Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Business Data Services in an Internet Protocol Environment	)	WC Docket No. 16-143
Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans	)	WC Docket No. 15-247
Special Access Rates for Price Cap Local Exchange Carriers	)	WC Docket No. 05-25
AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services	)	RM-10593

REPLY COMMENTS OF INTERNET INNOVATION ALLIANCE

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August 9, 2016

REPLY COMMENTS OF INTERNET INNOVATION ALLIANCE

The Internet Innovation Alliance[1] respectfully submits these reply comments in response to the Further Notice of Proposed Rulemaking released on May 2, 2016 in the above-captioned matter.[2]

[1]The Internet Innovation Alliance is a broad-based coalition of businessand non-profit organizations that aims to ensure every American, regardless of race, income or geography, has access to the critical tool that is broadband Internet. The IIA seeks to promote public policies that support equal opportunity for universal broadband availability and adoption so that everyone, everywhere can seize the benefits of the Internetð education to health care, employment to community building, civic engagement and more. *Available at* http://www.internetinnovation.org/.

[2] Tariff Investigation Order and Further Notice of Proposed Rulemaking, *Business Data Services in an Internet Protocol Environment; Special Access Rates for Price Cap Local Exchange Carriers; AT&T Corp.*

EXECUTIVE SUMMARY

After an exhaustive and detailed search for data regarding the availability of business data services, the results are clear: virtually all American businesses have access to business data services (hereinafter, ñBDSò) and the level of competition, spurred in large measure by the rapid entry of cable into this market, is growing, almost on a daily basis. There is simply no justification for intrusive, *ex ante* regulation, and particularly not for price regulation in a market that, by the Commissionôs own data, is working and competitive.

Further, regulation of the BDS market is in no way necessary to achieve the deployment of 5G technology and would in fact skew and slow that deployment. The nature of 5G technology ï the development of which is still in process ï equally argues against imposing regulation on the BDS market, as does the need to deploy 5G throughout rural America, which would be delayed by this regulation.

I. INTRODUCTION

Any attempt to impose regulation on an industry, such as broadband Internet, that is characterized by rapid technological innovation and convergence among technologies, should result only from detailed knowledge of that market and a firm reliance on reliable, accurate, and up-to-date data. We, therefore, applaud the Commission for its efforts, despite the resistance of some competitive local exchange carriers (CLECs) over the past decade and a half, to obtain data of this type for these proceedings.

Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Service, WC Docket Nos. 16-143, 15-247, 05-25, RM-10593 (rel. May 2, 2016) (ñ*Notice*ò).

Such an exhaustive and deep study of data, however, carries with it an equal obligation: to follow that data where it goes, whether or not it meets the pre-conceived ideas supporting further regulation, rather than offering new and chimerical justifications for further regulation as technology evolves. Indeed, the accumulation of data has consistently been accompanied by an accumulation of evidence that this market is not only competitive but increasingly so. Technological evolution has been the necessary companion of competition and a spur to competition rather than a force that restricts competition.

II. REGULATING LEGACY AND ETHERNET BUSINESS DATA SERVICES WILL NOT PROVIDE THE INVESTMENT NECESSARY FOR UBIQUITOUS HIGH-SPEED BROADBAND DEPLOYMENT

A. ONLY THE PRIVATE SECTOR CAN PROVIDE INVESTMENT NECESSSARY FOR BDS DEPLOYMENT

In his capacity as head of the Federal Communications Commissionôs (FCC) National Broadband Plan task force, former FCC official Blair Levin maintained that it would take up to $350 billion of investment[3] to meet the Nationôs high-speed broadband needs. Investment capital at that level can come only from the private sector, not from government. Similarly, private investors will invest only where they can reasonably envision a positive return on their investment. Thus, to meet the growing demand for ubiquitous nationwide high-speed broadband deployment, including the BDS market, government should advance only those policies that actively *promote and encourage*, rather than deter, private investment.

[3] Marguerite Reardon, ñFCC discusses barriers to national broadband plan,ò CNET.com, Nov. 18, 2009), *available at* http://www.cnet.com/news/fcc-discusses-barriers-to-national-broadband-plan/

Scholars have noted that the fortunes of broadband rise and fall with levels of private investment ï and that, as the Commission agrees, broadband is now indispensable for economic development. One study, which we were proud to sponsor, noted that

> [i]n 2014, the U.S. broadband/ICT sector produced $1,019.2 billion in value added for the American economy, equal to 5.9 percent of U.S. GDP of $17,420.7 billion in 2014. This substantial share of all U.S. economic value added has been roughly stable for the past decade and likely understates the sectorôs full contribution by undervaluing technological improvements. The use of U.S. broadband/ICT goods and services by U.S. private industries, and the information sector (and government), contributed an additional $692.0 billion in output in 2014, equal to 2.7 percent of their combined output and 4.0 percent of GDP. Including the government sector, the use of U.S. broadband/ICT goods and services by other industries and sectors contributed $843.3 billion in output in 2014, equal to 2.9 percent of their combined output and 4.8 percent of GDP.[4]

Cognizant of this, and mindful of the ever-increasing impact of broadband on the U.S. economy, the Commission has not hesitated to forbear from regulation to avoid a negative economic impact. Notably, in its *Triennial Review Order* in 2003[5], the Commission wisely decided to forbear from regulation of new fiber and packet switched facilities and services investment ï a decision that created incentives essential for a boom of investment and growth in the Internet ecosystem, the fruits of which the Nation continues to enjoy.[6] In sharp contrast, broadband investment in Europe continues to lag

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[4]Kevin A. Hassett and Robert J. Shapiro, ñThe Impact of Broadband and Related Information and Communications Technologies On the American Economyò (Mar. 23 2016), *available a*t http://internetinnovation.org/images/misc_content/Report_on_the_Economic_Impact_of_Broadband_-_Hassett-Shapiro_-_Rev_-_March_23_2016.pdf, at 1.

[5] 18 FCC Rcd 16978 (2003) (Triennial Review Order).

[6]*See, e.g.,*Anna-Maria Kovacs, ñTelecommunications competition: the infrastructure-investment race,ò ct. 8, 2013, *available at* http://internetinnovation.org/images/misc_content/study-telecommunications-competition-09072013.pdf

behind the aggressive private-sector driven investment in the United States under several measures, including high-speed access, fiber and LTE deployment, and investment per household.[7]

Surely, however, the Commission need not wait for a recession or a sharp decline in the market capitalization of those American companies providing investment in telecommunications and broadband services to forbear from regulation where strong evidence exists of a competitive market. The smarter course of action is to allow competitive markets to continue to generate and allocate that investment. This is further confirmed by economic studies and the Commissionôs own data in this proceeding that makes clear the existence of a robustly competitive BDS market.

B. INVESTMENT HAS PROMOTED AND WILL CONTINUE TO PROMOTE REAL COMPETITION IN THE BDS MARKET

Focusing more specifically on the BDS market illustrates both the subtleties of that market and how the laws of economics apply equally in it. Earlier this year, Dr. Anna-Maria Kovacs analyzed the business broadband market and concluded that it has evolved (and continues to evolve) far past the point at which ongoing regulation of this market can be justified. This market is competitive:

> According to the FCCôs most recent Local Competition Report, by 2013 the ILECsô wireline networks had lost 59% of the lines theyôd had in 1999, the first year such a report was issued. Given the rate of loss over the prior years and reported results in 2014 and 2015, we estimate that by the end of 2015, the ILECs had lost 65% of the access lines they had at the peak. Indeed, by the end 2015, we

[7] *See generally* Christopher S. Yoo, ñU.S. v/. European Broadband Deployment: What Do the Data Say?,ô June 2014, *available at* https://www.law.upenn.edu/live/files/3352

> estimate that wireline competitors had roughly the same number of lines as the ILECs. Competition against the ILECs arises from two sources: Cable MSOs (multiple system operators) who traditionally focused on the consumer market but are now successfully attacking the business market and CLECs who generally focus on the business market.[8]
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> Business revenues constituted roughly 11% of the combined revenues of Cablevision, Charter, Comcast, and Time-Warner Cable in 2015. Their combined $9.5 billion in business revenues were up 42% in just two years. Moffett Nathanson Research projects that by 2019, cable business revenues will nearly double from their 2014 total. Even today, the cable networks have become leaders in the highly competitive Ethernet market. Vertical Systems Groupôs (VSG) U.S. Carrier Ethernet Leaderboard ranks Time Warner Cable, Comcast, and Cox as numbers 5, 6, and 7 in the U.S. Ethernet services market, which is the fastest growing segment of the U.S. data communications services market in the U.S., according to TIA.[9]

Further, taking the perspective of a rational investor, Kovacs notes that ñAT&Tôs and Verizonôs wireline operations generate far less free cash flow (FCF) as a percentage of their revenues than do the U.S. CLECs and cable providers who publish financials publicly. . . . investors value the U.S. CLECsô potential for rapid growth of revenues and cash flow far more than they value the ILECsô ubiquity or the cable operatorsô near-ubiquity. The CLECsô EV/EBITDA multiples (enterprise value to earnings before interest, taxes, depreciation and amortization) are roughly double those of AT&T and Verizon.[10] This is a far more robust picture of CLEC health than is generally assumed. It further shows that the incentives of each player in this market, therefore, are not readily apparent and reveal a more subtle analysis than the binary incumbent/non-incumbent characterization of the BDS market that CLECs often employ.

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[8] Anna-Maria Kovacs, ñBusiness Broadband: Assessing the Case for Reregulation,ò (March 2016), *available a*t http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Regulation%20in%20Financial%20Transaction%20Business%20Broadband%20Assessing%20the%20Case%20for%20Reregulation%20Kovacs%203.14.16.pdf, at 4 (internal citations omitted).

[9] Id. at 6 (internal citations omitted).

[10] Id. at 2.

She found, though, that the CLECsô incentives are clear: **to rely on incumbents' networks where they can rather than employ a business strategy based on true facilities-based investment and competition**:

> The more traditional CLECs have focused on the business market exclusively and built out only in areas where high-density makes construction-cost relatively low and attainable-revenue relatively high. In other words, they build only where they can expect penetration levels high enough to ensure high free cash flow. Where costs are high, they rely on the ILECsô ubiquitous networks. In other words, where costs are low, CLECs build their own networks. Where costs are high, they lease from ILECs at prices that do not reflect those high costs. Level3, Zayo, Cogent, and BT Group, all of whom have publicly available financials, have such business models in the U.S.
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> While they differ considerably in scale, these CLECs have global fiber-based IP networks as well as metro networks that focus primarily on the enterprise, data-center, and cellsite-backhaul markets. At year-end 2015, Level3ôs global network spanned 200,000-plus route miles, connected 52,000 customers in 43,200 on-net buildings, and boasted a ñDeep North America Metro Presence.ò[11]

In other words, the CLECs *can* build out their facilities ï as Wall Street, to say nothing of their customers and potential customers, might wish ï but where costs are high and it is less expensive for them to lease a building connection from an existing provider they make a business decision to lease. It is incumbent on the Commission to understand if this is actually an indication of a market failure and to incorporate that understanding in an effort to shape forward-looking policies that promote and incent greater investment in broadband infrastructure and services.

C. FURTHER CLEC INVESTMENT WOULD BE EASY BUT CONTINUES TO LAG

[11] Id. at 8 (internal citations omitted).

The data the Commission has obtained in these proceedings clearly demonstrate the great extent to which competitive fiber has already been deployed in close proximity to buildings with existing BDS demand. Whatôs clear is that fiber providers are building out to where demand exists. In a happy reversal of James Earl Jonesô famous line from the film *Field of Dreams*, American business is here, and providers have built out fiber. Most businesses in most Census tracts increasingly have options for their BDS ï and this is true even with the baffling reluctance of some CLECs to recognize the lucrative opportunities available and ñplay ball.ò

Indeed, sports provides a useful analogy to understand the extent to which this market is competitive. A study by Drs. Mark Israel, Daniel Rubinfeld, and Glenn Woroch[12] analyzed the Commissionôs data and discovered evidence of robust competition in the BDS market. From this research, it is clear that competitive providers deploy fiber networks broadly in areas of demand for BDS, compete vigorously for customers located in buildings in the vicinity of those fiber networks, and then build out BDS to buildings upon winning customers.

Based on the facts *presented by the Commission*, the professors conclude that: 25% of buildings connected only to ILEC services with demand for BDS services are *17 feet away from the nearest competitive provider's fiber network, 50% are 88 feet away*, and *75% are within 456 feet*. The mean distance for all relevant buildings is 364 feet ï to use a sports analogy, about the length of a football field with the end zones. Eighty-eight feet is less than the distance from home plate to first base on a baseball field.

[12]Mark Israel, Daniel Rubinfeld, and Glenn Woroch, ñWhite Paper: Competitive Analysis of the FCCôs Special Access Data Collection,ò at 16-17 (filed Jan. 28, 2016) (ñIsrael-Rubinfeld-Woroch Decl.ò), available at https://www.fcc.gov/ecfs/filing/60001391174

If CLEC providers truly wished to óserveô these buildings ï truly wished, in other words, to live up to their name and actually *compete* ï they would have few difficulties building out nearby fiber to the building. As it is, however, the Commission must draw the obvious conclusion from the data. It is simply not true that most buildings are served by only an ILEC or only by an ILEC and a single other provider. To assert this, the Commission would have to argue that competition occurs only once providers have in fact deployed connections to a building ï an assumption it denied in the Notice ï and that cable companies are not competing in the BDS market ï an assumption belied by the Commission including cable companies among the competitive providers it analyzed in preparing the *Notice*.[13]

In short, the Commissionôs data illustrates a market not dominated by ILEC incumbents but rather a competitive one that contains an ILEC and two competitors (very likely including a cable company) with facilities-based competition accessible for the vast majority of buildings for which there is BDS demand.[14]

Further, the realistic opportunity to capture new markets is itself a sign of competition, as it constrains the prices an incumbent provider can offer. In the *Notice*, the Commission agrees, stating that ñfiber-based competitive supply within at least half a mile generally has a material effect on prices of BDS.ò[15] By any standard, building out fiber 17 feet or 88 feet ï 0.006% and 0.03% of the Commissionôs half-mile measure,

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[13] *See also* id, at p. 23: ñToday, cable operators are suppliers of a substantial portion of competitive access services and they do so without the need of collocating at ILEC wire centers. In fact, three cable operators are among the eight largest Ethernet providers in the country based on retail share of Ethernet portsò (citing to Vertical Systems Group, Inc., ñMid-Year 2015 U.S. Carrier Ethernet LEADERBOARD,ò August 24, 2015,available at: http://www.verticalsystems.com/vsglb/mid-year-2015-u-s-carrier-ethernet-leaderboard/).

[14] In this context, it is worth recalling that the data on which the Commission relies is from 2013. Since that time, there has been considerably more cable entry into the BDS market, making the market throughout the country far more competitive than even the Commissionôs data shows.

[15] *Notice*, at ¶162.

respectively ï is not an insurmountable burden. To be sure, the CLECs present a litany of make-weight arguments to justify not building out these short distances to serve potential customers, but one has to ask why they would build their fiber rings so close to existing demand if their intention was not to serve them with their own network. Further, in response to cable company competitive entry, it would appear that CLECs in buildings with existing revenue-generating customers would want to build-out to enhance their services and remain a viable business for their customers.

The burden of proof ï more specifically, the burden of asserting and justifying the need for regulation ï thus shifts to the CLECs to explain why they cannot build out fiber a mere 88 feet. Why is this burden so heavy for them? Or are they simply continuing to rely on government-mandated and price-regulated access to support their business model?

One need not look far for the explanation. In this docket, CLECs have declared that they will not deploy lateral fiber into a majority of buildings where there is clear demand. In other words, CLECs have made a business decision to ignore direct facilities-based competition and rely on other carriersô capital investments to reach customers ï either new entrants or the very incumbents about which they have complained during the long years of this ongoing proceeding.

For instance, in the filing of several prominent CLECs, including Level 3, their expert John Merriman ñconducted an analysis to identify the number of commercial buildings that are potential loop deployment targets for Level 3 in the ten most populous MSAs in the country. As Mr. Merriman explains, Level 3 evaluates all potential build-

out opportunities ñwith respect to the estimated capital expenditure that would be necessary and the expected revenue that would result from the build out.ò[16]

So far, this is of course unobjectionable. Investors need to have a reasonable prospect of return on their investment. He contends that ñ[w]hen Level 3 deploys local fiber transmission facilities in a new geographic area, it first constructs fiber ring transport facilities and then constructs fiber lateral (i.e., loop) facilities that connect its fiber ring to specific customer locations.ò[17]

The company then follows certain specific guidelines to decide whether to invest: ñLevel 3 will generally build out its network in response to a particular sales opportunity for customers that meet Level 3ôs target criteria where the companyôs overall budget and priorities allow for the capital expenditure, in the discretion of the relevant decision-makers and internal organizations, and where the financial metrics for the build-out are as follows [redacted]ò[18]. Mr. Merriman then notes that ñBased on these guidelines, it is rarely possible for Level 3 to deploy its own fiber optic loop facilities to commercial buildings.ò[19]

Clearly, all carriers have capital budgeting constraints and must make annual decisions about how to allocate available capital. That being the case, one must ask whether the decision not to invest in deploying building connections is the result of a market failure or simply a decision by Level 3 to preserve its own capital.

Even without access to the highly confidential information in Mr. Merrimanôs declaration, this defies logic and common sense: CLECs are deploying fiber in

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[16] https://www.fcc.gov/ecfs/filing/60001483760/document/60001515210, Reply Comments of Birth, EarthLink, and Level 3 Communications, Appendix A, Merriman Declaration at ¶7 .
[17] Id.
[18] Id. at ¶8.
[19] Id. at ¶10.

metropolitan areas ï thus incurring massive capital expenditures ï but not finishing the buildout to actual customers; they cannot or will not deploy that fiber into actual buildings to serve customers. It is as though, to paraphrase a famous if apocryphal statement, Willie Sutton chose to rob piggy banks rather than actual banks.[20] Level 3ôs invocation of its fiber ñloopò accords well with the circularity of the logic here (setting guidelines that do not permit investment and then deciding not to invest).

Mr. Merriman even notes that ñLevel 3 will rarely capture all of the telecom spend in a given building, or even of a given customer in a given building.ò[21] At this point, one is left to wonder what Level 3ôs definition of competition (or even capitalism) is; given this ñall or nothingò approach, it is as though a car company would decide not to try to sell a car to a customer if it will not be able to supply all the cars a family or business uses. This is how business in technologically innovative markets works ï yet not if old business models are sheltered by government regulation.

Level 3ôs investment practices defy logic from the perspective of increasing facilities-based competition. It flies in the face of the pro-facilities-based competition, pro-consumer directive enacted by Congress in the Telecommunications Act of 1996 and the policies advanced by the Commission during the past two decades. Isnôt competition and consumer choice ï *even if, perhaps especially if, a consumer chooses to purchase telecommunications services from more than one provider* ï the very essence of those pro-competitive policies? And yet Level 3 contends boldly in this proceeding that it declines market entry even in cases where the fiber in which they have invested passes tantalizingly near buildings where there is BDS demand.

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[20] https://en.wikipedia.org/wiki/Sutton%27s_law
[21] Merriman Declaration, op. cit., at ¶11.

Instead, they appear to argue that even if fiber nearly passes a building in which there is BDS demand, they must connect to the ring first and then engage in a complex analysis, which by their own admission involves tremendous discretion for corporate decision-makers, before making a decision to enter the competitive fray. In short, they seek a guarantee of success before entering the market. This extraordinarily puzzling statement again begs the question whether Level 3ôs strategy is evidence of market failure or instead is an outgrowth of capital allocation decisions that constrain network engineering decisions. It baffles the mind why CLECs would determine not to serve customers 17 feet away from competitive fiber ï particularly when the incumbents in those buildings are already price-constrained by the presence of the CLEC fiber nearby[22] ï but rather to string it to a connection point much further away.

No doubt that CLECs have become accustomed to the certainty and support that government-mandated access and subsidization provides their business models, but that foundation will ultimately fail to accelerate BDS high-speed network deployment and the best interests of American business and institutional customers.

III. REGULATION OF BDS IS IN NO WAY NECESSARY FOR 5G DEPLOYMENT AND WILL IN FACT HARM AND SLOW 5G DEPLOYMENT

The Commission also argues[23] that 5G deployment will require additional micro-cell site deployment involving high-capacity circuits, which in turn will require more fiber backhaul. This conclusion is highly speculative at best and inaccurate at worst

[22] ñRegressions of ILEC rates for DS1 and DS3 lines show that competition in the building, and the census block, consistently lowers prices in economically and statistically significant waysò *Notice*, at ¶165 (quoting Dr. Marc Rysman).

[23] *Notice* at ¶79.

based on developments in the still-emerging 5G marketplace to date. Indeed, the rapid deployment of fiber to date has occurred without the heavy hand of regulation, and there is no reason to doubt that it will continue.

In reaching this conclusion, one need only look to the robust fiber build-out to the nationôs existing macro cell towers to facilitate the transition to 4G wireless networks as an excellent barometer of how the market responds to business opportunities presented in the wireless backhaul market.

Consider, first, T-Mobile, now the third-largest wireless provider in the United States. T-Mobile has publicly acknowledged that it has now migrated off of ILEC legacy special access services for its backhaul needs and obtains those links from competitive sources in the market.[24] In procuring BDS services from the market ï a process that began as long ago as 2008[25] ï T-Mobile does not seek Commission intervention in the BDS market, evidenced by its decision not to comment in this proceeding.

Sprintôs story is even more illustrative of the reality of the competitive fiber marketplace. For Sprintôs Network Vision project, the company received [over] 70 bids and as far back as 2011 (when the market was far less competitive) announced it would select ñ25-30ò providers to assist the company in its rapid buildout.[26] This is very much

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[24] ñWe have currently the densest network in our footprint in the U.S,ô [Braxton] Carter said, noting that of the companyôs 54,000 cell sites, 50,000 of them have fiber backhaul connections.ò Phil Goldstein, ñT-Mobile's Carter: We'd be a 'very interesting' partner for Dish,ò *FierceWireless*, Mar. 5, 2015, *available at* http://www.fiercewireless.com/story/t-mobiles-carter-wed-be-very-interesting-partner-dish/2015-03-05

[25] T-Mobile, ñT-Mobile Signs New Backhaul Agreements for Six Major U.S. Markets,ò Press Release, Sept. 18, 2008

[26] ñ[Sprint VP of Roaming and Access Planning Paul] Schieber said Sprint will end up with "25 to 30 significant backhaul providers" that will likely be a mix of incumbent LECs, cable MSOs and alternative carriers, all of whom will be expected to deliver Ethernet predominantly over fiber for Sprint's new multi-mode network [.]ò Carol Wilson, ñSprint to Reveal Backhaul Contract Winners Friday,ò *Light Reading*, Oct. 5, 2011, *available at* http://www.lightreading.com/ethernet-ip/sprint-to-reveal-backhaul-contract-

at odds with the information Sprint has shared with the Commission (to which it has stated that ñ[t]here is inadequate competition to discipline incumbent LEC pricesò),[27] to the trade press (to which it promotes its Ethernet over Copper and Ethernet over DOCSIS offerings precisely *because* of its ñgrowing array of access network partnersò,[28] and to Wall Street (boasting of cost savings through its migration to wireless backhaul)[29]in its Securities and Exchange Commission filings.[30]

Sprintôs desire to save money is understandable; however, it is not governmentôs role to help individual competitors save money or raise their stock price. Instead, governmentôs goal here should be aimed at ensuring the widest and fastest deployment of

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winners-friday/d/d-id/690452

[27] https://ecfsapi.fcc.gov/file/60001569220.pdf, Apr. 11, 2016, at ii (ñThere is inadequate competition to discipline incumbent LEC pricesò)

[28] ñSprint (NYSE: S) is looking to bolster its Ethernet strategy by offering customers the option to access two new options -- Ethernet over Copper (EoC) and Ethernet over DOCSIS (EoDOCSIS) -- via its growing array of access network partners this summer.
While Sprint has a well-developed fiber-based Ethernet product with its ILEC and CLEC partners, the EoC and EoDOCSIS products will enable it to reach more customers.
Mike Fitz, VP and general manager of Sprint's Global Wireline Business Unit, told *FierceTelecom* that these products give it more complementary weapons to its fiber-based Ethernet platform to satisfy multi-site businesses that might not need a fiber connection or aren't near fiber.ò Sean Buckley, ñSprint ropes in Ethernet over Copper, Ethernet over DOCSIS into Ethernet strategy,ò Fierce Telecom, May 15, 2016, *available at* http://www.fiercetelecom.com/story/sprint-ropes-ethernet-over-copper-ethernet-over-docsis-ethernet-strategy/2016-05-15

[29] ñswitching to a wireless backhaul technology across the 50,000 to 100,000 extra small sites that Sprint would need to implement for a truly dense network deployment, switching to a wireless backhaul technology could save between $600 million to $1.2 billion a year of network expense.ò David Steele, ñSprint Criticized for Delays in Network Upgrade Plans,ò *Android Headlines*, July 17, 2015, available at http://www.androidheadlines.com/2015/07/sprint-criticized-delays-network-upgrade-plans.html

[30] ñAs part of our recently completed modernization program, we modified our existing backhaul architecture to enable increased capacity to our network at a lower cost by utilizing Ethernet as opposed to time division multiplexing (TDM) technology. Termination costs associated with our TDM contractual commitments with third-party vendors, ranging between approximately $25 million to $50 million, are expected to be incurred by September 30, 2016. As expected, our network modernization program has allowed us to realize financial benefit to the Company through reduced network maintenance and operating costs, capital efficiencies, reduced energy costs, lower roaming expenses and backhaul savings.ò (Sprint, SEC Form 10-K, 2014); ñAs expected, our network modernization program has allowed us to realize financial benefit to the Company through reduced network maintenance and operating costs, capital efficiencies, reduced energy costs, lower roaming expenses and backhaul savings..ò (Sprint, Form 10-Q, Aug., 7. 2015.

advanced technology, which will occur without regulation of the BDS market. In fact, unwise and overreaching BDS rate regulation will actively hinder this deployment.

In short, the evidence clearly shows that the market for deployment of advanced wireless technology is robust. Even assuming that the Commission is correct in its view that 5G deployment will require massive build-out of micro cells, why should one expect that the result would be any different from the rapid deployments we have seen in the past several years? If competitive fiber providers took advantage of the sizable business opportunity in macro cell buildouts, why would they not respond in a similar fashion to a more enticing opportunity to partner with the major wireless providers to provide high-speed connectivity for massive micro-cell build-out to come?

History shows that the market for micro cell backhaul will be no different and will offer a significant incentive for fiber providers to meet this demand. Even if this were not the case, it would nevertheless remain true that only if investors have a reasonable prospect of return on their investment will the investment actually occur.

IV. THE NASCENT DEVELOPMENT OF 5G TECHNOLOGY ARGUES AGAINST THE COMMISSION'S JUSTIFICATION FOR BDS REGULATION

Equally important, the nature of 5G technology itself undercuts the Commissionôs argument for regulation. The new 5G networks will transmit data at Gigabit speeds and will, by definition, *not* be able to use TDM-based megabit speeds. Thus, the regulation of legacy networks ï whose legacy becomes even more attenuated with each technological advance ï is irrelevant to future 5G deployment.

Similarly, while the speeds at which 5G will transmit data are generally known, both 5G standards and the network engineering decisions by which the networks will be built remain something of a black box, as this technology is still in a nascent state of development. Therefore, the Commission simply cannot use the market-driven transition to 5G networks as justification for *ex ante* regulation. Indeed, this argument seems to be to impose regulation to steer the direction of that evolution rather than letting the technology evolve and markets along with it.

V. INVESTMENT AND DEPLOYMENT OF BROADBAND NETWORKS AND SERVICES IN RURAL AMERICA WILL SUFFER UNDER THE FCC'S PROPSED BDS PRICE REGULATION

We applaud the Commissionôs decision that areas ñdeemed competitiveò in business data services will not be subject to regulation. However, one implication of this decision will be to deter rapid deployment of 5G technology in rural America.

Locations where there is high demand for BDS are principally in urban and suburban Census tracts. Yet, the Commission[31] and the Obama Administration[32] have

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[31] *See, e.g.,* Federal Communications Commission, *Connecting America: The National Broadband Plan* (2010), available at https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf (*see, e.g.,* ñWhile broadband adoption has grown steadily, it is still far from universal. It lags considerably among certain demographic groups, including the poor, the elderly, some racial and ethnic minorities, those who live in rural areas and those with disabilitiesò (at 5); ñonly 71% of rural health clinics have access to mass-market broadband solutionsò (at 20); ñ[a]s with fixed broadband, most areas without mobile broadband coverage are in rural or remote areasò (at 22); ñ[a]dditionally, the data show that rural areas are less likely to have access to more than one wireline broadband provider than other areasò (at 37).

[32] ñRight now, about 45 million Americans cannot purchase next-generation broadband. And that next generation of broadband creates connections that are six or seven times faster than todayôs basic speeds. And by the way, *only about half of rural Americans can log on at that super-fast rate*. And if folks do have good, fast Internet, chances are they only got one provider to pick from. Today, tens of millions of Americans have only one choice for that next-generation broadband, so theyôre pretty much at the whim of whatever Internet provider is around. And *what happens when there's no competition? You're stuck on hold. You're watching the loading icon spin. You're waiting, and waiting, and waiting. And meanwhile, you're wondering why your rates keep on getting jacked up when the service doesn't seem to improve.*ò Barack Obama, ñRemarks by the President on Promoting Community Broadband,ò Jan. 14, 2015, *available*

always set a goal of reaching *all* Americans throughout the country with high-speed broadband as quickly as possible.

We know ï and the Commission agrees[33] ï that high-speed broadband is deployed most quickly when investors have incentives to invest in these deployments. Why, therefore, would the Commission wish to impose a system on rural America ï where deployments are likely more costly and initially bring lower returns ï which would deny incentives to investors and delay competition? Even if one investor were found to invest in individual rural markets, those areas would be saddled with a de facto monopoly provider rather than receiving the full benefits of competition.

Which companies would decide to invest in these areas under the Commissionôs proposal? It should be incumbent on the Commission and those commentators who favor regulation of BDS to show why a system that imposes price regulation and lowers profit margins for investors will provide the necessary incentives for rapid deployment of 5G technology (or even 4G technology) to rural America. The Commission cannot simply overlook the reality of these markets and remain true to its and the Administrationôs commitment that all Americans, and all American businesses, including rural hospitals and educational institutions that are the lifeblood of many local communities, deserve excellent and fast broadband services.

VI. CONCLUSION

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*at*https://www.whitehouse.gov/the-press-office/2015/01/14/remarks-president-promoting-community-broadband (emphasis added).

[33] Order Initiating Investigation and Designating Issues for Investigation, *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247 (rel. Oct. 16, 2015), at ¶23.

From its start, the best economic regulation has proceeded from a firm foundation of data. As future Supreme Court Justice Louis Brandeis said in 1912, ñI should say over and over again, we need knowledge ï comprehensive, accurate, complete knowledge of what is being done in business.ò[34] In obtaining data on the BDS market, the Commission has followed Brandeisôprescription. Now, though, the Commission must follow through on Brandeisôcounsel and accept that the data it has obtained supports the conclusion that the BDS market is increasingly competitive. As these comments have shown, the attempt to justify this regulation on the basis of the 5G market does not work either from the perspective of investment or technological evolution. We must return, therefore, to the plain conclusion of the data.

It is no disrespect to the Commission that the data have not borne out its initial presumption about the actual state of the BDS market; indeed, one would expect any presumption to become outdated quickly in a fast-changing market. It would, however, disrespect the data to proceed with regulation despite the plain evidence that the market is increasingly competitive.

Just as the proverb notes that ñfortune favors the swift,ò so too the rewards of meeting the growing demand for BDS belong to those who invest and compete. The key is investment, whether that investment comes from incumbent local exchange carriers, from new entrants such as cable, or from CLECs themselves. Indeed, it is baffling why CLECs, in response to the obvious competitive threat, do not redouble their efforts at investment in a market that, as the Commission knows, is both rich in potential and

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[34] Louis D. Brandeis, ñThe Regulation of Competition Versus the Regulation of Monopoly,ò Address to the Economic Club of New York, Nov. 1, 1912, *available at*https://louisville.edu/law/library/special-collections/the-louis-d.-brandeis-collection/the-regulation-of-competition-versus-the-regulation-of-monopoly-by-louis-d.-brandeis

critical to the future of American businesses and large institutions, such as hospitals and universities. There can only be one explanation for such lack of investment: that the CLECs are relying on the Commission to regulate this market in their favor rather than to adopt policies that will promote investment and thus benefit the economy as a whole. In 2016, six years after the adoption of the National Broadband Plan and a long 11 years since the Commission first began its efforts that have led to this rulemaking, that type of interference in this market is both unwarranted and unwise. Rather than stifling investment and stunting the development of the BDS market, including technological innovation, the better course is to follow the most logical explanation of the data and let the competition that has emerged flourish.

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August 9, 2016