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Chairman Latta, Ranking Member Matsui, Chairwoman Rodgers, Ranking Member Pallone, and members of the Committee, thank you for including me as a witness for this important hearing. My name is Jeff Blum, and I am the Executive Vice President of External and Government Affairs at EchoStar Corporation. EchoStar is the parent company of DISH and its subsidiaries (including DISH Wireless) and employs over 14,000 people. While DISH has testified before this committee many times over the decades as a pay-TV provider, today marks our first appearance before Congress as a wireless carrier. I look forward to explaining how DISH became the first company in the world to deploy a standalone cloud-native Open RAN 5G wireless network that now covers more than 246 million Americans.

DISH's story began in 1980, when our founders Charlie and Candy Ergen, and their friend Jim DeFranco, started a small business outside of Denver selling satellite TV systems to rural consumers. In 1995, as that technology developed and became easier to deploy, DISH launched the first of many satellites into space to provide TV service to every local community across the U.S., bringing much needed competition to the cable monopolies. DISH was able to take advantage of landmark innovations like smaller, more consumer-friendly satellite dishes and digital compression technology to give Americans a new, more advanced, and cheaper option for TV service. In 2015, DISH then disrupted the pay-TV market all over again when we launched Sling TV, the first *live* television internet streaming service.

This history of innovation and disruption in pay-TV fueled our entry into the wireless industry, which is why I'm testifying here today. By the end of the 2000s, we understood where the future of telecommunications was headed: it would hinge on connecting people and things. And, we knew we wanted to adapt and remain at the forefront of changing the way the world communicates. DISH began its journey in wireless with our first purchase of mobile wireless

spectrum in 2008. Since then, we have spent over $30 billion on spectrum and participated in every Federal Communications Commission (FCC) auction. With enough spectrum to get a service off the ground, and to the surprise of all those who doubted we would ever do it, we began rapidly building out our own greenfield terrestrial wireless network in 2020. DISH also entered the retail wireless business that year with the acquisition of Boost Mobile. Today, DISH's wireless brands have more than 7.5 million customers.

From the start, we were confronted with questions around *how* we would do it. After all, nationwide networks are very expensive and complex to deploy, and the U.S wireless market was already saturated with large incumbent providers. How could DISH, a pay-TV provider, manage to build a disruptive wireless network from scratch? We knew that if we were to be successful, we couldn't stick to the same formula of the incumbents and rely on legacy architecture. So, DISH executives and engineers hit the road to study what equipment vendors were developing and what newer wireless networks looked like across the globe. As we observed Open RAN principles and technology in action, the answer soon crystalized for us: Open RAN could enable DISH to build our wireless network from the ground up and leapfrog legacy deployments. It would be more resilient, more secure, more easily upgradable, more cost-efficient, more software-based (versus hardware), and faster to deploy. It became clear that a network architected with Open RAN would best position us to provide a better, more innovative wireless service while helping advance U.S. wireless leadership.

Most of the world's wireless networks were constructed over decades and are heavily reliant on "end-to-end" closed technology and equipment systems provided by a single vendor (like Ericsson and Nokia, or Huawei and ZTE). But DISH didn't want to be locked into a single vendor for the design, build, and operation of our network. We saw that Open RAN's

disaggregation, interoperability, and virtualization of network components would enable specialization among wireless technology and equipment suppliers. As a result, DISH could choose among a wider range of "best-in-breed" vendors (many of them U.S. companies) to construct a modern software-based 5G network.

I'm proud to say we did just that. After working with over 80 vendors (many of whom changed how their businesses operated and invented new products and services to accommodate DISH's deployment), we achieved what many thought was impossible – we designed and built our Open RAN wireless network in record time. And we managed this feat despite our buildout (which began in 2020) directly overlapping with all of the supply chain, travel, and personnel issues brought on by the global pandemic.

In 2019, DISH did not have a single operational 5G cell site. Today, we have over 20,000 sites that cover more than 73 percent of the U.S. population. Our network has been certified by the major cellular device makers (Apple, Samsung, and Motorola), validating its performance capabilities. We brought Open RAN to scale and now have the world's largest Open RAN deployment. And yet, while DISH is America's fourth nationwide wireless carrier, the top three companies' subscriber counts significantly dwarf ours. We're working to change that. Consumers across the U.S. can sign up for one of the competitively priced wireless plans offered by DISH's Boost Mobile (prepaid) or Boost Infinite (postpaid) brands. As our network grows, we'll continue to innovate our consumer offerings and inject competition into the market.

While we work to bring the benefits of Open RAN to more and more Americans, we are committed to building a more robust Open RAN ecosystem. Additional Open RAN deployments are needed around the globe. It is important for both U.S. and international wireless carriers to

adopt Open RAN. To that end, we are committed to sharing our firsthand experience and lessons learned to help others realize the benefits of Open RAN.

Thanks in large part to the increased virtualization of network components that lessens reliance on hardware, Open RAN allows for different parts of the network – like the antenna, radio, core, data center, and traffic flow – to be serviced by a variety of vendors. Competition amongst vendors to be the best provider of each component fosters innovation and quality while lowering prices. Network supply chains become more diverse and resilient and less prone to a single point of failure. With Open RAN, mobile network operators can effectively isolate and address security concerns. Virtualizing and making the network cloud-based enables it to be upgradable as technology evolves, with less time and cost.

A virtualized, cloud-native Open RAN network like DISH's not only brings efficiencies and improvements to consumer wireless services, it is well-suited to best meet the growing demand from enterprise and government customers for private 5G networks. For example, the U.S. Department of Defense (DOD) has many unique needs for 5G technology, and it is considering Open RAN solutions for these various use cases. We are pleased to be partnering with DOD to test and validate Open RAN technology at Naval Air Station Whidbey Island in Washington State.

DISH has joined the National Security Council, the Department of Commerce, the National Telecommunications and Information Administration (NTIA), the State Department, the FCC, and Congress in viewing the further deployment of Open RAN as a U.S. national security and global competitiveness imperative. Because Open RAN enables much more vendor diversity, DISH has largely been able to rely on U.S. partners for our network (including Mavenir, who is testifying today). Importantly, virtualized Open RAN networks are based on

software, which the U.S. still leads the world in pioneering and developing. Further adoption of Open RAN by wireless carriers both domestically and abroad is an opportunity to foster a more U.S.-centric supply chain for the wireless industry, while at the same time decreasing the world's dependency on untrusted vendors.

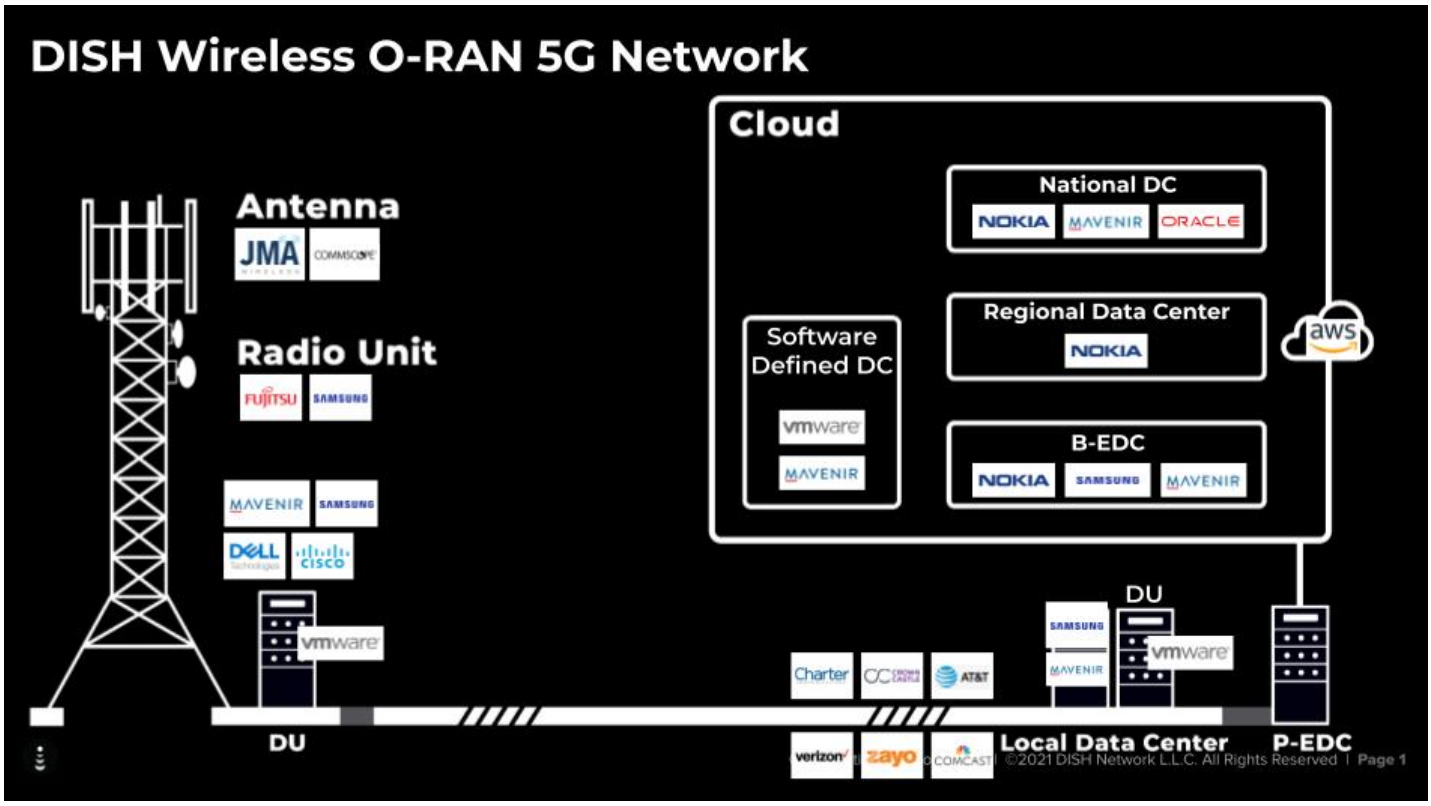
DISH appreciates that Congress, and particularly this committee, has been supportive of Open RAN for several years now. Most notable was the USA Telecom Act, introduced in the House of Representatives in 2020 by then-Chairman Pallone, then-Ranking Member Walden, Congresswoman Matsui, and Congressman Guthrie. That legislation created the NTIA Public Wireless Supply Chain Innovation Fund, which ultimately received $1.5 billion in 2022 to scale up the U.S. Open RAN ecosystem and promote American 5G leadership. Just last Wednesday, we were thrilled to stand with the NTIA to announce that DISH received a $50 million grant from that very fund to establish an Open RAN testing and evaluation center in our Cheyenne, Wyoming facility. The Open RAN Center for Integration & Deployment (ORCID) will be a "living laboratory" that enables trusted vendors to test their hardware and software innovations against DISH's commercial-grade Open RAN network. We are excited for ORCID participants to benefit from the lessons and expertise DISH and its vendor partners have gained, and we believe that ORCID will play an important role in bolstering the Open RAN ecosystem.

In many ways, the industry is still in the early stages of Open RAN adoption. And, as is often the case when new technologies proliferate, there can be a splintering around standards and how best to incorporate those standards into an existing or new system. Policymakers should be aware that a standards split would harm Open RAN, since it would make integration more challenging across different vendors and carriers, limiting supplier diversity. Open RAN must stay committed to its foundational principle of true interoperability. DISH also urges

policymakers to consider the benefits of Open RAN as they further contemplate how to help over two dozen small U.S. wireless carriers remove Huawei and ZTE equipment under the Rip and Replace program. Having small rural carriers deploy Open RAN would benefit U.S. wireless leadership and American consumers. As another future-looking note for policymakers, we anticipate that the cloud-native nature of Open RAN will fuel artificial intelligence advancements that, in turn, will improve Open RAN networks.

Thank you again for the committee's continued interest in Open RAN, and I appreciate this opportunity to testify about DISH's historic Open RAN deployment.

Addendum: DISH's Open RAN 5G Network Architecture



This image shows DISH's interoperable Open RAN 5G cloud-native architecture, which utilizes different vendors throughout the network stack and results in a more resilient, secure, and cost-effective network that is quicker to deploy.