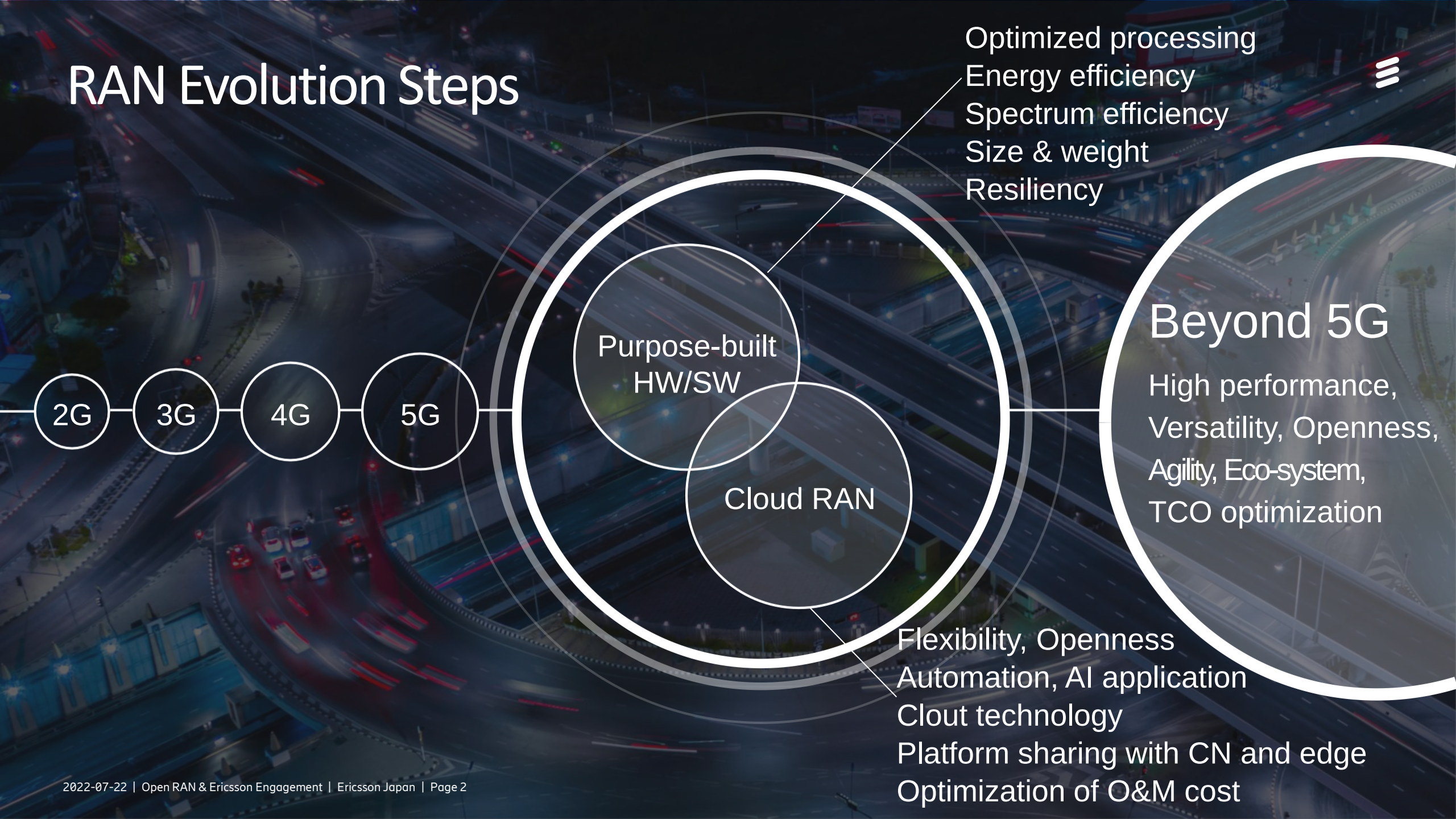
Open RAN and Ericsson Engagement

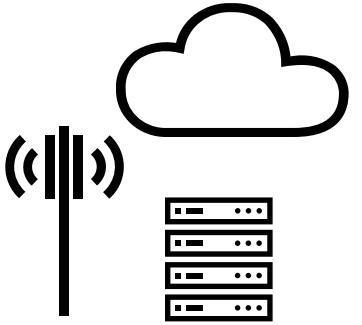
Ericsson Japan
July 22, 2022

RAN Evolution Steps

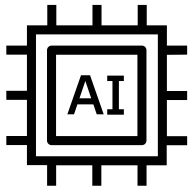


Scope of Open RAN from Ericsson Perspective

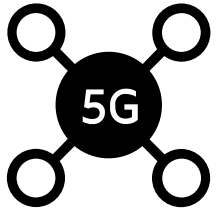
1. Cloudification/Virtualization
   - Disaggregation of hardware and software
   - Implementation of RAN apps as cloud-native network functions (CNF)



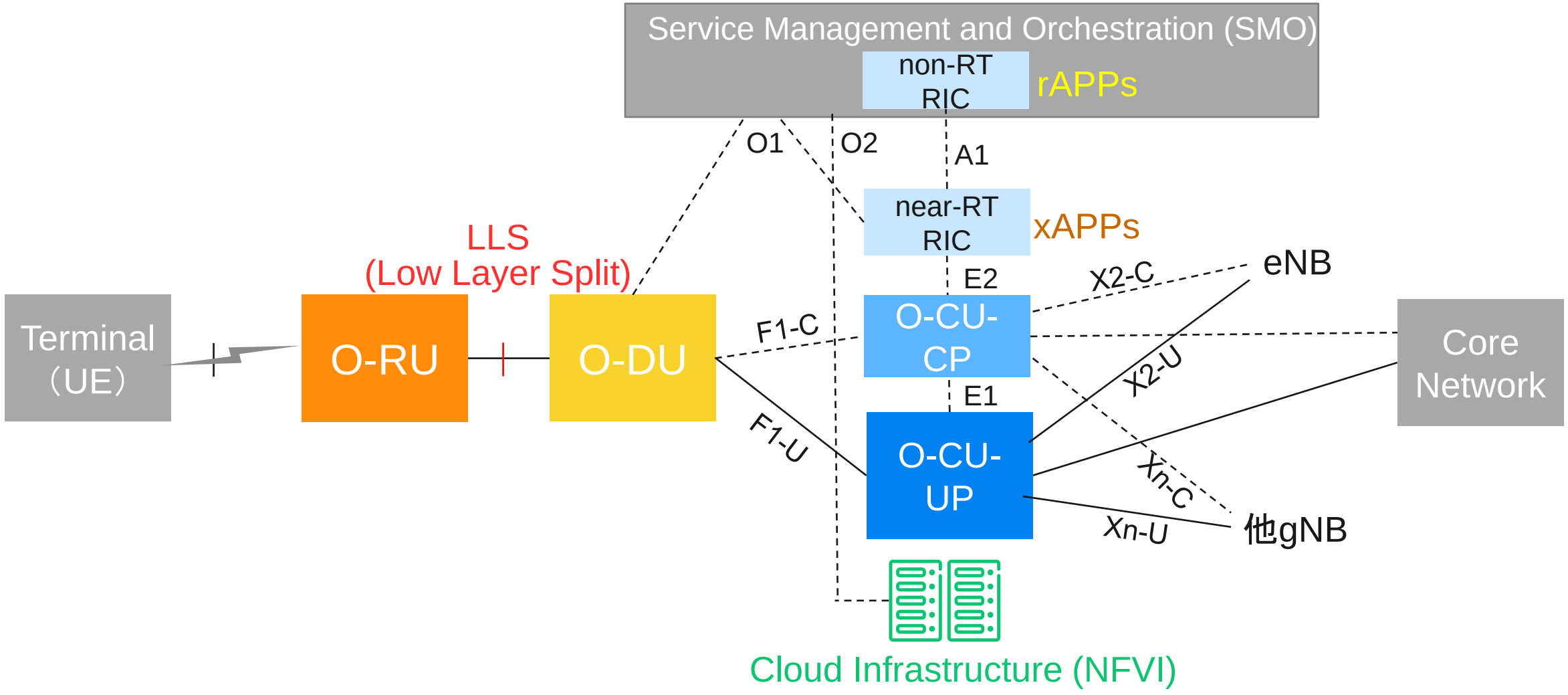
2. RAN intelligence and automation
   - Openness of control functions and orchestraion
     - SMO（Service Management and Orchestration）
     - Non-RT RIC（Non-Real-Time Radio Intelligent Controller）
   - Openness of RAN automation interfaces (A1, O1, O2)
   - Use of external AI/ML capabilities



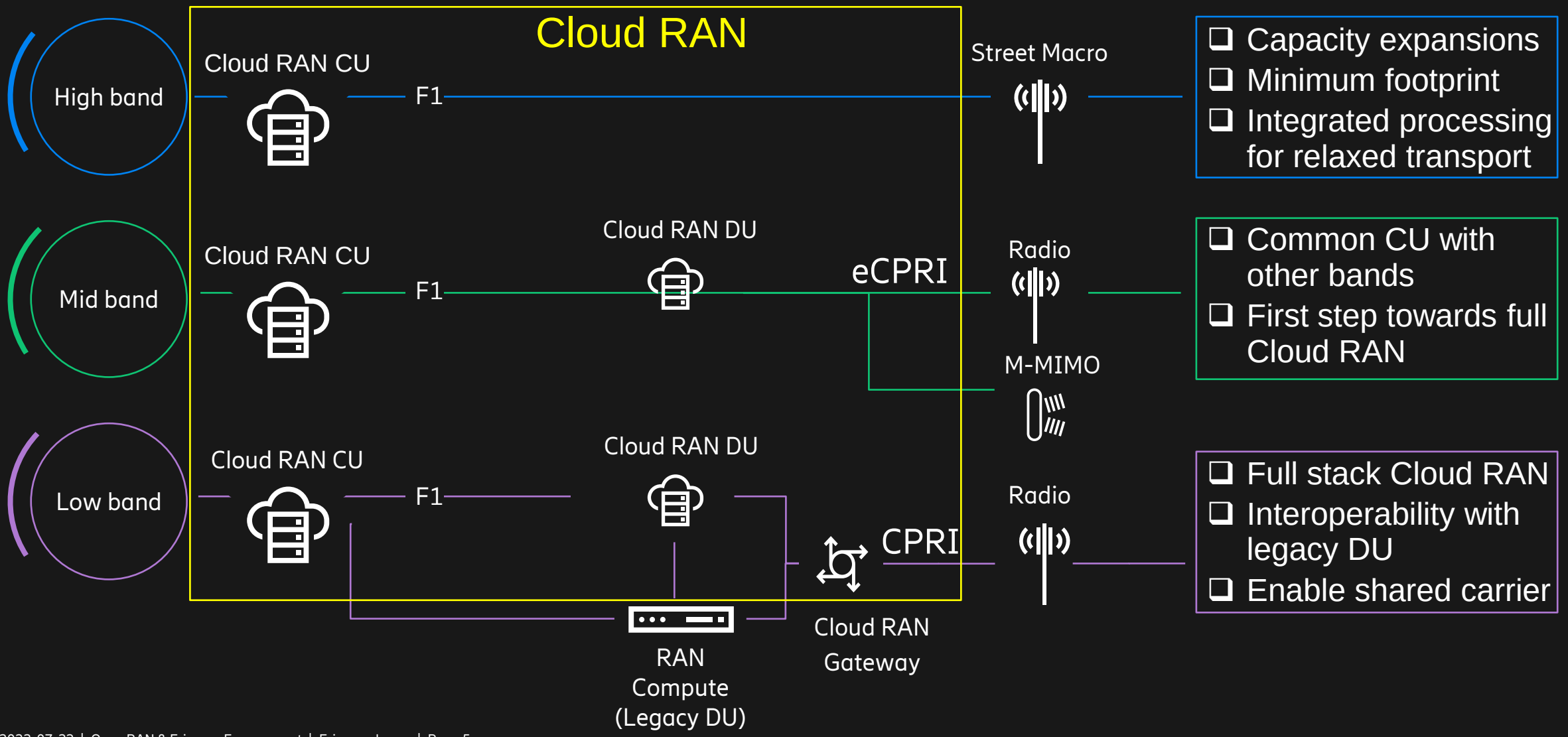
3. Openness of internal RAN interfaces
   - 3GPP interfaces:
     - F1 between CU and DU and E1 between UP and CP of CU
     - X2 between gNB and eNB, Xn between gNBs
   - Openness of fronthaul (Lower Layer Split)



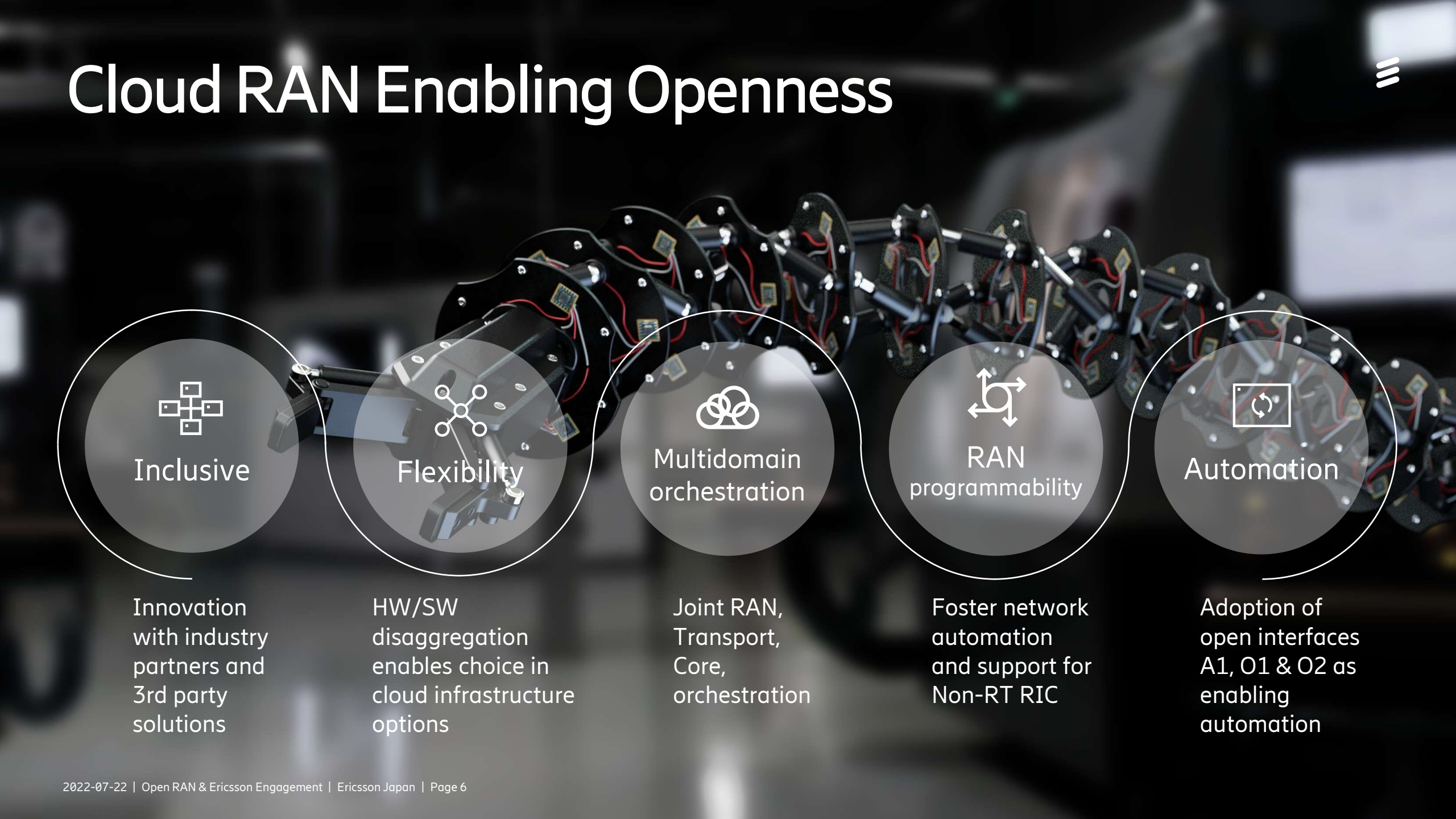
Open RAN Architecture



Ericsson Engagement in Cloud RAN



Cloud RAN Enabling Openness



Inclusive

Innovation with industry partners and 3rd party solutions

Flexibility

HW/SW disaggregation enables choice in cloud infrastructure options

Multidomain orchestration

Joint RAN, Transport, Core, orchestration

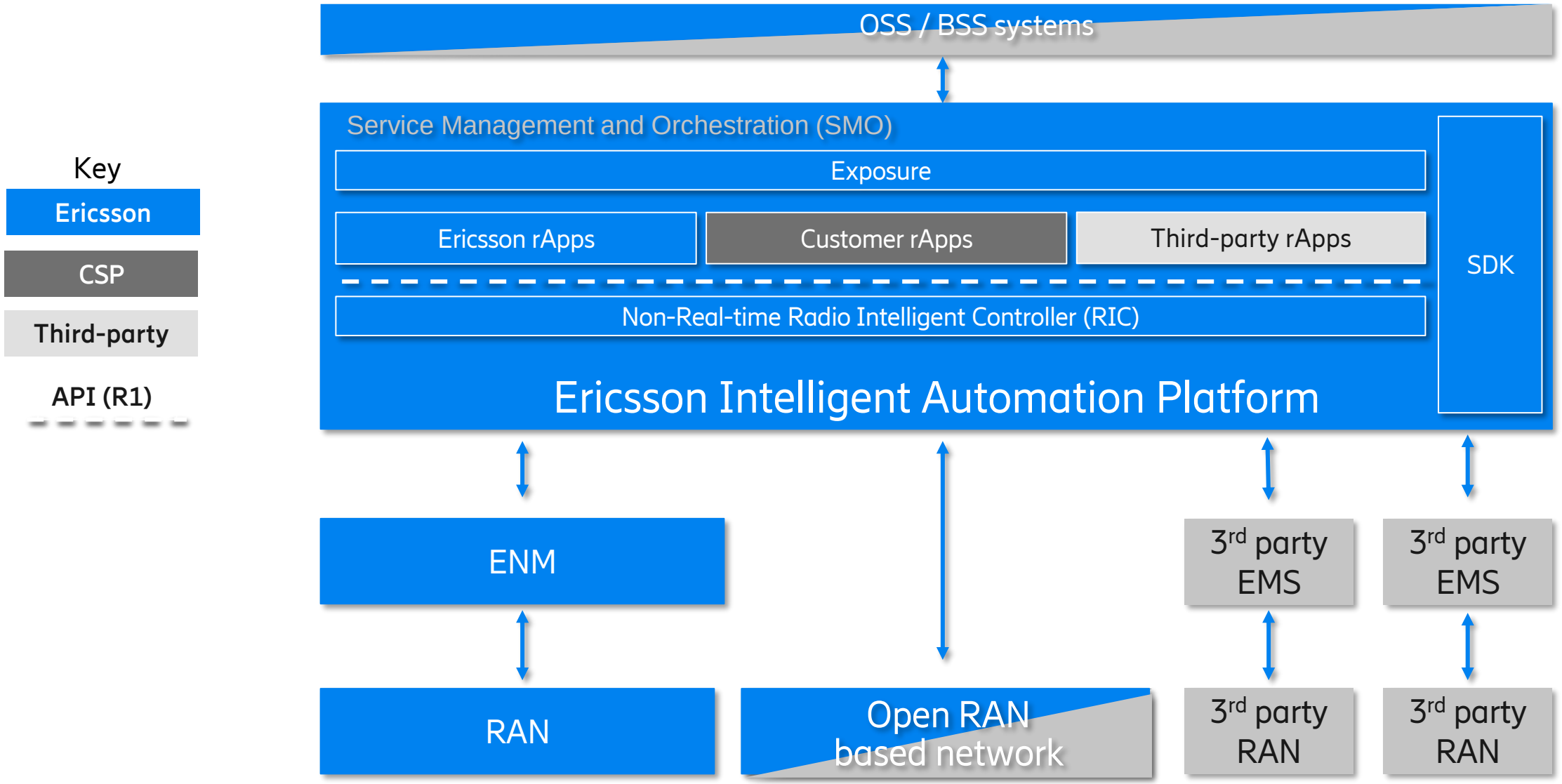
RAN programmability

Foster network automation and support for Non-RT RIC

Automation

Adoption of open interfaces A1, O1 & O2 as enabling automation

SMO: Ericsson Intelligent Automation Platform



Ericsson Intelligent Automation Platform Features

Ericsson Intelligent Automation Platform goes beyond Open RAN principles for Service Management and Orchestration (SMO)

Empowers RAN automation development ecosystem with a software development kit (SDK)

Supports Ericsson's, CSPs and third-party RAN automation applications

Solution

- Open
- Multi-technology
- Supporting multi-vendor RAN
- Cloud native

Applications

- Energy saving
- Provisioning
- Optimization
- Fault prediction
- Self healing

Revenue increase

increased TTM and innovative services

RAN opex savings

improved operations, planning and optimization

Improved Network NPS

improved network experience

Contributions to O-RAN Alliance

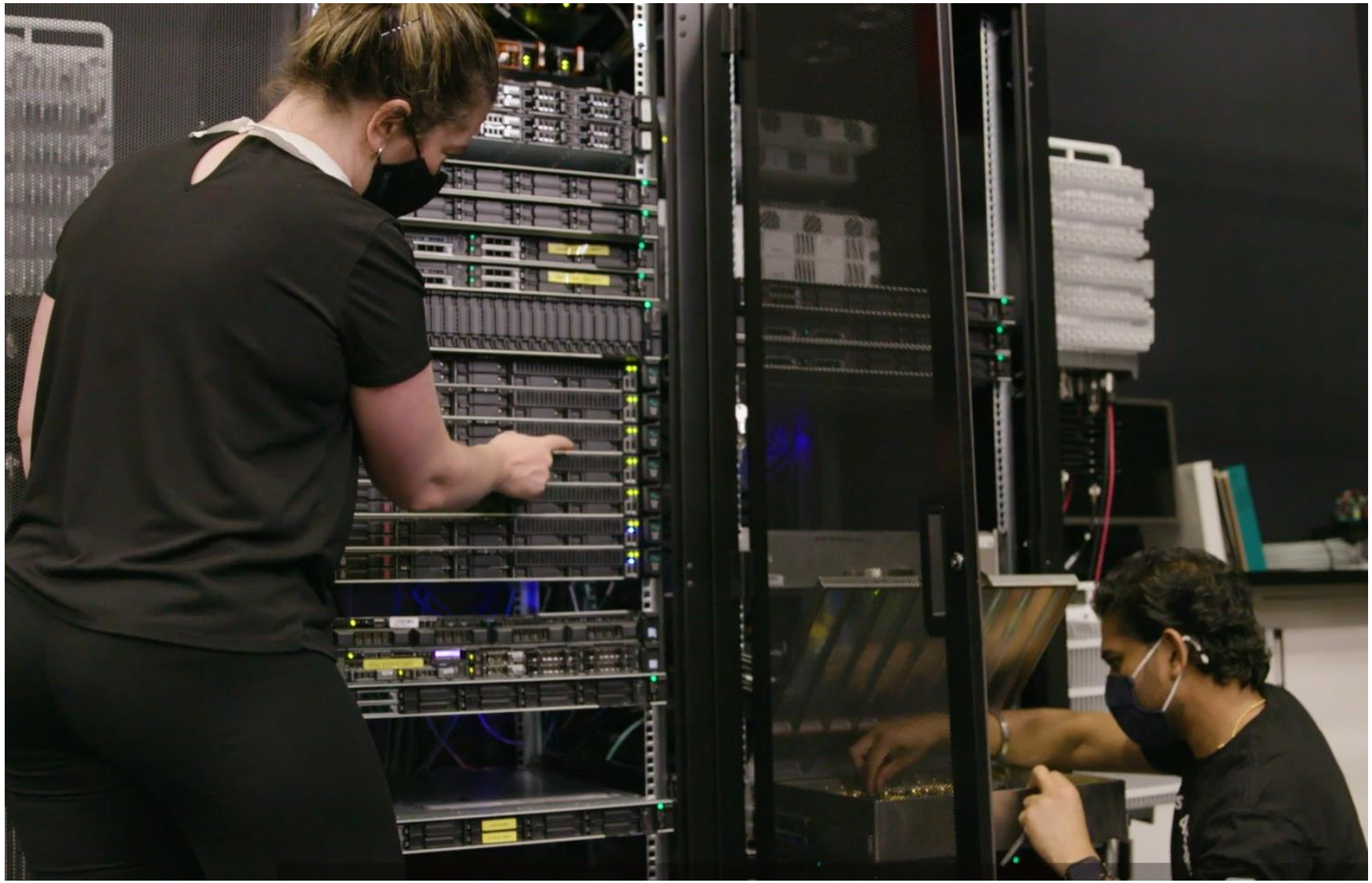
- WG1: Use cases and overall architecture
  - Editor architecture specification
- WG2: Non-RT RIC, A1 and R1 interface
  - Co-Chair Vendor
- WG5: Open 3GPP interfaces (F1/W1/E1/X2/Xn)
  - Co-Chair Vendor
- WG6: Cloudification and Orchestration
  - Editor O2 specification
- WG11: Security
  - SMO, Non-RT RIC Rapporteur
- OSFG: Open Source Focus Group
  - Non-RT RIC Project Lead
- nGRG: Next Generation Research Group
  - Co-Chair Vendor

Issues of Open RAN

- Complexity of system integration due to disaggregation and openness
  - To satisfy SLA/KPI with new multi-vendor interfaces by testing and coordination
  - To secure continuous interoperability through the lifecycle of the base station
- Satisfaction of performance requirements with virtualization
  - High-speed wideband data processing with software optimization and using accelerator
- Performance of Massive MIMO
  - Risk of sacrificing performance due to limitation in functional split between DU and RU
- Vulnerability in security
  - Increased security risks due to opening more interfaces
- Energy consumption
  - Risk of increase in energy consumption due to usage of general-purpose hardware

Ericsson Open Lab

- Environment with Cloud RAN system for variety of testing on-site or on-line
- Development and verification of new use cases in cooperation with operators and partners
- Technical development for control and orchestration, and testing/verification of machine learning, automation, optimization etc.



Ref: https://www.ericsson.com/en/ran/open-lab