JUNIPER RAN INTELLIGENT CONTROLLER DATASHEET

Product Overview

Juniper RAN Intelligent Controller (RIC) brings intelligence, agility, and programmability to radio access networks (RAN) by enabling third-party applications that can improve service experience, reduce infrastructure and operational costs, and deliver new business models.

The Juniper RIC platform is based on a cloud-native microservices architecture and is fully compliant with the open radio access network (O-RAN) specifications and interfaces. Juniper RIC includes the non-real-time RIC (non-RT), the near-real-time RIC (near-RT), and specialized applications called rApps and xApps.

Product Description

Juniper® RAN Intelligent Controller (RIC) is an open and interoperable platform that enables onboarding of third-party applications that can automate and optimize RAN operations at scale while supporting innovative use cases that lower mobile operators' TCO and enhance customers' quality of experience (QoE). Use cases such as quality of service/quality of experience (QoS/QoE) optimization and traffic steering improve service performance for personalized and custom experiences, while RAN efficiency use cases can lower operations costs by reducing energy consumption. The Juniper RIC platform can also help mobile operators build new revenue streams with personalized services, network slicing, and indoor location tracking capabilities.

Architecture and Key Components

The Juniper RIC platform is based on a cloud-native microservices architecture and is fully compliant with the O-RAN specifications and interfaces. Juniper RIC includes the Non-RT and Near-RT RIC with their associated rApps and xApps to control the RAN network functions, O-RAN Distributed Units (O-DUs) and O-RAN Central Units (O-CUs). It supports both an open API and an SDK for integration with any third-party O-RAN-compliant xApps or rApps, giving network operators greater flexibility and choice of suppliers. The Juniper RIC integrates with any O-RAN-compliant Service Management and Orchestration (SMO) solution.

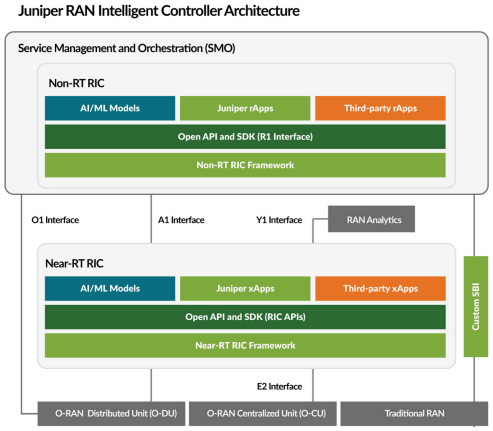

Figure 1: Juniper RIC is fully compliant with O-RAN specifications and interfaces, supporting both an open API and SDK for integration with third-party xApps and rApps.

The non-RT RIC enables greater-than-one-second control and policy guidance over the RAN elements and their resources through rApps. It also enables AI/ML capabilities for the RAN. The non-real-time RIC runs in the network operator's cloud.

The near-RT RIC is responsible for fast loop control of the RAN network functions. It provides less-than-one-second control over the RAN nodes and resources . It can host and deploy specialized xApps.

The non-RT RIC communicates with the near-RT RIC over an A1 interface to provide policy-based guidance to the xApps running on the near-RT RIC to optimize RAN behavior, such as for capacity, customer-specific service levels, or energy efficiency. The non-RT RIC uses long-term network data, such as performance metrics as well as enrichment data from external applications, to train and generate AI/ML-driven applications.

Juniper RIC platform gives network operators the power to run a variety of xApps/rApps either from Juniper or third-party vendors.

Juniper's approach is designed to simplify application portability, giving developers and customers more options. When developing xApps or rApps for the RIC, developers can choose to use a network-based API, which eliminates compile-time dependencies, or an SDK-based API.

Table 1 shows rApps and xApps that Juniper provides.

Table 1: rApps and xApps from Juniper

rApp/xApp	Description
Tenant/Slice-aware admission control	Deliver priority services for any user type at any time
RAN Slice SLA assurance	Assure delivery of SLAs for each slice
AI-Assisted Slice Assurance	Leverage AI/ML techniques to forecast potential SLA violations and immediately initiates preventive actions, thereby avoiding SLA violations.
Energy saving	Deliver energy savings by switching off cell, network element, and network function during periods of low traffic

Juniper RIC also supports third-party xApps/rApps from partners that are part of the Juniper RIC partner program.

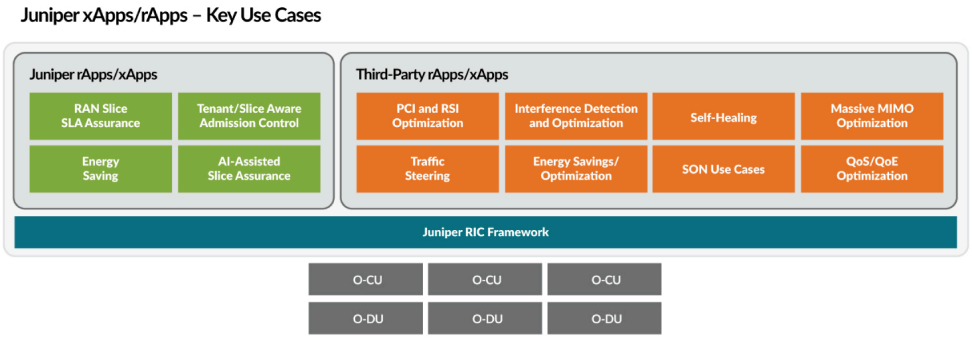

Figure 2: In the RAN, rApps and xApps are the foundation for innovation and agility. Available from Juniper and partners, these specialized, applications allow operators to enable new business models, personalize the service experience, and optimize operational efficiency.

Features and Benefits

Open and Interoperable RIC Platform

Juniper RIC is fully compliant to O-RAN specifications and interfaces on the northbound and southbound side for easier integration with partner solutions in the Open RAN ecosystem. It can interface with any O-RAN compliant O-CU/O-DU, onboard third-party O-RAN compliant xApps/rApps, and integrate with any O-RAN compliant SMO solutions.

Open API and SDK

The Juniper RIC architecture supports both an open API and an SDK for simplified integration with third-party applications and systems. The Juniper approach is designed to simplify application portability, giving developers and customers more flexibility. When developing xApps/rApps for the RIC, developers can choose to use a network-based API, which eliminates compile-time dependencies, or a C++ SDK.

Microservices-based Containerized Architecture

The Juniper RIC platform is based on a cloud-native microservices architecture to provide better scalability and extensibility.

Industry and Ecosystem Leadership

Juniper is an active proponent of Open RAN in several industry and standards organizations. Juniper contributes to 5 of the 11 working groups in the O-RAN Alliance. Juniper chairs the Network Slicing Task Group, co-chairs the Use Case Task Group, and serves as editor and contributor to several specification documents.

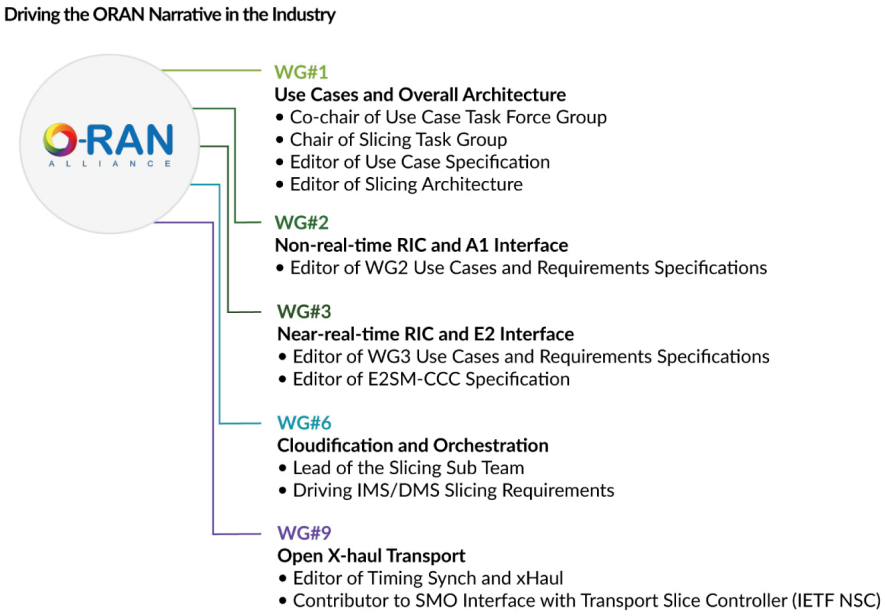

Figure 3: Juniper is championing Open RAN by working closely with ecosystem partners in the industry. Juniper contributes to five working groups in the O-RAN Alliance and serve as the chair and co-chair of the slicing and use-case task groups

Ordering Information

Please contact your Juniper sales representative for information on ordering Juniper RAN Intelligent Controller (RIC).

About Juniper Networks

Juniper Networks believes that connectivity is not the same as experiencing a great connection. Juniper's AI-Native Networking Platform is built from the ground up to leverage AI to deliver exceptional, highly secure, and sustainable user experiences from the edge to the data center and cloud. You can find additional information at juniper.net or connect with Juniper on X (formerly Twitter), LinkedIn, and Facebook.

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