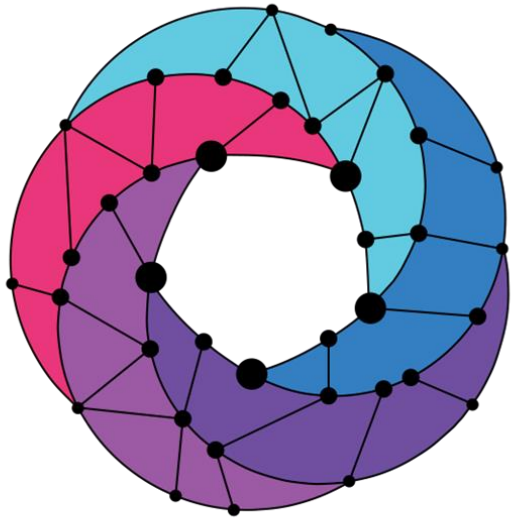


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OSM #10 Ecosystem Day

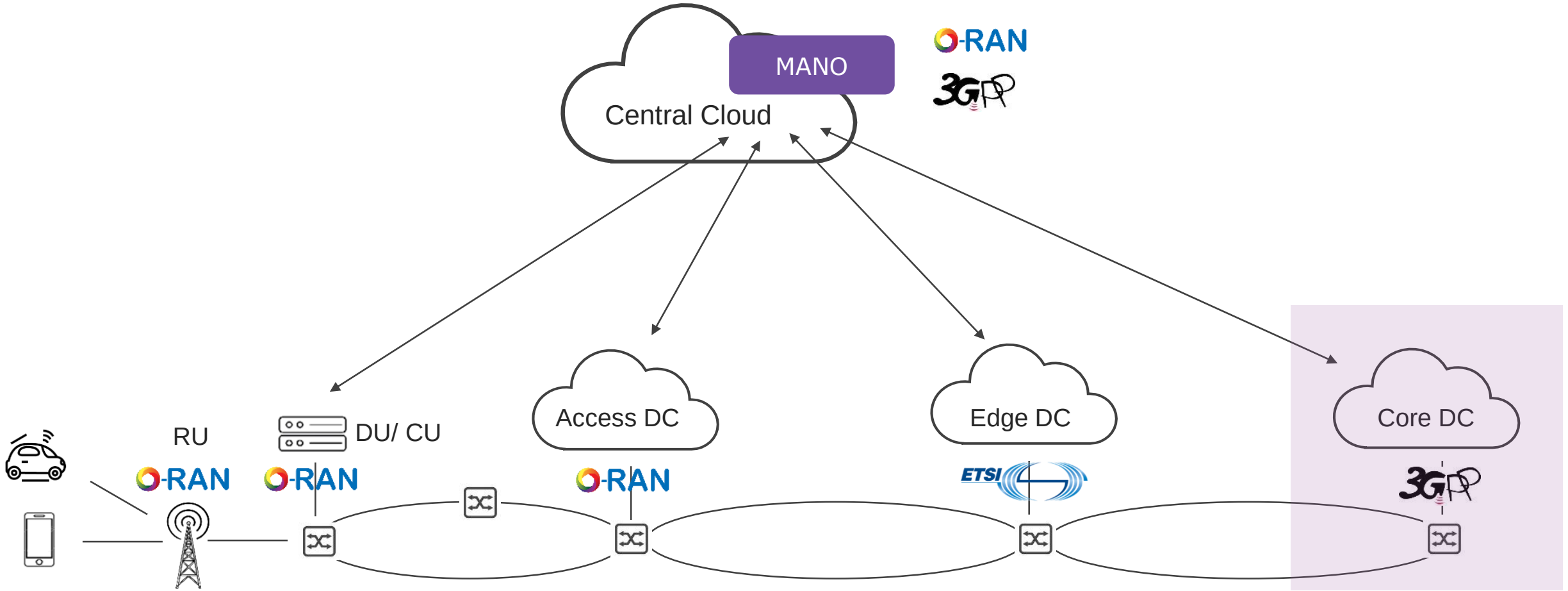
OSM for 5G O-RAN

Subhankar Pal (Altran) & Ramon Armada (Altran)

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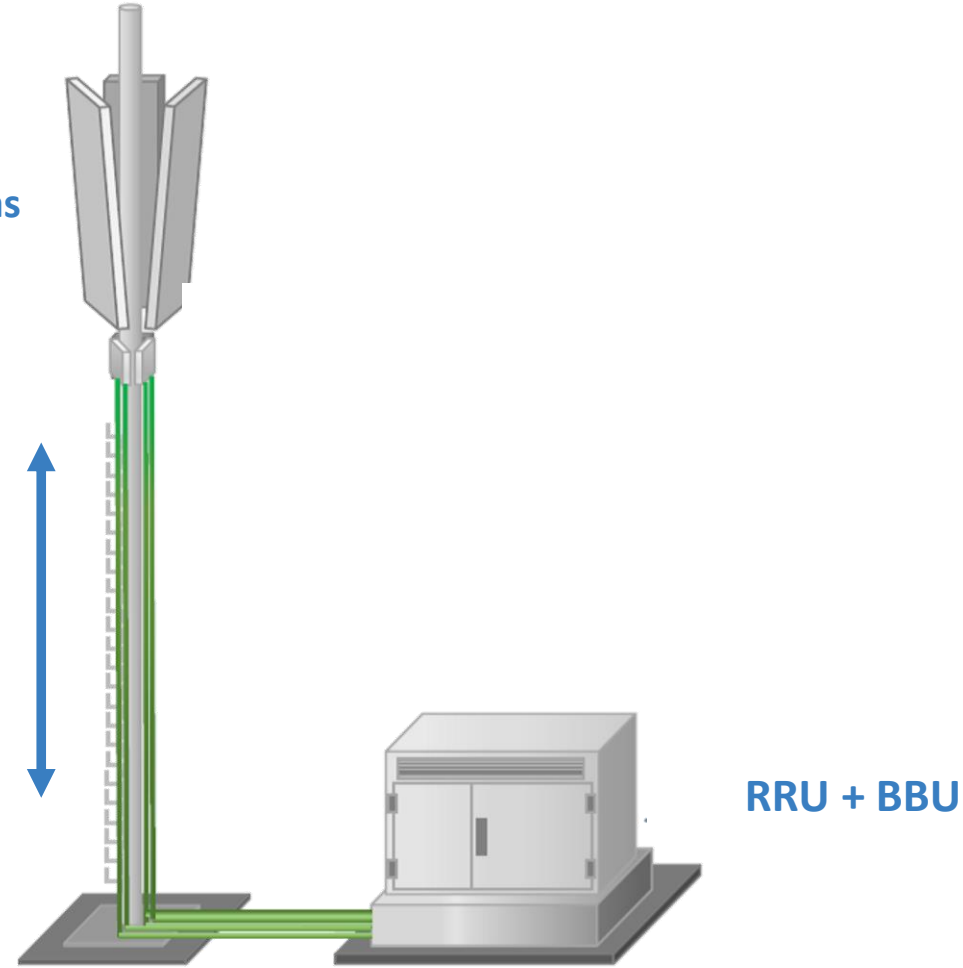
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Role of MANO in 5G Networks



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Traditional Base Station



Proprietary Hardware
Proprietary hardware

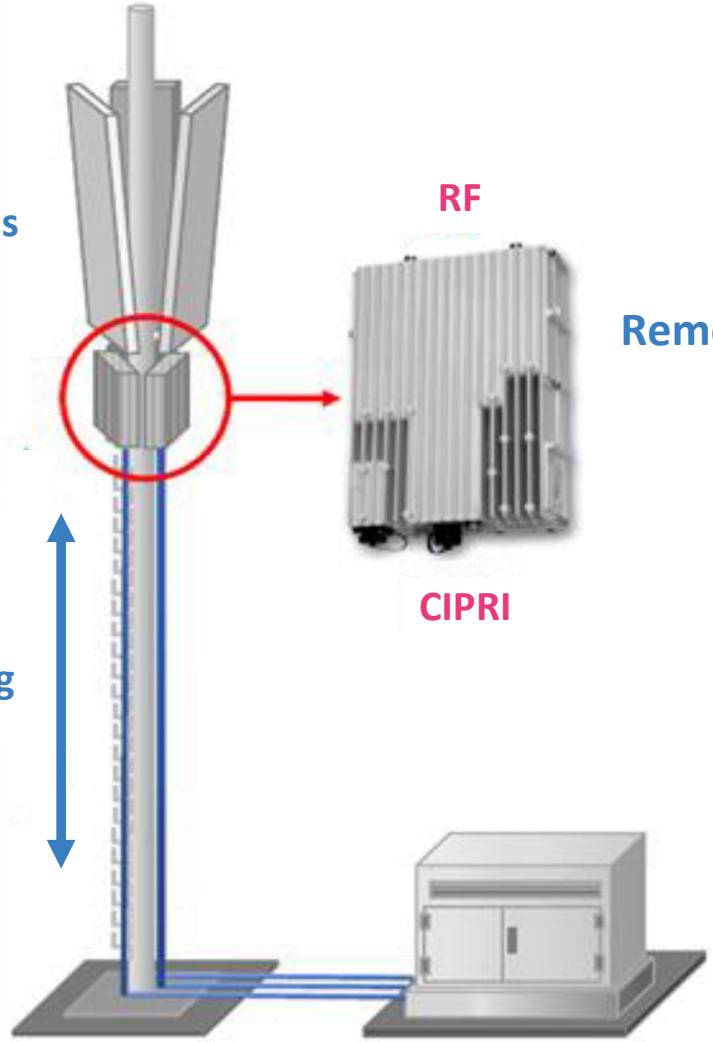
Proprietary Interfaces
Proprietary interface

Proprietary Hardware & Software
Traditional base – Signal processing, RF Equipment, Network Access, Long RF Cables

Source: 3G4G Blog

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Disaggregated RAN Vision



GPP based COTS Hardware
Can be purchased from any ODM / OEM / RAN Hardware Vendor

Open Interface
Any vendor software can work on this hardware

COTS Server
Open software with virtualized functions

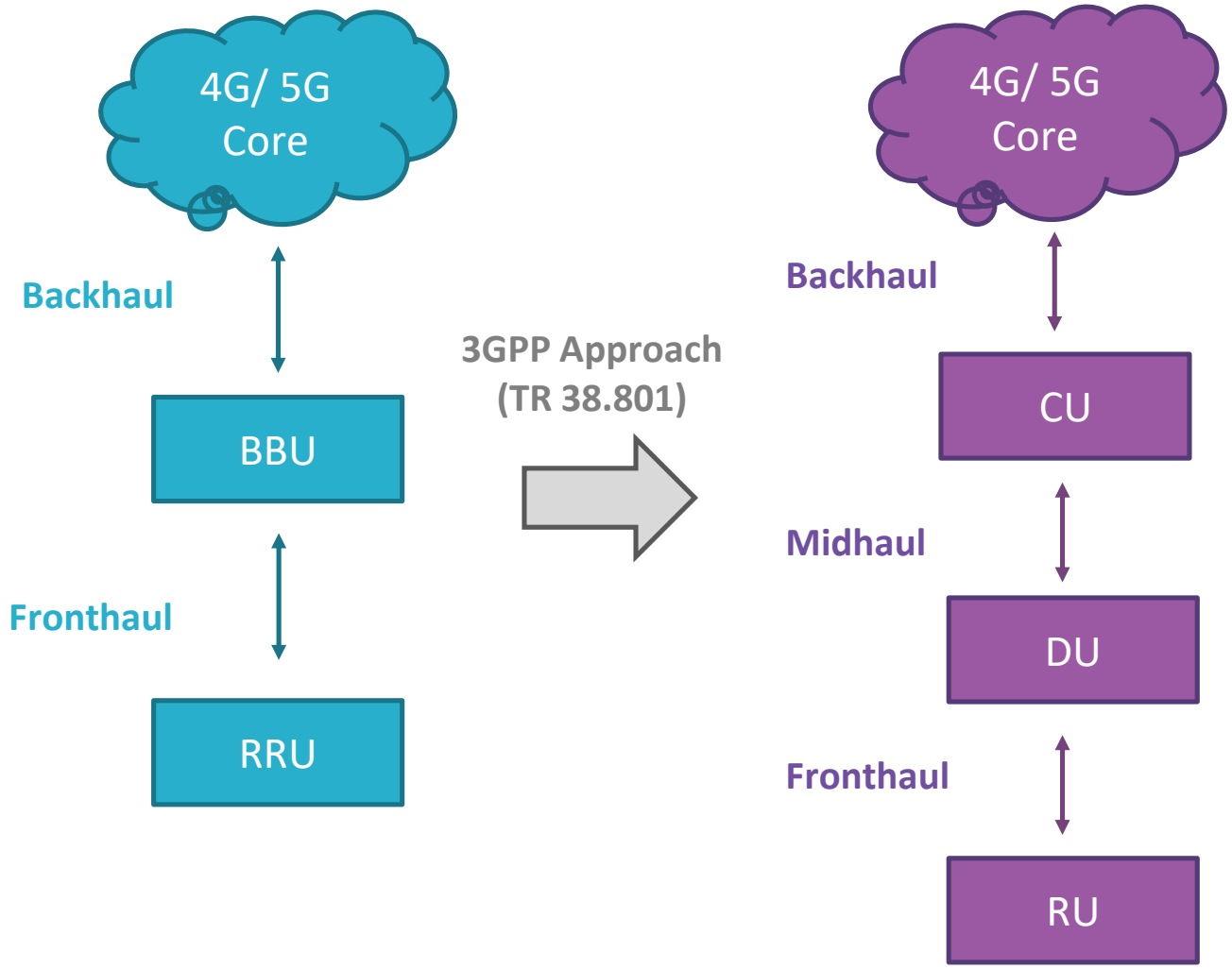
Source: 3G4G Blog

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Evolution to 5G Open RAN

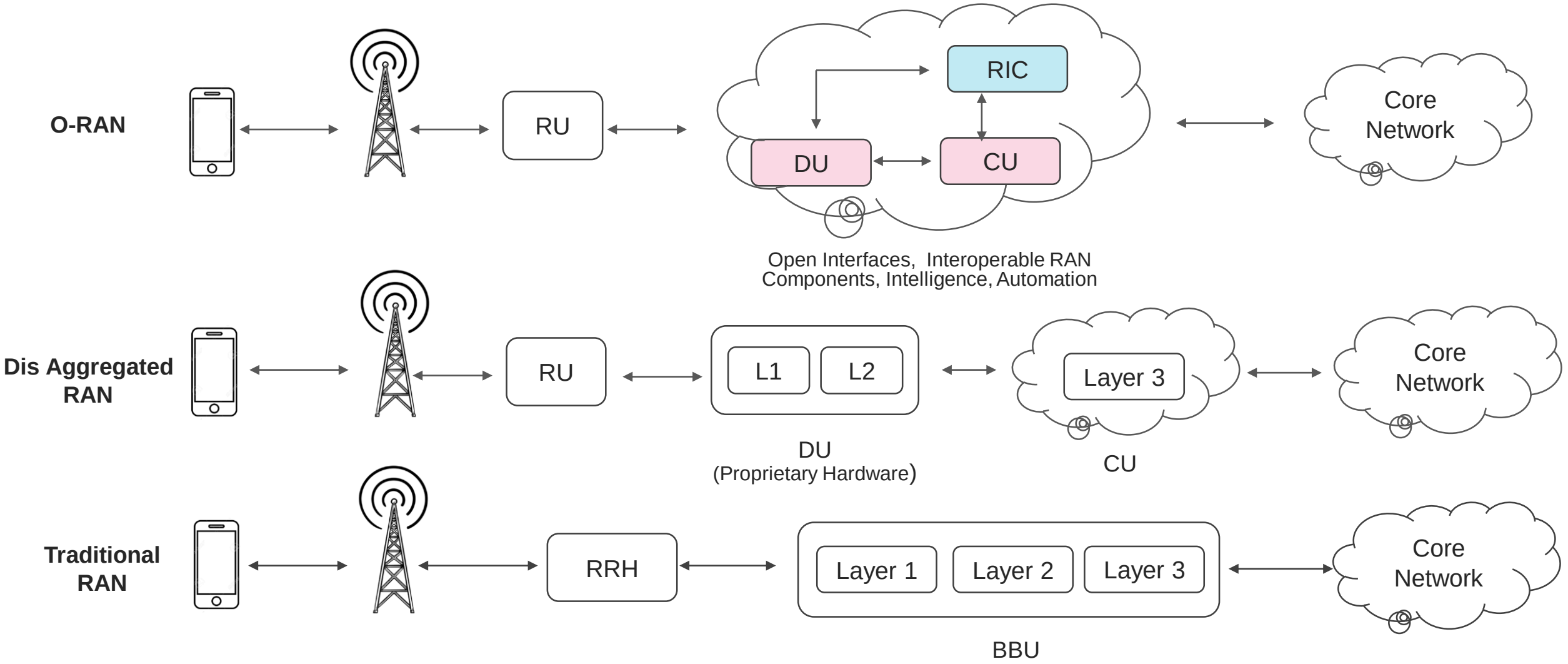
Distributed and Central Unit

- 3GPP has introduced the CU & DU concept as the evolution path towards virialized RAN
- Introduction of midhaul provides more flexibility for transport options



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Evolution to 5G Open RAN

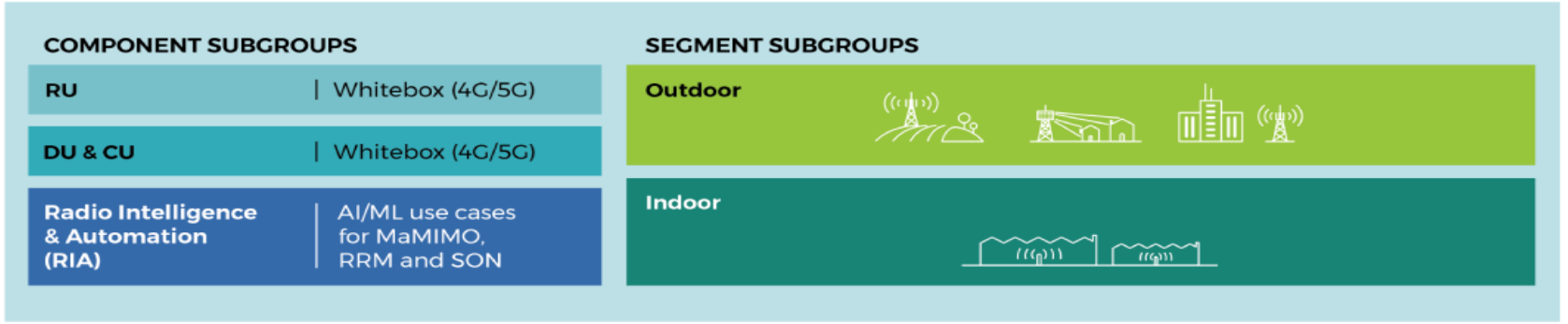


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O-RAN Industry Adoption (I)

- The O-RAN Alliance is focused on the development of open, intelligent, virtualized and interoperable RAN specifications.
- O-RAN Alliance has been founded in February 2018 by AT&T, China Mobile, Deutsche Telekom, NTT Docomo and Orange.

- It is organized in project groups, covering **access**, **transport** and **core & services.**



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O-RAN Industry Adoption (II)

Ecosystem

- COTS hardware: intel, DELL, Hewlett Packard Enterprise
- Infra: VIM/CP: CANONICAL, vmware, Red Hat, WIND
- RU/CU/DU : Parallel Wireless, ALTIOSTAR Leading Network Transformation, MAVENIR, SAMSUNG
- Orchestrators: ONAP
- System integrators: ALTRAN Part of Capgemini, NEC, Tech Mahindra
- CSPs: Telefónica, vodafone, verizon, TIM, orange, AT&T, T-Mobile



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O-RAN Alliance Key Principles

- Leading the industry towards open, interoperable interfaces, RAN virtualization, and big data and AI enabled RAN intelligence
- Maximizing the use of common-off-the-shelf hardware and merchant silicon and minimizing proprietary hardware
- Specifying APIs and interfaces, driving standards to adopt them as appropriate, and exploring open source where appropriate.

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O-RAN Alliance Working Groups

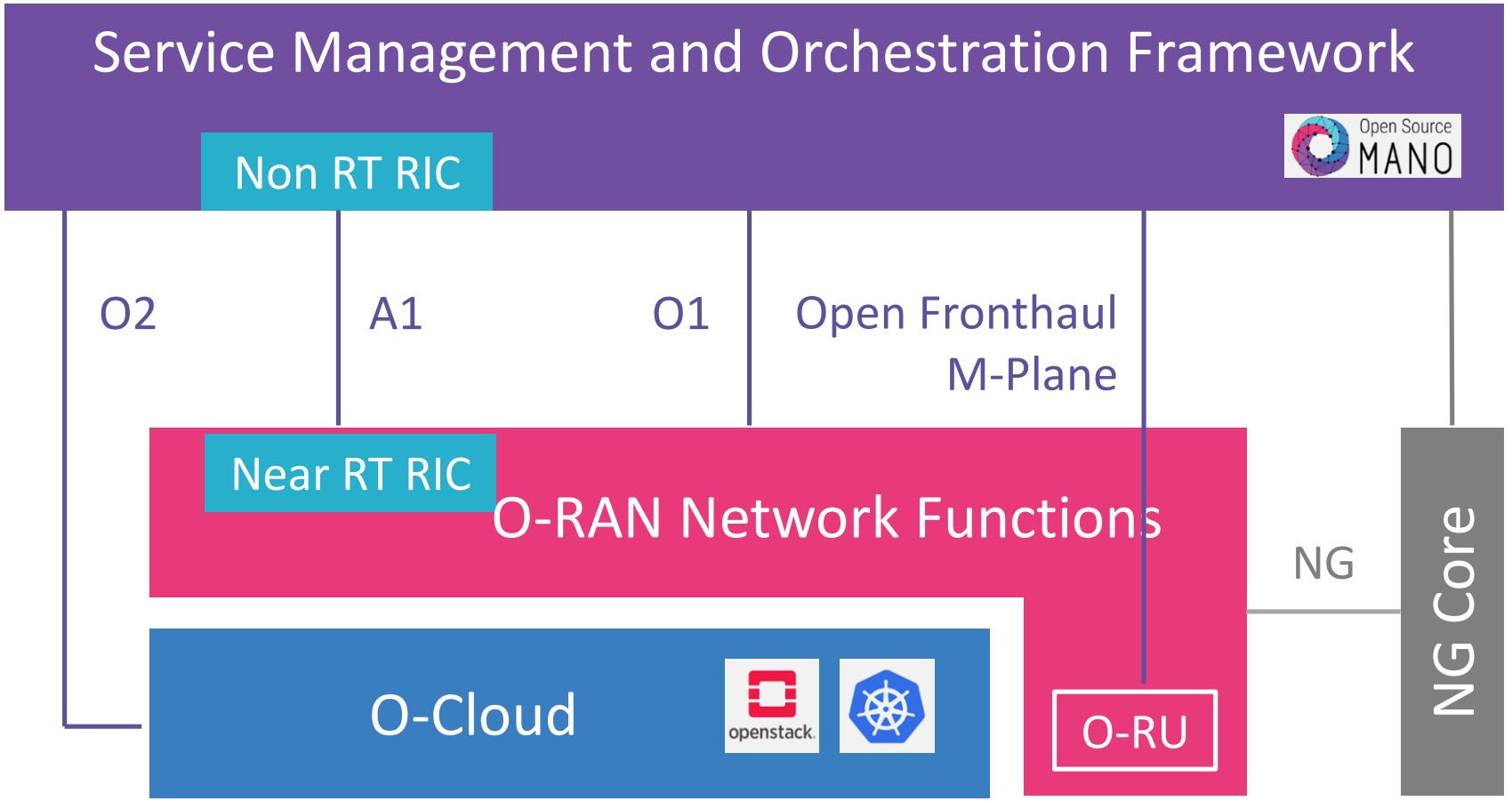
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- **WG1**: Use Cases and Overall Architecture Workgroup
- **WG2:** The Non-real-time RAN Intelligent Controller and A1 Interface Workgroup
- **WG3:** The Near-real-time RIC and E2 Interface Workgroup
- **WG4:** The Open Fronthaul Interfaces Workgroup
- **WG5:** The Open F1/W1/E1/X2/Xn Interface Workgroup
- **WG6:** The Cloudification and Orchestration Workgroup

*** O-RAN SC** Software Community

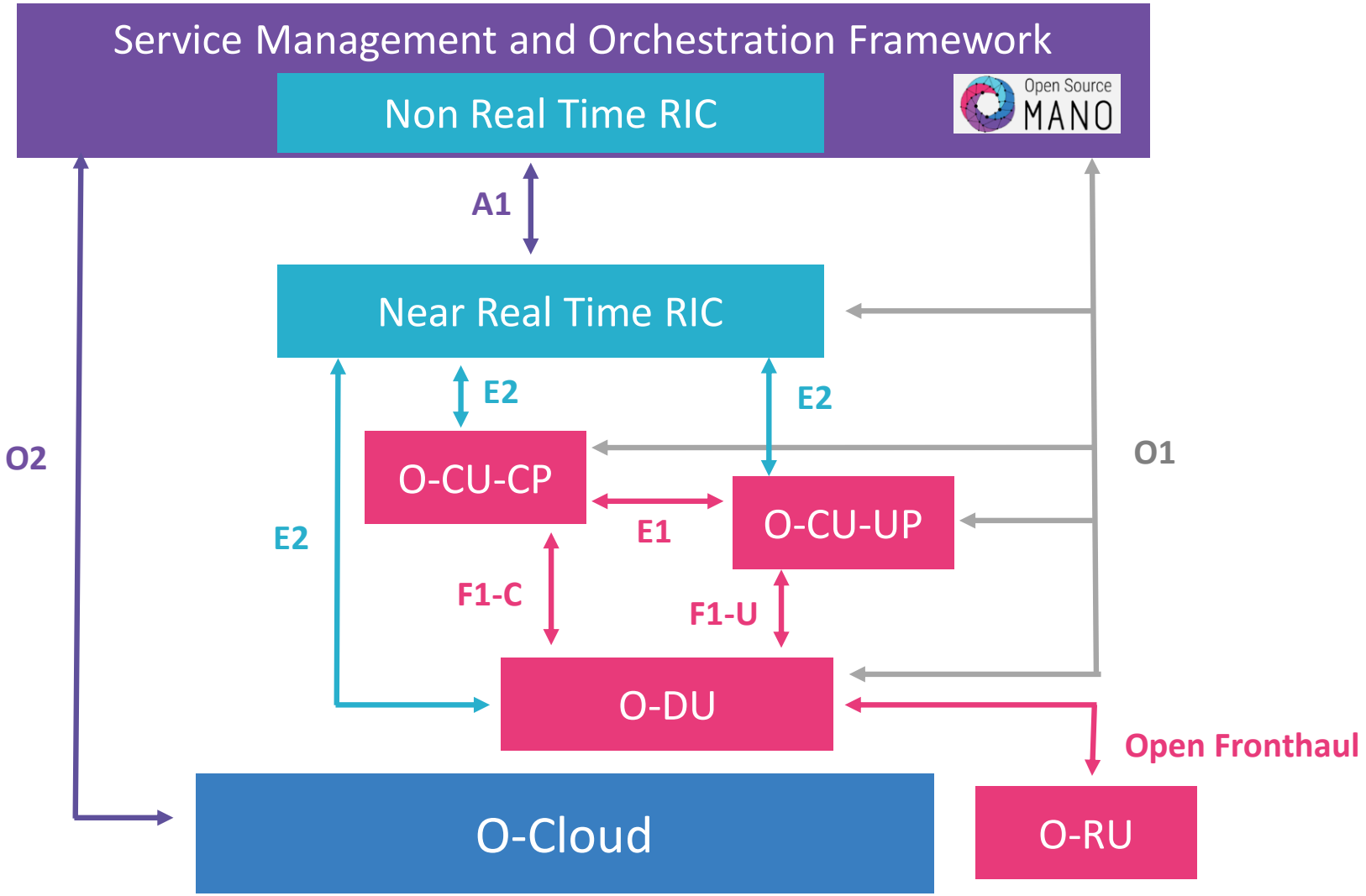
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O-RAN WG6 Cloudification & Orchestration Workgroup



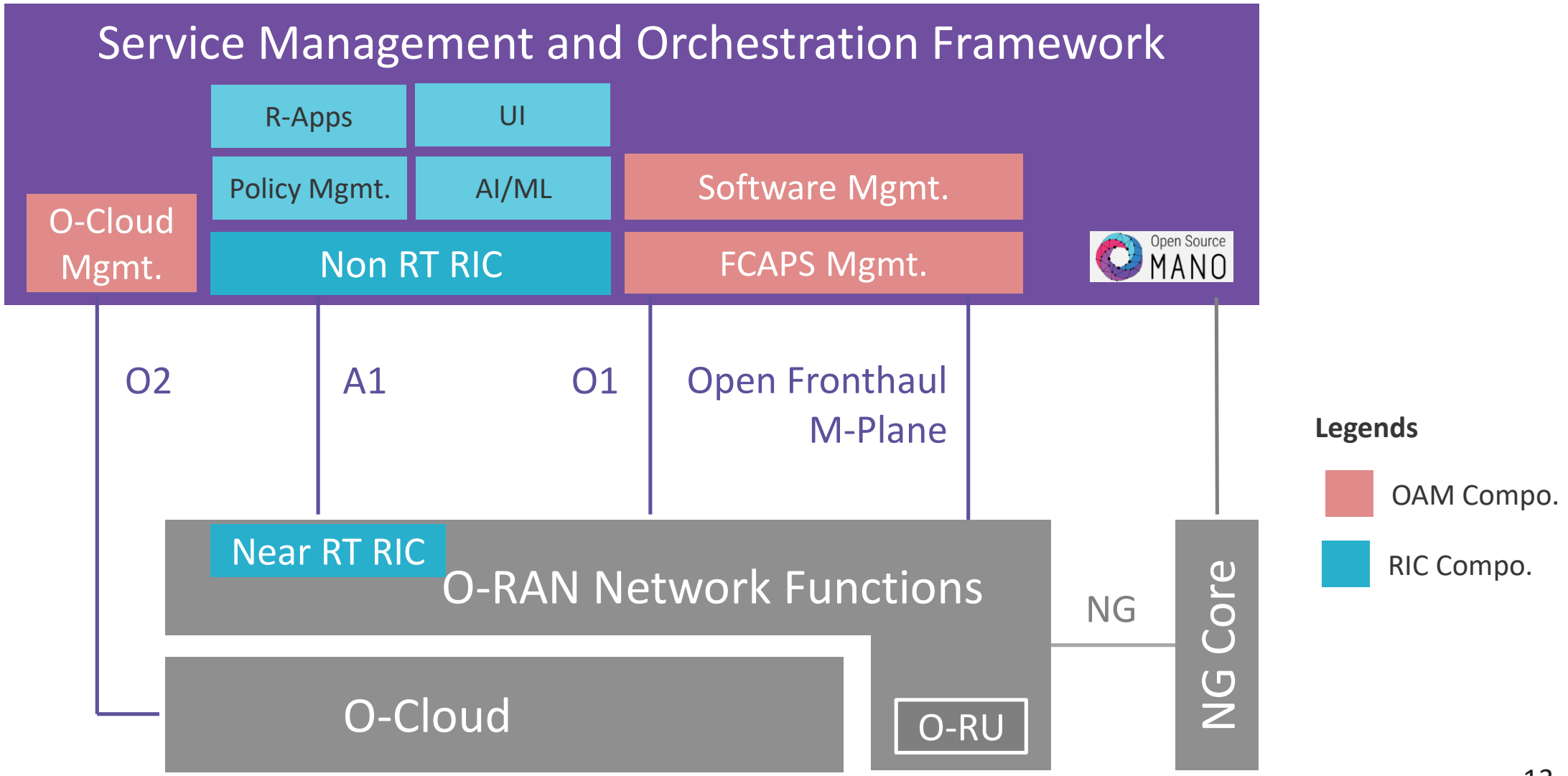
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O-RAN WG6 Cloudification & Orchestration Workgroup



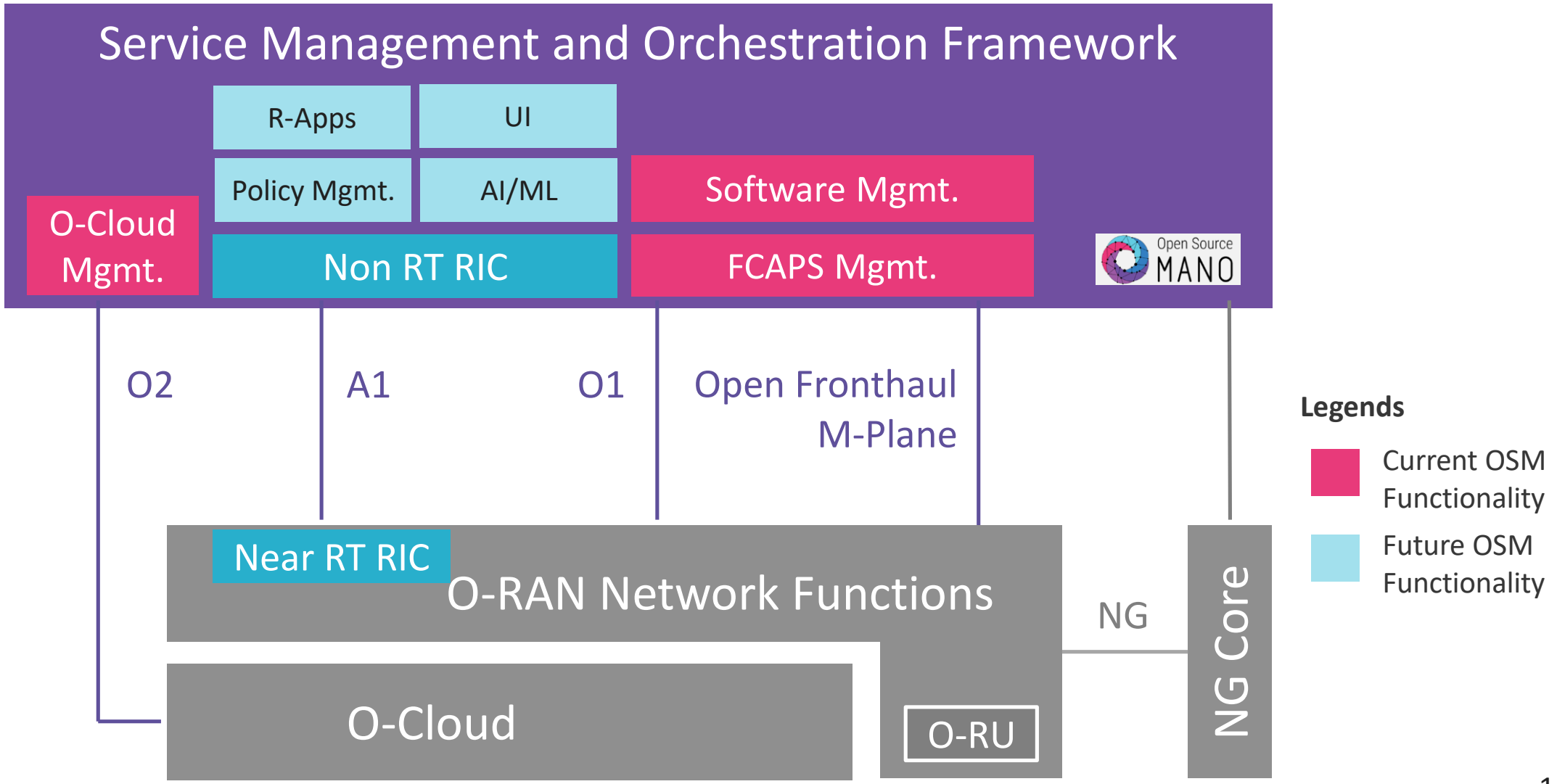
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O-RAN WG6 SMO & Non RT RIC



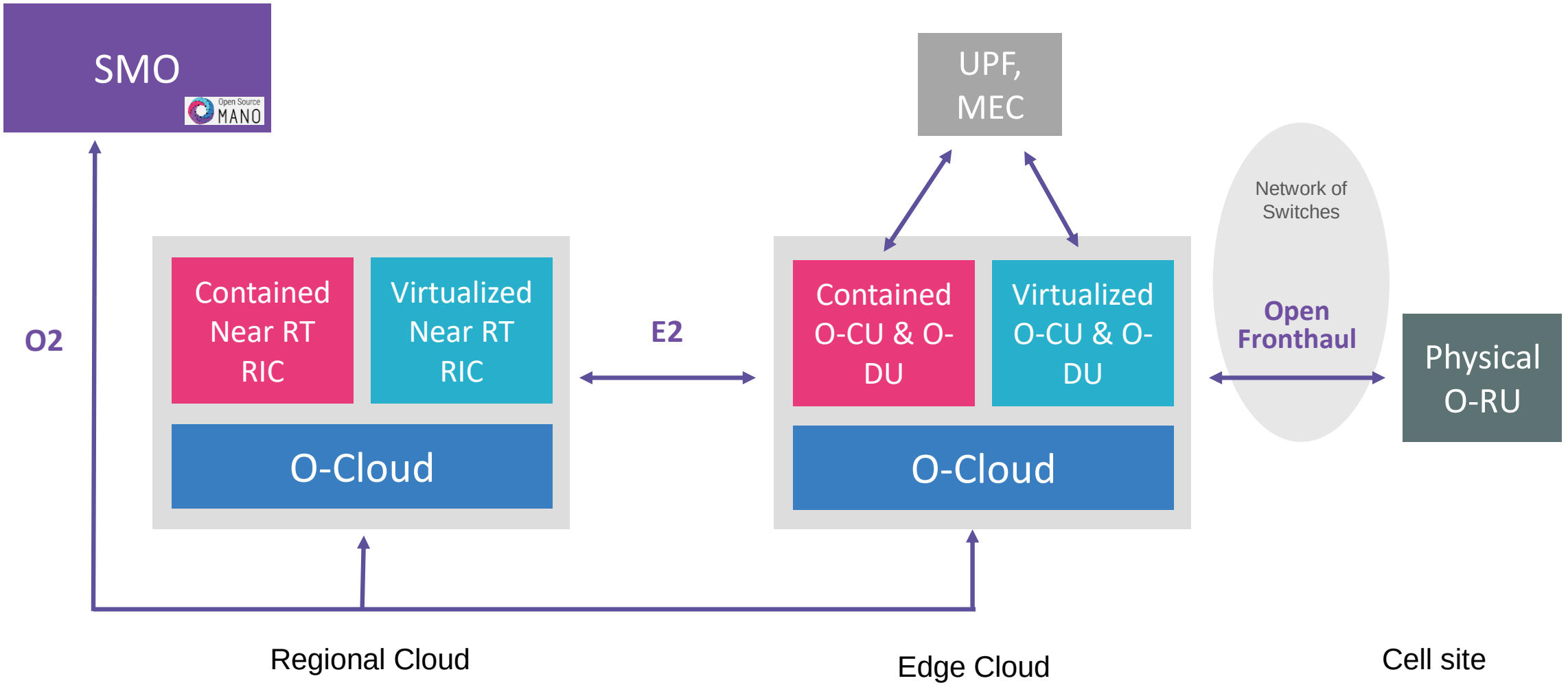
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O-RAN WG6 OSM's Role in SMO



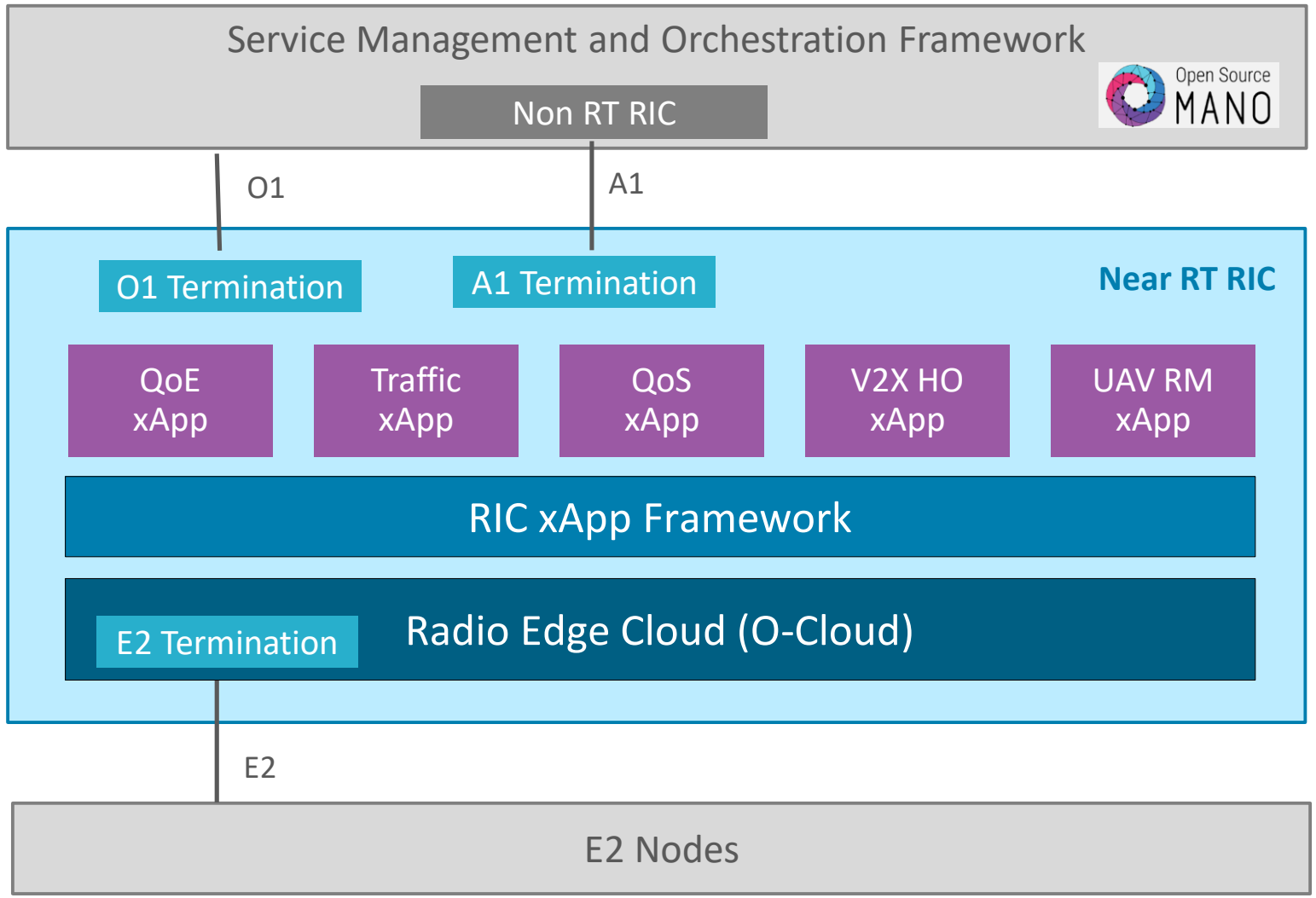
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O-RAN WG6 O-Cloud Deployment Scenario



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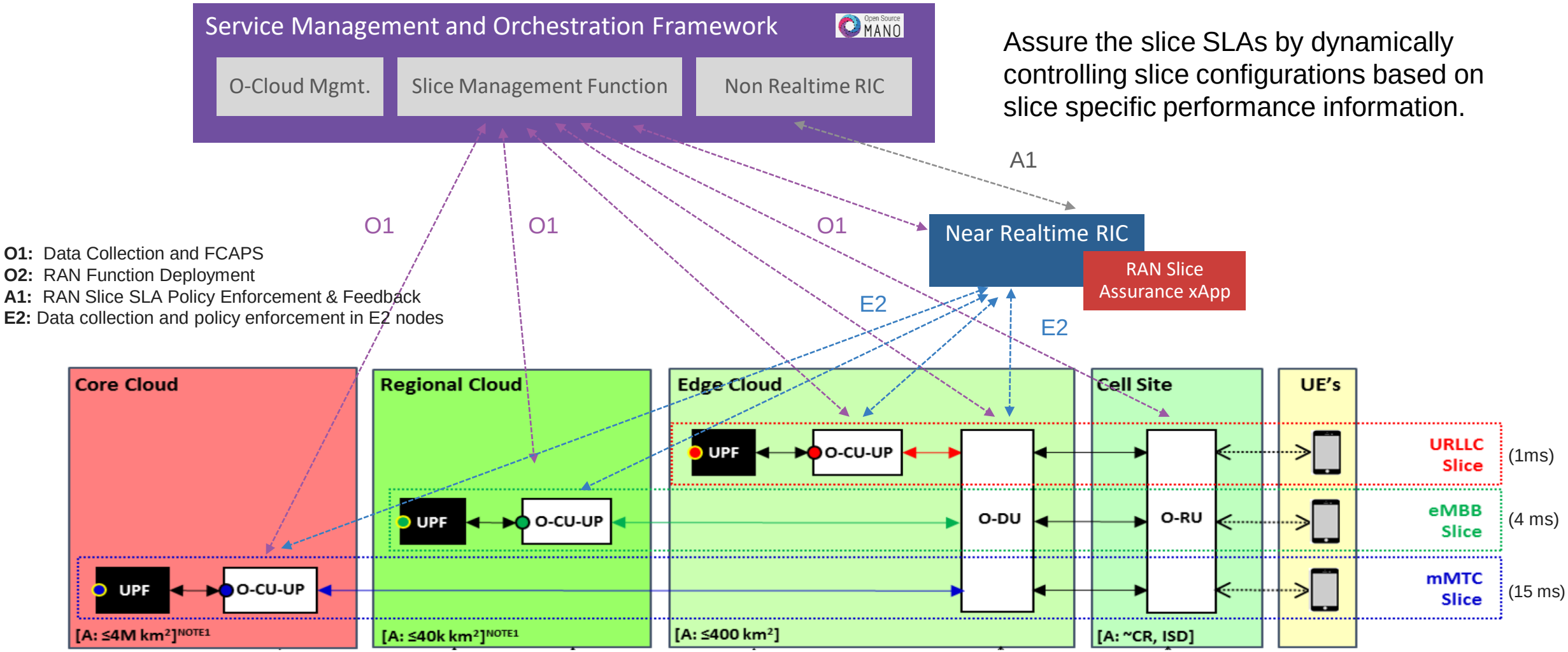
O-RAN WG3 Near Realtime RIC & xApps



* No specific OSM play here

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RAN Slice Assurance Example



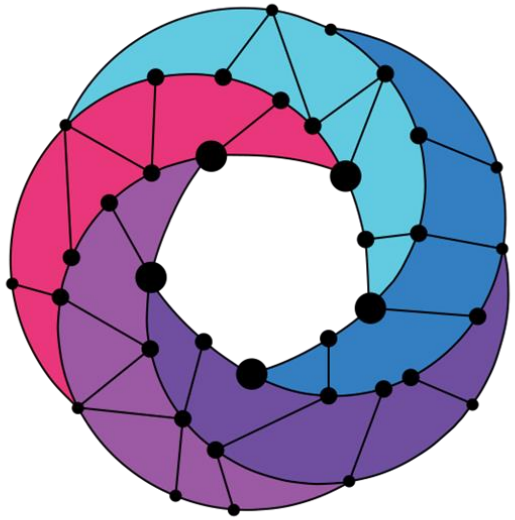
Assure the slice SLAs by dynamically controlling slice configurations based on slice specific performance information.

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Road Ahead For OSM Community

- **SMO Interfaces**: Develop O-RAN SMO specific interfaces like O1, O2 and A1
- **O-RAN Plugfest**: Participate in O-RAN plugfest to demonstrate OSM'S compliance in multi-vendor ecosystem. See here for more details.
- **OTIC:** Participate in operator's OTIC (Open Test and Integration Center) labs for multi-vendor testing. See here for more details.

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Thanks!

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