

Nokia Open RAN

FCC Open RAN Showcase

July 14th, 2021

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NOKIA



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O-RAN

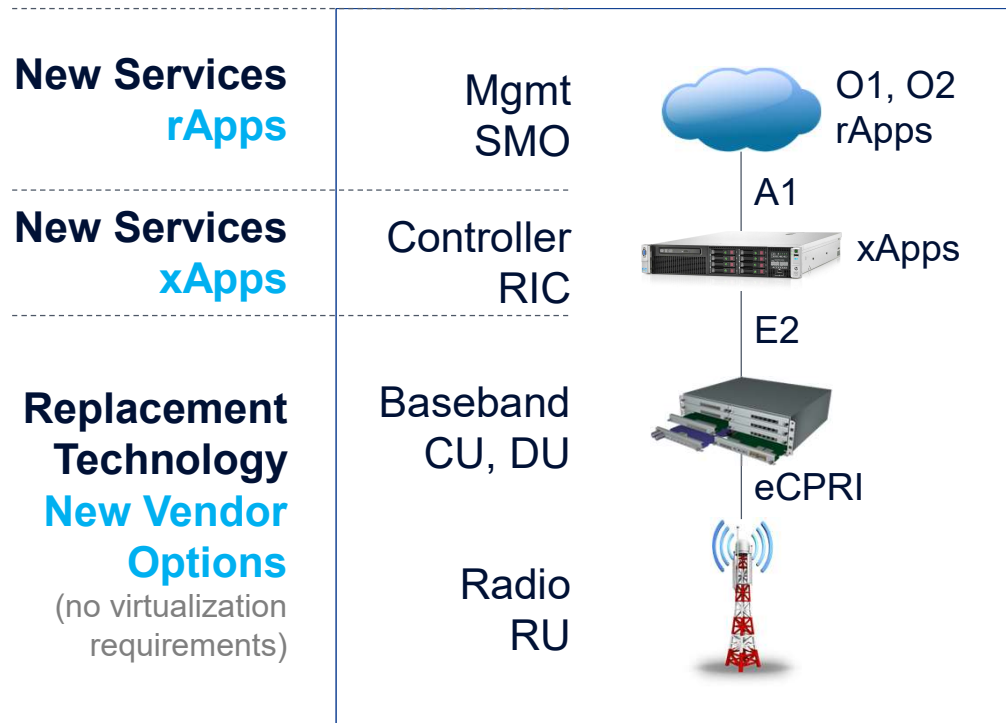
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SEP

3

Closing

Nokia Open RAN



Specifications

O-RAN Alliance, 2018

Policy

Open RAN Policy Coalition, 2020

~2y maturity level

Nokia

First incumbent in O-RAN, ORPC
No.1 contributor to O-RAN
HW, SW, services

O-RAN Alliance Setup

10 Working Groups

WG1	Use cases, architecture
WG2	Non-RT RIC, A1
WG3	Near-RT RIC, E2
WG4	Open Fronthaul
WG5	Open F1/W1/E1/X2/Xn
WG6	Cloudification, orchestration
WG7	White-Box HW
WG8	Stack Reference Design
WG9	Open X-haul Transport
WG10	OAM

***Bold = Most important**

4 Focus Groups

TIFG	Testing & integration
OSFG	Open source
SDFG	Standards definition
SFG	Security

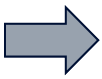


Formed October, 2020
No publications YTD

O-RAN Alliance Specifications

Maturity

CUSM	Light Green
E1	Red
E2	Yellow
A1	Yellow
O1	Yellow
O2 IMS	Red
O2 DMS	Red

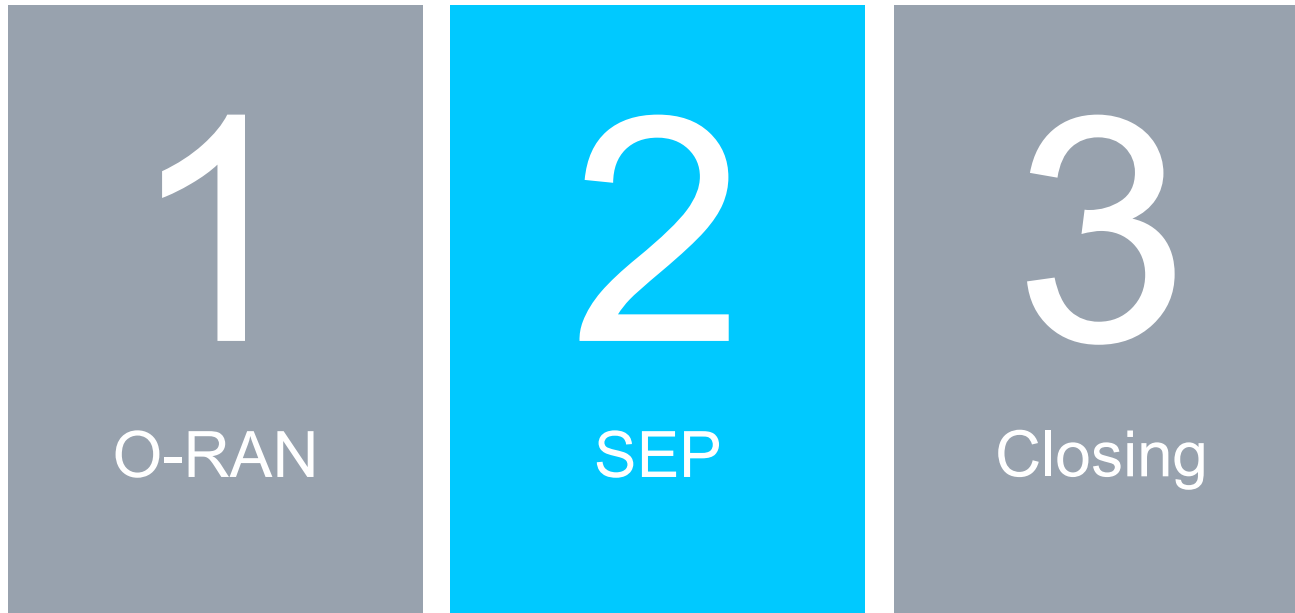


Sequencing

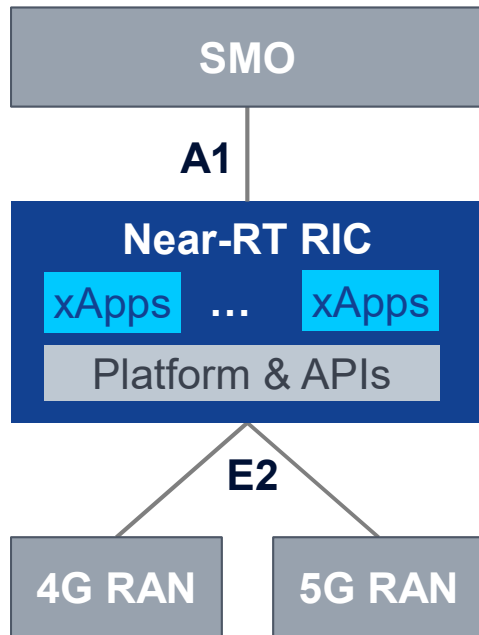
- Early adopters, pairwise agreements
- Standard solutions
- Larger scale deployments

Ecosystem

- Generally, larger providers drive ecosystems



RIC Deep Dive



Position

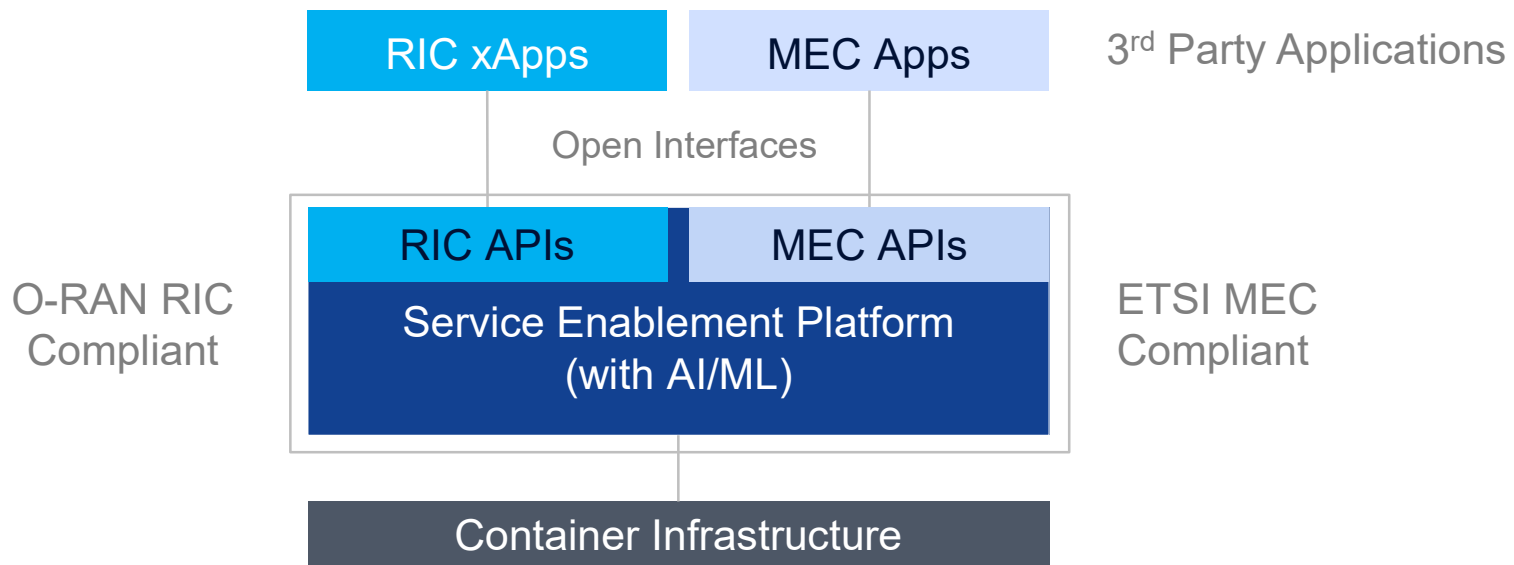
- Only net new capability in O-RAN
- Complementary with MEC

Example Use Cases

- Network Intelligence
- Resource assurance
- Resource control

Nokia's Service Enablement Platform (SEP)

[Aligns with standardization direction]



- Launched March 10, 2021 with 2 Nokia xApps
 - Advanced Traffic Steering
 - Security anomaly detection

SEP Evolution

RIC xApps

O-RAN Driven

- Advanced Traffic Steering
- Quality of Experience mgmt.
- mMIMO optimization
- Handover optimization

AI / ML Offload

- LTE interference optimization
- Cell / UE Anomaly detection
- Energy optimization
- Enterprise RAN customization

Innovation

- Application Aware RAN
- Application Service Mobility
- Dynamic Slicing opt.
- QoE optimization of Edge Apps

MEC Apps

Partners

- Edge Video Orchestration
- Augmented Reality
- MEC Sandbox

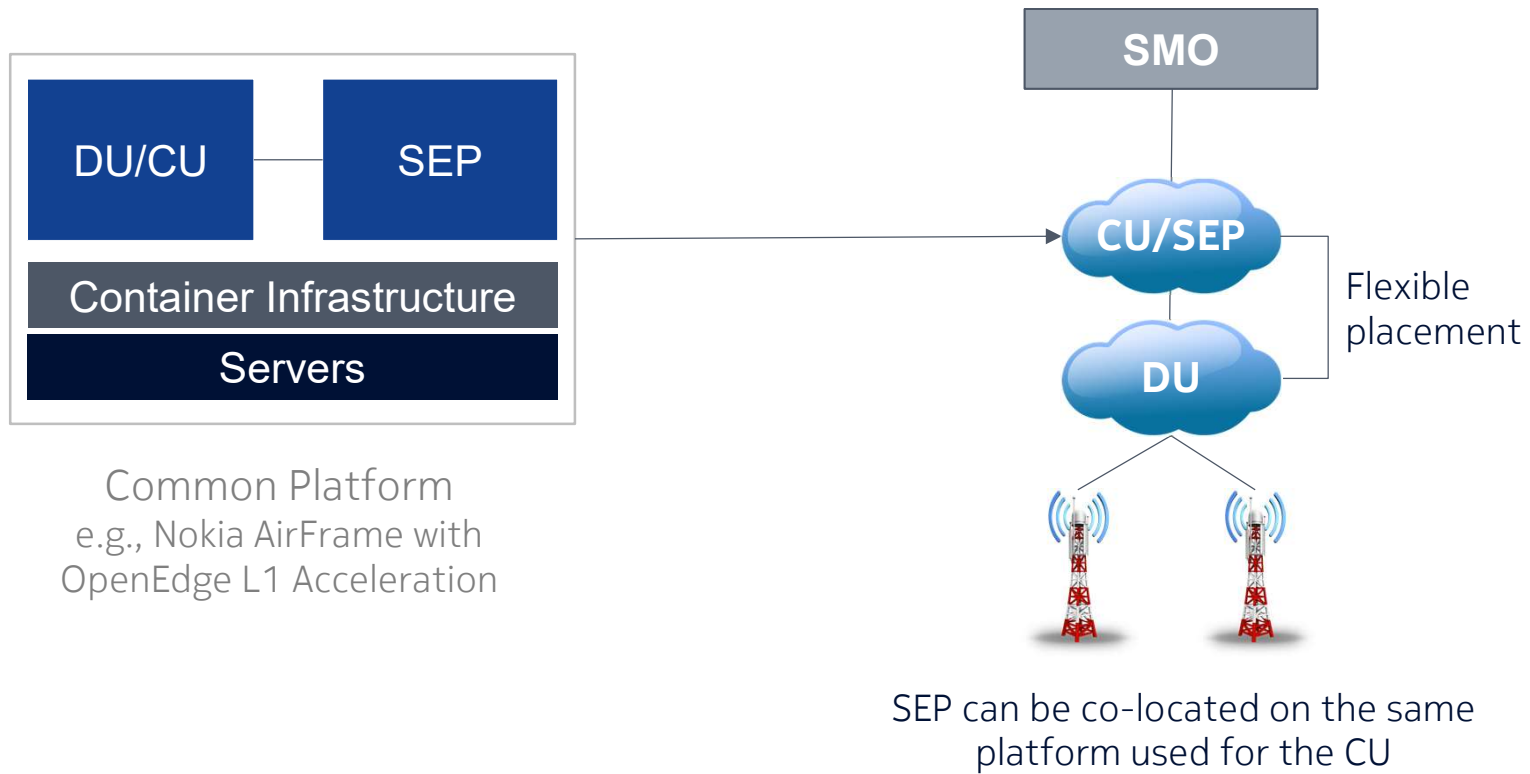
Nokia

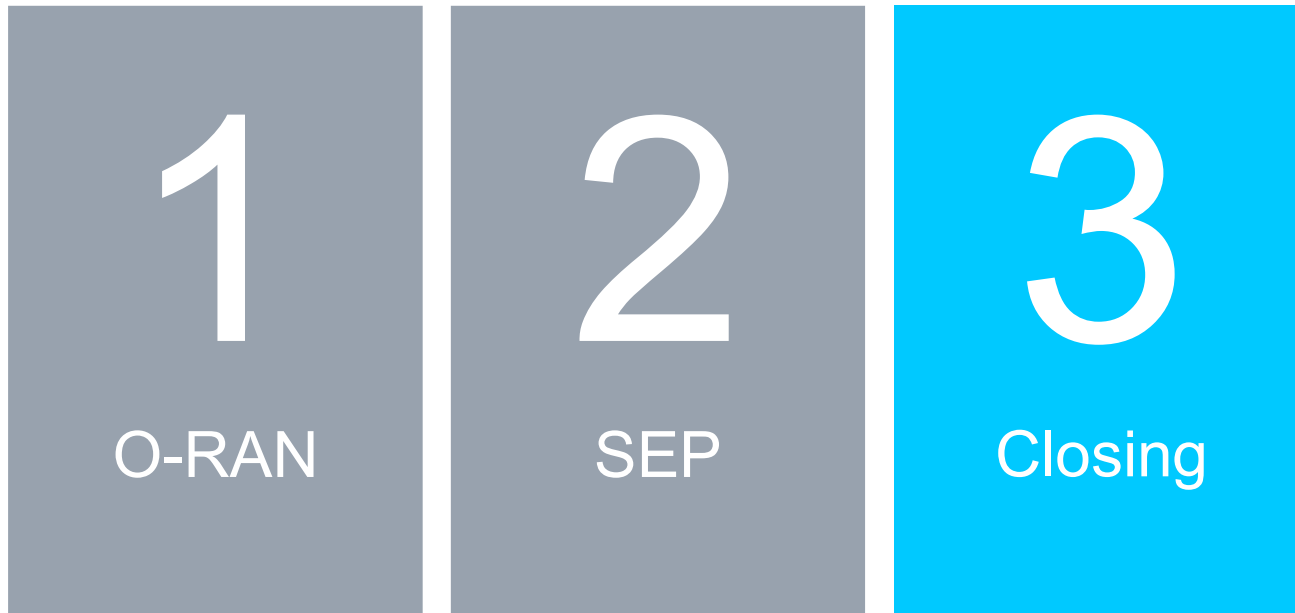
- Enterprise
- C-V2X

The SEP potential is significant

Nokia is implementing own apps and partnering for unique solutions

SEP Platform Convergence





Closing

- Nokia is a major contributor to O-RAN
 - Leading standards and supporting ORPC
- We will delivery all variants of O-RAN
 - Virtualized, non-virtualized, full parity
 - Hardware, software, services
- The RIC is the only net new service in O-RAN
- Nokia's SEP is a unique combined RIC, MEC platform



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