



Third OAI General Workshop
Status and Objectives for 2017-2018
7th April 2017, Orange Gardens, Paris, France



Overview

- **Status and objectives for openairinterface5g (Raymond)**
- **Status and objectives for openairCN (Lionel)**

openair5G RAN

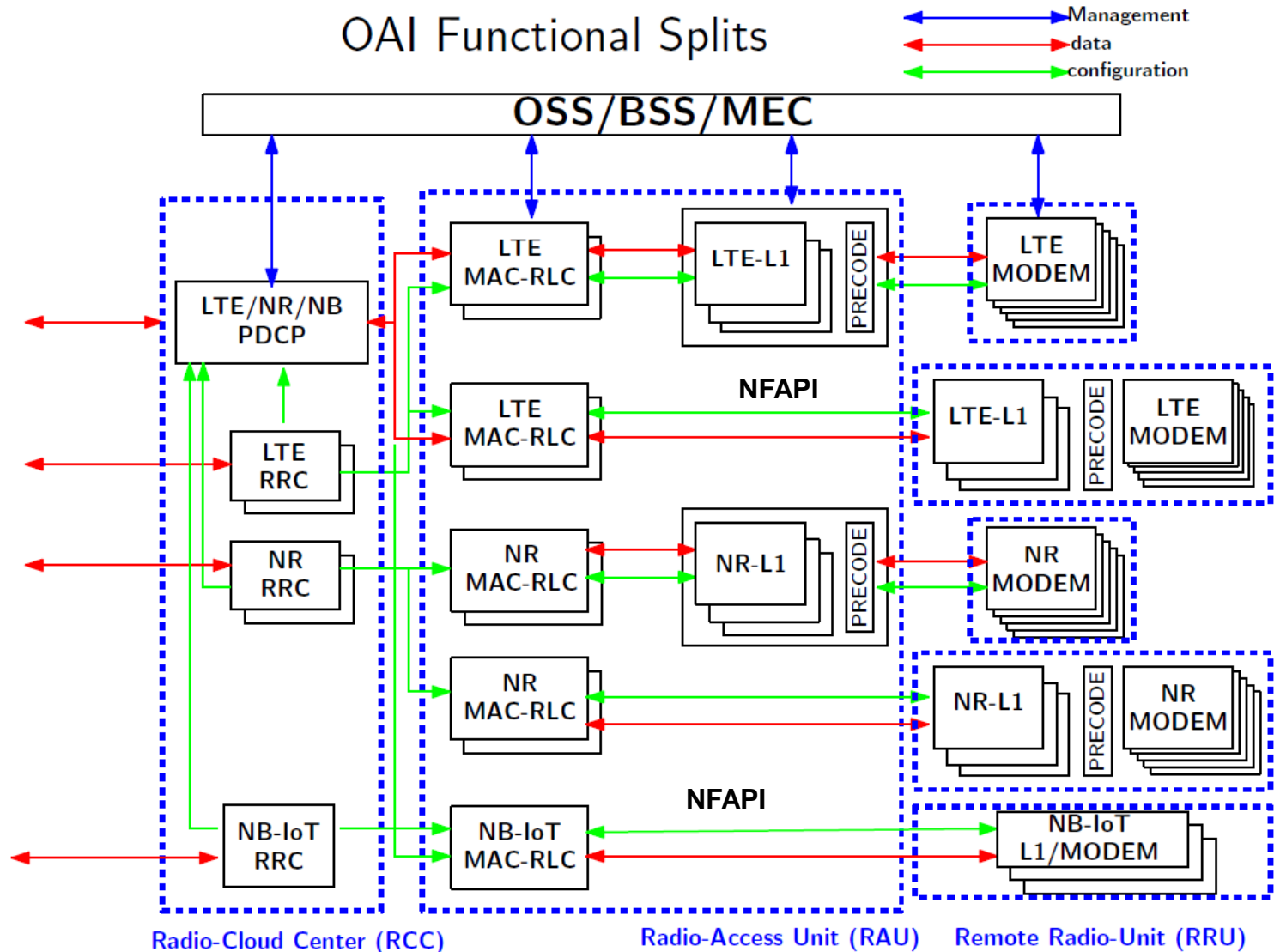
■ Main achievements since last workshop

- Architecture for 5G lower-layer functional splits : merged to develop branch
 - RU/L1
 - L1/L2 (FAPI/nFAPI)
- Configuration module: merged to develop
- Paging : merge requested
- RRCConnectionReestablishment : merge requested
- E-RAB Release: merge requested
- X2-handover: merge to come
- open-nFAPI : merge to come
- Multi-core support for eNB : more merges to come

■ Buggy/Missing/Incomplete Essential Features

- RLC AM mode : buggy
- Multi-UE/RA scheduling : buggy
- TM3/4/8/9/10 : incomplete
- PUCCH2 : incomplete
- TDD configurations:
- Measurement gap handling : missing
- DRX handling : missing
- Carrier Aggregation : incomplete

Current vRAN Roadmap in OAI



Modularization of OAI

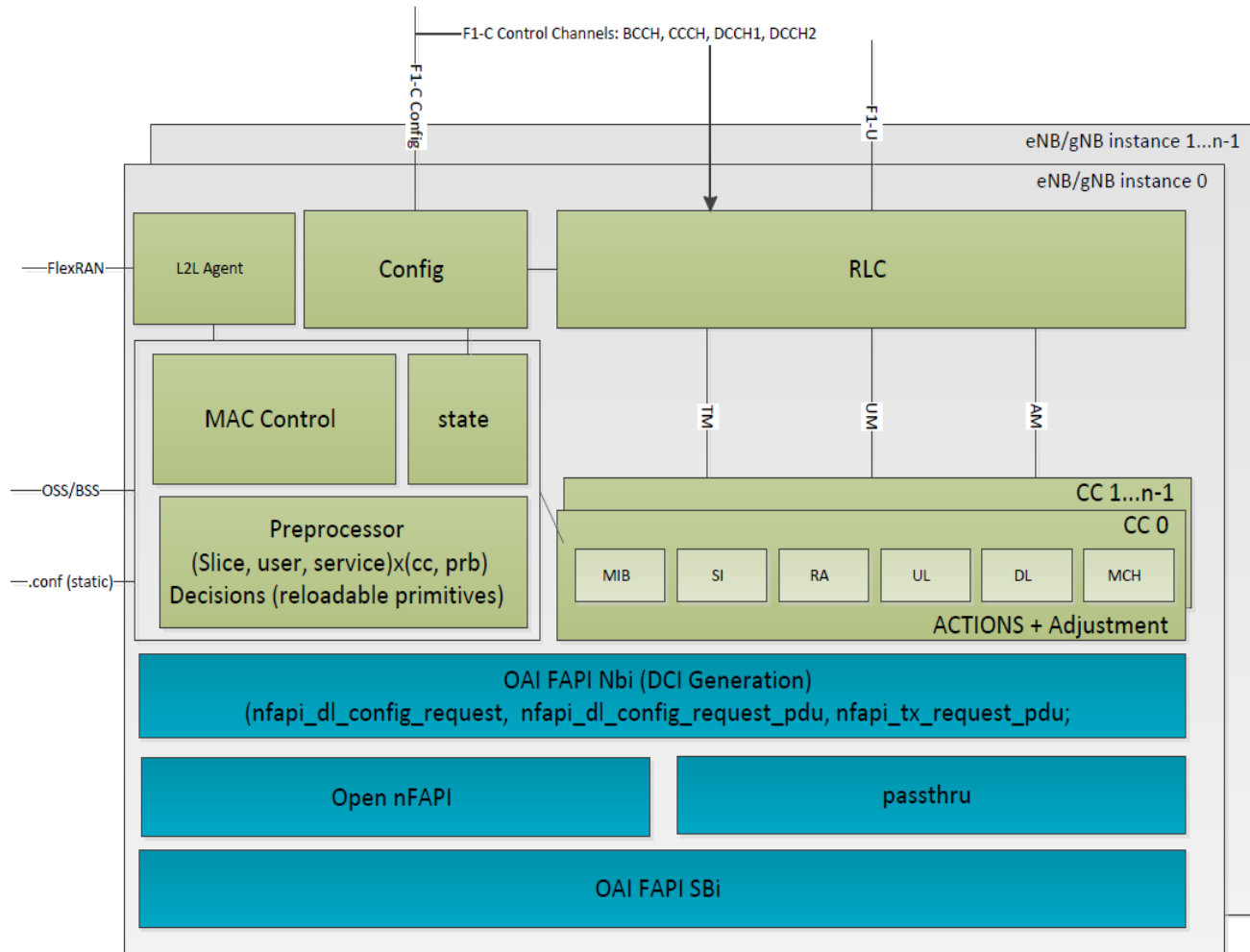
openair5G RAN : Objectives for next period

- **MAC Architecture revision**
 - **Modularization** of scheduling (preprocessor) entity
 - Configuration/management interfaces
- **MAC implementation**
 - Rewrite of DL and UL schedulers => 10s to 100s of connected UEs
 - Improve RA stability
- **MAC documentation**
 - Developer manual : scheduler implementation, L1 interface description, CU interface description
- **PHY documentation**
 - Developer manual : Real-time Threading architecture and MODEM procedures
- **Architectural revision for**
 - **Higher-layer Functional split** (3GPP CU-DU)
 - Follow current 3GPP standardization for NR + 4G retrofit
 - Modularization of RRC/PDCP-C and PDCP-U entities
 - **Management interfaces** and configuration in RAN (NETCONF?)
 - **Precoding** and centralized management of large numbers of RRU
- **CI Testing framework**
 - Implement a testing framework for scalability/stability of MACRLC, RRC/PDCP-C, PDCP-U without radio
 - Find a viable solution/partner for scalability testing with radio
 - No TM500 at EURECOM

openair5G RAN : Objectives for next period

- **Simulation / Emulation target (ex-oaisim)**
 - Complete integration into new fronthaul/midhaul architecture
 - Simulated UEs + behavioural modelling (channel) integrated with
 - L1 IF5
 - L1 IF4
 - L2 NFAPI
 - L2 F1 (later)
 - Same executables as real-time target and separate processes for RAN and UEs (same or different machines)
 - OASIM elements to be reintegrated
 - Mobility
 - Channel modeling
 - L1 abstraction

New MACRLC entity



openair5G RAN : Objectives in next period

■ Features

- TM3/4/8: Finish testing of TM3 and start TM4
- PUCCH2 CSI: add L1 component, L2 is done
- NB-IoT L1/L2: interoperability testing and integration in develop
- eMTC: interoperability testing, RRC from private branch
- 256 QAM: nice to have
- 2 DL Carrier Aggregation (TDD Band 38/42-43 on Eurecom test network)
- subset of Rel-15 NR specifications in support of TCL 5G UE
 - down to 250us TTI / 80 MHz numerologies
 - Channel coding subsystem (LDPC+ rate matching)
- Sidelink/ProSe/V2X procedures
- MulteFire

OPENAIRCN STATUS

openairCN status

■ Done since last workshop

- Shift to GITHUB
- CI Framework for openairCN ongoing
 - Automatic generation of tests from merge requests
 - ↳ S1AP tester (FB + EURECOM)
 - ↳ Commercial eNB + TM500 (FB)
- HSS
 - Rel14 contribution from Sprint (USA) : to be merged
- MME
 - Integration of FB/Radisys contributions from last 12 months into current develop branch
- SPGW
 - Nothing particular during period

openairCN Objectives for the period

■ Basic features 4G EPC

- Many basic bugfixes to MME from FB still to come
- Multiple PDN : FB contribution to come
- Datapath (support of OVS) : FB contribution to come
 - Reintegration of dedicated bearer support
 - Integration of paging procedures
- Support of Release 14 IEs (e.g. for NB-IoT)
- Support X2 Handover : B-COM contribution to come
- Additional test cases / tools for S1AP testing

■ 5G Core

- Evolution towards new network entities (AMF, SMF, UPF, UDM, AUSF)
 - Split of OAI MME in to AMF/SMF
 - HSS to inherit Rel14 version from openairCN
- CI framework from the beginning (like S1AP tester for 4G)
- Presentations given yesterday