

REMARKS OF FCC COMMISSIONER AJIT PAI
“LOOKING BACK AND LOOKING AHEAD:
THE FCC AND THE PATH TO THE DIGITAL ECONOMY”

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I want to start off by thanking Smith Micro Software for hosting today’s event and the Pittsburgh Technology Council for helping to organize it. It’s great to be back in Western Pennsylvania. Last July, about two months after taking my oath of office, I came to Pittsburgh to deliver my first speech as an FCC Commissioner. I had a wonderful trip and was eager to return to this fantastic city.

But when I told the folks at the Pittsburgh Technology Council that I was planning to come back, I was met with some reluctance. You might even call it outright resistance. You see, when I came to town last July, the Pirates had a winning record of 50-40 and were just a single game out of first place. Following my appearance, they started to slide home, and not in a good way. They closed out the season with a 29-43 record and finished a full 18 games back in the standings. Today, as you probably know, the Pirates are 60-39—even better than they were last July. And if the season were to end today, they would make the playoffs for the first time since 1992. So I offer you this solemn pledge: If the Pirates slump again following my visit, I promise that I won’t come back next summer.

On a more serious note, I wanted to revisit my reasons for coming here last summer. Pittsburgh is a great place to talk about technological innovation. Just yesterday, I visited KDKA, home of the first commercial radio broadcast in the United States way back in 1920. That innovative spirit infuses the Pittsburgh of today. The telestroke program at the University of Pittsburgh Medical Center is saving lives. Tech leaders like Apple and Intel have set up shop at Carnegie Mellon’s Robert Mehrabian Collaborative Innovation Center to do groundbreaking R&D. In short, this city stands at the forefront of our digital economy.

It wasn’t always that way. With the collapse of the steel industry, Pittsburgh went through hard times. But the people of Pittsburgh didn’t give up. Instead, they rolled up their sleeves, got to work, and remade the city’s economy. As a result, workers in the technology sector today earn almost thirty percent of the region’s wages and account for about one-quarter of the region’s workforce. The Steel City is quickly becoming the Silicon City.

If I may say so, Pittsburgh’s progress is the nation’s pride. For the high-tech industry can no longer be seen as a niche that’s limited to Northern California, Seattle, and Austin, Texas. The truth is that all across this country, from the Silicon Prairie of Kansas to the Silicon Bayou of Louisiana, from Automation Alley in Michigan to the Denver Tech Center in Colorado, we see the tech industry’s potential to help revitalize our economy. And perhaps nowhere has this promise been more fully realized than right here in Pittsburgh.

But we are not fully realizing that promise as a nation. Take, for example, the part of the economy that I deal with in my job: the information and communications technology, or ICT, sector. That industry should be leading us out of the economic doldrums. But it’s underperforming too. When I came to Pittsburgh last July, there were fewer workers in the ICT sector than at any point since November 1989. And looking specifically at the telecommunications industry, there were about 17 percent fewer jobs than there had been in January 2009.

Even this past year’s good economic news is only relative. Over the past twelve months, the ICT sector has added 13,000 jobs, 400 of which are in the telecommunications industry. That’s a start, but a slow one. This sector should be leading the way to a vibrant recovery instead of muddling along in an economy that seems to be treading water.

So what is the FCC's role in all of this? Obviously, we aren't directly responsible for economic activity. But I do believe that the FCC can play an important part in setting the stage for increased growth and job creation. Last year, my speech at Carnegie Mellon set forth my vision for how the FCC could help unlock investment and innovation in the digital age. One year later—and one year older and perhaps wiser—I wanted to return to Pittsburgh and report back on what the FCC has done in this regard over the last twelve months. And I want to look ahead to what the FCC can do in the coming year to promote investment, job creation, and economic growth.

My goal is a regulatory framework that encourages companies to invest more money in next-generation networks so that there will be more demand for the products and services offered by companies like Smith Micro. We can be an ally rather than an obstacle to the entrepreneur with an innovative idea. And we can reform our own procedures so that the private sector can seize business opportunities instead of waiting for years to get an answer out of Washington, DC.

To do that, the FCC first should accelerate our efforts to allocate additional spectrum for mobile broadband. Second, the FCC should prioritize the removal of regulatory barriers to infrastructure investment. And third, the FCC should be as nimble as the industry we oversee. These are the three principles I outlined last year. They are just as important today. During my tenure as a Commissioner, these three principles have served as my North Star. I've tried hard to incorporate them into the agency's decision-making.

So how have we done? In some areas, I think that the FCC has made real progress in advancing these principles. In other areas, we still have a lot more work to do. Today, I want to revisit these three goals. For each, I want to provide my assessment of how far we have come to achieving them and, more importantly, where we should go from here.

I.

Let's start with spectrum. We all know that mobile data use has skyrocketed over the last few years. Cisco estimates that it grew 70 percent last year alone. Tablets and smartphones are everywhere—it even appears many teenagers have surgically implanted mobile devices. And these mobile devices are increasingly being used for bandwidth-hungry applications like video. To be able to watch life-altering events on your mobile device, like a live-stream of updates on the British royal birth, you need to have enough spectrum. And that's where the FCC comes in.

To keep pace with consumer demand, the National Broadband Plan called on the FCC to make 300 MHz of spectrum available for mobile broadband use by 2015 and an additional 200 MHz available by 2020. But as of last July, we were still at zero. Luckily, the FCC had made 142 MHz available for mobile broadband between 2006 and 2008, so we haven't yet reached the breaking point. But we can't live off our past success forever. If carriers and application developers are going to meet consumers' expectations, they need spectrum.

Recognizing this fact, I called on the FCC last summer to take three simple steps to get us back on track: adopt rules for terrestrial use of satellite spectrum known as AWS-4, revise the rules that inhibited deployment of 4G LTE in 20 MHz of the so-called WCS band, and launch the incentive auction rulemaking, in which television broadcasters can voluntarily relinquish their spectrum and claim some of the proceeds from wireless carriers who then buy it. We've done all three of these things, on a bipartisan basis I might add. As a result, we've pushed 60 MHz into the marketplace, and the incentive auction rulemaking is in full swing.

But we can't slow down. There's still plenty of work to be done. Looking ahead, there are four steps that we should take soon to provide more spectrum for mobile broadband.

First, we should establish service rules within the next year so that an additional 195 MHz of spectrum in the 5 GHz band is available for unlicensed use. Freeing up more spectrum for unlicensed use

is critical to a successful spectrum strategy. All of you at Smith Micro already know that. You've developed ways to reduce congestion on wireless networks by increasing Wi-Fi utilization. But unfortunately, Wi-Fi congestion is also becoming an increasing problem in many places, from libraries to airports to apartment buildings.

But why, you might ask, am I so keen on the 5 GHz band in particular? That spectrum is especially well-suited for unlicensed use. Its short-range propagation characteristics enable localized reuse of the spectrum with minimal risk of interference. And wider channels will help us achieve faster speeds and higher throughputs. In fact, a super-wide channel would allow for throughputs as high as 1 gigabit per second. That's one hundred times faster Wi-Fi than you're likely to get in your local Starbucks. And the technical standard for this next-generation Wi-Fi—IEEE 802.11ac—already exists. So if the FCC can act to provide more unlicensed spectrum in the 5 GHz band, that means less congestion for the millions of Americans who rely on Wi-Fi every day. It would also help cable operators who are deploying Wi-Fi hotspots for their customers in cities across the nation, as Comcast is doing right here in Pittsburgh.

That's not to say it will be easy. The FCC is seeking to allocate all 195 MHz in the 5 GHz band. Entrenched interests are already pushing back, saying that Congress only demanded 120 MHz. But we shouldn't weaken our resolve. Where there is consensus, we should move ahead by the end of the year. Along these lines, I would support adding 25 MHz to the U-NII-3 band and creating a more unified set of rules for the 5 GHz spectrum. And for the more difficult issues, we should be willing to reexamine past allocations while staying focused on maximizing the use of this public resource for the American people.

Second, we should begin the H-block auction on January 14, 2014. The H block consists of the narrow slices of spectrum between 1915-1920 and 1995-2000 MHz. We know that auctioning this 10 MHz of spectrum is doable. Earlier this month, FCC staff released a Public Notice stating that we would be ready to begin the auction by January 14. And that's just what we should do: start the auction five days before the Steelers will be hosting the Kansas City Chiefs for the AFC Championship Game at Heinz Field. The H block has been sitting fallow for a long time, and it's been over five years since the FCC last held a major spectrum auction. We don't have the luxury of time. We need action, not aspiration.

Third, we need to maintain the pace on the incentive auction. We kicked off the rulemaking process last September. Since then, the Commission has started releasing details about the repacking algorithms and has held several workshops. My own office has hosted 10 deep dives with outside experts to understand the technical opportunities and limitations and to hammer out the auction's details. And we've been doing all of this with a goal of conducting the broadcast incentive auction in 2014.

With less than eighteen months to finish the job, now is the time for the Commission to establish a schedule for meeting our 2014 goal. We need to figure out when we are going to finalize the band plan, auction design, and repacking methodology. Are we going to adopt final rules all at once? Or are we going to tackle each topic individually? What is our target date for opening the filing window for the auction? And when are we aiming to commence the auction? If there is a realistic schedule that will allow us to conduct the incentive auction next year, we should outline it and try to follow it as best we can. If there isn't, then we should admit that our goal has fallen out of reach and set a new target.

Fourth, we should tackle federal spectrum, that is, spectrum controlled and used by the federal government. Specifically, we should clear federal users out of the 1755–1780 MHz band. And we should pair that spectrum with the 2155–2180 MHz band that Congress has said we must auction and license by February 2015. This 50 MHz pair of spectrum bands is already internationally harmonized for commercial use. This means the filters, chipsets, and devices that are needed to make this spectrum usable already exist. Deployment will be relatively fast and cheap. An auction could raise over \$10 billion for the U.S. Treasury.

So, you might ask, what's the holdup? Well, it's not finding a place to move those federal users. The federal government controls about 60 percent of the spectrum best suited for mobile broadband, including the even larger band right next door at 1780–1850 MHz. And it's not funding. The Commercial Spectrum Enhancement Act already requires that any auction of federal spectrum cover the cost of relocating federal incumbents.

Instead, it seems to be a matter of political will. Some say that the days of clearing spectrum for exclusive commercial use are over. They say that we should settle for spectrum sharing, where government agencies and commercial operators coordinate and try to use the same spectrum. I don't agree. For consumers, clearing spectrum is ultimately much better than sharing. So we shouldn't wave the white flag. After all, we have sent men to the moon. We won the Cold War in the 1980s without firing a shot. And we refused to say it was over when the Germans bombed Pearl Harbor, as John Belushi reminded us in *Animal House*. Surely, we have the capacity as a nation to clear at least 25 MHz of spectrum.

So when it comes to the federal government's use of spectrum, now is the time to think big. This country's spectrum management framework is hopelessly outdated and fundamentally broken. This isn't just my view. My colleague, Commissioner Jessica Rosenworcel, has suggested that we use "carrots, not sticks" to financially reward federal agencies for making more efficient use of spectrum. Others have suggested charging federal agencies a fee for the spectrum they use. Still others say that it is time to end our bifurcated approach to spectrum management—the FCC overseeing commercial spectrum, the Commerce Department overseeing government spectrum—and consolidate authority over all spectrum in a single agency. In short, Republicans and Democrats, Senators and Representatives, FCC commissioners and staff, businessmen and engineers, *everyone* is growing frustrated about the federal government's lack of progress in freeing up spectrum. We need to channel that frustration to a useful purpose. We need to have a serious discussion about reforming the use and allocation of spectrum in the United States. All solutions need to be on the table, and all stakeholders need to take a seat.

II.

Next, let's talk about removing regulatory barriers to infrastructure investment. Last year, I teed up three ideas for doing this: establishing an IP Transition Task Force, reducing uncertainty regarding universal service support, and allowing pro-competitive mergers between competitive local exchange carriers and cable operators. I'm pleased to report that the FCC has moved forward on all three fronts.

Let's start with the IP transition. America's telephone system was built using twisted-pair copper wires owned by monopolists at a time when the phrase "operators are standing by" literally meant that switchboard operators were standing at their posts. Today, we are in the midst of a technological and economic revolution known as the Internet Protocol (or IP) transition. There are no more monopolies. Copper is going the way of the dodo. And we are quickly heading towards a competitive, all-IP world.

While a few residents of the Pittsburgh metropolitan area—about 14 percent—still get plain old telephone service over copper, most of you don't. Instead, you get voice service from an interconnected Voice over Internet Protocol (VoIP) provider like Comcast, through a fiber-to-the-premises offering like Verizon's FiOS, or by cutting the cord altogether and going wireless-only. The same is true across the nation. Nationally, by the end of this year, the number of residential copper landline subscriptions will have declined by about 70 percent since 2000. Through millions of individual choices, consumers are sending a clear message about the superiority of IP-enabled networks. Whether we like it or not, the IP transition is coming. So the real question is whether our nation will handle the transition in a thoughtful or haphazard way.

The answer, at least to date, is that the FCC's rules haven't kept up with the times. We've been too slow in responding to this technological transformation. Instead of maximizing the incentives for

carriers to deploy next-generation networks, our regulations harken back to the days of Ma Bell and have too often deterred IP-based investments.

To address this problem, last July I called on the FCC to establish a task force to confront the IP transition head on. And five months later . . . we had one! I was grateful to then-Chairman Julius Genachowski for launching the Technology Transitions Policy Task Force last December. It's good that we now have a process in place to address the IP transition because it will affect every consumer and every company. So it requires us to look at the big picture, review all of our regulations, and make a thorough assessment of how we can expedite the transition and encourage infrastructure investment.

That said, some haven't embraced the IP transition. They too often dwell on allegations of what might be lost and ignore the realities of what can be gained. They're determined to see the glass as half-empty.

That's a mistake, in my view. For the transition holds the promise to bring better and faster services to all Americans. Next-generation networks could revolutionize everything from health care to education, as patients get better care and students get better opportunities. Next-generation networks mean more orders for equipment suppliers and more good-paying jobs installing infrastructure. Next-generation networks mean more reliable connections to homes and offices, which is especially important in public safety emergencies. And next-generation networks will also allow our businesses to become more productive, and our country to become more competitive in the global economy. Put simply, the IP transition is something to be welcomed, not feared.

The FCC has embraced hope over fear in the recent past. Back in 2010, the National Broadband Plan recognized that we can't expect carriers to maximize investment in next-generation networks while they are forced to maintain legacy infrastructure. That's because every dollar spent maintaining 20th century copper is one less dollar spent deploying 21st century fiber. And the FCC's Technological Advisory Committee (TAC) agreed. It set a target of 2018 for shutting off the public switched telephone network (or PSTN) nationwide. And by the way, that target was set when the TAC was headed by President Obama's nominee to become FCC Chairman, Tom Wheeler. I'm confident that Tom has a forward-thinking vision on these issues, and I look forward to working with him.

That 2018 deadline is only five years away. It's an ambitious goal, partly because when we turn off the PSTN, there may be problems that we can't foresee right now. To borrow a phrase from Donald Rumsfeld, there will be "unknown unknowns," things "we do not know we don't know."

To make sure we *do* know as much as we can, the Commission should immediately launch an All-IP Pilot Program. The first step is to issue a Notice of Proposed Rulemaking so that we can work out the specific rules under which the program would operate. In a set of discrete wire centers, we should let carriers turn off the PSTN and make the transition to all-IP in a set of discrete wire centers and study the results. With localized trials in a diverse set of areas, we can see what works and what doesn't. To help the nationwide transition go smoothly, there will be no substitute for actual experience.

I've laid out my principles for structuring an All-IP Pilot Program in other speeches and statements—more exciting listening and reading you will never find—but let me say this here. I don't expect that these trials will resolve every issue with the IP transition. Far from it. But they are a necessary first step if we are to embrace the IP transition proactively.

Indeed, we recently recognized the importance of trials in a related context. Back in April, we unanimously approved what we called "numbering trials" for Voice over Internet Protocol (VoIP) providers. In setting up these trials, the FCC finally allowed certain VoIP providers to directly access telephone numbers for their own customers—a pretty important and obvious step for a new, IP-based competitor. These VoIP numbering trials are wholly voluntary, localized trials that allow us to iron out any problems with changing one facet of the telephone system. We should take a similar approach with the All-IP Pilot Program, and we should take it soon.

On to the second idea I mentioned for infrastructure investment: reducing uncertainty with regards to the Universal Service Fund. As I said last year, whatever the size of the Fund, we need to make sure we're getting the most bang for our universal service buck. That's why I called for the FCC to adopt reforms to make the distribution of money from the Fund more stable and predictable. Investing in communications infrastructure is a decades-long commitment. If we want rural America to build out next-generation networks, they need to know not only what funds are available today but what funds will be available years down the line. Rural carriers won't risk capital if their balance sheets are filled with question marks. In fact, in an uncertain environment, they may not be able to raise capital in the first place.

We made halting progress on this front over the past year. In February, we made some common-sense changes to the quantile regression analysis (QRA) that determines High Cost Loop Support (HCLS) for rural carriers, though we unfortunately didn't scrap the acronyms. This was a step in the right direction. But we need to do much more. Our quantile regression analysis is still impeding the deployment of broadband in rural America—indeed, carriers have no idea what that analysis will look like next year. It's time for us to fundamentally reform the QRA to make sure it respects the facts on the ground and the investment timeline of rural carriers. And if we can't do that this year, we should push off implementation until we can.

And we are moving, slowly but surely, closer to the second phase of the Connect America Fund, which will provide five years of support for price-cap carriers to deploy broadband. To its credit, the staff of the FCC's Wireline Competition Bureau has made substantial progress on that project. It's taken longer than anyone had expected (the initial target implementation was 2012), but we now have a cost model, and we have a process for ensuring that support won't target areas served by an unsubsidized competitor. I hope that we'll begin implementing changes by the end of this year. We need to shift as soon as we can to the more stable support that Phase II will offer. This will make carriers feel more confident in committing to long-term business plans.

As for my third and final call on infrastructure investment, relating to the merger of competitive local exchange carriers and cable operators? I'm happy to report that the FCC answered affirmatively and quickly just two months after I proposed it. In September, my colleagues formally agreed with me that an outdated section of the Communications Act shouldn't stand in the way of these transactions. So in FCC-speak, we decided to "forbear" from enforcing that section in order to promote the public interest. By joining forces, these providers can better compete and deploy more infrastructure, especially for business customers in urban areas. I'm glad the FCC took that step last year and look forward to seeing the results it will produce in years to come.

III.

That takes care of spectrum and infrastructure. Now for my last principle: The FCC should be as nimble as the industry we oversee. It's simple, really. The communications industry is evolving quickly, and the FCC needs to keep up. We shouldn't let bureaucratic inertia stand in the way of new services and technologies. Companies can't afford to put their business plans on hold as they wait for the FCC to act.

I like the story of the Tortoise and the Hare as much as the next person. But those of you in the private sector know that slow and steady in ICT can mean RIP. And it's not just companies, large and small, that deserve a timely answer from the agency. When public interest groups or consumers file complaints with us, we should respond promptly as well. That's part and parcel of good government.

Unfortunately, the FCC doesn't have a reputation in Washington as an agency that moves quickly. Here are just a couple of examples that illustrate the point.

Nine years ago, Martha Wright complained to the Commission about the high long-distance rates she paid to speak with her then-incarcerated grandson. Thankfully, due in large part to the leadership of

my colleague, Chairwoman Mignon Clyburn, the FCC responded to her petition last December. But Ms. Wright shouldn't have had to wait over eight years for the Commission to act.

At a Congressional oversight hearing last year, one Congressman asked us about a matter involving a company in his district that had been pending for over a decade. Shortly after that hearing, an order addressing that matter was finally approved by the Commission. But it shouldn't take an inquiry from Congress to get us moving on a petition that has been pending since the 20th century. And it shouldn't take us almost 12 years to issue what turned out to be an eleven paragraph order—ironically, an order chastising the company for missing a deadline!

I could give you many other examples. Taking more than a year to decide that a 77-year-old rule—first imposed by the FCC's Telegraph Division to cover telegraph carriers and money orders—was no longer necessary. Establishing a 180-day shot clock for reviewing transactions—but letting the buzzer ring all too often. You get the point. We could do better by doing sooner.

In order to make the Commission more nimble, I proposed a wide range of internal process reforms here in Pittsburgh last July. I called for establishing more internal deadlines, such as a 6-month deadline for resolving waiver petitions. I argued that we should create an Office of Entrepreneurship and Innovation to ensure that the FCC make it a priority to rule on proposals for new services and new technologies within one year, as Section 7 of the Communications Act requires. And I promoted an idea for handling applications for review that would help resolve them more quickly and allow a party that didn't like that resolution to go to court immediately.

To me, these proposals just make common sense. So I'm a little disappointed that we haven't made any meaningful process reforms at the FCC over the past year. Serving in the minority as a Republican Commissioner—and these days, I'm in a minority of one—I understand that there will be times when my colleagues and I will disagree. And when we disagree, I understand that I'll generally draw the short end of the stick.

But FCC responsiveness shouldn't be a majority-or-minority, Republican-or-Democrat issue. Process reform isn't partisan. Whether the matter before us involves a Fortune 500 company, a small start-up, a public interest group or an individual consumer, the Commission should respond promptly. Parties might not like the answer that we give them. But they deserve an answer. As one person said to me, "Tell me yes, tell me no, but just tell me."

So I plan on continuing to advocate for ways to make the FCC more nimble. And I'm not the only one. There are some reforms that we don't have the authority to make right now on our own; Congress must change the law for us. The leadership of the House of Representatives' Energy and Commerce Committee is considering doing just that. They're scheduled to vote on a process reform proposal today, in fact. And with respect to those reforms that are within our power, we should keep one thing in mind. If we don't reform on our own, then we increase the chances that Congress will do the job for us.

In the meantime, I will try my best to ensure that the Commission moves swiftly. For example, when the Chair makes a proposal to the Commissioners that I support, I will continue to cast my vote as quickly as possible. Many times, I've been the first Commissioner to vote for proposals made by the Democratic Chairman or Chairwoman. And some have asked me skeptically why I would do such a thing. My response to that question is simple. A good idea is a good idea, and I don't care whether it is proposed by a Democrat or a Republican. If it's the right thing to do, then it's the right thing to do, and I'll vote for it. As President Reagan said, "There is no limit to what you can accomplish if you don't care who gets the credit."

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So that's where we stand. As to where we're going, I'm optimistic. Work at the FCC is a team effort, and my current colleagues, Chairwoman Clyburn and Commissioner Rosenworcel, are talented and dedicated public servants. We may not agree on every issue, but I never doubt that they are doing what they believe is in the best interests of the American people. And I always appreciate their efforts to find common ground. I'm hopeful that those who join the Commission in coming months—the new Chairman and Commissioner—will operate in that same spirit and will try to forge a consensus as we tackle the tough challenges. And as always, the FCC is blessed to have an extraordinary staff. They exemplify the best in public service. They've forgotten more about the field than I'll ever know. And they are among the 1,700 or so reasons why I'm excited about what we can achieve in the coming year.

As we move forward, I'm reminded of the 1935 film *A Night at the Opera*, in which Groucho Marx popularized the question: Will it play in Peoria? In the year to come, we should keep that question in mind with a bit of a twist: Will it play in Pittsburgh? Will the FCC's policies make it easier for companies in Pittsburgh to innovate? Will we help facilitate Pittsburgh's transition to the digital economy? Will we streamline regulations so that businesses in Pittsburgh can invest, create jobs, and grow the economy?

Those are questions that I've been asking myself throughout my first year in office. I'll keep asking them during the year to come. For if our policies play well in Pittsburgh, I'm confident that they'll play well across the rest of the country.