O-RAN Software Community – OSC

Non-RealTime RIC project (NONRTRIC)

Status Update

John Keeney – *John.Keeney@est.tech* – PTL NONRTRIC

03 October 2019

Non-real-time RAN intelligent controller (NONRTRIC) project

The NONRTRIC project provides:

- Concepts
- Specifications
- Architecture
- Reference implementations

…as defined and described by the O-RAN Alliance architecture.

All implementations will be demonstrated in open community labs to prove functionalities and to give feedback to the O-RAN working groups

Coordinates:

- JIRA: https://jira.o-ran-sc.org/projects/NONRTRIC/issues
- Gerrit: https://gerrit.o-ran-sc.org/r/admin/repos/nonrtric
- Wiki: https://wiki.o-ran-sc.org/display/RICNR
- Meetings: https://wiki.o-ran-sc.org/display/RICNR/Meetings

NONRTRIC plans for OSC Release A (“Amber”) (Nov 2019)
Page 1/2

We have ‘stretch’ goals to have some initial non-RealTime RIC functionality for Release “Amber”:

- We will use ONAP CCSDK/SDNC as the base controller infrastructure for the NONRTRIC A1 Controller function for OSC “Amber” and ONAP “Frankfurt” timelines
  - Plan to implement a subset of the A1 Policy LCM functions based on a “pre-spec” version of A1 protocol
    - Aim to comply with WG2 A1 Release 1 spec – as much as possible by “Amber Maintenance Release” (Feb2020)
  - The CCSDK/SDNC extension will also expose a prototype A1 mediation interface to allow messages to be sent up/down the A1 interface

NONRTRIC plans for OSC Release A (“Amber”) (Nov 2019)
Page 2/2

- Plan to reuse an existing near-RealTime RIC dashboard that generates simple A1 messages towards the near-RealTime RIC instance
  - Currently and ONAP-style dashboard to manage xAPPs, manually change some policy-like values exposed by near-RealTime RIC xAPPs)
    - Plan to fully incorporate “PolicyType” and “PolicyInstance” concepts
    - Introduce a loose-coupling between xAPPs and Policies
    - Remove need for xAPP concepts in current (pre-spec) A1 interface

- There is a sample near-RealTime RIC prototype xAPP (“*AdmissionControl xApp*”) for rudimentary Admission Control for Dual Connectivity requests that exposes a basic policy that can be manipulated via the near-RealTime RIC’s A1 interface
  - Plan to initiate some small change in this policy
    - by creating/modifying a single policy instance

O-RAN WG2 Alignment

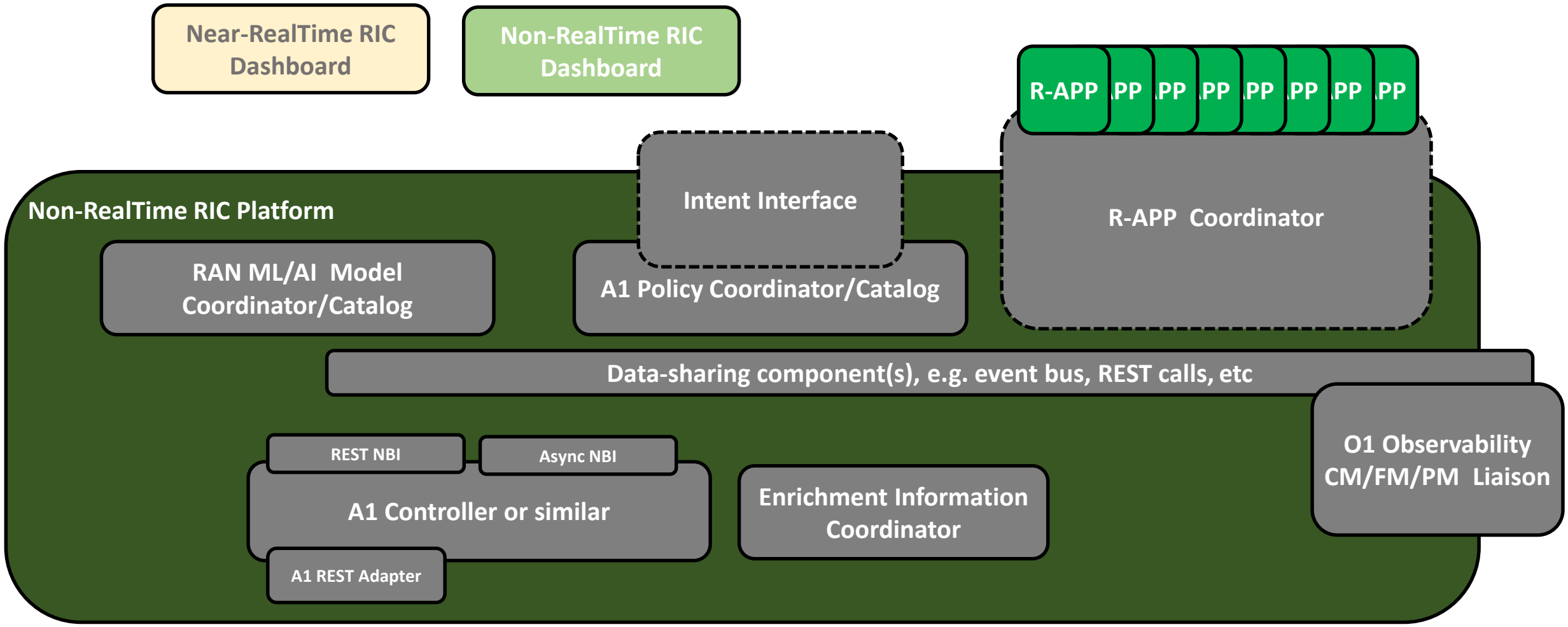
- WG2 - A1 spec
  - Liaising with near-RealTime RIC project to align toward Release 1 spec
  - Preparing initial feedback on improving implementability of spec
  - Preparing initial feedback on possible improvements/simplifications to spec
  - Aiming for complete alignment – but some pragmatic compromises might be required …

- Non-RealTime RIC function
  - Aligned with WG2's objectives/ambitions for Non-RealTime RIC Function
  - Still at a very early stage ….
    - Starting with A1 mediation – Controller function
    - Additional functionality at discussion/architecture/design stage

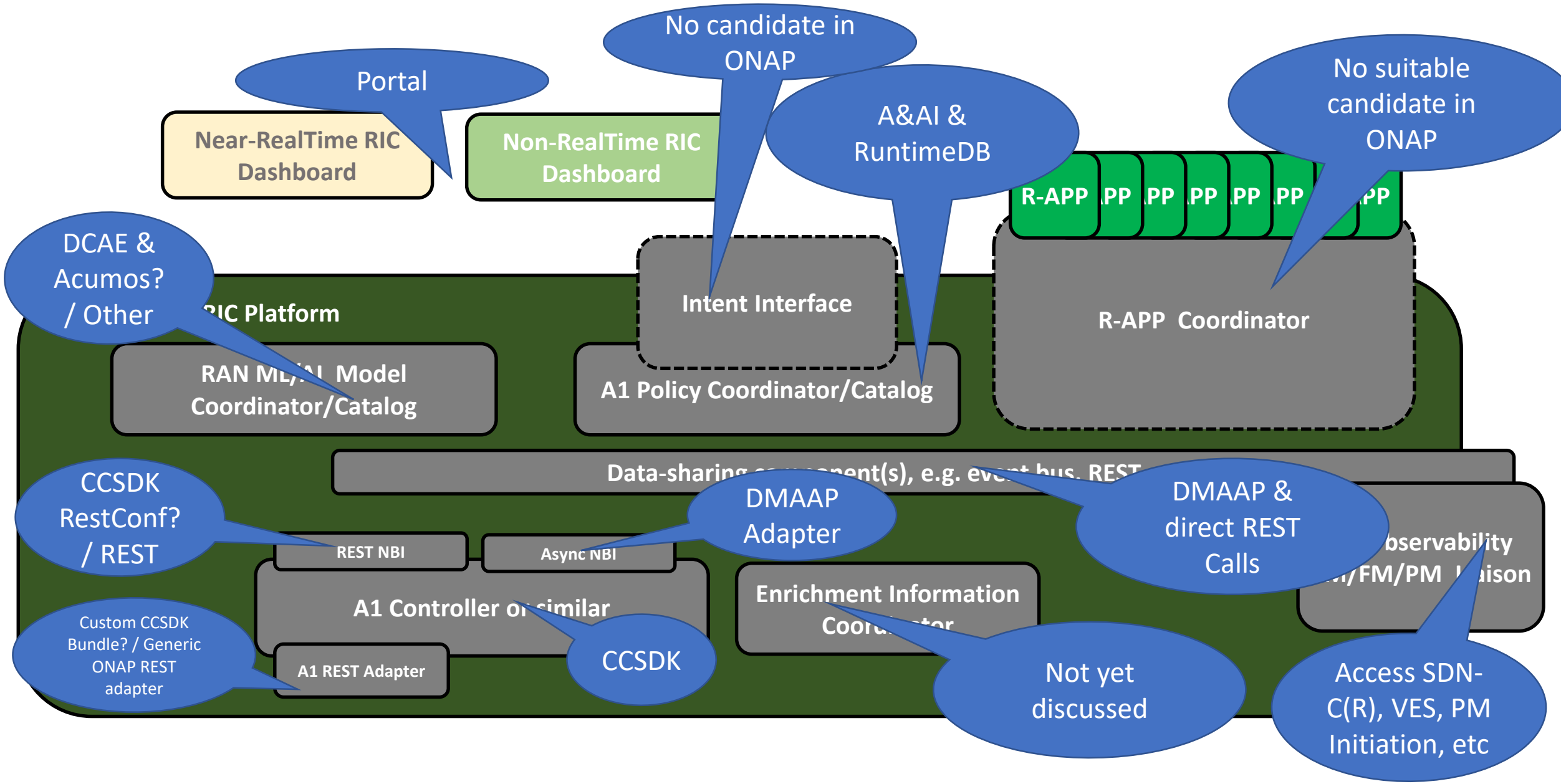
- Interaction with other function
  - Close working relationship with other OSC projects to ensure alignment/feedback/requirements
  - Close observation of activities in other WGs

- Use-cases
  - To be confirmed – will be driven by requirements, resources, supporting functions

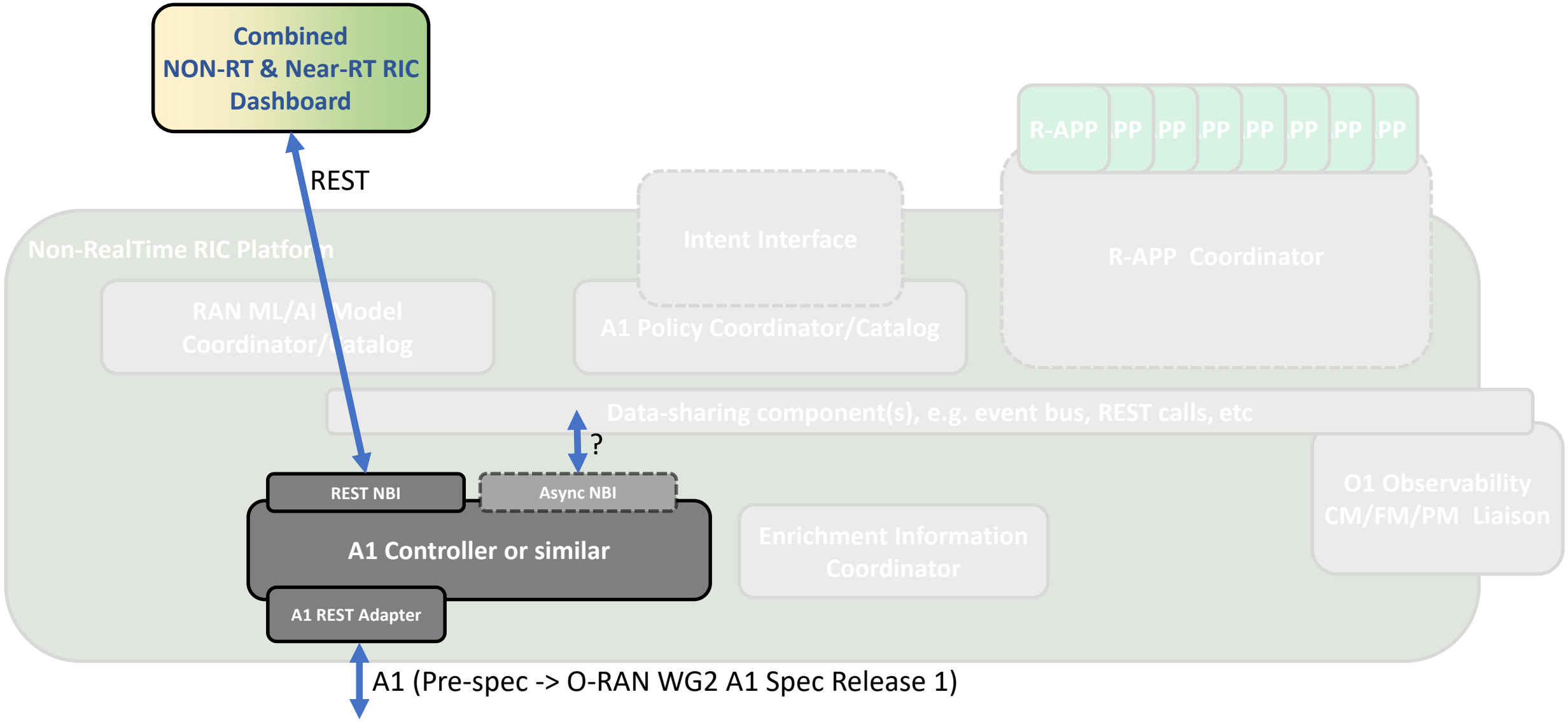
NONRTRIC Project – Functions



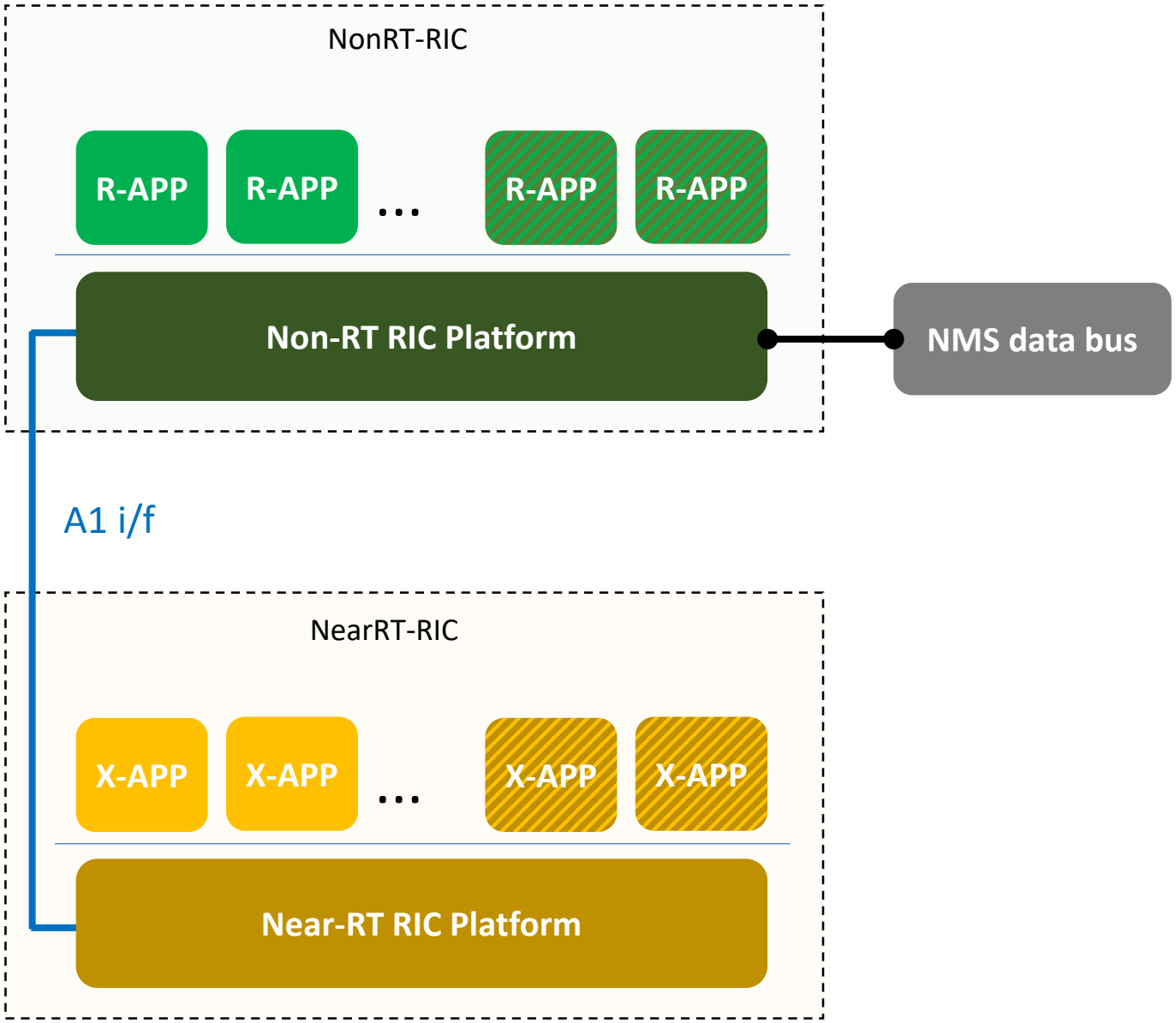
NONRTRIC Project – Partial Platform Support from ONAP



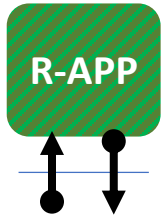
NONRTRIC Project – OSC “Amber +”/ ONAP Frankfurt



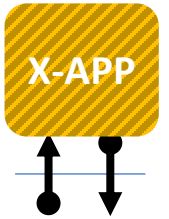
Two classes of APPs



1. APPs creating and exporting insights, e.g.

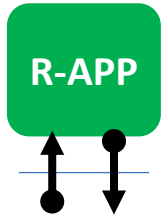


”The following Ues are drone-mounted”



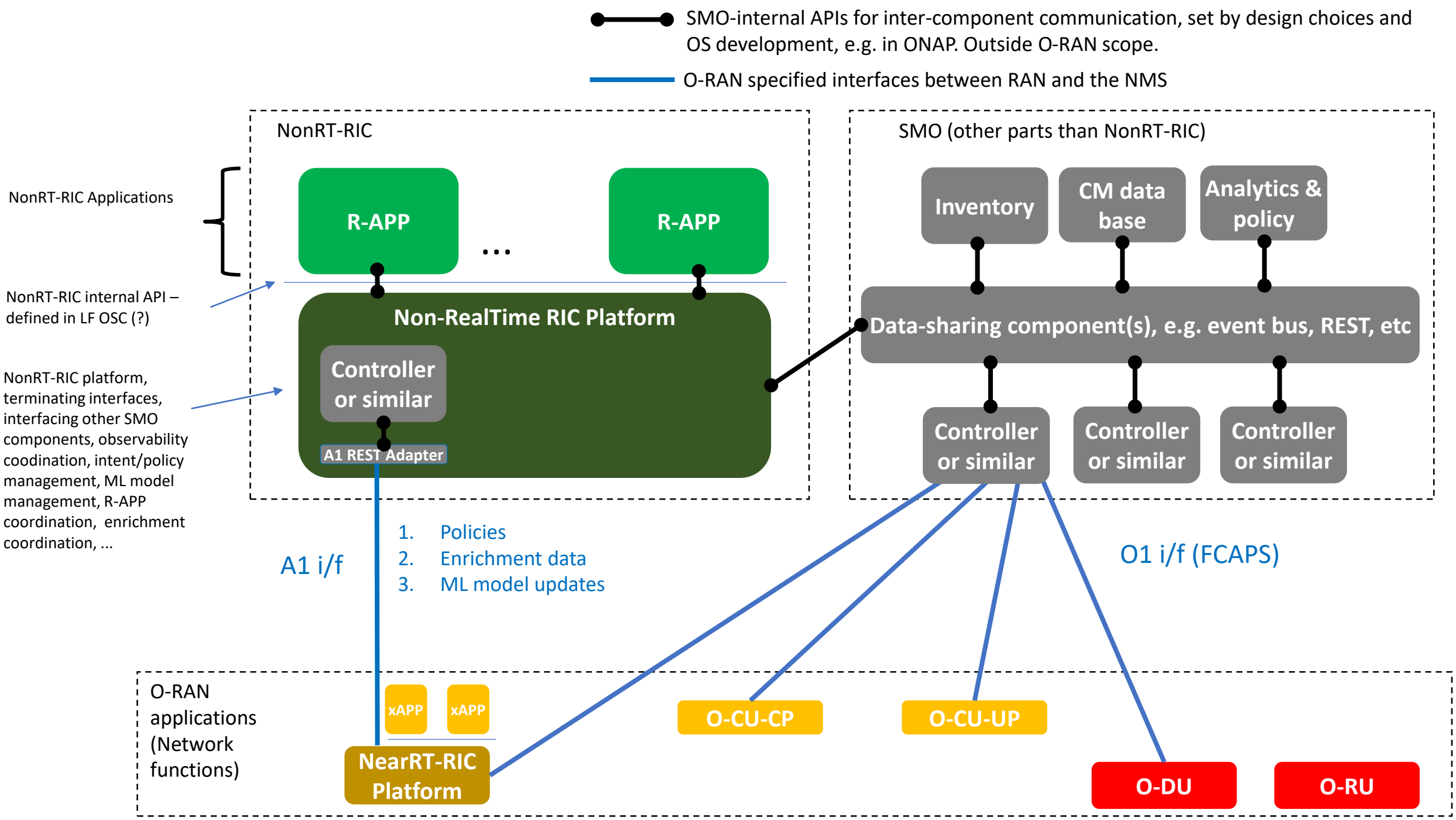
”Present interference levels on sector carriers in Chicago.”

2. APPs creating and exporting control signals, e.g.



”Set QoE priority of UE47 to Prio1”

”Handover command to handoff UE32 from sector carrier 09 to sector carrier 98”


SMO-internal APIs for inter-component communication, set by design choices and OS development, e.g. in ONAP. Outside O-RAN scope.
O-RAN specified interfaces between RAN and the NMS
NonRT-RIC
SMO (other parts than NonRT-RIC)
NonRT-RIC Applications
R-APP
R-APP
...
Inventory
CM data base
Analytics & policy
NonRT-RIC internal API – defined in LF OSC (?)
Non-RealTime RIC Platform
Data-sharing component(s), e.g. event bus, REST, etc
NonRT-RIC platform, terminating interfaces, interfacing other SMO components, observability coodination, intent/policy management, ML model management, R-APP coordination, enrichment coordination, ...
Controller or similar
A1 REST Adapter
Controller or similar
Controller or similar
Controller or similar
A1 i/f
1. Policies
2. Enrichment data
3. ML model updates
O1 i/f (FCAPS)
O-RAN applications (Network functions)
xAPP
xAPP
NearRT-RIC Platform
O-CU-CP
O-CU-UP
O-DU
O-RU

Ericsson Software Technology