

**REMARKS OF FCC CHAIRMAN AJIT PAI
AT THE 7th CONGRESO LATINOAMERICANO DE TELECOMUNICACIONES**

WORKSHOP ON 5G

CÓRDOBA, ARGENTINA

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Good afternoon. We have reached the final session of this week's conference, and I'll do my best to help make sure we go out on a high note. But as an insurance policy, this session is followed by a reception with an open bar.

Fifty years ago this month, America's Apollo 11 landed on the Moon, and Neil Armstrong became the first person to set foot on the lunar surface. The spacecraft was controlled by the Apollo Guidance Computer, which boasted 64 kilobytes of memory. Today, the typical smartphone that we carry in our pockets has almost 10,000,000 times as much memory and can process instructions over 100,000,000 times as fast as that computer. It's amazing how quickly communications technology has advanced, when you think about it.

And that brings me to the topic of today's panel. In my view, 5G could be one of the great moonshots of this generation. Think about a world in which speed, capacity, and lag times are effectively no longer constraints on wireless innovation. This could enable new services and applications that could revolutionize healthcare, transportation, agriculture, education, and many other facets of our economy and society.

I was asked to kick off this session by talking about the strategy the United States is pursuing to promote 5G deployment, and some of our lessons learned. I discussed some of this in my keynote yesterday, but there's an old saying in the marketing business that people need to hear your message seven times before they remember it. So there's value in repetition.

Before getting into the details of the FCC's work, the first point I'd make is that 5G policy is bigger than any communications ministry and will require leadership at the highest levels of government.

That's why last fall, the White House hosted a summit on 5G that attracted senior leaders from across industry and multiple federal agencies. And in April, the President personally invited me to the White House, where he discussed the importance to the United States of global leadership in 5G and I announced the FCC's latest actions to achieve that goal.

But while government-wide leadership is critical, I should emphasize that the United States is pursuing a market-based strategy to promote 5G development and deployment. As the President said at our 5G event, "In the United States, our approach is private-sector driven and private-sector led."

At the FCC, we call our strategy the 5G FAST plan. It has three parts: freeing up much more spectrum for the commercial marketplace, promoting wireless infrastructure deployment, and modernizing our regulations to promote more fiber deployment. I'll briefly discuss each.

Let's start with spectrum. This year, we've been very active in making more of our nation's airwaves available for 5G. In January, we finished an auction of spectrum in the 28 GHz band. In May, we finished an auction of spectrum in the 24 GHz band. And next week, the Commission will vote on the final procedures for an auction of the upper 37 GHz, 39 GHz, and 47 GHz bands, which will start on December 10. This auction will be the largest in American history, releasing 3,400 megahertz of spectrum into the commercial marketplace.

While our early moves to repurpose high-band spectrum for 5G have gotten much of the attention, we are pursuing an all-of-the-above approach to spectrum policy. That includes freeing up low- and mid-band spectrum for next-generation wireless services as well.

That means studying the spectrum chart closely and asking whether spectrum allocations from long ago still make sense as we enter the 5G era.

Case in point, the FCC will vote next week on opening up spectrum in the 2.5 GHz band for 5G. The rules for this band in the United States date back decades. At that time, it was envisioned that this spectrum would be used for educational TV. But today, this band is dramatically underused, with much of this spectrum lying fallow. That's unacceptable.

So one week from now, the FCC will vote on giving rural Indian tribes a chance to obtain this spectrum to serve Tribal lands. And then we would make the remaining unassigned 2.5 GHz spectrum available for commercial use through competitive bidding. This is the single largest contiguous band of spectrum below 3 gigahertz in the United States, so this is a big opportunity for 5G.

And that's not all that we are doing on the mid-band front. Later this summer, we hope to approve the first commercial deployments in the 3.5 GHz band, and we intend to hold an auction in the 3.5 GHz band next year. Moreover, thanks to the reforms we adopted last year, carriers that win licenses in that auction will be able to efficiently deploy in the band.

Two last points about spectrum. We're also working on the complicated task of freeing up spectrum for 5G in the 3.7-4.2 GHz band, commonly called the C-Band. I'm optimistic that we will have results to show on this front this fall. Also, as part of our government-wide effort, the FCC is working actively with other federal agencies to reallocate spectrum in the 3.1-3.55 GHz band for commercial use.

Now, let me shift from spectrum to wireless infrastructure, the second part of our 5G FAST plan. When it comes to 5G policy, infrastructure is essential. In the United States, we need to install hundreds of thousands of small cells—a huge increase in the number of antenna locations for our current networks.

That would be hard to do with some of the regulatory barriers that have been in place in the United States. For example, it takes about one or two hours to install a small cell on a utility pole. But in some areas, it has routinely taken more than two *years* to get the approval to install it. Another problem has been excessive fees imposed by local governments. Siting fees per small cell were as low as \$50 in an investment-friendly place like Phoenix, Arizona but as high as \$5,000 elsewhere. And it's not just local governments. Early in my tenure, businesses told us that more than 25% of their small-cell deployment costs came from the FCC's historic preservation and environmental review. That could be over \$12,000 to install one small cell.

I'm pleased to say that the FCC has taken action to address these concerns.

We reformed the FCC's historic preservation and environmental regulations so that small cells don't have to jump through the same regulatory hoops as 60-meter towers. And we stopped state and local governments from unreasonably delaying the deployment of 5G infrastructure. We set a reasonable shot clock for cities to rule on small-cell siting applications and reasonable limits on siting fees—limits that allow localities to cover their costs.

Early indications are that these reforms are making a difference. In 2018, for example, the number of wireless small cells deployed in the United States more than quadrupled, from 13,000 to more than 60,000.

As I said, there's a third part of the 5G FAST plan—modernizing our regulations to promote fiber deployment. 5G isn't just about wireless; we also need strong wired networks to carry all of this traffic once it's offloaded from the airwaves. That's why we've made it easier for carriers to transition from yesterday's copper networks to tomorrow's fiber networks. We've ended utility-style broadband regulation inspired by rules from the 1930s. And we've also adopted a new policy known as “one-touch

make-ready.” Until recently, a competitive entrant seeking to attach fiber to a utility pole had to wait for, and pay for, each company to sequentially move existing equipment and wires. This could take months. And for many companies, pole attachment problems represented one of the biggest barriers to broadband deployment. But now, thanks to our one-touch make-ready policy, we allow a single entity to do all the necessary work on a utility pole.

These policies are working as well. In 2018, for example, fiber was deployed to more new homes in the United States than any year before. And infrastructure investment was up by \$3 billion last year compared to 2017.

Finally, there’s one other important topic I’d like to discuss, and that’s network security.

Earlier this year, I was honored to be part of the United States delegation that traveled to Prague for an important conference on how best to secure our 5G networks. Government officials from more than 30 countries, as well as industry leaders, attended this conference. And at this gathering, we were able to develop a set of consensus best practices for 5G security. I strongly endorse these principles, known as the Prague Proposals, and would encourage countries in Latin America to seriously consider implementing them.

The bottom line is this: When making decisions that affect 5G security, we need to remember that the implications are wide-ranging. 5G will affect our militaries, our industries, our critical infrastructure, and much more. The procurement and deployment decisions made now will have a generational impact on our security, economy, and society.

When it comes to 5G, we cannot afford to make risky choices and just hope for the best. We must see clearly the threats to the security of our networks and act to address them. And the more that the United States and our regional allies can work together and make security decisions based on shared principles, the safer that our 5G networks will be.

I’d like to close where I began, with the Moon landing. Fifty years later, this unifying event is fondly remembered as one of the great achievements in human history. But, most people would be surprised to know that until the mission succeeded, it was widely unpopular. There was never a time when it enjoyed the support of the majority of the American people. The popular sentiment was that the mission’s benefits didn’t justify the high costs. But the moment Neil Armstrong took that first step for mankind, that skepticism largely went away.

Building 5G networks is a daunting and expensive project in its own right. With a project this big, we are sure to run up against resistance, whether it’s incumbents making unfounded claims about spectrum interference or different levels of government trying to charge high fees. And because many of the game-changing applications of 5G have not yet been invented or even imagined, we will certainly run into skeptics who think this will be useful for nothing more than faster downloads of movies or cat videos to our phones. But we must resist this skepticism, and we must embrace this challenge with the urgency that it demands. Building out these 5G networks will be hard. All worthwhile things are. But I am confident that if we press on, the benefits will be worth it.

In his 1961 speech announcing his plan to land a man on the Moon, President Kennedy said, “We set sail on this new sea because there is knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people.” Let us venture to unleash the new opportunities of 5G with the same bold spirit of discovery and create a path of progress for all people.