



TELECOM INFRA PROJECT

December 6, 2021

BY ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street NE
Washington, DC 20554

Re: Ex Parte Presentation, *Promoting the Deployment of 5G Open Radio Access Networks*, GN Docket No. 21-63

Dear Ms. Dortch:

On December 2, 2021, representatives of the Telecom Infra Project (“TIP”) met by video conference with staff from the Office of Economic Analysis, Office of Engineering and Technology, and the Wireless Telecommunications Bureau (see attachment) to discuss the above-captioned proceeding. TIP provided a general update on the status of OpenRAN development and also provided specific information as described below. During the meeting, TIP also made reference to elements of its comments and reply comments previously filed in this proceeding.¹

TIP’s View of OpenRAN. Increasing connectivity is expensive, and TIP is looking at different ways of providing operating connectivity at a reduced cost and in a more competitive manner. In TIP’s view, disaggregation is not just about separate network components but also about separate hardware and software layers. For example, TIP believes hardware should be commercial and off-the-shelf products because it is expensive to customize hardware; conversely, software can be customized much faster and more economically for individual operator or use case needs. From the operator perspective, OpenRAN helps create a more competitive and diverse vendor ecosystems, which drives innovation. Notably, “rip and replace” activities are simpler with disaggregated networks because only individual components need to be replaced instead of larger network chunks.

TIP’s Activities. TIP is significantly focused on the productization of OpenRAN. Among other activities, TIP works with vendors and operators to develop industry roadmaps to roll-out Open RAN, including identifying high priority features to help vendors prioritize their development roadmaps with operator input. TIP utilizes various models of engagement, including both working bilaterally with operators as well as with larger collaborative groups of operators. For

¹ [Comments of the Telecom Infra Project](#), filed Apr. 28, 2021 in GN Docket No. 21-63; [Reply Comments of the Telecom Infra Project](#), filed May 28, 2021 in GN Docket No. 21-63.

example, TIP helps develop trust in OpenRAN solutions via the TIP Exchange which tests features, products, and solutions. Through TIP Exchange, TIP tests and badges OpenRAN products and provides them publicly. TIP issues three product badging levels: Bronze, for products or solutions that are supplier validated and tested against TIP's test plan in the supplier's own lab; Silver, for which TIP has conducted product testing in a TIP community lab; and Gold, for which TIP has conducted solution testing in a TIP community lab.

Trials. TIP began its work in 2016-2017 as a proof-of-concept to explore whether disaggregation could work in the RAN. Since 2019, TIP has been focusing on building the commercial scale of OpenRAN and expanding it more broadly in different markets. TIP currently has over 35 trials going on around the world. For example, Vodafone did a trial in Turkey with 25 cell sites in both rural and urban settings with 2G, 3G, and 4G technologies to test OpenRAN solutions. The resulting key performance indicators (KPIs) showed the success of OpenRAN in commercial settings and the solutions even exceeded several KPIs.

OpenRAN Growth and Potential Barriers. It is important for vendors and operators to invest now in OpenRAN solutions at scale. Five European operators recently signed a Memorandum of Understanding (MoU) to aggregate their OpenRAN demand and signal to the vendor ecosystem that they are open to and interested in OpenRAN solutions.

There are some potential barriers to growth. First, there is a demand-side barrier regarding the willingness of some operators to commit to new solutions and vendors. Operators can face challenges in integrating new solutions in a system under development at scale, and some operators may face challenges integrating legacy technologies and disaggregated technologies and ensuring they will work together, although integration options are expanding rapidly. Second, there is a risk that large operators who are hesitant to integrate OpenRAN solutions may continue to employ traditional technologies while reaping the broader benefits created by an OpenRAN ecosystem such as vendor innovation. That said, there is momentum from many large operators towards global adoption.

Costs and Benefits of OpenRAN. In several instances, OpenRAN has been demonstrated as being able to compete with current closed systems in addition to the benefits an open system brings. Operators who are scaled up enough to install and support OpenRAN sites themselves like Vodafone (discussed above) were able to demonstrate in trials that deployment time was comparable to an incumbent's set up time. OpenRAN can also help improve processes over closed networks such as distinguishing between real-time and non-real-time tasks by opening up the RAN intelligent controller (RIC), and trials have shown ways that end-to-end network slicing can be applied to an open approach as well.

Especially over the long term, there are several longer-term cost benefits that will easily offset the initial hurdle. The increased vendor diversity that comes with OpenRAN will drive competition to the cost benefits of operators, and the modularity of ecosystems gives operators greater choice as to which components work best for their needs and expenses. Disaggregation will also lead to greater cost savings not only in the RAN, but across open networks in general. It removes the need for maintaining complex equipment on-site for key functions and the accompanying field visits such equipment requires.

In addition, open and disaggregated approaches lend themselves to improving network security, as they enable individuals to have more insight into how components are implemented, allowing for more comprehensive monitoring and awareness over potential vulnerabilities that need to be addressed. In general, both traditional networks and OpenRAN require high-level security needs, and software-based delivery also requires continuous oversight from its development to its implementation in a network; government agencies can play a role in issuing guidelines as to what levels of security requirements are needed.

Government Role in OpenRAN. Public sector support for OpenRAN is important to supporting its deployment around the world and helping to further establish this approach as the global consensus for operators and vendors. Already, several parts of the federal government have begun stepping up and engaging with OpenRAN. In Congress, the proposed United States Innovation and Competition Act (USICA) would provide \$1.5 billion in OpenRAN funding. The FCC's recent two-day Open RAN showcase was also very helpful.

Elsewhere, momentum is being fostered by the UK government as well by funding competitions on OpenRAN innovation as done by the Department for Digital, Culture, Media and Sport (DCMS). Further public sector support can play an important role in achieving government policy priorities by educating and training vendors and operators about OpenRAN deployments.

Pursuant to Section 1.1206 of the Commission's rules, this letter is being filed in ECFS. Please do not hesitate to contact the undersigned with any questions.

Sincerely,

/s/ Dileep Srihari

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Cc: FCC meeting attendees
Enc. List of participants

List of Meeting Participants

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