

**Before the  
DEPARTMENT OF COMMERCE  
National Telecommunications and Information Administration**

In the Matter of

Public Wireless Supply Chain Innovation  
Fund Implementation

Docket No. 221202-0260  
RIN 0693-XC053

**COMMENTS OF VERIZON<sup>1</sup>**

**I. Introduction**

Verizon appreciates the Biden Administration and bipartisan Congressional support for supply chain diversity and innovation through the creation of the Public Wireless Supply Chain Innovation Fund (the “Fund”). Verizon is a leading Wireless network innovator, including with respect to Open RAN.<sup>2</sup> These efforts include:

- Holding leading positions in the ORAN Alliance that develops Open RAN technical specifications;
- Leading the industry in RAN virtualization with 8000 sites virtualized in September 2022, and 20,000 sites to be deployed by 2025;
- Requiring suppliers to our C-Band network deployment to provide equipment that includes Open RAN specifications;
- Investing in companies developing Open RAN solutions; and
- Conducting Open RAN trials with existing and prospective suppliers.

Despite the significant progress of virtualization and Open RAN, Open RAN technology is not yet viable at scale. We are confident that Open RAN technology will reach that point, but

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<sup>1</sup> The Verizon companies participating in this proceeding are the regulated, wholly owned subsidiaries of Verizon Communications Inc.

<sup>2</sup> See also Reply Comments of Verizon, *Promoting the Deployment of 5G Open Radio Access Networks*, GN Docket No. 21-63 (Federal Communications Commission, April 28, 2021).

getting there will require continued technical innovation in Open RAN capabilities and interoperability of different components and functions, as well as building market confidence in the reliability and scalability of new entrants in the market.

In order for Open RAN to be successful, it must be global. To that end it is essential that the development of Open RAN be globally standardized and globally interoperable. Any significant fragmentation in approach will undermine the prospects of building a global Open RAN ecosystem. While we fully support the goal of rebuilding U.S. capacity to contribute to the telecommunications supply chain, it is important that NTIA take a global approach when funding projects and not exclude qualifying applications based solely on whether they are from a U.S.–based entity. Funding provided by the Public Wireless Innovation Fund can help the ecosystem mature and it will be important for all qualified participants to be eligible to participate.

Another key to the success of Open RAN is security - network security and reliability are extremely important to Verizon and its customers. Open RAN, which builds on 5G 3GPP security standards, already incorporates important security features. Furthermore, the ORAN Alliance is working to address any unique security issues presented by Open RAN. We would also point to the FCC's CSRIC Working Group Report on Open RAN security as further evidence of industry's collaborative approach to addressing security needs around Open RAN implementation.<sup>3</sup> As new issues/ideas are developed, NTIA may consider funding projects that build upon these foundations.

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<sup>3</sup> See CSRIC VIII Report Promoting Security, Reliability, and Interoperability of Open Radio Access Network Equipment, <https://www.fcc.gov/file/24520/download> (December 2022).

In order to ensure the widest benefit to enhancing supplier diversity, Verizon encourages NTIA to focus its efforts on funding projects aimed at research and development (“R&D”), and not at subsidizing commercial deployments. Funding broadband deployment in unserved and underserved areas is a crucial task, and NTIA is fully engaged in that through its BEAD program. The Fund at issue here will more effectively advance its goals by funding projects that accelerate the solving of remaining ORAN technical challenges to meet the demands of today’s most advanced networks. This will best ensure that Open RAN architecture will reach functional parity with existing vertically integrated RAN solutions and can compete on a global scale.

## **II. Verizon Recommendations for R&D Funding for Open RAN**

Listed below are areas of Open RAN R&D that Verizon believes would benefit from funding by the Public Wireless Supply Chain Innovation Fund administered by NTIA.

### ***A. Interoperability***

Interoperability remains one of the most important obstacles to Open RAN’s success. Network operators require confidence in interoperability among different components/functions in an Open RAN configuration. As the number of possible Open RAN suppliers increases it is essential for different supplier equipment/solutions to be tested in coordination with equipment/solutions sold by different suppliers. NTIA could support this essential function through supporting the creation of open interoperability labs accessible to suppliers that would be run by a neutral Test and Measurement vendor. The labs would test the interoperability capabilities of Open Radio Units, Open Distributed Units, and Open Centralized Units from different vendors. This would obviate the need for new entrants to build such labs and would build confidence in the ecosystem for operators globally who normally would rely on vertically integrated suppliers to perform testing of their own products or perform the testing themselves.

The end goal for such a lab would be for it to become an ORAN Alliance endorsed Open Testing and Integration Center (OTIC) with multiple US-based locations. Similarly, the NTIA could help fund plugfests to enable different RAN suppliers to test interoperability during product development. These types of events are taking place now, but by assuming some of the costs, NTIA could free up new entrant resources to focus on development of their own solutions.

***B. Conformance with ORAN specifications/standards***

Another area of need is ensuring vendor ORAN equipment compliance with ORAN Alliance specifications. NTIA funding of labs to address this testing need would help build network operator confidence in ORAN solutions offered by different suppliers. Such a lab would test products conformance to Open RAN specifications, including Open Radio Units, Open Distributed Units, and Open Centralized Units. Such a lab would also recertify equipment as new Open RAN specifications are released by the ORAN Alliance.

***C. Hardware Design and Energy Efficiency***

Given the varied types of deployments modern networks require, NTIA should support Open RAN projects that develop hardware reference designs that have smaller form factor and improved energy efficiency. This is particularly important for small cell deployments. Specifically, projects could support suppliers of Open Radio Units and suppliers of Radio components.

***D. RAN Intelligent Controller (RIC)***

NTIA can help advance the capabilities of Open RAN by supporting research and development projects to benefit advances of Non-Real Time (RT) RIC and Near-RT RIC applications that comply with ORAN Alliance RIC specifications. These projects ideally would

fund open source, royalty-free baseline RIC applications available for a wide variety of suppliers to use.

### ***E. Test Range***

NTIA could also support the creation of an over the air Open Radio Unit outdoor antenna test range to help test different suppliers' Open RAN Radio Unit solutions. This test range would enable different Radio Unit suppliers to test their antenna and radios under different field conditions.

### **III. Conclusion**

As a leader in developing and deploying Open RAN, Verizon appreciates the US government's interest and support in advancing its development and success. The potential benefits in terms of innovations in network deployment and management, competition, and supplier diversity are important incentives for Verizon to work to advance the development of Open RAN. Verizon appreciates the shared support for Open RAN's development that the Administration and Congress have demonstrated through the establishment of the Public Wireless Supply Chain Innovation Fund. Through the funding of the types of projects highlighted in this submission, NTIA can help industry accelerate the development of Open RAN.

Respectfully submitted,

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