REMARKS OF FCC CHAIRMAN AJIT PAI
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"THE CURRENT LANDSCAPE OF TELECOMMUNICATIONS LAW"

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Before I get into my remarks, I want to acknowledge the passing this morning of Oscar-winning screenwriter William Goldman, whose credits include *Butch Cassidy and the Sundance Kid*, *All the President's Men*, and one of my personal favorites, *The Princess Bride*. As an homage, there were many ways I was thinking of kicking off my remarks: "Inconceivable!" or "My Name is Inigo Montoya. You killed my father. Prepare to die." Instead, I thought I would just stand before you and try to spend the next 16 minutes reciting the speech in the film that begins with the classic line: "Mawwiage. Mawwiage is what bwings us together today ...." In the interest of time, I won't, and I'll try to speed things up a bit.

It truly is great to be with you at the Federalist Society National Lawyers Convention. The theme of this convention is "Good Government through Agency Accountability and Regulatory Transparency." And that's exactly what we've been aiming to deliver at the Federal Communications Commission under my leadership. For example, the FCC now publicly releases drafts of the items we will be considering at Commission meetings three weeks ahead of time. That seems like a common-sense step, right? But before I became Chairman, the FCC refused to release these drafts publicly. Instead, the Commission had to pass an order before the American people could see what was in it.

To say the least, it would be scintillating to discuss at length the various process reforms we've instituted at the FCC to improve accountability and transparency. But I've been given a different charge: to give an overview of some of the big substantive issues that we are working on at the Commission. The panel to come will dive into some of the legal questions in the telecom space, so I thought I'd focus on what the FCC is doing to promote U.S. leadership in some of the most promising sectors of our economy. In particular, I'd like to talk about next-generation wireless technology and the space industry, which you may be surprised to learn has key tie-ins with the FCC.

Before getting into the specifics, I thought it would be helpful to walk through some of the first principles that inform and guide my approach to the job as FCC Chairman.

First off, I deeply believe in the importance of regulatory humility.

History has shown us, without a doubt, that a competitive free market is the most powerful force we have for driving technological innovation and producing value for consumers. The public interest is best served when the private sector has the incentives and freedom to invest and create. Instead of micromanaging markets, government should eliminate unnecessary barriers that can stifle new discoveries and services. And, in particular, the government should aim to minimize regulatory uncertainty, which can deter long-term investment decisions.

Talk of regulatory red tape may seem small-bore and a bit clichéd at this point. But just this week, my former law school professor Cass Sunstein published an op-ed that does a great job of illustrating the scale and costs of this challenge. Meeting the paperwork burdens imposed by our government annually requires 9.78 billion hours of labor every year—that's over a million years!—at an estimated cost of $215 billion. So streamlining government regulations isn't an ideological position; it's imperative.

Returning to this notion of regulatory humility, I also believe we should be skeptical toward preemptive regulation of new technologies—rules that try to predict market failures before they occur. I

believe that a careful, case-by-case approach to evaluating emerging markets is more likely to maximize consumer welfare and lead to technological progress.

Now, let me talk about how we're trying to put these principles into practice, starting with our work to promote 5G wireless technology.

For those who don't live, sleep, eat, and breathe telecom policy, 5G is the next generation of wireless technology. It promises dramatic improvements beyond the 4G LTE networks we're all familiar with. How dramatic? Wireless networks will be 100 times faster, maybe more. The lag time between a device's request for data and the network's response will be less than one-tenth of what it is today. Wireless networks that today support 1,000 connected devices per square kilometer could instead support 1 million. Basically, a 5G world will effectively remove speed, responsiveness, and capacity as meaningful constraints on wireless innovation.

This will open the door to new services and applications that will grow our economy and improve our standard of living. Smart transportation networks that link connected cars—reducing traffic, preventing accidents, and limiting pollution. Ubiquitous wireless sensors that enable healthcare professionals to remotely monitor your health and transmit data to your doctor before problems become emergencies. Connected devices that empower farms to apply precision agriculture. Apps that alert you to the possibility that drafting holdout running backs in the first round of your fantasy football draft would be a terrible idea. And much more, some of which we can't even conceive today.

These breakthroughs will boost our economy. An Accenture study pegs 5G's potential at 3 million new jobs, $275 billion in private investment, and $500 billion in new economic growth.

To seize the opportunities of next-generation wireless technology, the FCC is pursuing what we call the 5G FAST plan—a plan to Facilitate America's Superiority in 5G Technology. The approach includes three key components: freeing up spectrum, promoting wireless infrastructure, and modernizing regulations. Let me briefly walk through some highlights in each area.

First: spectrum. The FCC has been extremely aggressive in making more airwaves available for the commercial marketplace. This week, for example, we launched the first of two auctions of high-band spectrum that was previously thought to be useless, but can now be used for 5G, thanks to advances in technology. And we're on track to auction off three more spectrum bands next year. We're exploring how to repurpose mid-band spectrum for new wireless applications, from rural broadband coverage to the next generation of Wi-Fi. And we're working hard with other federal agencies to make available spectrum currently held by the federal government (which for some time has held a majority of lower-band airwaves). To put these efforts in perspective: We are aiming to free up more spectrum than is currently held by every mobile broadband provider *combined*.

Second: infrastructure. All the spectrum in the world won't make a difference if we don't have the physical infrastructure to carry 5G traffic. That's going to be a challenge. For the 5G networks of the future will look very different from the 4G networks we know today. Today, we see 200-foot cell towers intermittently dotting the landscape. But tomorrow's 5G networks will rely more heavily on "small cells"—less conspicuous equipment, perhaps no larger than a backpack, more densely deployed and operating at much lower power (the closer an antenna is to a phone, the less power is required to connect the two). We'll need an estimated 800,000 new cell sites by 2025. For context, we have barely a quarter of those today. We'll also need a lot more fiber-optic lines to connect all these small cells to the networks' core.

But the hundreds of thousands of small cells and miles of fiber needed for 5G won't be deployed unless we have a regulatory approval process that encourages buildout. Consider this: It takes roughly one or two hours to install a small cell on a utility pole. But it can routinely take more than two *years* to get the approval to install that antenna. Another problem is short-sighted local arbitrage on fees. Siting

fees per small cell can be as low as $50 in an investment-friendly place like Phoenix, but as high as $5,000 elsewhere.

That's why the FCC has modernized its wireless infrastructure rules, and why we'll keep doing so. Earlier this year, we reformed our historic preservation and environmental regulations so that small cells don't have to jump through the same regulatory hoops as a 200-foot tower. And this September, we approved an important order promoting 5G infrastructure. It sets a reasonable 60-day 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.

And that brings us to the third leg of the 5G FAST stool: modernizing regulations. The FCC is revising or repealing outdated rules to promote investment in the wired backbone of 5G networks. For instance, when I became Chairman, FCC regulations made it too hard for carriers to transition from copper networks of the past to the fiber networks of tomorrow. So we've updated those rules to help companies focus on fiber deployment. We've also adopted a policy called "one-touch make ready," which will make it much cheaper and easier to string fiber lines on utility poles—a critical step for carrying 5G traffic to and from small cells.

And we also overturned the previous Administration's decision to heavily regulate the Internet like a slow-moving utility under rules developed in the 1930s. We've replaced it with a consistent national policy for broadband providers that protects the free and open Internet and encourages infrastructure investment. The Internet should be run by engineers, entrepreneurs, and technologists, not lawyers, bureaucrats, and politicians.

And I'm happy to report that our policies are working. For example, amidst the prior Administration's regulatory onslaught, broadband investment declined in 2015 and 2016, the first time that had happened outside of a recession in the Internet era. But in 2017, we reversed that trend; investment increased.

Now, I'd like to shift gears and talk about the main thing the FCC has been focusing on this month, which is not something that people naturally think of when they think of the FCC: the space industry.

Some quick background. The global space economy generated about $350 billion in revenue in 2017. The biggest share of this sector, by far, is the satellite industry, which accounts for 75% to 80% . What raises my antenna (see what I did there?) is the prediction in separate reports by Morgan Stanley and Goldman Sachs that this industry will grow to be a trillion-dollar sector by 2040. That's a big market opportunity for the United States.

So how exactly does the FCC fit into this? Well, the FCC regulates a variety of aspects of communications services that are provided in outer space, notably, the use of spectrum and the way that certain satellites operate and transmit that information back to the earth. I talk a lot about the need for the Commission to constantly be evaluating and updating our rules to reflect changes in the marketplace, and it occurred to me that it had been almost a generation in some cases since the FCC had taken a fresh look at some of its regulations surrounding space policy. Add the fact that the space industry represents a huge growth opportunity, and you find a ripe opportunity to update our rules, and to promote investment and innovation in the American space industry. We voted on a number of these proposals just yesterday, during the Commission's monthly meeting for November—something we called Space Month.

The launch of the Commission's space agenda yesterday was a big success. What did we do?

Remember those reports I mentioned about how the space industry could grow to be a trillion-dollar sector? Those same reports identified satellite-delivered Internet access as the biggest growth opportunity. The big potential breakthrough is a new technology that involves launching a constellation of hundreds of smaller satellites into low-earth orbit—so, not way out into deep space—which will beam

Internet access back to earth. Our hope is they'll create enough of a mesh of these smaller satellites that the Internet service will be efficient, at a much better price point, and at speeds and latency that would be comparable to something you could get from a company operating here on earth.

In the summer of 2017, the FCC approved the first of these new constellations of non-geostationary orbit satellites, NGSOs as they're called. Some of them are from some companies you might know, SpaceX and OneWeb. Yesterday, the Commission approved four separate petitions from companies seeking to initiate or expand services that rely on these low-earth-orbit satellite constellations systems. Our hope is that this will be a game-changer for unserved or underserved rural areas, which could soon enjoy new options for high-speed broadband service.

One satellite-based technology that's already proven to be a game-changer is the Global Positioning System, or GPS. What some may not know is that GPS is a U.S.-based system. There's also a similar European system called Galileo. For many years, we haven't allowed what are called non-federal devices—basically, your smartphone and mine—from receiving signals from that European system. Yesterday, the FCC voted to allow these devices to access Galileo. As a result, GPS should become more precise, reliable, and resilient for U.S. consumers and businesses, and hopefully this will also enable brand new applications.

Another issue we're looking at is space debris. Most of you probably say the movie *Gravity*. As you recall, the incident that doomed Sandra Bullock and George Clooney's space flight was getting hit by debris from a damaged satellite. This issue isn't something Hollywood just imagined. Even something as small as a centimeter-wide piece of space debris can cause catastrophic damage to a satellite or spacecraft. As I just said, the Commission has authorized the launch of many satellites into space. So to mitigate the risks of catastrophic accidents, yesterday the Commission also voted to launch the first review and update of our orbital debris rules since 2004.

Along with some regulatory streamlining, rounding out our Space Month agenda, was an update of our rules for Earth Stations in Motion. People on the go in a plane, train, or automobile, often want connectivity. Yesterday, we advanced a proposal to make it easier to deliver high-speed access in these mobile entities. This could be a dramatic change as we anticipate the era of connected cars, and the like.

I'd like to close, if I might, by coming back to *The Princess Bride*. One of my favorite lines in that movie is when Buttercup tells Westly, "We'll never survive," and, to that, Westly replies, "Nonsense! You're only saying that because no one ever has." One of the things that I love about working in tech sector, is that this is the default attitude of Americans writ large and U.S. innovators in particular. You often give them a whole bunch of reasons why something can't be done, and they say, "Nonsense," and they do it anyway. From my perspective, that is what the FCC is charged with doing: creating a regulatory framework that allows all the innovators out there to invent the future. We're determined to promote U.S. leadership in all these next-generation technologies. And so, as long as I'm privileged to serve as Chairman of the FCC, we will continue to modernize our rules to make this attitude easier to execute, to make business plans real, and to make the consumer benefits that they promise a reality as well.

Thank you for your attention. Thank you for the work the Federalist Society is doing to highlight these issues. I look forward to working with all of you in the years to come to secure the benefits of the digital age for the American people.