FUJITSU

5G Open RAN System Integration

Bringing Together High-Performing Multivendor Radio Access Networks

In the past, wireless radio access networks (RANs) were provided by just a few vendors, with limited choice available to service providers. Now, open and virtualized 5G technologies are changing the game. By adopting an open architecture, even for a portion of the network, service providers are choosing a new trajectory for their network and business.

5G Open RAN (O-RAN) brings the benefits of an open ecosystem and the power of virtualization to wireless networks. Providers have greater freedom to choose best-in-class technologies without being restricted to specific vendors. They have options that make deployment faster and more flexible, as well as ways to realize capital and operational cost savings. Innovation and new service introduction are quicker, more responsive, and more nimble.

Smoothing the Path from Closed to Open Architecture

As with every promising new technology, however, transitioning from a closed to an open RAN architecture brings unfamiliar challenges.

In a closed wireless architecture, the RAN is integrated and tested by the vendor. But with an open architecture, it falls on network operators to not only choose the 5G radio units (RUs) and the virtualized centralized and distributed units (vCUs and vDUs) to deploy, but also to ensure the O-RAN's interoperability and performance in an open, multivendor network.

Because 5G O-RAN is new, the integration, maintenance, and support effort required is being under-planned by many network operators. But these are critical functions that must be correctly estimated, planned, budgeted, and staffed with resources that have the right skillsets. Failure to provide adequately for integration slows your 5G deployments, reducing your competitive advantage and delaying cash flow from your new network. Inadequate maintenance and support adversely affects network performance and therefore customer quality of experience, which may reduce long-term growth and profitability.

Fujitsu O-RAN System Integration

Fujitsu's 5G Open RAN System Integration service simplifies 5G O-RAN integration and sets you on the path forward with all the needed plans and resources in place. We have the right lab equipment and a staff of expert 5G O-RAN engineers in place to perform interoperability testing and ensure optimal performance for your O-RAN solution. We work with you to align with your goals, schedules and budget and reduce your time to market by eliminating delays and cost overruns.

Two Flexible Options to Suit Your Needs

Not all network operators are alike or have the same business needs. That is why Fujitsu provides two types of O-RAN system integration, both of which can be customized to best align with your individual situation:

- Wireless Integration Led (WI-Led)
- Wireless Integrator Assist (WI-Assist)

Benefits of Fujitsu 5G O-RAN System Integration

- Accelerates O-RAN deployments
- Simplifies O-RAN integration, maintenance, and support
- Ensures optimal performance
- Single point of accountability for the entire solution
- Reduces costs

Accelerate your O-RAN Deployment

WI-Led

With this offer, the network operator chooses the open 5G architecture, selects most or all the technology components for the O-RAN solution, and contracts with Fujitsu as their prime wireless integrator. In turn, Fujitsu configures its multivendor labs to mirror the service provider's network, creates the test plans and test cases, performs all the testing and record the test results. For any issues they find, our wireless engineers inform with the responsible product vendors and manage the issues until they are satisfactorily resolved.

As the prime wireless integrator, Fujitsu also provides on-going solution maintenance and support, as well as configuration and lifecycle management, serving as the single point-of-contact for the O-RAN solution.

WI-Assist

With a WI-Assist solution, the service provider selects all the technology for their 5G O-RAN network and assumes the role of prime integrator themselves. Fujitsu acts as an integration agent of the network operator, working side-by-side to fully or partially assist with integration tasks. Our wireless engineers perform functional, interoperability, and performance testing in our secured labs on configurations that mirror the service provider's O-RAN solution.

Fujitsu also provides program management for the integration effort, ensuring that testing is completed on schedule, and on budget, as well as verifying that that all issues found are satisfactorily catalogued, tracked, and resolved. We provide coordination with the responsible vendor in each case, and as vendors provide resolution for each issue, we carry out re-testing to ensure the solution works as required.

With WI-assist, the network operator is accountable for the performance, maintenance, and support of the O-RAN solution, as well as for its configuration and lifecycle management.

Single Point-of-Contact with Dedicated Project Manager

Fujitsu 5G O-RAN System Integration service provides a single point of contact to streamline communication. Your dedicated project manager employs TL 9000-certified processes that ensure the highest quality planning, coordination and management of all aspects of O-RAN system integration. Using these processes, the project manager oversees the configuration of the lab environment, all testing activities, and communications with product vendors for issue resolution, always keeping you updated on project status. Our proven approach ensures your finished O-RAN solution is successfully integrated on-time and within budget.

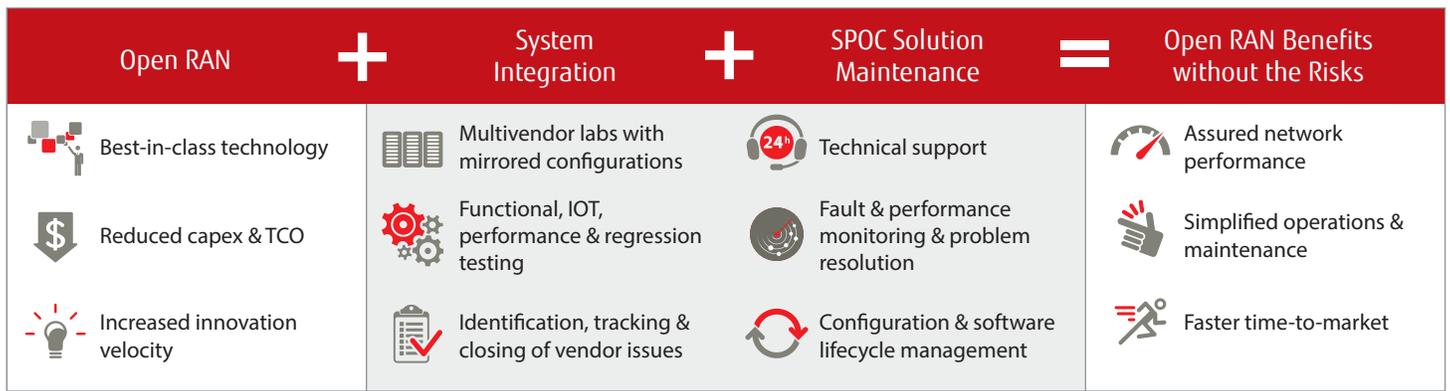| WI-Led	WI-Assist
You select most solution technology components	You select all solution technology components
Fujitsu functions as prime integrator for the solution ■ Multivendor labs ■ Test procedures, test cases & testing ■ Lifecycle management for ongoing releases	Fujitsu assists you in integrating the solution Fujitsu program manages integration effort ■ Identify, track & close vendor issues to ensure solid performance
Fujitsu is accountable for solution performance and maintenance	You are accountable for solution performance and maintenance

O-RAN System Integration Options

Testing Is Key to Successful O-RAN Integration

Our investment in qualified people and wireless expertise has resulted in a seasoned, well-qualified test team that performs functional, integration, performance and scalability testing and improves the quality of your 5G O-RAN solution. Our testers work closely with you to define requirements, including benchmarks and metrics, test configurations, and functions to be tested. Lab staff then use this information to develop a test plan that includes lab configurations, testing sequences, test cases, and guidance for interpreting results. The test plan is executed only after it has been reviewed and approved. At completion, we issue a detailed test report that lists all executed test cases and their results, as well as all issues found and resolved, and provides a report on how the O-RAN solution performed overall.

Since Fujitsu provides maintenance and support for the entire lifecycle of your 5G O-RAN solution, our test team also creates regression test cases and performs regression testing on your O-RAN solution whenever required by new product updates.

Maintenance, Support, and Lifecycle Management

Open RAN	**+**	System Integration	**+**	SPOC Solution Maintenance	**=**	Open RAN Benefits without the Risks
Best-in-class technology		Multivendor labs with mirrored configurations		Technical support		Assured network performance
Reduced capex & TCO		Functional, IOT, performance & regression testing		Fault & performance monitoring & problem resolution		Simplified operations & maintenance
Increased innovation velocity		Identification, tracking & closing of vendor issues		Configuration & software lifecycle management		Faster time-to-market

Fujitsu's Holistic Approach to Open RAN Solutions

Mirrored Lab Configurations Produce Better Results

Fujitsu has invested in secure, multivendor lab environments where our highly skilled test engineers execute customer-specific test cases on configurations that mirror each customer's network. By using an exact copy of the network for testing, the probability of an error occurring during network deployment is virtually eliminated. These mirror configurations not only serve as the infrastructure for testing, they also provide a platform for support engineers to recreate any problems found after the O-RAN solution is deployed.

Ongoing Maintenance and Support

After your O-RAN solution is integrated and deployed, you can rest assured that it will keep running smoothly with Fujitsu single point-of-contact maintenance and support. Our on-shore Network Operations Center (NOC) is staffed with expert, multi-certified technicians who keep a watchful eye on your network at all times. Our technicians detect, assess and direct any alarms, conditions and alerts that arise. When necessary, our engineers quickly troubleshoot the problem and take corrective action to restore your O-RAN to optimal performance.

Fujitsu's on-shore remote technical assistance center (TAC) is staffed with expert wireless engineers and available 24/7/365 to answer questions and troubleshoot. We also offer online access to technical assistance and software releases, and provide timely patches and software maintenance releases to fix bugs quickly and ensure optimal performance of your O-RAN solution. We thoroughly test all product patches and releases on your configuration prior to making them available for download.

O-RAN Solution Configuration and Lifecycle Management

As new enhancements and functionalities are added to the products used in your solution, you want to rest assured that these will also work correctly when integrated into your O-RAN solution. Fujitsu solution configuration and lifecycle management ensures your network always supports the latest features and enhancements. As new functionalities are added to the products in your O-RAN solution, Fujitsu tests and configures these enhancements into the next O-RAN solution release, and performs full functional, interoperability and performance testing to ensure top performance.

Why Fujitsu?

Fujitsu has a decades-long history as a trusted advisor and partner to our customers and years of experience and expertise in designing, integrating and building multivendor networks, as well as in operating and maintaining these networks on customers' behalf. Our strong multivendor system integration track record, combined with our wireless expertise and advocacy for open networking, is the foundation for our 5G Open RAN System Integration service. You can rest assured that we will expertly integrate your O-RAN solution across multiple vendors, seamlessly unify its operations and maintenance, and skillfully manage your network throughout its lifecycle.

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