



The #Solutions2020 Call to Action Plan addresses general and specific areas which serve to ensure the spread of broadband technology to all parts of our country. Several of the action items such as health related services and inmate calling services meet targeted needs of specific sectors of the nation, while other action items such as empowering communities and spreading 5G impact our country as a whole. USTelecom supports all of these areas as an opportunity for growth in the industry and seeks to ensure an understanding that at the foundation for all of these worthwhile initiatives is the need for the deployment of ubiquitous fiber. The nation's wired broadband infrastructure is a critical component of our wireless freedom.

Many don't realize that virtually every wireless device ultimately travels over the nation's wired infrastructure. Current widespread use of mobile broadband significantly relies on the broadband infrastructure backbone. Once you get home with your smartphone or tablet, chances are you connect to your Wi-Fi network to access the internet. With data gathered from July 2016, Sandvine reports that 10 device classes across four major platforms generate nearly three quarters (73.4 percent) of fixed-access broadband traffic (downloads and uploads) in North American households.<sup>4</sup> No matter what the connected device—PCs, mobile devices, gaming consoles or OTT boxes—streaming movies, TV shows and all other forms of audio and video generate the largest share of traffic on a home's fixed broadband network. So when the Commission seeks to undertake a mission to expand wireless broadband, maintaining and investing in our nation's wired networks to connect today's cell sites and tomorrow's small cells is more critical than ever.

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<sup>4</sup> Sandvine, *Global Internet Phenomena Spotlight: Inside the Connected Home*  
<http://www.internetphenomena.com/>

The Public Notice specifically mentions the move from already robust and in high-demand 4G wireless technologies to a new age of 5G connectivity that will be inclusive and ensure that those living in rural and low-income areas are a part of this new frontier.<sup>5</sup> As the move toward 5G technology picks up speed, now is the time to consider how it will impact the broadband infrastructure. In a competitive marketplace, ultra-fast broadband connectivity is a key differentiator, and 5G development and trials are underway. Several of USTelecom's member companies are actively engaged in building all digital network infrastructures that can support next-gen wireless broadband technologies. AT&T shared its plans to begin field trials for 5G in Austin, Texas before the end of the year. The company expects 5G will deliver speeds 10 to 100 times faster than 4G LTE, which is a part of AT&T's longer-term innovation strategy to support broad-ranging advances that benefit consumers and their communities. Verizon has also announced an aggressive timeline for its 5G field-testing and deployment efforts, aiming to launch part of its 5G network by 2017, far ahead of the 2020 arrival date marketplace analysts have been predicting for the launch of this technology. There is clearly a sense of urgency to push forward on 5G and usher in a new generation of innovation.

This next wave of ultra-high speed gigabit broadband expansion coincides with a report profiled in Telecompetitor,<sup>6</sup> indicating that subscribers to super-fast broadband service surpassed the 300 million mark in mid-June 2015, and will possibly reach 50 billion broadband connections by 2020. Higher speeds will help support growing bandwidth demands resulting from data-heavy consumer Internet use and the billions of connected devices expected to use

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<sup>5</sup> *Id.* at 4.

<sup>6</sup> *FTTx Subscriberhip Exceeds 300 Million* by Andrew Burger (Feb. 15, 2016) <http://www.telecompetitor.com/report-fttx-subscribership-exceeds-300-million/>

these networks. While 5G speeds will fluctuate based on a variety of factors ranging from signal strength to network congestion to location-specific variables (i.e., trees, buildings), Verizon predicts its 5G technology will have 50 times the capacity of its 4G network and tests have shown speeds 40 times faster than 4G. This means, for example, that a 3-D movie will download in 6 seconds on a 5G network compared with 6 minutes for 4G. Because of this growth, it is more important than ever to ensure that the broadband infrastructure continues to expand to new communities and can respond to new technologies and uses as they develop.

Commissioner Clyburn also makes special mention of broadband as the driver of improved health related services. From health to education and the environment, broadband provides consumers with deep and far-reaching opportunities, enhancing overall quality of life in many respects. Broadband-enabled health care is considered by many to be the next great frontier of American medicine. High-speed transmission capability in particular has generated efficiencies such as faster patient diagnoses, reduced medical errors, and additional control over skyrocketing patient care costs. These gains benefit Americans at both a financial level (reduced annual out-of-pocket expenses) and a personal level (enhanced access to online health information). Just like the rest of the wireless applications discussed throughout the Public Notice, these telemedicine applications that use wireless technology rely on a fiber backbone.

One of the most important ways to ensure that fiber deployment goes unimpeded is to remove or forbear from burdensome regulation. USTelecom was successful in achieving forbearance from several outdated regulations when the Commission granted portions of the Modernization Petition. At issue in that Petition were regulations that pre-date many major technology and competitive transitions in the telecommunications marketplace. Their removal was necessary to free up resources that can be devoted to new broadband networks and services.

USTelecom was pleased with the grant of forbearance where it was issued, but notes that there is still much work to be done to free up broadband providers from regulations that impede deployment.

Unnecessary regulatory burdens, including cumbersome access to rights-of-way, create unnecessary costs which force incumbent LECs to devote scarce resources to outmoded legacy networks and services. Consumers are harmed and the marketplace is skewed by these rules. While cable, wireless, and competitive fiber providers are free to focus their expenditures on next-generation networks suited to delivering higher-speed services, ILECs must direct a substantial portion of their network budget to maintaining legacy facilities and fulfilling regulatory mandates whose costs far exceed any benefits. Additionally, it discourages investment in the high-capacity networks that today's consumers demand. Legacy regulatory requirements that apply only to one subset of providers in today's competitive communications marketplace impede new network investment.

There is already evidence that recent broadband investment is beginning to decline. USTelecom's annual analysis of broadband industry capital expenditures<sup>7</sup> reveals that the industry invested approximately \$1.5 trillion in network infrastructure over 20 years from 1996-2015.<sup>8</sup> The wireline industry invested nearly \$750 billion during this period. In 2015, the industry invested \$76 billion, \$1billion lower than the previous year.<sup>9</sup> The problem is that the

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<sup>7</sup> Broadband Investment Ticked Down in 2015 by Patrick Brogan, Vice President of Industry Analysis, USTelecom (Dec. 14, 2016) <http://www.ustelecom.org/sites/default/files/Broadband%20Investment%20Down%20in%202015.pdf>

<sup>8</sup> *Id.* at 1.

<sup>9</sup> *Id.*

U.S. digital economy requires constant broadband investment in ever-greater capacity, speed, and reliability in order for it to optimize the benefits for all American consumers and businesses. The FCC and other policymakers must seek to create an environment that encourages growth in broadband investment. U.S. broadband providers invested approximately \$76 billion in network infrastructure in 2015 down from approximately \$77 billion in 2014 according to a new USTelecom analysis of company capital expenditures data.<sup>10</sup> USTelecom has published this data series annually for the last six years and the data now covers 20 years of broadband provider capital investment. From 1996 through 2015, the broadband industry has made capital investments totaling \$1.5 trillion.<sup>11</sup> The wireline industry continued to make large capital investments to expand and upgrade broadband infrastructure for American consumers and businesses. In 2015, the wireline industry invested \$27 billion, down from \$28 billion the previous year.<sup>12</sup> In 2015, wireline contributed 35 percent of broadband providers' capital investments while wireless contributed 43 percent and cable 22 percent.<sup>13</sup> From 1996 through 2015 wireline providers invested almost \$750 billion, about half of the \$1.5 trillion in total broadband industry capital investment.<sup>14</sup> During this same period, the wireless industry contributed 33 percent and cable providers contributed 17 percent of total capital investment.<sup>15</sup> This data shows a concerning trend. The failure to keep up investment in broadband will ultimately affect the wireless industry and all of the various applications it seeks to employ.

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<sup>10</sup> *Id.* at 2.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 2-3.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

Additionally, the Commission should actively seek to ensure the newly reformed Connect America Fund programs continue to be fully funded and implemented. These programs are critical to ensuring that fiber investment in currently unserved and underserved areas continues particularly in high cost areas. The planned expansion of the programs described in the Public Notice are heavily reliant on access and fiber deployment to rural areas which cannot flourish without full implementation of the USF CAF programs.

USTelecom supports all potential uses of broadband but cautions that in order for the expansion of much needed, faster technology in all parts of the communications sector to succeed, the impacts on the broadband infrastructure must be carefully taken into account. Broadband backbone is the foundation of the entire universe of the network and pathways need to be cleared in order to ensure that future investment is not only maintained, but increased. Failure to shore up the underpinnings as the communications sector looks to the future would be crippling.

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