

VMware Telco Cloud Platform RAN

Virtualize RAN today and modernize toward open RAN tomorrow

At a glance

VMware Telco Cloud Platform RAN enables you to rearchitect your RAN with a horizontal platform that unlocks the flexibility to host both vDUs and vCUs and deploy them wherever you want. The platform helps simplify your operations across distributed RAN sites with automation to deliver a host of benefits.

- Place RAN workloads at the best locations to serve their functional purposes.
- Reduce latency and boost performance while enhancing flexibility and agility.
- Leverage cloud-smart automation to deploy thousands of distributed RAN sites with ease.
- Accelerate time-to-value while optimizing performance and resource utilization.
- Safeguard your services with intrinsic security.

Communication service providers (CSPs) have a significant growth opportunity in 5G services, but traditional RAN infrastructure makes it difficult to fully realize the 5G promise. Building enough RAN sites to support 5G deployments results in high costs, operational complexity, disjointed systems and increased security vulnerabilities. Virtualized RAN (vRAN), and ultimately open RAN, can help overcome these challenges.

Moving to vRAN brings many advantages. It increases flexibility, enabling you to scale RAN faster. It enhances operational efficiencies, allowing you to quickly adapt to shifts in network demand. It allows you to host both virtual distributed unit (vDU) and virtual central unit (vCU) functions on the same infrastructure, regardless of location, and to apply consistent operational practices across distributed RAN sites. It also enables you to deploy your RAN sites faster, because vRAN is a software-based architecture with tightly coupled automation capabilities.

But while it's clear that vRAN and open RAN represent the path forward, choosing the right RAN platform is critical for ongoing success. What's needed is a secure, high-performing and highly automated RAN platform that provides a common horizontal architecture for deploying 5G services right now, and new, innovative services beyond 5G.

This is where VMware Telco Cloud Platform™ RAN can make all the difference.

Chart your path to RAN transformation

VMware Telco Cloud Platform RAN utilizes a horizontal design with a uniform software layer that enables you to disaggregate your RAN functions from your RAN hardware and run them on both hypervisor and bare metal. From there, the platform establishes the foundation for the migration to open RAN, which allows you to mix and match vDUs and vCUs from different RAN vendors for maximum flexibility.

Automation and Orchestration to Optimize the RAN

VMware Telco Cloud Platform RAN delivers the automation and orchestration needed for a 5G future and the rise of edge computing.

Programmable resource provisioning optimizes where to locate vDUs and vCUs.

When you onboard a virtualized RAN function, you can programmatically adjust the underpinning platform availability and resource configuration based on the function’s requirements.

Workflow Hub capabilities

The repeatable workflows of Workflow Hub minimize manual intervention, reduce errors and save time. Here are examples of what you can do with Workflow Hub:

- Construct an executable and repeatable workflow that uses automation to provision a RAN site, including CNFs, in a few hours.
- Create a pipeline that application teams can use to bring up a Kubernetes cluster for network function version testing, obtain the results, and terminate the environment.
- Link deployment steps that take place in third-party tools, such as setting up an external network, with the deployment of a network function.

A RAN-optimized platform

The horizontal architecture of VMware Telco Cloud Platform RAN enables you to virtualize multi-vendor RAN functions and deploy them at sites that are best suited to perform their functional purposes. Because 5G services require low latency and high-performing vRAN functions, VMware Telco Cloud Platform RAN has undergone extensive testing and integration work with key RAN partners to maximize performance and improve resource utilization. In addition, by running vRAN functions alongside telco workloads, such as virtualized cell site routers or RAN Intelligent Controllers (RICs), you can reduce your hardware footprint and lower your total cost of ownership.

RAN-driven performance

By separating the hardware from vRAN functions, VMware Telco Cloud Platform RAN enables you to tap into RAN-centric hardware capabilities such as [layer 1 RAN acceleration technologies](#), including inline and lookaside, sitting atop the hypervisor layer. You can manage multiple accelerator cards in one server and effectively load balance and distribute traffic among them, unlocking new levels of performance and flexibility for your networks.

Cloud-smart automation

VMware Telco Cloud Platform RAN accelerates and automates the provisioning and onboarding of vRAN functions across thousands of distributed RAN sites. It does this by understanding the requirements, such as latency and bandwidth, of each vRAN function being installed. By simplifying Day 0, Day 1, and Day 2 operations, the platform reduces OpEx and improves operational efficiencies, while additional efficiencies are achieved by establishing consistency across distributed RAN sites.

Workflow Hub

The automation capabilities of VMware Telco Cloud Platform RAN includes [Workflow Hub](#), which enables you to easily define repeatable workflows to improve scale and reliability while reducing errors and hands-on IT tasks, saving you time and money. By using pre-built templates as building blocks in a simple drag-and-drop GUI, Workflow Hub lets you quickly stitch together processes that address various use cases.

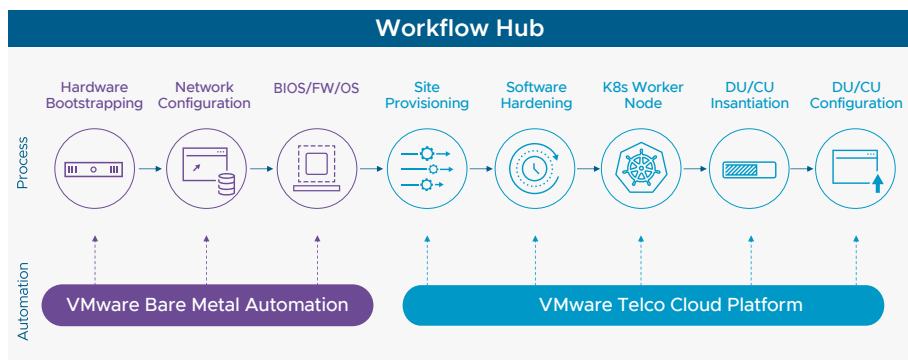


Figure 1: Deployment of 5G RAN site.

Comprehensive RAN assurance

The RAN assurance capabilities from VMware provides a multi-vendor, multi-layer solution that monitors, analyzes and pro-actively manages multi-vendor physical and virtual environments in a single platform.

Service management and orchestration

The VMware Service Management and Orchestration framework automates the deployment, management, and optimization of RANs at scale.

The Service Management and Orchestration solution speeds up the deployment of a multi-vendor RAN, increases flexibility, and lets you tailor customer experiences in a dynamic, multi-cloud environment.

Service assurance

VMware Telco Cloud Platform RAN helps dramatically simplify your RAN operations and services with closed-loop automation and issue remediation. The platform's [service assurance capabilities](#) monitor and collect data from an entire network of RAN sites, including physical, virtual and containerized network functions, as well as cloud infrastructure. This information, coupled with automated Day 1 and Day 2 operations like healing and scaling, enables true closed-loop remediation.

Service management and orchestration

As an industry leader in virtualization and cloud native technologies, VMware by Broadcom is a clear choice for any CSP seeking a service management and orchestration solution to oversee its distributed multi-vendor RAN. VMware Service Management and Orchestration and VMware Telco Cloud Platform RAN together enable you to plan, deploy and orchestrate your RAN with end-to-end automation, service assurance and optimization.

Security

VMware Telco Cloud Platform RAN operationalizes vRAN security policies by providing multilayer isolation inside a virtualized infrastructure, separating the management of the virtualization plane from other functions. The platform's security is programmable, automated and context-aware. It enables the application of consistent security policies across distributed RAN sites, an approach that minimizes the risk of configuration errors or other changes that might expose vulnerabilities. The platform's security architecture, exemplified by its horizontal design, creates the flexibility to run multiple vRAN functions across distributed RAN more securely than is possible with conventional parameter-based and reactive security practices.

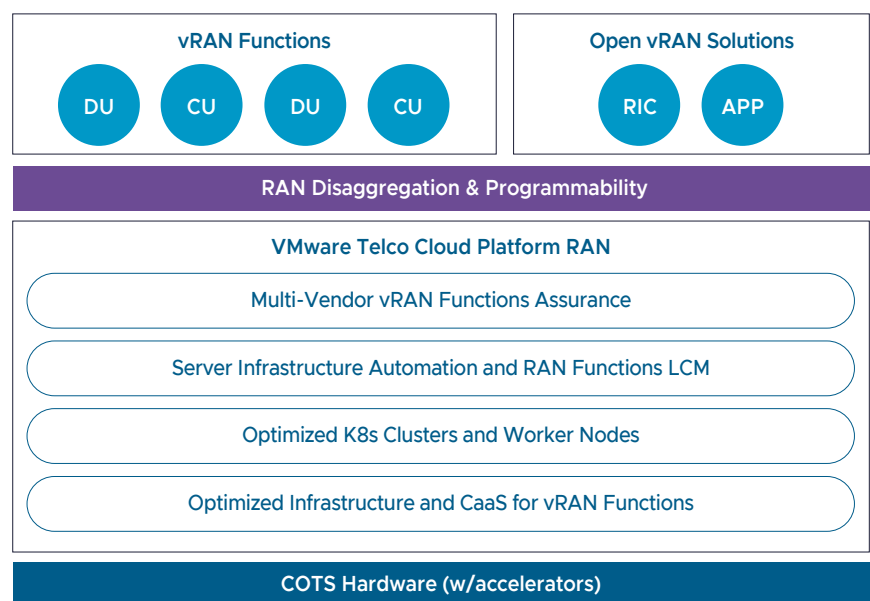


Figure 2: VMware Telco Cloud Platform RAN architecture.

VIDEO: RAN Transformation for 5G



Modernize Your RAN to Monetize 5G: This video explains how you can scale your 5G RAN network with ease.

Looking to the future

Eventually, you may want to go further, implementing architectures based on the O-RAN Alliance framework, an evolving set of industry standards for RAN interfaces that support interoperation from multiple vendors. These standards aim to further reduce existing constraints through centralized automation that simplifies RAN operations. The standards and the technologies derived from them allow you to move RAN intelligence to a dedicated controller. As a result, you can pool and adjust RAN resources to accommodate traffic and service delivery in an optimal way.

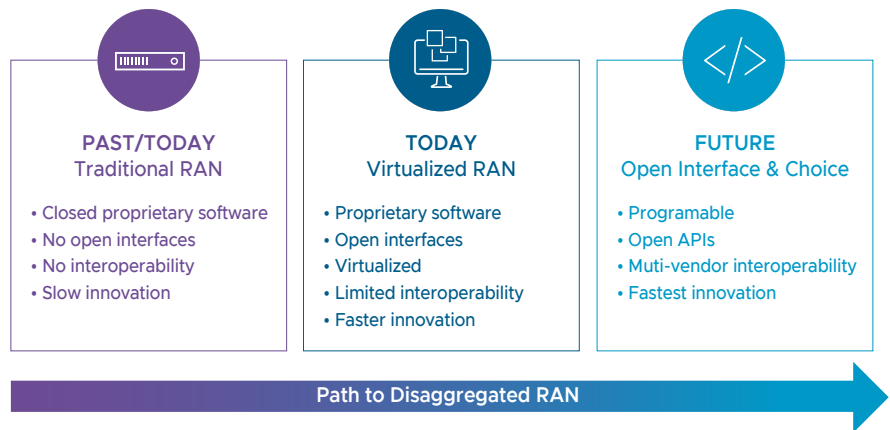


Figure 3: Evolution of a RAN architecture.

Learn more

Your organization is on the cusp of growth, with 5G and a host of new services poised to deliver big gains for both consumer and commercial businesses. The significant costs, risks and complexity of traditional RAN are standing in the way. With deep automation, orchestration and service assurance on top of a RAN-optimized horizontal infrastructure, along with intrinsic and context-aware security, VMware Telco Cloud Platform RAN is the optimal choice for your journey toward RAN modernization and profitability with 5G and beyond.

Virtualize now. Open tomorrow. Reinvent your future. Learn more about VMware Telco Cloud Platform RAN at telco.vmware.com.