS UE and radio interface
- Compatible COTS O-RU through 7.2 FHI or split 8 radio
- gNB is split into O-RU, O-DU-low, O-DU-high, O-CU (7.2, nFAPI, F1)
- 350 Mbps DL/50 Mbps UL