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O-RAN Compliant

STL RAN Intelligent Controller (RIC)



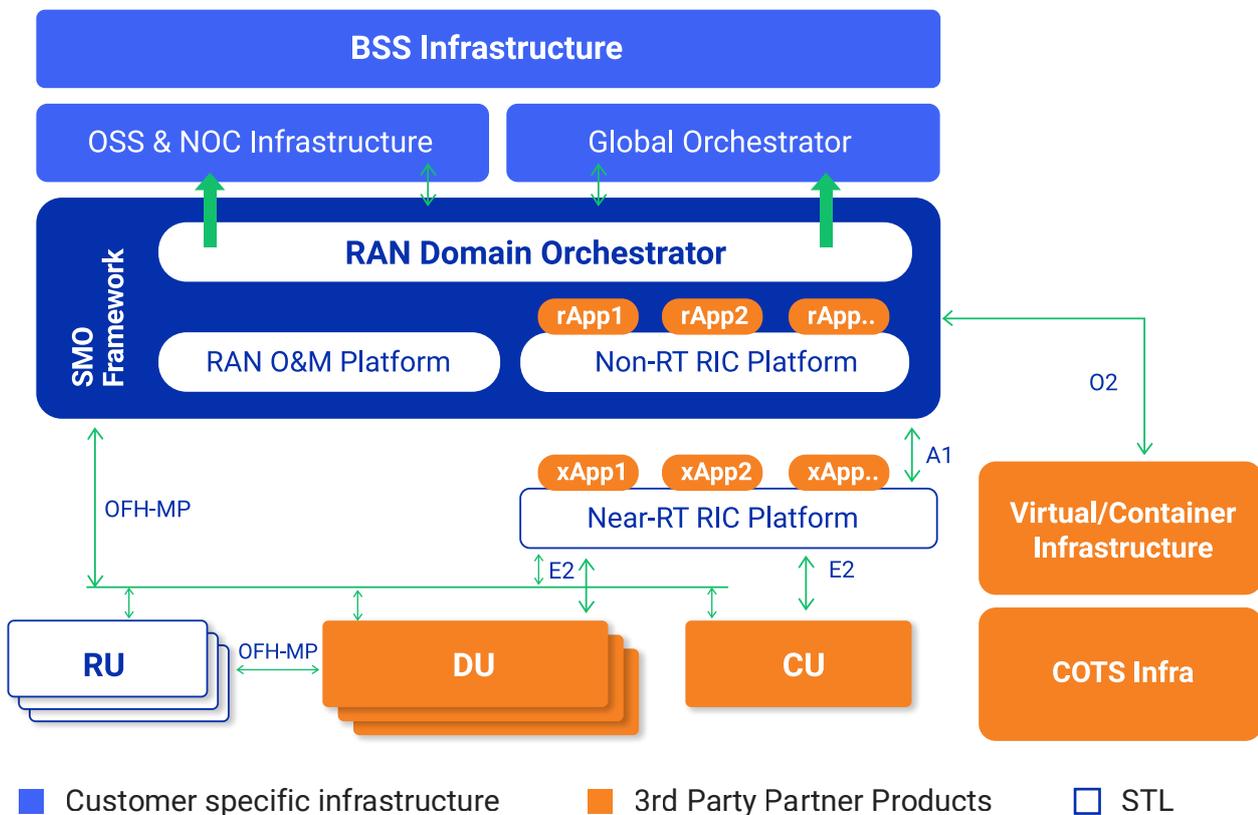
STL RAN Intelligent Controller (RIC)

STL RIC platform is an O-RAN compliant cloud-native architecture that sits at the heart of an open and virtualized RAN network. It helps create an open ecosystem for developing, deploying, and operating third-party applications (xApps for Near-RT RIC and rApps for Non-RT RIC) that would enable TCO optimization and and newer sources of revenue generation.

This platform helps the service providers in the following ways:

- a) Optimizing TCO (total cost of ownership) in terms of both CAPEX and OPEX
- b) Automating the entire life cycle management
- c) Supporting open platforms to implement best-of-breed solutions
- d) Enabling quick rollout powered by AI/ML for effective and efficient network management

STL RIC Platform:



STL RIC platform comprises of the following components:

a. Service Management and Orchestration Framework (SMO Framework):

The SMO framework is responsible for RAN domain management in the Open RAN architecture, excluding core and transport. This framework includes the following functions:

a1. Non-real-time RAN Intelligent Controller (Non-RT RIC):

A logical function that enables non-real time control and optimization of RAN elements and resources. This provides policy-based guidance, machine learning (ML) model management, and information enrichment to the near-RT RIC via the A1 interface. This platform is built using open APIs to support north bound interfaces and hence vendor agnostic.

a2. RAN Operations and Management (RAN OAM):

RAN OAM is responsible for managing the managed elements under its span of control through the OAM GUI. This supports the following three types of management services (MnS) that are readily available:

- MnS component type A is a group of management operations and/or notifications agnostic with regards to the entities managed. For example, operations for creating, reading, updating, and deleting managed object instances.
- MnS component type B, also called Network Resource Model (NRM), refers to management information represented by information models representing the managed entities.
- MnS component type C is performance information of the managed entity and fault information of the managed entity.

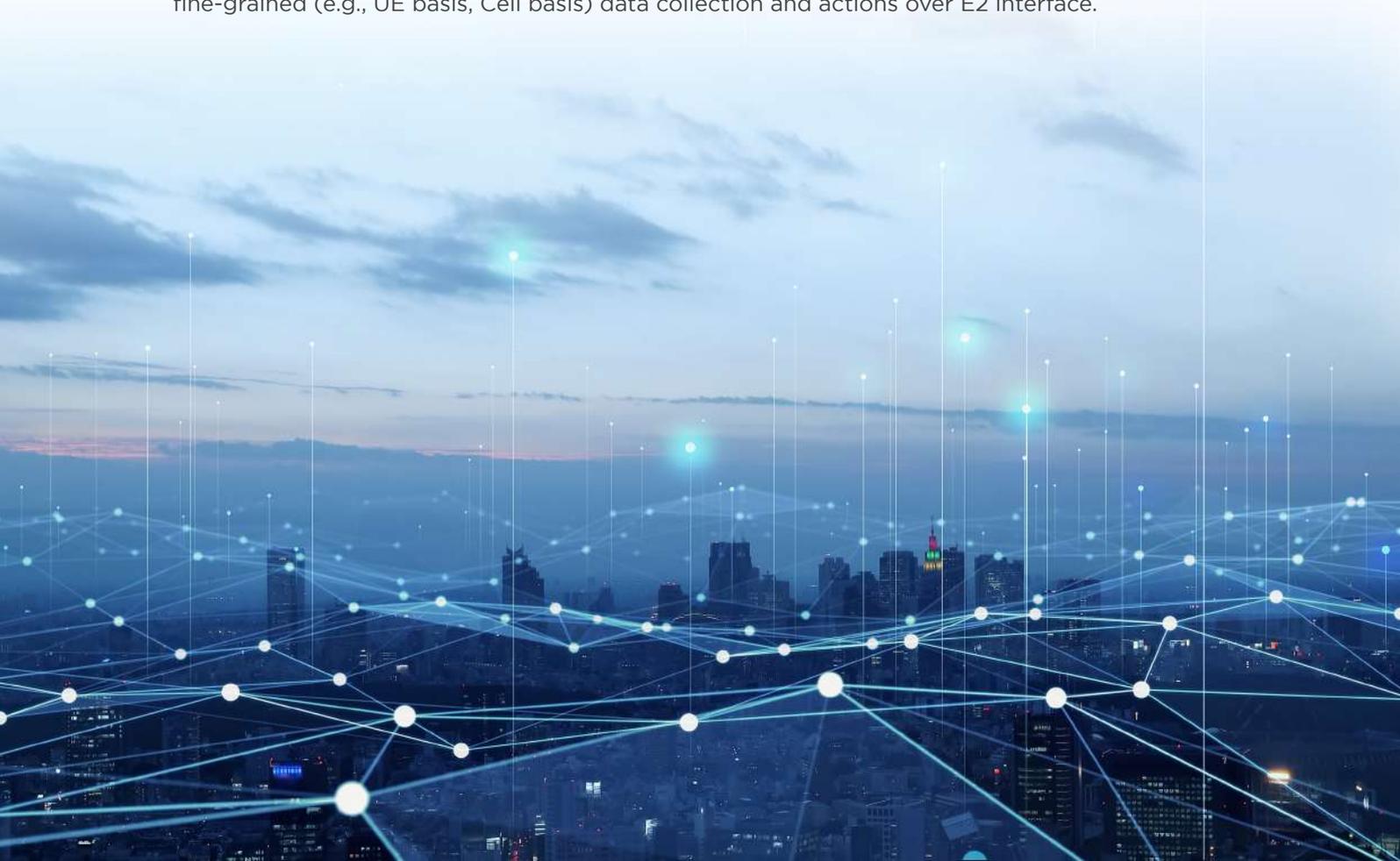
a3. RAN Domain Orchestrator (RAN DO):

STL RAN Domain Orchestrator (RAN DO) will support infrastructure management, Site Registration Function, Image Inventory Management, Platform Installation, Location, and Topology Management. It supports the following three functions:

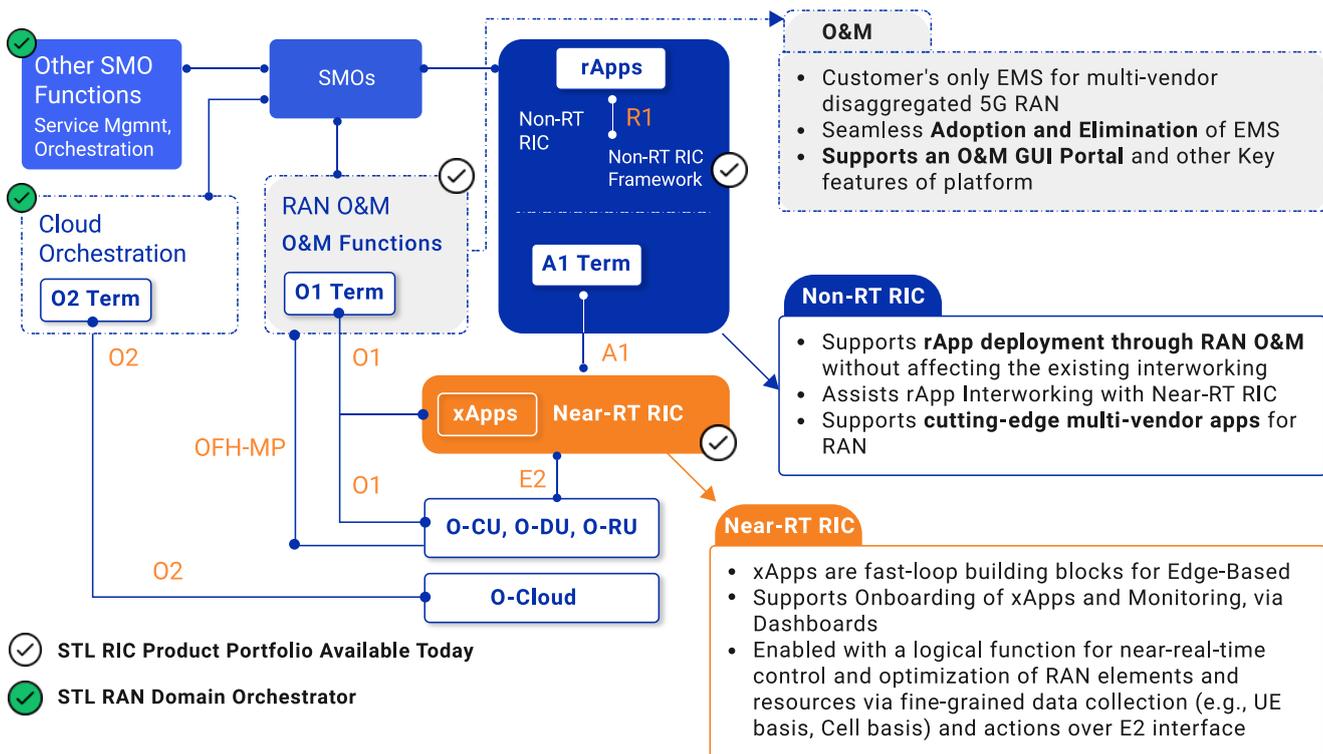
- RAN NSSMF (Network Slice Subnet Management Function)
- NF Orchestration
- Cloud infrastructure management and operation

b. Near-real-time RAN Intelligent Controller (Near-RT RIC):

Near-real-time RAN Intelligent Controller (Near-RT RIC) is an O-RAN compliant logical function that enables near-real-time control and optimization of RAN elements and resources via fine-grained (e.g., UE basis, Cell basis) data collection and actions over E2 interface.



STL RIC Decoupled Architecture:



- SMO is decomposed into interoperable SMO Functions (SMOF) which produce interoperable SMO Services (SMOS)
- SMOS (inter-SMOF) Interfaces in the Decoupled Architecture capture the same functionality as Internal Interfaces in the Integrated Architecture

STL Decoupled Architecture is Modular, Flexible, and Vendor Agnostic



Modular

Modular, any changes with respect to bug fixes or software upgrades can be done



Flexible

Decoupling gives more flexibility, telecom operator has the option of deploying Non - RT RIC alone



Vendor Agnostic

Operators can now choose the applications that adds value and addresses their use cases



Total Cost of Ownership

STL RIC can optimise both Opex and Capex and help reduce the overall cost

STL RIC use cases:

Hybrid Automatic Neighbour Relations Enhancements (ANR-E)*

Leveraging on QoS / KPI measurements STL RIC (rApp) can improve the neighbour relations providing easy integration of disparate solutions from multiple vendors

PCI (Physical Cell Id) optimization*

STL RIC (rApp) Automatically detects and resolve PCI collisions and confusions without manual intervention by creating optimal PCI code allocations.

Mobility Load Balancing (MLB)*

Using the metrics such as RSRP/CQI/Cell-load STL RIC (xApp) builds an ML Model, and if a cell is overloaded then the UE's target cells are identified, and load balancing is achieved.

RAN Energy Savings

Optimizes electricity costs by turning RAN capacity on/off by capacity closely following load (AI/ML approach)

Atmospheric Ducting

Detection of ducting-based interference is complex and often remain enigmatic to MNOs

KPI monitoring and alerting via AI/ML

Proactive approach to network quality maintenance, substantial TCO reduction by eliminating manual labour

STL RIC Capabilities

- Brownfield integration readiness
- Wireline & wireless access convergence for control & manageability
- Multi-vendor support for underlay infrastructure
- Multi-vendor intra-RIC to overlay RIC applications
- Greenfield integrations
- Interoperability with existing infrastructure
- Automated deployments
- Deployable in any cloud environment
- Customizable intuitive dashboard

STL RIC key features and value benefits:



Network control back to operators

RIC with its standardized open interfaces gives the control of RAN optimization back to operators and enables them to host third party applications.



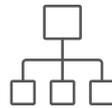
Improves RAN performance

RIC hosted applications effectively manage RAN traffic and thus improve RAN performance and efficiency



Quick enablement of new services

Separation between RIC platform and applications helps in quick enablement of new services



Supports low latency applications

Low latency control loops help realize many applications encompassing mobility, resource management, as well as performance.



AI/ML driven network control

Enables predictive, intelligent optimization of RAN in a data driven framework, powered by AI/ML models



Efficient resource management

RIC enables efficient resource management such as spectrum and energy, with appropriate applications



About STL - Sterlite Technologies Ltd

STL is one of the industry's leading integrators of digital networks providing All-in 5G solutions. Our capabilities across optical networking, services, software, and wireless connectivity place us amongst the top optical players in the world. These capabilities are built on converged architectures helping telcos, cloud companies, citizen networks, and large enterprises deliver next-gen experiences to their customers. STL partners with service providers globally in achieving a green and sustainable digital future in alignment with UN SDG goals.

STL has a strong global presence in India, Italy, the UK, the US, China, and Brazil.

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