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The Crucial Spectrum Mission Is Far From Accomplished

by

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Introduction

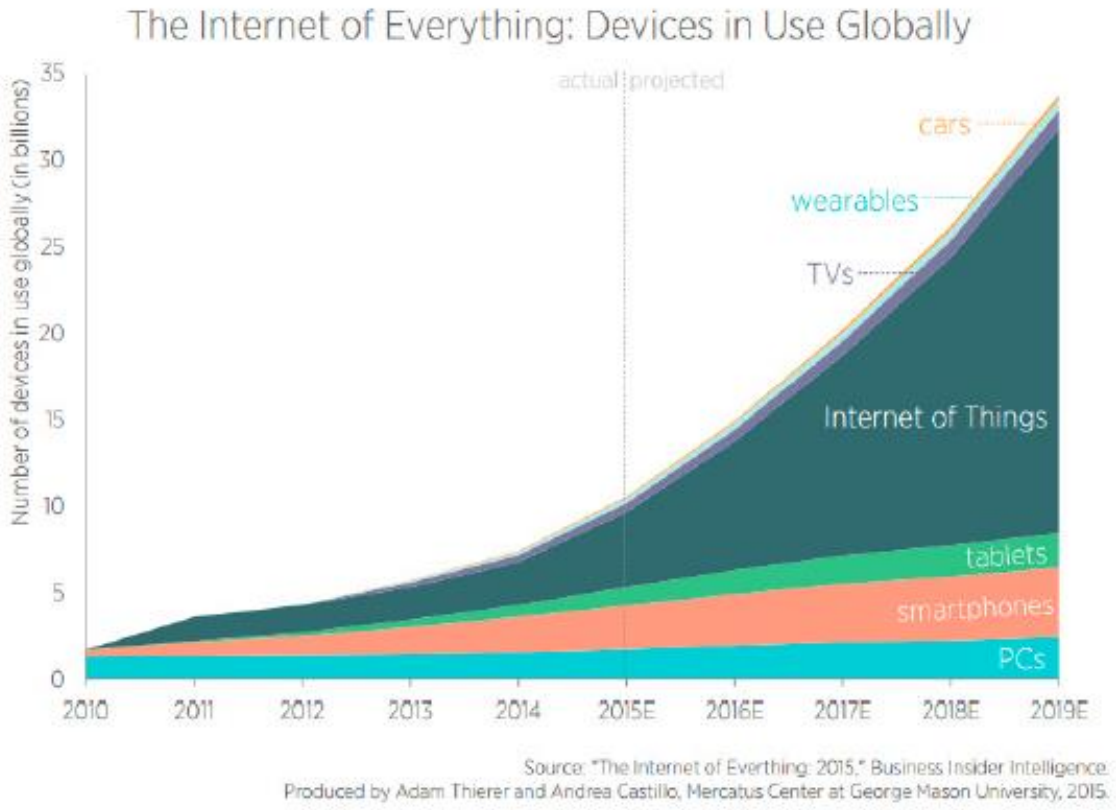
Although government has been making laudable progress on reallocating spectrum for mobile use, current efforts must be redoubled before concluding that the crucial spectrum mission is accomplished. Recent Administration announcements of significant progress in meeting spectrum reallocation targets should be taken in context, given that mobile demand is burgeoning and outstripping existing plans for making available additional spectrum. Thus, efforts must begin now to find the additional 350 MHz of spectrum needed by 2019, as well as additional post-2020 spectrum to accommodate 5G systems, given the lengthy time it takes to reallocate spectrum.

Wireless Has Been Successful at Increasing Consumer Welfare and Economic Growth

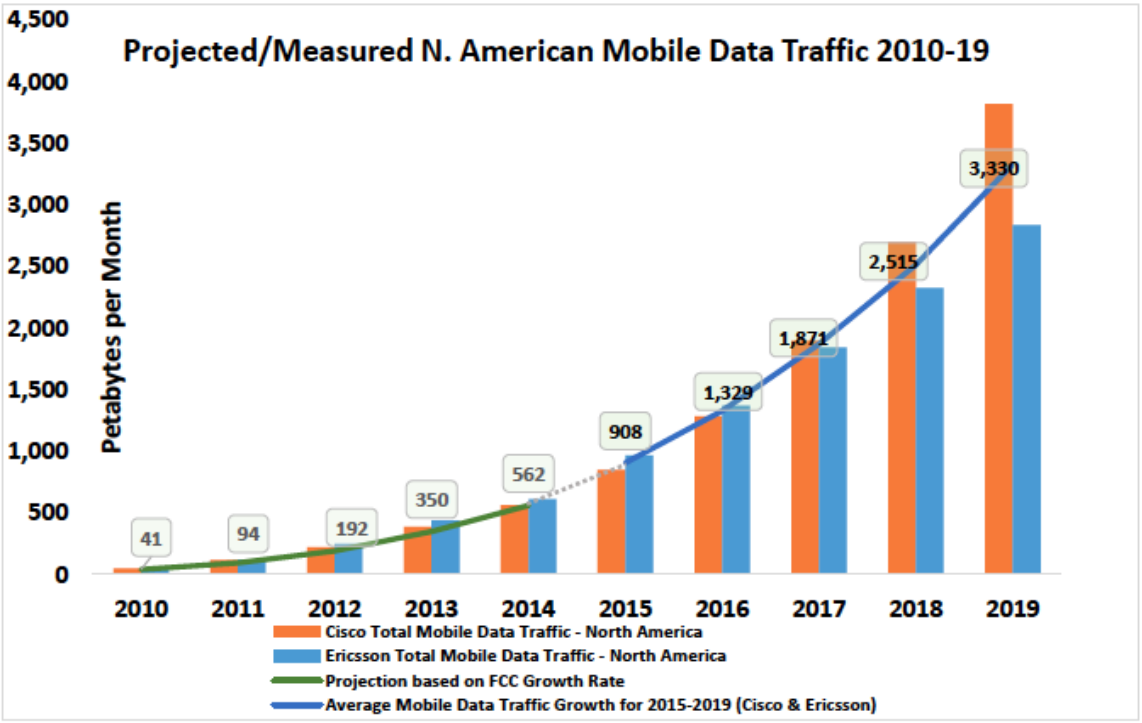
Wireless connectivity has been wildly successful. Consumers demand it for business, information, and connecting with other people. Industry demands it to make operations more efficient and devices smarter. What started in the 1980s as cellular voice service has morphed into wireless voice, broadband, and video, and wireless demand continues to grow as entrepreneurs innovate with new applications and service offerings.

CTIA reports that the wireless industry made over $33 billion in capital expenditures in 2013, and more than $260 billion during the last ten years. The Brattle Group has estimated that U.S. consumers and businesses spent $172 billion on wireless services, which in turn generated more than $400 billion in total spending. Wireless adds about 1 percent to the U.S. GDP. Wireless directly employed more than 180,000 people in 2013, but had a direct and indirect impact to support 1.2 million jobs nationwide. It is no small accomplishment that United States industry leads the way in spearheading this global revolution.

Potential applications using wireless have been skyrocketing. The much-discussed Internet of Things has sparked ever increasing industry interest in wireless connectivity, from vehicle operation and safety, to appliance and manufacturing process monitoring, to new medical devices, to wearables. Adam Thierer estimates that up to 35 billion devices will be connected to the Internet by 2019, a large number of these through wireless services, at least in part.



CTIA has published an analysis that mobile demand in 2019 will be six times 2014 demand.



This success is attributable in large part to the fact that wireless services have remained for the most part unregulated at all levels of government. At least this was so until the FCC's recent move to regulate all Internet access in a public utility-like fashion. In any event, based on the growing demand, Washington policymakers mostly agree: the country needs more spectrum allocated to mobile use.

The Historical Allocation

As I've indicated here, the government has auctioned off only145 MHz of the spectrum in the FCC's original 2010 plan to allocate more mobile spectrum, which is only about 30 percent of the Administration's five-year old goal of 500 MHz of spectrum for mobile broadband use. The next two spectrum blocks identified to meet this goal entail significant uncertainties as to whether they will be useful in meeting the wireless spectrum crunch.

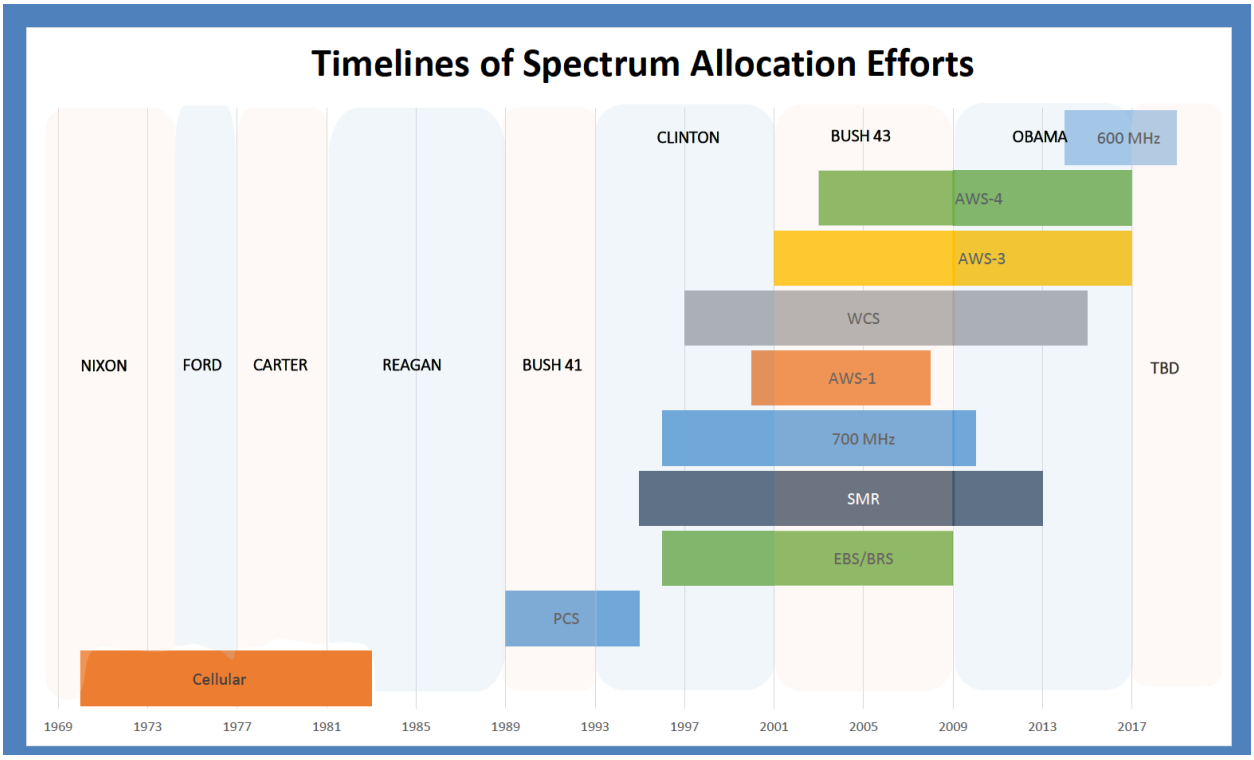
First, all parties, including the FCC, are committed to a March 2016 incentive auction (targeted to achieve up to 126 MHz). Some have estimated the auction will only achieve closer to 85 MHz, although there is no reliable information on the number of broadcasters that will participate. Because the repacking and channel-sharing processes continue to produce uncertainty, some broadcasters reportedly are having difficulty making firm decisions to participate. In addition, the level of broadcaster interest will be directly related to the uncertainty about the level of anticipated revenues because the forward-looking portion of the auction is skewed in favor of everyone other than AT&T and Verizon. Now that Sprint has announced it will not participate, the revenues from the spectrum set aside are even more in doubt. Indeed, the whole notion of the set-aside for certain favored carriers is looking even more dubious.

Second, the 3.5 GHz band (100 MHz) rules create a complicated arrangement where existing federal users continue to have priority, including significant geographic exclusion zones where commercial entities cannot operate. Because the three-year license terms are far shorter than is typical and technical rules are relatively restrictive, there remain significant unresolved questions whether the spectrum is viable for commercial wireless operations.

Even if both of those spectrum blocks are credited toward the spectrum reallocation effort, the administration is still 135 MHz short of its 500 MHz goal. At the current time, there are no additional spectrum blocks specifically identified for auction.

More Spectrum Is Needed

The greater need for spectrum was one of the main topics of conversation at the recent CTIA convention in Law Vegas. CTIA has cited a Brattle Group report which estimates that at least 350 MHz more spectrum will be needed for mobile broadband by 2019. And according to historical data, spectrum can take on average thirteen years to reallocate.



Commissioner Rosenworcel has echoed this concern, indicating that (1) more spectrum needs to be brought into the pipeline, (2) government needs to look at ways of incentivizing government to become more efficient, and (3) everyone needs to find new and innovative ways to improve spectrum availability and efficiency. The FCC's Above 24 GHz proceeding is one approach to partially fulfilling the need.

Congress has repeatedly focused on spectrum needs, through actions such as Senator Marco Rubio's (R-FL) Wireless Innovation Act of 2015. That proposed legislation would require

government to identify at least 200 MHz of spectrum below 5 GHz for reallocation to private use. It also includes incentives to government agencies to encourage giving up spectrum. The Senate recently focused on those spectrum needs, by highlighting a number of proposals to make government use of spectrum more efficient, possibly freeing up necessary spectrum for commercial wireless use.

CTIA President & CEO Meredith Baker also has emphasized that government needs to focus on spectrum needs beyond 2019, in order to support 5G, the next generation of wireless broadband. Many have recognized that the United States represents the leading edge of wireless innovation and deployment. Spectrum for 5G is necessary to enable the United States to retain its leading role. Roger Entner of Recon Analytics recently pointed out that it is not too early to find and implement necessary allocations to support 5G's 2020s-based technology advance.

Commercial-Government Spectrum Sharing

As I've indicated here, government now focuses almost exclusively on sharing spectrum between government and commercial users, rather than vacating and reallocating spectrum. As I've indicated previously, sharing of spectrum is fraught with difficulties and undermines the ability of commercial wireless providers to provide reliable services. Sharing techniques are not sufficiently advanced to conclude that sharing is a permanent "win-win-win" situation for users, industry, and government.

Government spectrum users occupy a huge swath of high quality spectrum usable for commercial wireless services. Commissioner O'Rielly posits that government occupies 2417 MHz of usable spectrum, or nearly 70 percent. NTIA, on the other hand, argues that government has exclusive use of only 17 percent of prime spectrum, and higher projections are distortive because many government bands are already shared, including with commercial users. Whoever is correct, even NTIA has identified 1160 MHz of potentially reallocable (dedicated or shared) spectrum that is either under study for reallocation or available for potential future study.

Regardless of the correct viewpoint, there is no question that government is less efficient at using its allocated spectrum because (1) institutionally it is more cautious about giving up what it has, and (2) it is slower to modernize equipment, and (3) budgetary battles in Washington seriously hamper interest in expending funds to modernize spectrum usage. For these reasons, incentives for government vacation of spectrum must be explored more urgently than at present.

The House has proposed H.R. 1641, which provides some incentive for government to become more efficient, a provision that is similar to one in Senator Rubio's pending legislation. However, these incentive provisions are limited because they only set aside one percent of spectrum resources for spectrum efficiency research.

I've applauded those, like Commissioner Rosenworcel, who have suggested that an incentive auction be run for government users to put market-based motivations behind government spectrum decisions.

Commissioner O'Rielly has more recently suggested that government be afforded incentives to become more efficient by establishing a budget-based valuation system for spectrum holdings.

By assigning a per-MHz value to the spectrum used, government budget operatives could evaluate what spectrum was worth and, together with other budgetary priorities, could determine whether the agency should become more efficient in its use of spectrum, or give up spectrum to reallocate budget dollars toward more important priorities. Government budgeting is well understood, albeit subject to unique (sometimes mysterious) bureaucratic manipulations. Some form of budgeting mechanism could be devised and used in addition to other incentive approaches such as a government incentive auction.

Some have questioned whether government planners will respond to incentives because they do not exhibit the same behavior as commercial enterprises in a competitive marketplace. Although it is true that government officials now behave differently than commercial enterprises, that is largely because they have never been forced to employ a market model with market-oriented incentives. As such, the concerns are largely conjecture. Only an actual incentive auction would reveal the interest, and a failure puts the country in no worse place than at present, and could provide valuable lessons in crafting better incentives. A "push" by FCC and NTIA spectrum gurus (indeed the White House itself) could well revolutionize government management spectrum perspectives. Such efforts were reportedly productive when used to promote the broadcast incentive auction where broadcasters initially exhibited considerable resistance for a number of years.

Conclusion

Statistics have shown that allocation of spectrum for mobile use produces enormous investment and increases to consumer welfare. A decision by government to redouble its efforts to find and reallocate sufficient spectrum would constitute wise policy that would benefit consumers and business and increase American global competitiveness.

Because the timeline for reallocating spectrum is so long, now is the time to identify target spectrum and begin the process of reallocation in order to meet burgeoning wireless spectrum demand. Commercial-government spectrum sharing should not be a favored approach at this point. Instead, Washington policymakers should focus on greater incentives for government to use spectrum efficiently and wisely. A government incentive auction, coupled with valuing government spectrum for budget planning purposes, has the potential to create the right incentives. Prompt mobile spectrum allocation actions would help continue the wireless American success story, which has been fueled by market forces and entrepreneurial initiative. Only then can the spectrum mission be considered accomplished.

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