

**REMARKS OF FCC COMMISSIONER BRENDAN CARR**

**AT CTIA'S RACE TO 5G SUMMIT**

**"NEXT STEPS ON THE PATH TO 5G"**

**WASHINGTON, D.C.**

**APRIL 19, 2018**

Thank you, Meredith, for the kind introduction and thank you to CTIA for convening today's summit. As the title of this event makes clear, the race to 5G is on. Winning this race will mean more broadband for more Americans. It will mean new opportunities for underserved communities. And it will mean unleashing the next wave of innovation and entrepreneurship in America. As a policymaker, I am committed to seeing the U.S. win this race.

Now, this crowd certainly doesn't need a primer on what 5G will mean. You know the stats. As the next generation of wireless connectivity, 5G will be 100 times faster and five times more responsive than current technologies.

But what I am most excited about is what this transition could mean for families across the country. 5G is a platform that can support transformative applications. It's about autonomous cars—which could reduce the number of traffic deaths from the 40,000 per year we see today to nearly zero. It's about the Internet of Things and smart cities—which could bring tremendous efficiencies to businesses and neighborhoods alike. It's about delivering remote surgery and telehealth applications to communities that lack the healthcare options they deserve. And it's about use cases we cannot even envision today.

But we are already seeing glimpses of what this connected future could mean for communities. Last week, I visited the town of Beatty, Nevada (population 1,010). It's only about 120 miles from the Vegas Strip, but it is a world away. Beatty has one medical clinic, and it's staffed by a nurse named Theresa—she says that my blood pressure is excellent, for those interested in my health. But the clinic was going to shut down due to the economics of bringing in a doctor from a town 75 miles away to see patients. With a new, high-speed broadband connection, however, the clinic can now afford to stay open and allow patients to visit virtually with the physician. I tried it out, and Dr. Reiner told me over the video connection about a Beatty resident who turned out to have a potentially deadly infection that the doctor was able to diagnose in time to save his life.

After Beatty, I drove about 30 miles down the road to Nevada's rural Amargosa Valley to Ponderosa Dairies. Ponderosa houses 15,000 cows, all tagged with RFID chips. Sarah, the manager there, jokes that they're "connected cows." The chips collect information on the cows' health and feeding, and this data is then uploaded via a high-speed wireless connection to a vet located in another state that can analyze it and recommend adjustments to feeding cycles.

Of course, next-gen networks will enable even more innovations and yield even greater opportunities for communities. That's why it is so important that we keep moving forward.

But as today's event makes clear, we are not alone in looking to win this race. Countries around the world are vying to be first. They want to see the capital necessary for 5G deployments invested in their parts of the world. They want consumers in their countries at the front of the line when it comes to realizing the benefits of 5G. And countries from Europe to Asia are already moving aggressively in this space.

At the FCC, we are committed to seeing the U.S. win this race. And we are executing on a plan to do just that.

We know the consequences of falling behind. We've seen it during earlier wireless transitions. Just this week, CTIA released an analysis showing the impact of wireless leadership on a country's jobs and economic growth. I've read it. It's a page turner. But in case you have other plans for this weekend, here's the Cliff's Notes version.

Europe won the race to 2G in large part because other parts of the world, including the U.S., failed to move quickly enough to modernize our regulatory frameworks. For example, the FCC required that carriers continue to support their analog 1G networks long after Europe dropped that requirement. By requiring carriers to maintain essentially two networks, our outdated regulations drained capital and resulted in less efficient spectrum use.

Japan won the race to 3G for similar reasons. In the 1990s, Europe tied spectrum bands to particular technologies, which delayed the repurposing of spectrum from 2G to 3G. Japan had no similar constraints, and the country launched three separate 3G networks by 2002. It took years for the United States to come close to Japan's 3G deployment.

But, as we all now know, the U.S. learned some lessons and bounced back to win the race to 4G. The private sector did this by investing hundreds of billions of dollars in both wireless and wired broadband infrastructure. But in addition to the private sector's work, the U.S. government took two important steps to help clear the way.

First, we moved quickly to open up new spectrum bands. And second, we took tangible steps to facilitate the deployment of 4G infrastructure.

The result? Today, over 99% of Americans have access to 4G LTE. Over 96% can choose from three or more facilities-based providers. And nearly 75% of all cellular connections in North America are LTE, while that figure is only 42% in Western Europe. CTIA's new report shows that our 4G leadership increased our country's GDP by \$100 billion per year and cemented American preeminence in the tech sector more broadly.

As we turn to 5G, the stakes are high. Winning the race to 5G could mean three million new jobs, half a trillion dollars in GDP, and \$275 billion of private sector investment—all without a penny of new taxes. We want that. But our friends and competitors in Europe and Asia want that too.

So what's our plan? After all, winning the race to 4G does not guarantee a win in 5G. Or to use a sports analogy, a two-peat is not easy. Just ask Tom Brady.

The good news is that we don't need to invent a new strategy—we already know the winning playbook. As with 4G, we have to focus on two things: spectrum and infrastructure. And at the FCC, we are moving aggressively to execute on both fronts.

On the spectrum side, there's no doubt we're on the right track. In 2016, we became the first country in the world to allocate high-band spectrum for 5G, and we're now opening up even more 5G bands. On Tuesday, we voted to move forward with the auction of 24 GHz and 28 GHz spectrum, which we expect will be prime candidates for 5G. And just yesterday, Chairman Pai announced that the Commission will vote next month on potentially opening up spectrum in the 2.5 GHz band for greater and more efficient uses—including for 5G applications.

At the FCC, we have already assigned more high-band spectrum for 5G than any country in the world—we're more than four gigahertz ahead of second-place China. And we won't stop there. We are looking to free up more low-, mid-, and high-band spectrum.

But our aggressive push to free up spectrum—while necessary to our 5G leadership—is not enough on its own. The second part of the equation is to move just as aggressively to modernize and update our infrastructure deployment rules—to ensure that they are what I call “5G Ready.”

To that end, I appreciate that Chairman Pai asked me to lead the FCC's efforts in our wireless infrastructure proceeding. Just last month, I am pleased to report, the FCC took a major step forward in this effort.

As you know, 5G networks will look very different from today's 4G deployments. 5G will involve the addition of hundreds of thousands of new, small-scale facilities with antennas no larger than a small backpack. Upwards of 80% of all new deployments will be small cells. They can go on the sides of existing buildings, on light poles, and blend in with the surrounding environment. These deployments will look nothing like the hundred-foot towers that many people associate with prior generations of wireless service.

The problem is that many of our country's infrastructure deployment rules have not been updated—they still assume that every new deployment is a tall, hundred-foot tower. The result? The deployment costs are too high and the regulatory approval processes too long. Indeed, 30% of the total cost of deploying a small cell has been going to federal reviews designed for larger towers. Left unchecked, this outdated approach would have threatened our leadership in wireless. Our message was: for next-gen networks, we need next-gen regulations.

So here's what we did. Our March order exempted small cells from certain federal historic and environmental reviews and streamlined the reviews that remain for larger towers. It was heartening to see the broad base of support that spoke in favor of this important decision. This one step is expected to save nearly \$1.6 billion, create 17,000 jobs, and lead to the deployment of 57,000 new small cells.

Those are big numbers. Cutting regulatory red tape is a big deal because it can flip the business case for thousands of communities. Communities that might have been uneconomical for the private sector to serve, will now get their shot at next-gen networks. Winning the race to 5G is not about getting next-gen networks deployed in New York and San Francisco. Those places would get 5G regardless. Success is ensuring that all communities benefit from 5G.

Communities like Woodstock, Virginia, in the Shenandoah Valley where I saw a new small cell deployment bringing greater educational opportunities to the local high school. Communities like C.A.R.E. in East Baltimore. There still are some boarded up rowhouses in C.A.R.E., but if you keep your eyes open, you can see new opportunity on the rise. And if you really know what you're looking for, you can see it in the dozens of small cells that have been deployed throughout the neighborhood. For many families, those small cells provide their only high-speed connection.

These and other opportunities are ones we want to build on and replicate across the country. And regulatory reform can help make that happen.

So our work is not over. Winning the race to 5G will require more than just streamlining our approach to the federal regulatory review process. That's why the FCC has been looking at the important role that state and local reviews play in facilitating the deployment of next-gen wireless infrastructure. My staff and I are still working through these issues, but I can share a few ideas that we've been discussing.

First, there is no question that states and localities expect and deserve to be compensated for the reasonable costs they incur in managing rights-of-way and access to public infrastructure. But that does not mean we should view each deployment as a revenue generating opportunity. The economic benefits for communities arise once we get our neighborhoods connected to next-gen networks. Our policies should be aimed at promoting those types of deployments.

Second, we should ensure that our shot clocks on local reviews continue to serve their intended purposes. We adopted the existing timeframes before the spike in smaller scale facilities we're seeing today. So we need to make sure that we have the right review periods in place. Obtaining timely decisions is key to the timely deployment of new networks.

Third, the FCC should provide even more certainty about access to rights-of-way and our views on state and local moratoria. As we do so, we should promote greater parity between the treatment of wireless infrastructure and other uses of rights-of-way.

There are other important and commonsense guideposts that merit consideration when we discuss state and local review, and I look forward to sharing more specific thoughts in the coming weeks. There are many important stakeholders out there, and I welcome the chance to continue to benefit from a range of perspectives.

In the meantime, I think it is safe to say that we are all committed to seeing the U.S. win the race to 5G. We know the challenge. We know the opportunity. And we have a plan that will help extend the United States' leadership as next-gen networks come online.

Thank you.