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# Demo: Concurrent SMO/non-RT RIC and nearRT-RIC for RAN Management and QoE Improvement

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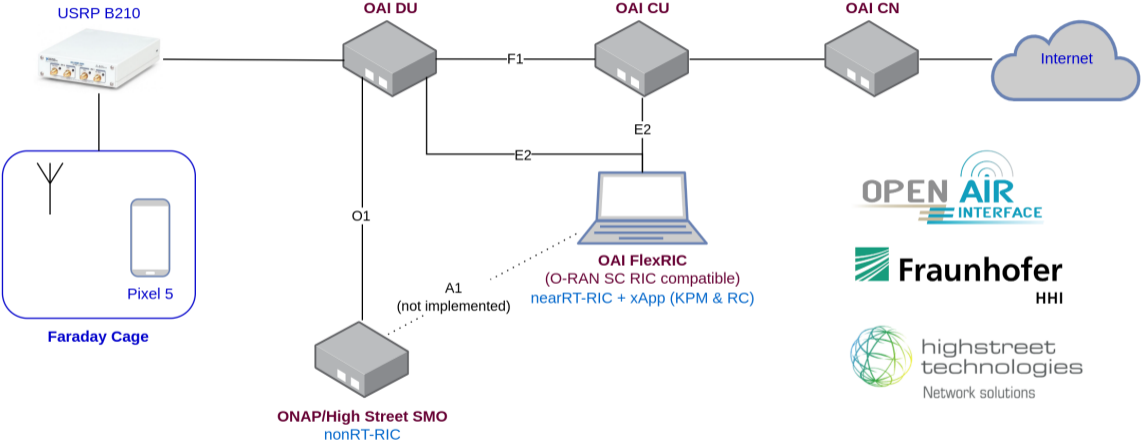
# Demo description

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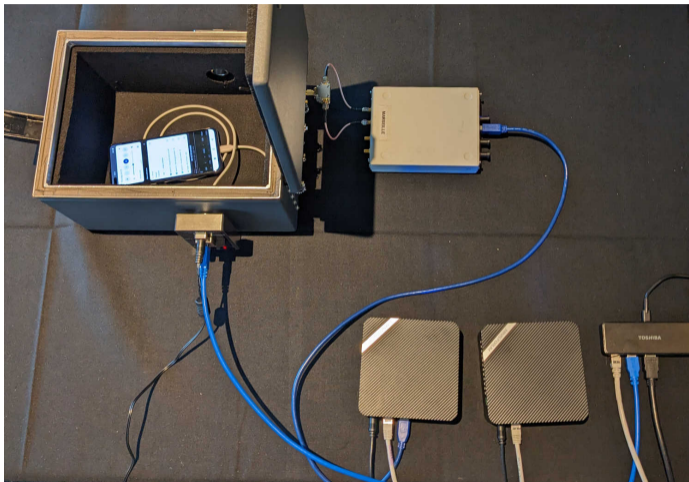
- ▶ Configuration of RAN through O1 interface and Service Management & Orchestration (SMO)
- ▶ Quality of Experience Improvement through E2 interface and near-RT RIC
- ▶ Deployment of OAI 5G O-DU and O-CU with O1 adapter and E2 agent
- ▶ Monitoring on DU, Control on DU and CU
  - ▶ Scale bandwidth to accommodate user needs
  - ▶ Add/release bearer to improve latency



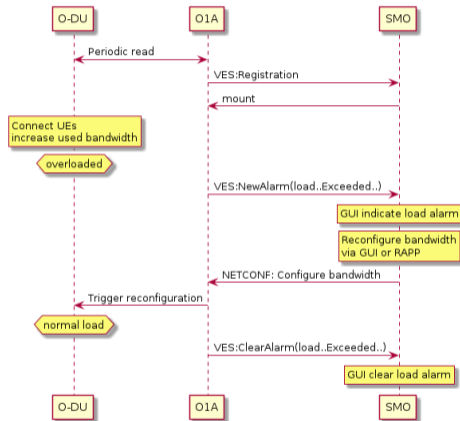
# Architecture



# Setup



- ▶ Implemented through ONAP-based non-RT RIC
- ▶ O1 exposed through O1-Adapter (O1A)
- ▶ SMO monitors O-DU through SDNC
- ▶ On high O-DU load: alarm notified through VES
- ▶ O-DU bandwidth can be reconfigured on-the-fly through SDNC and NETCONF (up or down)
- ▶ O-DU informs O-CU using F1 message (gNB-DU configuration update)



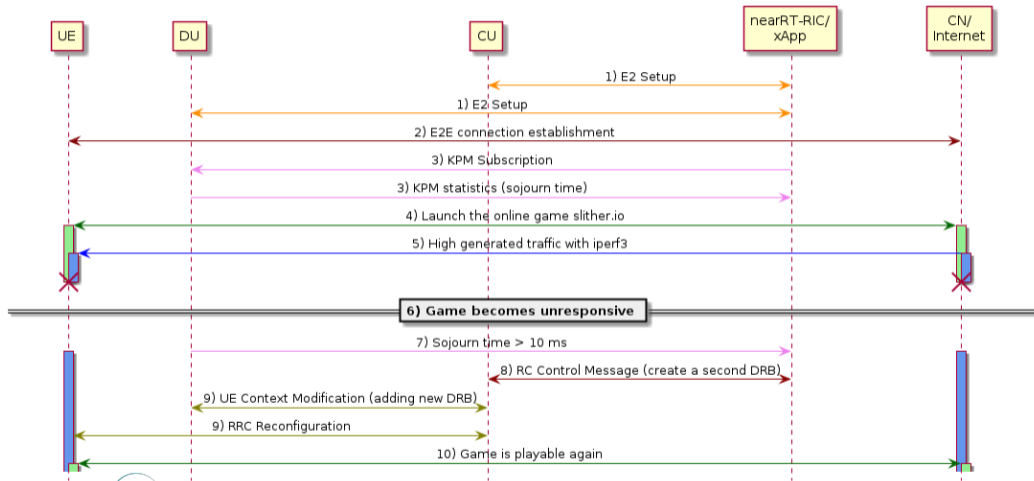
# NearRT-RIC (FlexRIC and xApp)

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- ▶ xApp deployed on top of FlexRIC nearRT-RIC
- ▶ xApp monitors and controls QoE of user with latency-sensitive application
- ▶ In OAI-DU: monitor UE performance via E2SM-KPM (time packet waiting in RLC)
- ▶ In OAI-CU: modification of RAN configuration by adding new DRB with E2SM-RC
  - ▶ Packet queuing delay greater 10ms: Add bearer
  - ▶ Packet queuing delay lower 10ms: Release bearer
- ▶ FlexRIC: multiple versions of E2AP/E2SM-KPM supported



# Message Exchange/Demo plan



# Demo Video

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# Summary

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- ▶ Support of O1 interface in OAI (DU only)
- ▶ O-DU reconfiguration through NETCONF
- ▶ Support of E2 interface in OAI (through FlexRIC)
- ▶ O-CU reconfiguration through E2SM-RC

