

**Before the
DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, D.C. 20230**

In the Matter of)	
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)	
The Benefits, Challenges, and Potential Roles)	
For the Government in Fostering the)	Docket No. 160331306-6306-01
Advancement of the Internet of Things)	
)	

COMMENTS OF COMPETITIVE CARRIERS ASSOCIATION

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Competitive Carriers Association (“CCA”) hereby submits these comments in response to the above-referenced Notice and Request for Public Comment (“Notice”) released by the National Telecommunications and Information Administration (“NTIA”).¹ The Notice solicits comment on the benefits, challenges, and potential roles for the government in fostering the advancement of the Internet of Things (“IoT”). CCA focuses its comments to address questions one, three, six, seven, ten, eleven, thirteen and seventeen of the Notice, regarding needed technology and infrastructure to support the IoT, as well as policy suggestions that would better enable competitive carriers to prepare for the deployment and development of ubiquitous IoT use.

I. INTRODUCTION

CCA is the nation’s leading association for competitive wireless providers and stakeholders across the United States. CCA’s membership includes nearly 100 competitive

¹ *The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things*, Docket No. 160331306-6306-01, Notice, Request for Public Comment, 71 FR 19956 (Apr. 6, 2016) (the “Notice”).

wireless providers ranging from small, rural carriers serving fewer than 5,000 customers to regional and national providers serving millions of customers. CCA also represents approximately 200 associate members including vendors and suppliers providing products and services throughout the mobile communications supply chain. CCA and its members have played, and will continue to play, a significant role in competitively-priced IoT use, especially in rural areas where competitive carriers are often the sole wireless broadband provider. Indeed, competitive carriers drive innovative use of wireless broadband technologies, like the IoT, out of competitive necessity and discipline the services market, which is dominated by the two largest carriers.²

It is therefore critical for government actors to account for the needs of competitive mobile carriers when considering the policy implications of IoT. Preparing for further proliferation of IoT applications (in particular, fostering the best technological and policy environment in which to deploy next generation networks capable of supporting IoT) has played a major role in shaping CCA's ongoing advocacy.

As NTIA, the Federal Communications Commission (the "FCC" or "Commission") and other government agencies continue to build the groundwork for 5G networks and IoT deployment, these agencies should provide for flexible rules and policies designed to withstand a changing technological environment. In many cases, IoT technologies are only in the testing phase, and the industry is far from developing "best practices" or deploying 5G networks capable of supporting the fast, dense data flows expected to define IoT. In the past year specifically the

² *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Eighteenth Report, 30 FCC Rcd 14515 ¶ 10 (2015) ("Eighteenth Report") ("[N]on-nationwide service providers are important sources of competition in rural areas, enhancing competitive choices for consumers in the mobile wireless marketplace, and helping to promote deployment").

Commission has taken several steps to lay the foundations for IoT and 5G deployment. Most important among those steps are the Commission’s proceedings to reform the business data services (“BDS”) market (also referred to as the special access market)³ and to develop millimeter wave (“mmW”) allocations and licensing rules.⁴ The Commission also has taken steps to address infrastructure-related impediments to IoT deployment by suggesting a streamlined permit approval process for small cell technologies widely accepted as 5G conduits.⁵ Further, in the last few months, the Commission began a number of proceedings designed to free up new 5G-capable spectrum, either through innovative sharing arrangements or altering rules to allow more productive spectrum utilization.⁶

In adopting forward-looking policies, CCA urges relevant government agencies to foster an environment that allows competitive carriers the flexibility to innovate without creating unnecessary burdens and disincentives that could stifle competition, innovation and investment.

³ *Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143, *et al.*, Tariff Investigation Order and Further Notice of Proposed Rulemaking, FCC-16-54 (2016) (“BDS Order and FNPRM”).

⁴ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, *et al.*, Notice of Proposed Rulemaking, 30 FCC Rcd 11878 (2015) (“SF NPRM”).

⁵ *Wireless Telecommunications Bureau Seeks Comment on Proposed Amended Nationwide Programmatic Agreement for the Collocation of Wireless Antennas*, Public Notice, WT Docket No. 15-180, DA 16-519 (rel. June 13, 2016).

⁶ *See, e.g., Comment Sought on Ligado’s Modification Applications*, Public Notice, IB Docket Nos. 11-109 & 12-340, DA 16-442 (rel. Apr. 22, 2016); *see also Comment Sought to Update the Record on Ligado’s Request that the Commission Initiate a Rulemaking to Allocate the 1675-1680 MHz Band for Terrestrial Mobile Use Shared with Federal Use*, Public Notice, RM-11681, DA 16-443 (rel. April 22, 2016); *see also Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Order on Reconsideration and Second Report and Order, FCC 16-55 (rel. May 2, 2016); *see also Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemakings Filed*, Public Notice, Report No. 3042 (rel. May 9, 2013) (Petition for Rulemaking to Permit MVDDS Use of the 12.2-12.7 GHz Band for Two-Way Mobile Broadband Service).

Fostering a competitive landscape is critical to ensure that all consumers are able to participate in IoT regardless of geography, service provider or social economic status.

II. QUESTION 1: Are the challenges and opportunities arising from IoT similar to those that governments and societies have previously addressed with existing technologies, or are they different, and if so, how?

While certain issues raised in anticipation of 5G and IoT are unique, legislators and policymakers should address similar—if not identical—core issues with every tectonic shift in telecommunications technology. That is: developing useful technical parameters, ensuring a competitive market, ensuring all Americans (not just those living in metropolitan and/or prosperous areas) have access, and that providers have the tools to cost-effectively deploy new technologies and networks supporting them. In the past, government has struggled with these concerns, particularly with respect to ensuring competitive carriers have the tools and resources to compete with the largest two providers. While competitive carriers often create innovative service options out of necessity, there is much government can do to enable competitive carriers to further build IoT-capable networks in unserved or underserved areas.

For instance, some competitive carriers are still striving to deploy 3G-based networks, much less 4G and 5G networks, in part due to poor policies or unforeseen results like early inequitable distribution of spectrum resources (including the free distribution of cellular licenses to early dominant providers), allowing device exclusivity for fragmented device access, allowing increased consolidation of the telecommunications industry, failure at the outset to ensure interoperability within spectrum bands, indirect permissive price gouging, and lack of oversight of the various anti-competitive practices of larger carriers. These actions (or inactions) have hindered the ability of competitive carriers to compete and innovate. The governmental policies must change going forward to ensure that consumers in all geographic areas are able to benefit

from IoT applications like m-health, precision agriculture, industrial IoT, m-commerce, and connected learning.

Recommendation: The government must “set the stage” for meaningful 5G and IoT deployment by numerous providers, not just the largest providers. The government should foster policies that create a level playing field where competitive carriers can effectively compete and innovate by releasing more spectrum with added clear and concise aggregation policies, continuing to address network deployment procedures that ease infrastructure construction, promoting equitable Universal Service Fund policies, and support interoperable device availability. Providing competitive carriers with the necessary tools to deploy and develop IoT will result in expansive innovation and competition across the broadband ecosystem.

III. QUESTION 3: With respect to current or planned laws, regulations and/or policies that apply to IoT:

3(a): Are there examples that, in your view, foster IoT development and deployment, while also providing an appropriate level of protection to workers, consumers, patients, and/or other users of IoT technologies?

3(b): Are there examples that, in your view, unnecessarily inhibit IoT development and deployment?

There are numerous proceedings currently before the FCC, as well as critical legislation before Congress, that will set parameters for various spectrum and wireline resources largely regarded as integral for 5G network deployment and IoT advances. Missteps or delay in these foundational rulemakings may inhibit competitive IoT adoption, especially in rural and hard-to-serve areas, if governmental entities ignore past decisions that truncated the ability of non-dominant mobile carriers to compete in the current mobile wireless ecosystem.

A. FCC Rulemaking Proceedings

Rules promulgated by the FCC will have a large impact on the realization of ubiquitous 5G and IoT deployment. The FCC is already considering proposals in a number of proceedings

that have the potential to either foster, or unnecessarily inhibit, IoT development and deployment.

Spectrum Frontiers. The Commission’s “*Spectrum Frontiers*” proceeding seeks to identify spectrum bands above 24 GHz that appear to be suitable for mobile broadband, and other operations like satellite and fixed use.⁷ Specifically, the Commission seeks to develop service rules governing use of viable millimeter wave (“mmW”) bands, as well as policies governing the manner in which this high-band spectrum will become available to potential licensees. This is a fast moving proceeding as FCC Chairman Tom Wheeler has stated the FCC will act on this proceeding “this summer.”⁸ CCA and members have filed substantive comments in this proceeding and have otherwise urged the Commission to prioritize the adoption of rules that do not give the largest carriers a monopoly on 5G and IoT deployment.

CCA supports the Commission’s efforts to make mmW spectrum available for mobile broadband use, both on a licensed and unlicensed basis.⁹ mmW bands are important for both mobile and fixed use supporting 5G services.¹⁰ These bands can also provide important backhaul links that will be needed if small cell and 5G mobile deployment is to succeed.¹¹ It is

⁷ SF NPRM.

⁸ Statement of Tom Wheeler, Chairman, Fed. Comm’n Comm’n, “Oversight of the Federal Communications Commission,” before the Committee on Commerce, Science, and Transportation, United States Senate (Mar. 2, 2016) *available at* http://www.commerce.senate.gov/public/_cache/files/568a06d6-a951-456f-bbf4-5cf3968afb84/6B3C4C06CFE5CDE9FC07C5D8AE1A0522.chairman-wheeler-final-testimony-3-2-16-scc.pdf.

⁹ *See* Reply Comments of Competitive Carriers Association, GN Docket No. 14-177, 2-4 (filed Feb. 26, 2016) (“CCA Reply Comments to SF NPRM”).

¹⁰ It is likely that many 5G services will be fixed, providing links for IoT devices. *See generally* Sprint Reply Comments to SF NPRM (filed Feb. 26, 2016).

¹¹ *See id.* at 2-3.

important for the Commission to adopt flexible prospective licensing and procedural rules for above 24 GHz spectrum so as to incentivize meaningful utilization of this spectrum, such as: a ten year license terms, county-sized Partial Economic Area-sized (“PEA”) license areas, a “substantial service” performance requirement, and an interoperability requirement across contiguous bands of spectrum.¹² The adoption of such proposals would certainly foster IoT development and deployment, particularly for competitive carriers.

Whether and how the Commission addresses spectrum aggregation rules for upper mmW bands will have a great impact on which mobile carriers lead in 5G networks and the IoT. CCA has previously expressed concerns over the dangers of spectrum consolidation in the hands of two providers; such a practice is anti-competitive and difficult to correct once entrenched.¹³ Indeed, spectrum consolidation jeopardizes 5G and IoT by rendering the broadband market less competitive,¹⁴ which means fewer choices for consumers, more expensive rates and less innovation. To that end, the Commission must take steps to actively discourage consolidation in the upper mmW band to ensure that rural and non-urban Americans have equal access to IoT technology as those in major markets.

In addition, the Commission’s treatment of interoperability concerns in the *Spectrum Frontiers* proceeding will impact IoT. Interoperability is important for competitive carriers that face significant challenges in obtaining the latest feature-rich devices that are also compatible with their network configurations. For example, Samsung Electronics North America’s

¹² See CCA Reply Comments to SF NPRM at 3.

¹³ See *id.* at 17-18.

¹⁴ See Comments of Competitive Carriers Association, GN Docket No. 15-191 (filed Sept. 15, 2014); Reply Comments of Competitive Carriers Association, GN Docket No. 15-191 (filed Sept. 30, 2014).

(“Samsung”) latest offerings, the Galaxy S7 and Galaxy S7 edge devices, were released to Tier I GSM carriers at least two months before non-Tier I GSM carriers. In the meanwhile, non-Tier I GSM carriers were forced to source alternative versions of the device. As a result of this practice, rural consumers were prevented from accessing the Samsung’s most advanced devices at comparable rates and at the same time as urban consumers. It is unacceptable that certain pockets of America are perpetually left behind with respect to using the latest and greatest technologies, including IoT devices configured to operate on these upper mmW bands. Further, as the IoT becomes more ubiquitous, it will become increasingly important for consumers to dependably use their IoT devices in any location (for example, when traveling) on any network; further, consumers should be able to expect reliable device-to-device communication. From the carriers’ perspective, as IoT deployment drives an increase in the volume of “smart” devices, interoperability would enable BIAS providers to select the best equipment from different manufacturers based on price and performance rather without having to worry about underlying network issues, or without having to negotiate new terms and conditions of use.

Thus, the Commission must continue to require interoperability in a manner that precludes the two largest carriers from using their market power to limit certain equipment and bands to themselves. Such actions occurred in the 700 MHz band, and severely limited the ability of competitive carriers to put purchased spectrum to its highest and best use while stalling deployment of advanced mobile broadband services in rural areas. CCA applauds the Commission’s recent efforts to mandate interoperability in the 600 MHz bands, and urges the Commission to adopt similar policies in the *Spectrum Frontiers* proceeding. To that end, CCA agrees with the Commission’s proposal in the *Spectrum Frontiers* proceeding that all mobile equipment operating within each licensed mmW band be interoperable using all interfaces that

the equipment utilizes on the frequencies.¹⁵ An interoperability requirement of this nature would encourage a disciplined equipment market equally accessible to all licensees.

Incentive Auction. High-frequency spectrum in the mmW bands, coupled with low-band spectrum, is expected to play a critical role in the transition from 3G and 4G LTE to 5G networks.¹⁶ Therefore, the Incentive Auction represents a unique opportunity for carriers to claim “greenfield” spectrum with ideal propagation capabilities. Without smaller geographic license sizes and reserved spectrum to prevent excessive spectrum aggregation by the largest carriers, it would be difficult for many carriers to compete with the vast resources of the two largest carriers. Accordingly, auction and spectrum allocation policies enabling rural and regional competitive carriers to bid successfully on spectrum is likely to strengthen the scope of future IoT deployment. Such policies must be implemented into any future spectrum auctions.

Business Data Services Policy. Carriers will need to undertake mass network densification projects to support the technical and consumer demands of 5G and IoT. Each new cell site (*e.g.*, a cell tower) requires a business data service (“BDS”) to backhaul voice and data from the cell site to the carrier’s network.¹⁷ Commissioner Clyburn’s succinctly explained the importance of BDS to mobile wireless providers:

[BDS is] a necessary input for mobile broadband service as these networks are only wireless until they hit the cell tower at which point they become reliant on wireline backhaul. A fast wireless network needs high capacity wireline connectivity when it reaches that tower. If such facilities are not in place, service could slow as soon as it

¹⁵ See CCA Reply Comments to SF NPRM at 12-13.

¹⁶ SF NPRM at ¶ 11.

¹⁷ John Sallet, General Counsel, Fed. Comm’n Comm’n, Remarks at the Incompas 2016 Policy Summit: 20th Anniversary of the Telecom Act, Newseum (Feb. 10, 2016) (for example, remarking that “the structure and efficient performance of the market for dedicated business data services may be fundamental to the deployment of 5G mobile broadband, which will require many more cell sites and thus much greater demand for the business data services generally referred to as backhaul”).

reaches those backhaul facilities. And if rates for backhaul connectivity are unreasonable, providers must either pay more or offer consumers slower speeds. Either way consumers and their communities are disadvantaged.¹⁸

Importantly, “the cost of backhaul is approximately 30 percent of the operating cost of providing wireless service,”¹⁹ which means access to affordable backhaul is a critical and substantial input into the cost structure of any wireless carrier, and becomes an even more significant portion of deployment costs, considering overall tower costs are likely to decrease as well as, eventually, the price of small cells themselves.

Considering 5G and IoT require dense small cell networks capable of quickly processing an unprecedentedly high volume of data, it is no surprise that the telecommunication community has amplified its attention to BDS pricing and service options. Sprint explains that

[t]he mobile broadband network of the future will require large network ‘densification’ investments to address exploding consumer demand for wireless data services. Densification will require Sprint to deploy tens of thousands of new cell sites. Every one of these sites will require additional backhaul—and Sprint and other competitors will depend on both TDM and Ethernet [BDS] more than ever to be able to compete.²⁰

Accordingly, as the industry moves toward 5G network implementation by allocating and licensing high-band spectrum, it is essential that the FCC and other relevant agencies formulate policies for BDS facilitating wide-scale, cost-effective delivery of even greater swaths of data across dense small-cell-based infrastructure.

The Commission’s new rulemaking seeking to comprehensively reform the broken BDS market²¹ presents an opportunity to provide competitive carriers the reasonably priced,

¹⁸ *Id.*, Statement of Commissioner Mignon L. Clyburn at 1.

¹⁹ Eighteenth Report at ¶69.

²⁰ Letter from Paul Margie, Walter Anderson, and V. Shiva Goel, Counsel to Sprint Corporation, to Marlene H. Dortch, Secretary, FCC, at 1, WC Docket No. 05-25 (filed Sept. 23, 2015).

²¹ BDS Order and FNPRM.

competitive market for backhaul needed for mobile and fixed wireless connections to perform optimally.²² This access is critical throughout the country, and particularly in rural areas.²³ Currently, AT&T and Verizon, the two largest wireless providers, are also among the largest four BDS providers.²⁴ These marketplace conditions enable and incentivize AT&T and Verizon to impose anti-competitive prices and conditions on their BDS offerings when dealing with wireless competitors. In addition, the Commission’s inaction has left BDS prices unchecked for over a decade. As a result, many CCA members are forced to accept anti-competitive prices and conditions to secure backhaul services from their biggest competitors, while AT&T and Verizon are free to purchase the same services from their affiliated companies.

Recognizing this harmful dynamic, the Commission seeks to set new rules that beget consistent pricing and competition in this market. Lowering BDS pricing to competitive levels will benefit rural carriers seeking to operate IoT-friendly networks by ensuring lower connection and roaming prices, which will be passed on to rural consumers. Accordingly, CCA applauds the Commission for addressing unreasonable contractual terms and conditions in the *Tariff Investigation Order* and encourages robust participation in the *Further Notice of Proposed Rulemaking* which will likely shape BDS pricing. CCA further notes that this proceeding, although recently reinvigorated, began over a decade ago when BDS was still known as “special access.” Letting this proceeding languish any further will be disastrous for competitive IoT and 5G deployment, and CCA urges an expeditious end to the BDS rulemaking cycle in 2016.

²² Letter of Competitive Carriers Association, INCOMPAS, Sprint, T-Mobile, and U.S. Cellular, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM 105-93, April 21, 2016 (“CCA BDS Ex Parte”).

²³ See CCA BDS Ex Parte.

²⁴ See BDS FNPRM, attaching the Rysman Report at 221 (noting “The biggest four [largest providers of BDS] are ILECs, followed by a set of cable companies and CLECs”).

Transactions. IoT deployment will be harmed by secondary market transactions in the telecommunications marketplace that consolidate ownership of spectrum licenses and valuable network inputs. In the *2014 Mobile Spectrum Holdings Report and Order*, the FCC acknowledged that spectrum transfers often “involve the disappearance of a separate business enterprise as an ongoing potential competitive constraint and source of innovations in services and marketing.”²⁵ Nonetheless the Commission has allowed a significant number of spectrum transactions which, in effect, have eliminated several competitive carriers from the marketplace. Specifically, the “enhanced factor” review, adopted by the Commission to prevent the extreme aggregation of below-1-GHz spectrum by wireless providers, has not proved an effective mechanism for disallowing transactions that harm the public interest. For example, the Commission has approved each of AT&T’s requests for low-band spectrum that underwent enhanced factor²⁶ or “super” enhanced factor review.²⁷ As a consequence of the multitude of

²⁵ See *Policies Regarding Mobile Spectrum Holdings; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, WT Docket No. 12-269, GN Docket No. 12-268, Report and Order, 29 FCC 6133, ¶ 280 (rel. June 2, 2014) (“*Mobile Spectrum Holdings Report and Order*”).

²⁶ See *Mobile Spectrum Holdings Report and Order* at ¶¶ 279-289 (2015).

²⁷ See, e.g., *Application of AT&T Mobility Spectrum LLC and Club 42CM Limited Partnership*, WT Docket No. 14-145, Memorandum Opinion and Order, (rel. Nov. 10, 2015) (AT&T/Club 42 Order); *Applications of AT&T Inc., Plateau Telecommunications, Inc., et al.*, WT Docket No. 14-144, Memorandum Opinion and Order, FCC 15-53 (rel. May 8, 2015) (AT&T/Plateau Order); *Applications of AT&T Mobility Spectrum LLC and East Kentucky Network, LCC*, WT Docket No. 15-79, Memorandum Opinion and Order (rel. Jan. 29, 2016); *Applications of AT&T Inc. and Cellular Properties, Inc.*, WT Docket No. 15-78, Memorandum Opinion and Order (rel. Jan. 28, 2016); *Application of AT&T Mobility Spectrum LLC and Agri-Valley Communications, Inc.*, WT Docket No. 15-181, Memorandum Opinion and Order (Dec. 30, 2015); *Application of New Cingular Wireless PCS, LLC and NEP Cellcorp, Inc.*, WT Docket No. 15-221, Memorandum Opinion and Order (rel. Dec. 30, 2015); *Application of New Cingular Wireless, PCS LLC and Farmers Telecommunications Corporation*, WT Docket No. 15-271, Memorandum Opinion and Order (rel. Mar. 28, 2016); *Applications of AT&T Inc. and Cellular Properties, Inc.*, WT Docket No. 15-78, Memorandum Opinion and Order (rel. Jan. 28, 2016); *Application of AT&T Mobility Spectrum LLC and Texas RSA 7B3, L.P., d/b/a People’s Wireless Services*, WT Docket No. 15-267, Memorandum Opinion and Order (rel. Jan. 14, 2016); *Applications of AT&T Mobility Puerto Rico Inc. and Worldcall Inc.*, WT Docket No. 14-206, Memorandum Opinion and Order (rel. Aug. 31, 2015); *Applications of AT&T Mobility Spectrum LLC and KanOkla Telephone*

approved transactions,²⁸ consumers are faced with fewer options, fewer parties to discipline pricing in the telecom marketplace, and fewer companies experimenting with innovative IoT applications.²⁹ To address these harms, the Commission should commence applying its heightened standards of review in a meaningful way.

Recommendation: CCA encourages the Department of Commerce (the “Department”) to provide more insight into FCC rulemakings, considering its expertise and resources. It is especially important that the FCC hits the right note in these rulemakings. Often, the Commission is the first party to address substantive network deployment and spectrum use

Association, WT Docket No. 14-199, Memorandum Opinion and Order (rel. Aug. 27, 2015); *Applications of New Cingular Wireless PCS, LCC, Bluegrass Cellular, Inc. and Bluegrass Wireless LLC*, WT Docket No. 15-225, Memorandum Opinion and Order (rel. Jan. 29, 2016); *Applications of AT&T Inc. and Pine Cellular Phones, Inc.*, WT Docket No. 15-13, Memorandum Opinion and Order (rel. Dec. 21, 2015); *Application of AT&T Mobility Spectrum LLC and Consolidated Telephone Company*, WT Docket No. 14-254, Memorandum Opinion and Order (rel. Sept. 2, 2015); *Application of AT&T Mobility Spectrum LLC and Kaplan Telephone Company, Inc.*, WT Docket No. 14-167, Memorandum Opinion and Order (rel. Aug. 26, 2015).

²⁸ See CCA Reply Comments to SF NPRM at 16.

²⁹ Currently, there is another transaction before the Commission that intersects with a number of issues relevant to this proceeding: Verizon’s purchase and option to purchase significant assets of XO Holdings and XO Communications. See *Cellco Partnership d/b/a Verizon Wireless and Nextlink Wireless, LLC, a Subsidiary of XO Holdings, Seek FCC Consent to a Long-Term De Facto Transfer Spectrum Leasing Arrangement Involving Local Multipoint Distribution Service and 39 GHz Spectrum*, Public Notice, DA 16-394 (Apr. 12, 2016) (“VZW/XO Lease Transaction”). The consolidation of Verizon and XO’s wireline resources would be a significant loss for competitive carriers and for competition in the marketplace, while the proposed *de facto* lease (and option to purchase) by Verizon of XO’s Local Multipoint Distribution Service (“LMDS”) and 39 GHz spectrum holdings threatens to lock up a significant amount of 5G-ready spectrum in the hands of one of the industry’s most dominant players. As CCA noted in its comments to the proceeding, considering “XO holds licenses covering 65% of the POPs for the [LMDS] band (27.5-28.35 GHz, 29.1-29.25 GHz, and 31.0-31.3 GHz) spectrum in the top 60 markets nationwide, the transaction under review represents a significant step in the direction of anti-competitive aggregation of mmW spectrum.” Comments of Competitive Carriers Association to VZ/XO Lease Transaction at 5 (filed May 12, 2016). This transaction has provoked spirited opposition from industry stakeholders. With substantial consolidation of spectrum licenses already having occurred in bands below 1 GHz, to the detriment of competitive carriers, the FCC should not allow the same harmful aggregation to occur in IoT-friendly mmW bands.

specifications, building upon legislative direction and authority granted by Congress. Commission policy will likely determine the effectiveness of IoT applications as the communications industry moves toward 5G, at least in the short term, and will have a direct impact on the ability of competitive carriers to play an important role in ensuring IoT use is inclusive of rural populations. In addition, given its critical importance to the development of 5G and IoT, CCA urges the Department to engage the Commission in the BDS rulemaking cycle and ensure the Commission is moving quickly to reach a resolution that will allow these developments to flourish. Moreover, in the interest of a disciplined mobile marketplace, the Department should encourage a more stringent filter for transactions conferring spectrum licenses to those already holding the majority of spectrum in the United States. The aggregation of spectrum, a critical resource, in the hands of a few carriers limits the potential for competition and innovation, and would inhibit the deployment and development of IoT.

B. Pending Legislation

Legislation to streamline barriers to deployment and provide spectrum to advance 5G wireless broadband services, like S. 2555, the MOBILE NOW Act, exemplify the proactive, forward-looking role government should play as the United States moves toward ubiquitous IoT use. The MOBILE NOW Act is a bipartisan effort that targets the buildout of 5G mobile broadband and addresses multiple pain points in the telecommunications ecosystem, from “dig once” policies to pre-auction funding to making 500 MHz of spectrum available to licensees for both fixed and mobile broadband use by 2020.³⁰ The bill also addresses easing barriers and

³⁰ Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act (Feb. 11, 2016) *available at* <http://www.commerce.senate.gov/public/cache/files/8805bde8-408f-4b5e-a5fa-d867eed9d84f/146C427A5D018C04CE7E9C925D398163.mobile-now-act.pdf> (the “MOBILE NOW Act”).

increasing certainty for entities seeking to deploy wireless infrastructure, such as shot clocks for approving facilities on federal properties, and offers incentives for spectrum efficiency.³¹

Recently unanimously passed by the Senate Commerce Committee, this legislation would provide new flexibility for wireless carriers to construct networks and potentially acquire new, necessary spectrum.³²

Recommendation: The Department should encourage policies that make additional spectrum available to competitive carriers and streamline deployment, including ideas contained in the MOBILE NOW Act. Adoption of these policies will pave the way for additional spectrum resources that could be used for the deployment and increased certainty for continued development of IoT.

IV. QUESTION 6: What technological issues may hinder the development of IoT, if any?

Interoperability. As noted in detail above, interoperability is a critical issue that has the potential to hinder the development of IoT.³³

Recommendation: The government needs to promote policies that prevent large providers from using specific swaths of spectrum in an anti-competitive fashion, to the detriment of innovation and competition. Specifically, the Department should support and encourage interoperability with respect to mmW bands, as well as any other future spectrum allocations.

³¹ John Eggerton, *Senate Commerce Approves Mobile Now Act*, MULTICHANNEL NEWS, Mar. 3, 2016, available at <http://www.multichannel.com/news/congress/senate-commerce-approves-mobile-now-act/403021>

³² *Id.*

³³ *See supra* at pp. 6-7.

Interoperability will promote competition and encourage innovation in the IoT marketplace by ensuring IoT devices can be used by any consumer in any place on any network configuration.

Spectrum Availability. As noted throughout these comments, the government needs to make a concerted effort to get as much spectrum into the hands of competitive carriers as possible. Freeing up additional spectrum for mobile broadband services and ensuring competitive carriers are afforded an opportunity to access this spectrum will further encourage the development of IoT throughout the country. As the Commission has recognized, “[s]pectrum, in particular, is the single most important input that wireless providers need for the provision of service and is a finite and scarce resource.”³⁴ Therefore, the Commission should continue to promote opportunities to most efficiently utilize spectrum and ensure that any available spectrum, whether it be via auction or the secondary market, is provided to carriers that have demonstrated a need for it, will effectively utilize it and will not “warehouse” the spectrum merely to foreclose competition.

Recommendation: The Department should support any and all efforts to increase the amount of spectrum available to wireless providers, while ensuring that competitive carriers have a fair ability to acquire such spectrum, as detailed herein.

Infrastructure. Competitive carriers face myriad difficulties when deploying infrastructure necessary to implement networks that will support IoT technologies. From laying fiber to constructing towers, competitive carriers face cost and local permitting obstacles that can prohibit development in hard-to-serve areas as well as upgrading already-deployed networks.

³⁴ *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 13-135, Seventeenth Report, 29 FCC Rcd 15311 at para. 8 (WTB 2014) (“Seventeenth Report”).

Accordingly, CCA commends the Commission’s recent actions to promote the deployment of wireless infrastructure as “it is the physical foundation that supports all wireless communications.”³⁵ Last year, the Commission sought comment on a proposed new program alternative to facilitate the review process for deployments of small wireless communications facilities, including those for small cells and distributed antenna systems (“DAS”), under Section 106 of the National Historic Preservation Act (“NHPA”).³⁶

More recently, the FCC released the proposed *Amended Nationwide Programmatic Agreement for the Collocation of Wireless Antennas*, which excludes from Section 106 review certain small wireless antenna deployments that have minimal potential for adverse effects on historic properties, seeking to “enable swift and responsible deployment of wireless broadband services – including deployments that will support next generation “5G” wireless service offerings.”³⁷ As CCA has previously explained, “NHPA reviews can be time consuming, costly, and burdensome, yet, in the context of DAS and small cell deployment, provide no meaningful benefit.”³⁸ This action by the Commission recognizes the need to revise regulations to keep up

³⁵ See *Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies*, WT Docket Nos. 13-238, 13-32, WC Docket No. 11-59, Report and Order, 29 FCC Rcd 12865, ¶ 1 (2014); *Erratum*, 30 FCC Rcd 31 (2015).

³⁶ See *Wireless Telecommunications Bureau Seeks Comment on Proposed Amended Nationwide Programmatic Agreement for the Collocation of Wireless Antennas*, Public Notice, WT Docket No. 15-180, DA 16-519 (rel. May 12, 2016) (“2016 Amended Programmatic Agreement PN”); see also *Wireless Telecommunications Bureau Seeks Comment on Revising the Historic Preservation Review Process for Small Facility Deployments*, Public Notice, WT Docket No. 15-180, DA 15-865 (rel. July 28, 2015).

³⁷ 2016 Amended Programmatic Agreement PN at 1. For instance, the amendment establishes an exclusion for small wireless antennas and associated equipment mounted on buildings or non-tower structures or in the interior of buildings that are over 45 years of age if they are not historic properties and are outside of historic districts. *Id.* at 3.

³⁸ Comments of Competitive Carriers Association, WT Docket No. 13-238, at 11 (filed March 5, 2014).

with evolving technology and the increasing demand for wireless services. The Commission should continue seeking opportunities to revise its facility processes to maximize efficiencies and eliminate unnecessary procedures.

CCA also applauds the efforts of the Section 106 Working Group to reform NHPA Section 106 pursuant to Executive Order 13616, which seeks to accelerate broadband infrastructure deployment on federal roadways and properties by making the process cheaper and more efficient.³⁹ Earlier this year, CCA participated at the Working Group’s round table discussions bringing together industry stakeholders with government bodies exercising decision-making power over network deployment on federal lands. Indeed, compliance rules are often inconsistently applied, applications for review are left pending for years, and there is no recourse if an application is denied. The round table discussion was robust, and Working Group leaders were diligent in following up with participants for specific examples of incidents where members ran into Section 106-related network deployment barriers. CCA is optimistic this candid exchange will facilitate greater ease of network deployment, which will only make it easier for carriers to deploy the dense small cell networks needed for 5G.

Recommendation: The Department should support efforts to ease infrastructure construction, including NHPA and National Environmental Policy Act (“NEPA”) reform, as well as streamlining siting policies and initiatives related to Executive Order 13616. Since release of this Executive Order, the government has announced the development of several tools and resources, including, but not limited to: an interactive mapping tool that will identify opportunities to leverage federal properties for deployment; a “dig once” guide that includes best

³⁹ Exec. Order No. 13,616, 3 C.F.R. § 13616 (2012 - 2013), *available at* <https://www.whitehouse.gov/the-press-office/2012/06/14/executive-order-accelerating-broadband-infrastructure-deployment>.

practices and policies to help carriers coordinate their deployment with roadway constructions; and, a new broadband inventory toolkit to allow companies to access the forms and resources they need for construction and deployment.⁴⁰ CCA further advises the Department to leverage CCA's direct line to its nearly 100 competitive carrier members. Trade groups like CCA can absorb the legwork necessary to attain specific examples and advice regarding technological issues related to network deployment and IoT adoption. In the interest of next-generation networks and IoT, the Department should support the programs discussed above, and assist with the creation of additional tools and guidance to accelerate deployment.

V. QUESTION 7: NIST and NTIA are actively working to develop and understand many of the technical underpinnings for IoT technologies and their applications. What factors should the Department of Commerce and, more generally, the federal government consider when prioritizing their technical activities with regard to IoT and its applications and why?

The Department and the federal government must consider the views of industry groups of all sizes with respect to IoT's technological underpinnings. Major standard-making bodies like the 3rd Generation Partnership Project ("3GPP"), the Commerce Spectrum Management Advisory Committee ("CSMAC"), and the Alliance for Telecommunications Industry Solutions ("ATIS") lack substantial participation by or representation of regional and rural carriers. This is a problem, considering such carriers often bear the burden of serving areas of the U.S. where it is most difficult to deploy networks, and considering both the economic and public interest benefits encapsulated by ubiquitous IoT use. Rural and regional mobile broadband providers should not be made to await edicts on technical standards from those carriers and industry players with

⁴⁰ See Ron Hewitt & Martha Benson, *Accelerating Broadband Infrastructure Deployment Across the United States*, WHITE HOUSE BLOG (Sept. 16, 2013, 2:47 PM ET), <https://www.whitehouse.gov/blog/2013/09/16/accelerating-broadband-infrastructure-deployment-across-united-states>.

more established ties to standards-making bodies. More generally, government should avoid burdensome and prescriptive regulations that inhibit, rather than promote, the deployment of IoT.

Recommendation: The federal government, when it comes to technical standards, should seek industry input and consensus before attempting to apply potentially burdensome and unnecessary regulations that may inhibit innovation and competition, and which would be difficult to rectify. Industry stakeholders are uniquely adept at brokering solutions to technical problems, considering their deep understanding of their members' needs. However, it is also important to include carriers of all sizes in this discussion, either directly or indirectly through CCA.

Considering rural and regional carriers are generally disconnected from prominent standards-making bodies, the Department should consider prioritizing involvement by rural and regional carriers in large, established standards bodies that develop technical underpinnings of next-generation technology like IoT. Specifically, the Department should welcome representatives from rural and regional carriers to CSMAC. Perhaps the Department would consider providing support that might better enable robust participation by such carriers, considering many do not have DC offices and are resource-constrained. Both marketplace competition and the public interest would be enriched if rural and regional carriers were to have some influence on the technical foundations of IoT.

VI. QUESTION 10: What role might the government play in bolstering and protecting the availability and resiliency of these infrastructures to support IoT?

There are numerous ways for the federal government to protect the availability and resiliency of infrastructures to support IoT. Most importantly, the Commission should make sufficient universal service fund (“USF”) resources available to mobile broadband providers to support infrastructure for IoT. USF support is critical both to promoting IoT deployment in rural

areas, and to broadening service offerings and maintaining networks that were built with legacy USF support, especially in rural and high-cost areas where consumers are already benefitting from USF-supported deployments.⁴¹ Unfortunately, the Commission’s restructuring of its USF programs in 2011 has stymied competition and risks stranding previously deployed facilities.

USF Mobility Fund II Reform. USF funds for network deployment and preservation are critical to maintaining mobile wireless connectivity in rural areas. These areas are expensive to serve and maintain. Phase II of the Mobility Fund should be implemented in a manner that reflects the full extent to which large portions of the country still lack access to such services.⁴² This means that the Commission should not reduce the amount of funding made available based on inflated claims by certain carriers of their alleged mobile broadband deployments throughout the United States. In addition, the Commission should allow providers that receive Mobility Fund support to use any technologies and protocols that satisfy the Commission’s broadband performance requirements, which will afford mobile providers the flexibility to implement their networks in the most efficient and effective manner.

Releasing Mobility Fund I Monies. Some competitive carriers that have constructed networks and fulfilled their obligations under Mobility Fund I have yet to receive their designated allotments. Delay of the delivery of these monies puts significant financial stress on competitive carriers and hinders network investment – investment that could be used for IoT

⁴¹ *In the Matter of Connect America Fund et al.*, WC Docket No. 10-90 *et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, ¶ 295 (2011).

⁴² The Hon. Mignon Clyburn, Commissioner, FCC, Prepared Remarks at the Rural Wireless Association Summit at 4 (Sept. 10, 2015), http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0915/DOC-335266A1.pdf (stating “[w]e need to create a dedicated mobility fund, and ensure that all areas of our nation, have service. It is time to ensure that funding directly to mobile providers, extracts the most value for each dollar of universal service spent, and it is time for consumers in unserved areas, to have service that most of us take for granted.”).

investment and deployment. The FCC must immediately rectify this situation to allow carriers, which have expended significant resources to construct network in difficult to build areas, receive their allotted compensation as soon as possible.

Network Resiliency. Mobile broadband and mobile devices are already valuable public safety resources, helping officials locate those in harm's way. IoT devices, like sensors, consumer devices, and enterprise assets connected to the Internet and each other, will only become increasingly critical to public safety. For example, technology is being developed to aid emergency responders at an incident scene to access data before they enter a disaster area, along with IoT technology to assist incident commanders seeking to track emergency responders and their vehicle locations and conditions.⁴³ Accordingly, government resources would be well spent supporting the collaborative efforts of many carriers to fortify network resiliency.

The wireless mobile broadband community is committed to ensuring network resiliency during emergencies, and has focused on developing collaborative emergency containment covenants between carriers to supplement communications lines damaged in the course of an emergency, once each carrier has assessed the security of its own network. To that end, on behalf of many members, CCA committed to complying with many of the principles outlined in the Wireless Network Resiliency Cooperative Framework recently proposed by the largest carriers.⁴⁴ Further, CCA commends House Energy and Commerce Committee Ranking Member

⁴³ See Cisco, "Public Safety, Justice, and the Internet of Everything," White Paper (2014), available at <http://www.cisco.com/c/dam/en/us/solutions/collateral/industry-solutions/white-paper-ioe-safety-justice.pdf>.

⁴⁴ Letter from AT&T Services, Inc. *et al.* to Marlene H. Dortch, Secretary, FCC in FCC PS Docket Nos. 13-239 and 11-60 (Apr. 27, 2016) (the "Wireless Network Resiliency Cooperative Framework"). The proponents offer the following five-prong approach to enhance coordination: (1) providing for reasonable roaming under disaster arrangements when technically feasible; (2) fostering mutual aid during emergencies; (3) enhancing municipal preparedness and restoration; (4) increasing consumer readiness and preparation; and (5) improving public awareness and

Frank Pallone for his leadership on network resiliency, including the introduction of H.R. 3998, the Securing Access to Networks in Disasters Act (the SANDy Act) which inspired CCA member commitments and served as a precursor to the Framework and seeks to improve the nation's communications networks during disasters.⁴⁵

The Framework's proposal to allow reasonable roaming agreements during emergencies is especially laudable; many CCA members similarly committed to temporary roaming arrangements during an emergency, dependent upon technical feasibility and the requesting carrier undertaking reasonably foreseeable steps to restore its own network before initiating a roaming request.⁴⁶ Many members also committed to continue sharing network infrastructure and other physical assets with other wireless carriers when necessary, available and reasonable.⁴⁷ Regarding public awareness, CCA expressed its ongoing interest in providing relevant contact information for Public Safety Answering Points ("PSAPs") databases, and making public on FCC's websites data regarding the total number of cell sites out of service at the time of an emergency.⁴⁸ This proposal demonstrates carriers and government can collaborate successfully on complicated technical proposals, providing concrete solutions while avoiding unnecessary and burdensome regulations.

stakeholder communications on service and restoration status. Under each prong, the proponents detail specific actions they will undertake to enhance coordination among wireless carriers and key stakeholders, and to improve information sharing and wireless resiliency.

⁴⁵ Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, CCA, PS Docket Nos. 13-239, 11-60 (filed May 31, 2016) ("CCA Letter on Resiliency Framework"), *citing* Press Release, House Energy & Commerce Committee, "CTIA & Pallone Announce 'Wireless Network Resiliency Cooperative Framework' for Disasters and Emergencies" (Apr. 27, 2016), *available at* <https://democratsenergycommerce.house.gov/newsroom/press-releases/ctia-pallone-announce-wireless-network-resiliency-cooperative-framework-for>.

⁴⁶ *See* CCA Letter on Resiliency Framework.

⁴⁷ *Id.*

⁴⁸ *Id.*

Recommendation: The Department should recognize that areas lacking competitive broadband connectivity may not allow for expansive IoT adoption; therefore, the Department should support policies placing deployment resources in the hands of competitive carriers, particularly resources that will be devoted toward connectivity in rural areas. Regarding network resiliency, the Department should support collaborative, inclusive efforts between industry groups representing carriers of all sizes. Specifically, the Department could endorse such collaborative efforts impacting important public interest issues both before Congress and the FCC.

VII. QUESTION 11: Should the government quantify and measure the IoT sector? If so, how?

Recommendation: CCA recommends against formal quantifications at this time. Both 5G and IoT are technologies that are very much in their infancy. For example, although some companies are conducting experimental 5G testing, a true 5G network has not been deployed and is not expected to be deployed for a number of years. Rather than formulating premature quantifications and metrics, the government should focus on providing competitive carriers the tools and ability to promote the deployment and development of IoT without creating regulations and rules that are overly burdensome to competitive carriers.

VIII. QUESTION 13: What impact will the proliferation of IoT have on industrial practices, for example, advanced manufacturing, supply chains or agriculture?

IoT technologies for agriculture and manufacturing will likely be rooted in rural America. More advanced IoT applications to existing IoT use in farming and manufacturing likely will be significant economic drivers. According to recent figures from the USDA, farmers have been increasing their reliance on wireless connections from previous years to access the Internet to

further expand their “Smart Farming” capability.⁴⁹ As Deere & Company previously explained, Smart Farming is improving the lives of farmers and ranchers and increasing productivity in food production, but heavily relies on mobile communications, as this technology is the only way of deploying these innovative farming techniques in the field.⁵⁰ Industrial agriculture has already revolutionized the agricultural industry, but the oftentimes-prohibitive expense of constructing more robust networks and acquiring spectrum in rural areas threatens to hinder the successful development of such technologies.

Recommendation: IoT applications will only continue to increase efficiency and productivity in the industrial sector. Consequently, the Department should consider that the playing field for agriculture-related IoT use will be rural America and, accordingly, pay special attention to the particular challenges in establishing networks capable of supporting IoT applications in a rural environment, as noted throughout these Comments.

IX. QUESTION 17(c): How should the government address or respond to privacy concerns about IoT? What role or actions should the Department of Commerce, and more generally, the federal government take regarding policies, rules and/or standards with regards to privacy and the IoT?

IoT technologies generate vast swaths of valuable data that implicates cybersecurity and privacy concerns. Some large section of this data is likely to flow through a broadband connection supplied by a mobile wireless provider. The Commission is in the midst of a proceeding to develop comprehensive privacy rules for broadband Internet access service

⁴⁹ See USDA, FARM COMPUTER USAGE AND OWNERSHIP at 5 (Aug. 2015), <http://www.usda.gov/nass/PUBS/TODAYRPT/fmpc0815.pdf>.

⁵⁰ Deere & Company Comments, WC Docket No. 10-90 *et al.* at 7 (filed Aug. 8, 2014); *see also id.* at 6 (recognizing that “[f]or many rural areas, including farm-intensive areas with significant tracts of cropland, *wireless service will be the superior technology choice* to achieve cost-effective coverage.”) (emphasis supplied).

(“BIAS”) providers, including mobile providers.⁵¹ The Commission’s *Notice of Proposed Rulemaking* has garnered a great deal of opposition from industry and other government agencies alike. Among other rules, the FCC proposes to widen the scope of consumer information subject to privacy rules to include nearly all information that is “linkable” to a consumer. Further, the FCC proposes introducing a restrictive, burdensome “opt-in, opt-out” regime that threatens to hinder competitive carriers in their everyday operations and pester consumers with persistent requests for permission to protect non-sensitive data. The Privacy NPRM also discusses imposing many unprecedented points of liability for providers such as the need for certain contractual terms whenever ISPs lawfully share subscriber information with a third party, and creating a duty to monitor use of that information. In addition, the FCC proposes to micromanage broadband providers’ data security practices through prescriptive rules likely to cut against the public interest while increasing costs for the ISP.

These proposals have the ability to hinder the development and deployment of IoT by diverting funds away from network maintenance, development and deployment. Further, the privacy proposals may place limitations on the means by which broadband providers monetize their networks, making competitive carriers less attractive partners for IoT-related service providers. As currently described in the NPRM, little if any subscriber benefits are guaranteed by the proposals; more likely to result is customer confusion and “notice fatigue.” To this end, CCA, along with the American Cable Association (“ACA”), CTIA, National Cable & Telecommunications Association (“NCTA”), and USTelecom, submitted a proposed broadband

⁵¹ *Protecting the Privacy of Customers of Broadband and Other Telecommunications Services*, Notice of Proposed Rulemaking, FCC 16-39 (rel. Apr. 1, 2016) (“Privacy NPRM”).

privacy framework for the Commission’s consideration (“Industry Framework”).⁵² The Industry Framework, which draws heavily from the Federal Trade Commission’s (“FTC”) rules and practices, is a “light touch” regime that would protect consumers without hindering the operation of IoT technology which, after all, relies on the free flow and rapid analysis of vast numbers of data points.

More broadly, CCA understands telecommunications technology is a valuable resource that frequently implicates privacy and security threats on an international scale. The United States has an interest in protecting the security of its networks as well as proprietary telecommunications technology; because telecommunications technology like mobile broadband is so deeply embedded in day-to-day life and commerce, even a slight disruption or breach is disastrous. This can be particularly important for competitive carriers, who may need to partner with overseas companies (or companies substantially operating overseas) willing to sell customized telecommunications equipment to carriers lacking scale of the largest nationwide providers. As a result, warranted punitive measures taken against those overseas companies could nonetheless disrupt competitive carriers’ networks. Unfortunately, these carriers may lack the resources or ability to quickly turn to another provider to secure, for example, new devices, infrastructure, or software updates. Further, legal fees related to any contractual dispute that might result from consequential harms can be prohibitively expensive. In sum, a competitive carrier’s entire business could be jeopardized if the United States places sanctions on an overseas partner without considerations to ensure that telecommunications services will still be available.

⁵² See Letter from Steven K. Berry, President & CEO, CCA, *et al.*, to the Hon. Tom Wheeler, Chairman, FCC, and attached Discussion Paper (March 1, 2016) (“Industry Framework”).

Recommendation:

Rather than proceed down the path described by the Commission, the federal government should encourage privacy policies that are consistent across industries, flexible to carriers, transparent to consumers, and do not impose overly burdensome, expensive and unnecessary regulations upon only a certain sector of the broadband ecosystem. CCA would recommend the Department lend its support to the adoption of the Industry Framework, which would protect customer privacy while enabling subscribers to receive the best service possible from both their IoT devices and mobile broadband ISP.

Even if the Department is not inclined to express support of the Industry Framework, CCA urges the Department and the federal government to encourage close coordination between agencies to develop privacy regimes that are consistent across the whole Internet ecosystem. Subjecting broadband providers to a harsher privacy regime than third parties like Google, as proposed by the FCC, will result in confusion and needlessly onerous compliance burdens. In short, the Department should support any efforts to create a consistent privacy regime across the Internet ecosystem that does not unduly burden broadband providers and confuse consumers.

When sanctions are placed on overseas suppliers, the Department should, if possible, consider the unique position of competitive carriers relying on overseas companies to purchase crucial operational elements. When possible, competitive carriers should be given timely notice of sanctions or punitive measures, as well as a reasonable opportunity to identify and transition to alternative suppliers.

X. CONCLUSION

CCA applauds the NTIA for seeking comment on IoT-related issues. CCA and its members intend to be at the forefront of innovation with respect to IoT applications and

development, but the federal government must take steps, consistent with these Comments, to promote deployment and development of the IoT.

Respectfully submitted,

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