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BEFORE THE UNITED STATES SENATE
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

"OVERSIGHT OF THE FEDERAL COMMUNICTIONS COMMISSION"

JUNE 24, 2020

Chairman Wicker, Ranking Member Cantwell, and distinguished Members of the Committee, thank you for the opportunity to testify. It is a privilege to appear before you with my FCC colleagues.

Since we last testified, the country has been seized by a pandemic that has seriously altered Americans' lives. Our daily routines—driving to work, sending the kids off to school, even catching up with friends—were upended. Staying at home prompted us to recreate these routines online in an instant. And that sudden, massive transition made our Internet connections more important than ever. With so many Americans relying like never before on their home connections, it was incumbent on providers and the Commission to extend and ensure continuous, quality service. I'm proud of our efforts to meet the moment.

First, the private sector and regulators joined together to make sure that pandemic-related financial stress and our own support rules did not cut off service when Americans needed it most. Chairman Pai's Keep Americans Connected pledge opened up free Wi-Fi hotspots and kept families online through job disruptions. The Commission cleared the way for providers to donate computers and tablets so kids can learn from home, waived certain Lifeline rules so that under-resourced families wouldn't lose wireless service, and provided flexibility for services vital to the deaf and hard of hearing. We also worked closely with providers that launched new programs to connect low-income families with high-speed services.

Second, we closely tracked the surge in network traffic and, when necessary, took steps to expand capacity to meet demand. In the first few weeks of the pandemic, Internet traffic surged about 25 percent on fixed networks and 20 percent on mobile ones. Peak usage, which normally hits a network around 9:00 PM local time, lasted longer and stretched into daytime hours. Network traffic not only spiked virtually overnight, it shifted at nearly the same time from urban centers to the suburbs. In addition to carriers' own network management steps, we granted carriers special temporary authority to lease spectrum from other providers and offered some of the Commission's licenses in inventory to augment capacity.

Throughout all of this, America's networks fared exceptionally well. While our networks delivered high quality service despite elevated traffic levels, our friends in other advanced economies were not so fortunate. Their networks strained to maintain quality and speed. In Europe, EU officials asked Netflix and other streaming platforms to significantly reduce their video quality to prevent the continent's networks from breaking. Australia made a similar request. Yet our networks showed no significant reduction in speed or increase in latency, according to independent measurements. In fact, U.S. wireless networks saw speed increases despite the significant jump in data usage. By contrast, China saw up to 40 percent reductions in download speeds, and countries all across Europe and Asia also experienced significant declines.

America's networks performed because of the private sector's massive investment in our Internet infrastructure over the past few years. In 2018, for example, America's wireless providers invested over

70 percent more per subscriber than their counterparts in Europe. In 2019, telecom crews built out more miles of high-speed fiber than ever before—over 450,000 route miles, which is enough to wrap around the Earth over 18 times. All of that fiber and new investments have increased speeds and connected more families. This benefits all of us whether or not we're in a sudden pandemic. Indeed, since 2016, speeds are up about 85 percent, and the digital divide narrowed by about 30 percent between 2016 and 2018.

This private sector investment is especially important to advancing 5G. Industry estimates that it will invest $275 billion into upgrading our wireless networks to 5G. That money already has been put to work. The very first commercial 5G service launched here in the U.S. in 2018. By the end of that year, the private sector extended 5G to 14 communities. Halfway through 2019, that figure expanded to more than 30. And today, 5G networks are live in 381 communities across all 50 states, making us home to the world's leading 5G platform.

The networks' performance under stress, the 5G build out, and all of this investment don't happen by chance. They are fostered by a light-touch regulatory approach to infrastructure. It's an approach that emphasizes clear rules that keep pace with changing technology.

At the Commission, I've led our infrastructure modernization efforts. Together, we updated the federal historic and environmental rules that were needlessly delaying the build out of high-speed small cells. We built on the commonsense reforms adopted by the states and reined in outlier conduct. We streamlined the process for swapping out utility poles to add wireless equipment, among many other reforms.

And in our last Commission meeting just two weeks ago, we took action to encourage upgrades of existing wireless towers. In Section 6409 of the Spectrum Act, Congress codified a commonly held view: adding new equipment to an old tower is much less involved than building a new tower from scratch. And so if an upgrade to an old tower doesn't substantially change the tower's physical dimensions, the upgrade shouldn't go through a lengthy review process. Our rules that originally implemented Section 6409 created a 60-day shot clock for local government approval, and we defined what counts as a "substantial change." In the six years since we wrote those rules, parties have come to different interpretations of what we wrote, and the varying views from local governments and industry have caused delays—exactly the thing Congress was trying to avoid by writing Section 6409 in the first place. This month's order seeks to clarify our rules around the shot clock and "substantial change," and in so doing, are expected to further expedite the upgrade of thousands of towers to 5G, including in rural and other remote communities.

While wireless towers across the country are being upgraded to 5G, there's another great wave of upgrades happening on broadcast towers—the upgrade to ATSC 3.0. It's a new standard that allows broadcasters to do more with their signals by transmitting in Internet Protocol, or IP. Much of the attention on ATSC 3.0 has focused on what it can do for TV, including transmitting Ultra HD video and allowing content to be personalized to a household. But focusing solely on better video misses the technology's full potential. By transmitting the data as IP and remembering that broadcast channels are spectrum, we can reconceptualize what this technology can be used for. This technology looks less strictly like refined broadcast TV and begins to look more like Broadcast Internet. Every broadcast channel using this standard has about enough spectrum to transmit 25 Mbps over the entire coverage footprint of its tower. That's the equivalent of a new broadband link down to every household that station serves.

What could we do with this new Broadcast Internet pipe? For telemedicine applications, IoT, and smart ag, Broadcast Internet's broad coverage could push data over a large area. For autonomous vehicles, the service could send targeted map and traffic data or provide fleet-wide software updates. And

for many families, it could mean another option for high-speed downloads—from movies to applications—delivered over the same spectrum that they've long used for over-the-air television.

Given all of this potential, I was pleased that the Commission unanimously approved an order this month to ensure that Broadcast Internet services are not weighed down by legacy media regulations. Our decision makes clear that broadcasters and other innovators can offer Broadcast Internet services nationwide without triggering the FCC's TV station ownership rules. That certainty should encourage further investment and development of this technology.

Whether we're discussing Broadcast Internet or upgrading towers to 5G, Americans care about these improvements most because of the life-changing services delivered over these networks. And few services can be more life-changing than quality healthcare.

For years, the FCC has played a key role in supporting the build out of high-speed Internet services to health care facilities. And that important work will continue. But there's a new trend in telehealth. The delivery of high-tech, high-quality care is no longer limited to the confines of connected, brick-and-mortar facilities. With remote patient monitoring and mobile health applications that can be accessed right on a smart phone or tablet, we now have the technology to deliver high-quality care directly to patients, regardless of where they are located. It's the health care equivalent of shifting from Blockbuster to Netflix.

I first learned about this new trend on a visit to the University of Mississippi Medical Center (UMMC) with Senator Wicker. That's when UMMC professionals explained how they launched a connected care pilot program in the Mississippi Delta to improve the lives of patients with diabetes. That program showed great results for the patients and significant cost savings compared to traditional care methods. Since then, I've been working with my colleagues at the Commission to create a nationwide program that builds on the one UMMC pioneered.

Back then, we had no idea how important providing care at a distance would be in today's pandemic. But because of the leg work we started after my first visit to Mississippi we were able to stand up a COVID-19 telehealth program in record time; it was a matter of days from the time President Trump signed the CARES Act to an FCC order. That program has made an impact in a very short time. So far, we have approved 367 applications for over $128 million, with tens of millions more likely to be released in the coming months.

Finally, after discussing the efforts the Commission has made to connect Americans and spur infrastructure investment, I would be remiss if I did not update you on our efforts to secure those connections and infrastructure. As you know, in November, we banned USF support from being used to purchase equipment from certain untrusted vendors. I thank Congress for its strong support of that action and its consideration of additional measures to make sure that insecure telecom equipment in our networks does not threaten our national security. That proceeding remains open, and as you may also know, we separately have been examining the interconnection authorizations that years ago were granted to a number of providers that may be owned and controlled by the communist regime in China. I am pleased that the FCC is now taking a hard look at those authorizations.

These actions and investigations have confirmed the urgency with which we must secure our networks. In refining our security strategy, many have pointed out that for some critical network components, we do not have a home champion—an American company that provides an alternative to an insecure foreign competitor. Instead of creating or acquiring a champion to compete with the foreign components makers, the Open Radio Access Network (O-RAN) concept has begun to gain traction. The central idea is to standardize components of the radio access network and allow them to be built by

competing firms instead of a fully-integrated RAN in one company's control. Because the components of the RAN do not have to be built and integrated by one company, the higher functionality moves from the hardware components to the software running on it. Having a more software-driven RAN plays to an enduring American advantage in software development and security—and it has the upshot of likely lowering the costs of building out networks over time. This trend towards software-based networks will advance our network security goals as well as infrastructure investment. So as Congress considers infrastructure initiatives, it should continue to promote policies that will support and speed the transition to software-based networks.

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In closing, I want to thank you again Chairman Wicker, Ranking Member Cantwell, and Members of the Committee for holding this hearing and for the opportunity to testify. I look forward to continuing to work with the Committee on policies that can accelerate the buildout of broadband networks for the benefit of the people we serve. I welcome the chance to answer your questions.