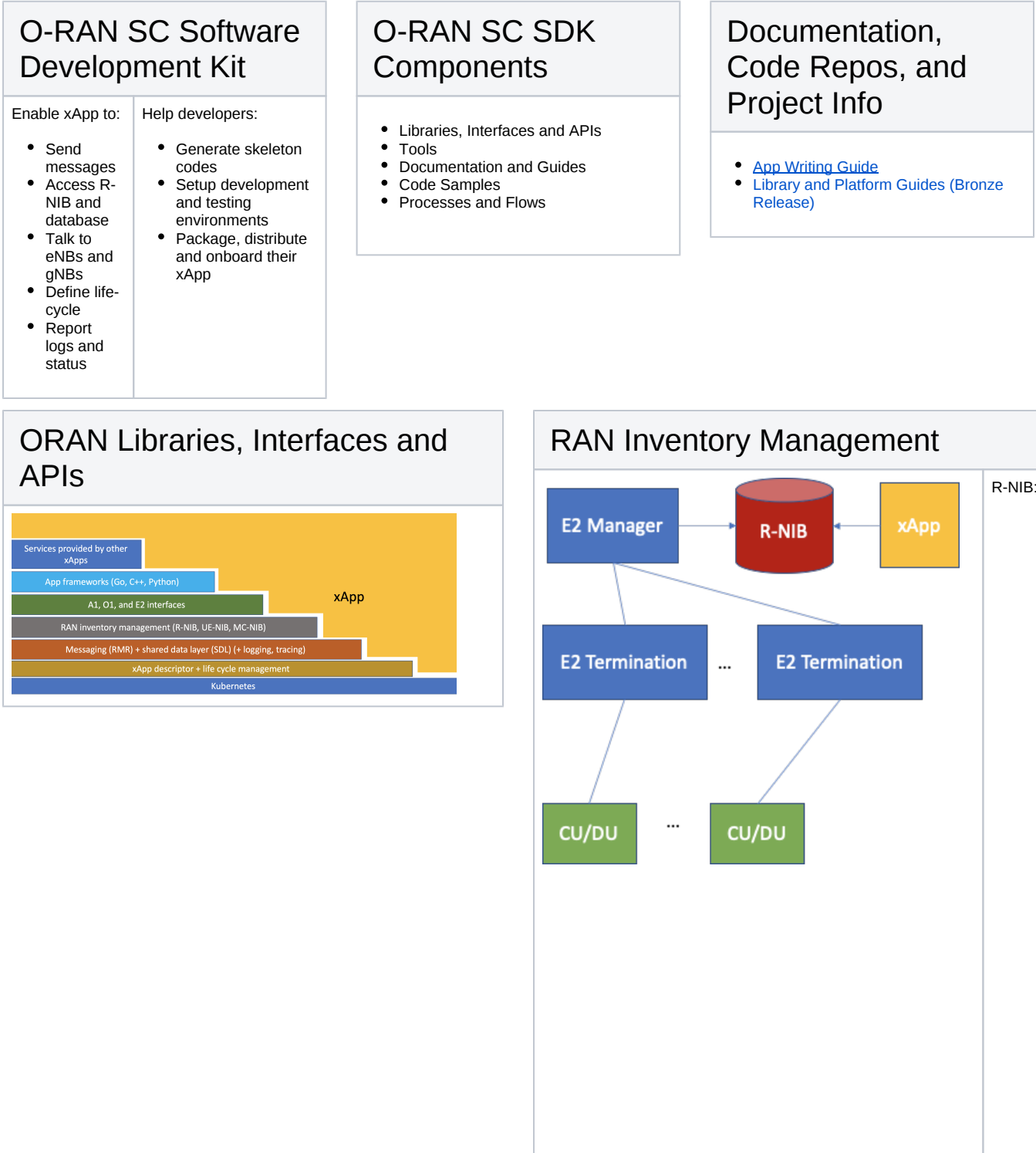


Overview

- [O-RAN SC Software Development Kit](#)
- [O-RAN SC SDK Components](#)
- [Documentation, Code Repos, and Project Info](#)
- [ORAN Libraries, Interfaces and APIs](#)
- [RAN Inventory Management](#)
- [xApp O-RAN interfaces](#)
- [Platform Libraries and APIs](#)
- [Tools](#)



ORAN Libraries, Interfaces and APIs

Services provided by other xApps

App frameworks (Go, C++, Python)

A1, O1, and E2 interfaces

RAN inventory management (R-NIB, UE-NIB, MC-NIB)

Messaging (RMR) + shared data layer (SDU) (+ logging, tracing)

xApp descriptor + life cycle management

Kubernetes

xApp

RAN Inventory Management

E2 Manager

R-NIB

xApp

E2 Termination

E2 Termination

CU/DU

CU/DU

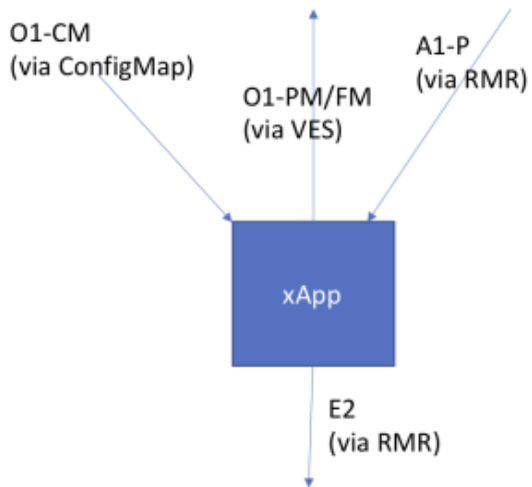
R-NIB:

- Inventory of RAN Elements connected to the O-RAN SC
- Service models (SMS) supported by each RAN Element
- ...

Note:
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xApp O-RAN interfaces



E2:

- A v a i l a b l e E 2 S M S p o p u l a t e d i n R - N I B (i n R 5)

Platform Libraries and APIs

Name	Purpose	Languages	Frameworks	APIs
RMR	Policy driven messaging	C++, Python, Go	Yes	RIC Message Router – RMR
SDL	shared data storage	C++, Go	Yes	O-RAN SC SDL C++ library User Guide
Log	Logging	C/C++, Python, Go	Yes	
Alarm	Alarm Propagation	C++, Go	No	RIC Alarm System
Jaeger	Tracing	C++, Go	No	RIC tracing helper library
xAppFramework	Wrappers	C++, Python, Go	Yes	RIC xAPP C++ Framework

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- Frameworks: "register handle for A1" (now)

O1-
CM:

- Initial and updated at each configuration interval via K8s configmap

- We believe this can be abstracted by the framework (x App just register as handler)

- Still open discussion in O - R A N W G s o n h o w L C M s h o u l d b e d o n e.

O1-
PM
/FM:

- x Appalmar a pi par ti al ly a v ai la bl e in R 4 (g o o nl y) , st at a pi in R 5.
- (f or n o w) A T & T x A p p s u s e V E S , N o ki a x A p p s u s e P ro m et h e u s.

Tools

Name	Purpose	Inputs	Produces	Comments
xApp frameworks for C++, Python and Go	Code development	N/A	xApp skeleton codes	Can be extended to provides wrapping for most of the library APIs.
ASN.1 Compiler	Code development	ANS.1 module	C source code to serialize C structures	C++ wrappers for E2AP and E2SM are under development
xApp onboarder	Packaging and distribution	xApp descriptor	xApp helm charts parameter override YAML	Defines the xApp descriptor format Used by all xApp today
xApp builder docker images	Packaging and distribution	Docker file	xApp dev and distribution image	Preinstalled with all the libraries
E2 Simulator	Testing	E2 messages	Simulated responses E2 messages playback	E2 based simulation
NRT-RIC one-click deployment	Testing	Recipe YAML	Fully functioning RIC platform	Each developer should have his/her own RIC dev environment
xApp health check tool	Life cycle management	Health check logics	xApp life cycle control loop	Currently K8S based Can be extended to support A1 policy