

Reregulation of Business Data Services

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Abstract

This article describes recent regulatory developments for business data services. This is a huge market estimated to be between \$45- and \$75 billion, dominated by a few thousand sophisticated customers that purchase very reliable private communication networks. Business data customers, for example, include mobile communications companies and banks. The article examines in detail (1) the Federal Communications Commission's (FCC) proposed plan, (2) describes the controversies among the various stakeholders, (3) analyzes the FCC's revised plan, (4) explains why the revised plan was tabled and (5) outlines network providers' business strategies for operating in this business environment. In addition to the business focus, the article will raise questions about the meaning of market power, the effectiveness of government regulation as a means for improving market performance through regulation, the type of evidence needed to make its case, and the effects of the Trump administration.

Introduction

Net neutrality is still a headline issue after years of debate about whether Internet Service Providers are treating end users and application providers fairly. Another huge part of the broadband market operates under the radar screen. Most people do not know that mobile communications are wireless only until they reach a cell tower. After that the traffic typically gets switched and delivered to a remote cell tower using landline connections. Most people don't even think about the underlying network that links an ATM user to his money. These are just two examples of the business data services (BDS)

market that goes unnoticed.¹ A key feature of these networks is that traffic doesn't travel over the Internet. Instead, it travels over secure circuits that are very dependable.

Figures 1-3 display typical BDS network configurations for different customer groups. Figure 1 is a BDS sold to mobile customers. As you can see, wireless traffic is sent to a cell tower. From there, it is transmitted over landline facilities, increasingly fiber optic cable. The wireless company that relies on BDS components (e.g., inks, ports, and fiber rings) when serving its customers would pay a BDS provider for those services needed to transport wireless traffic back to its mobile switching office. Figure 2 displays traffic destined for the Internet. Once the traffic reaches a local telephone company switching office, the Internet traffic is aggregated and sent over dedicated (BDS) lines to an Internet Service Provider (ISP) and from there to an Internet Gateway that transmits traffic to the rest of the world. Figure 3 is an example of a BDS bought by a large business customer. The transmission path is dedicated to the customer. In this case, however, two network providers must work together to develop the BDS circuit from one office building to another. In this example, if the business customer has its home office is network provider A's territory, network provider A (or the business customer) would have to purchase a transmission path (BDS) in network B's territory.

Figure 1. Business Data Services for mobile customers

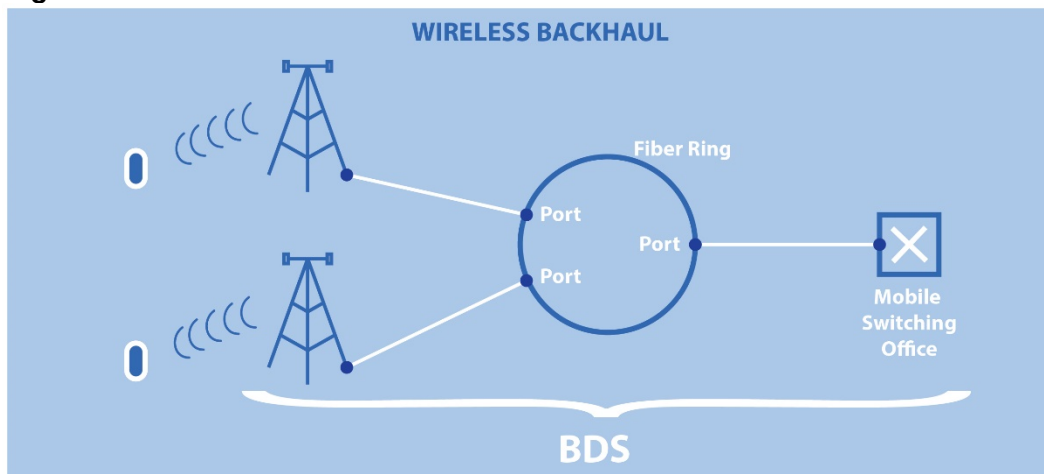


Figure 2. Internet data transmission

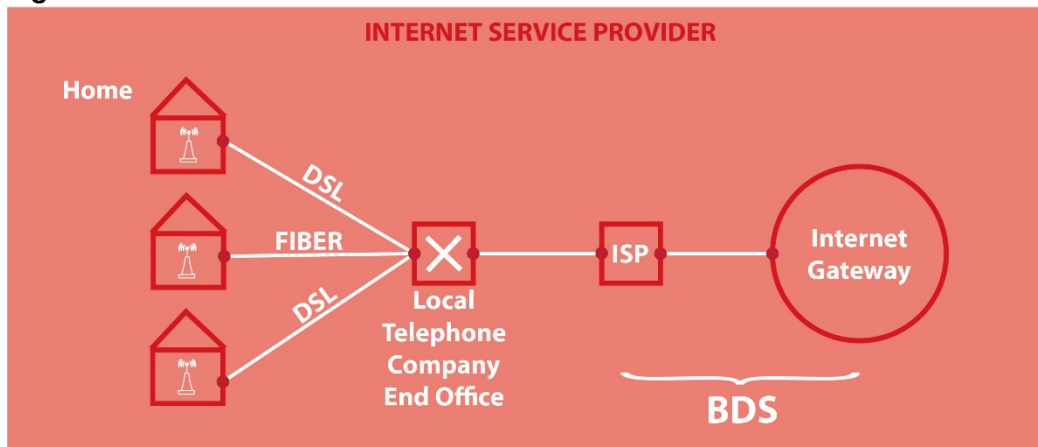
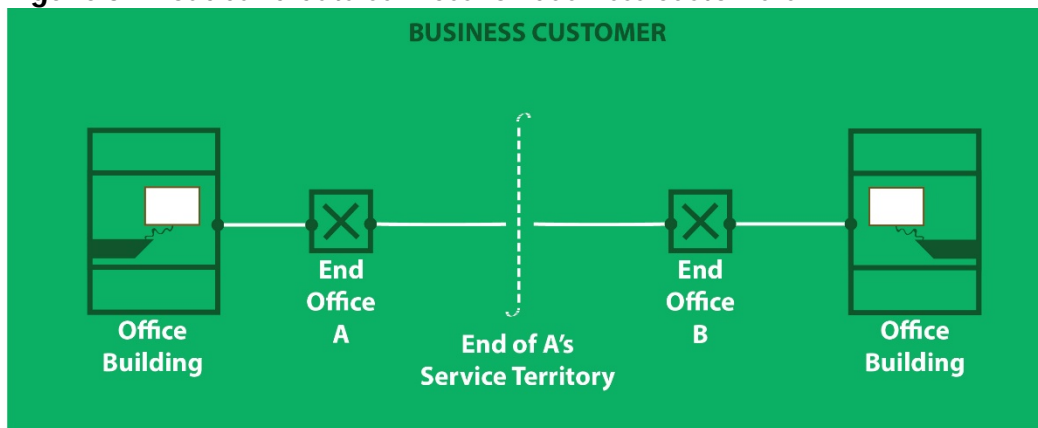


Figure 3. Broadband data services for business customers



High-quality business data transmission services are typically purchased by large, sophisticated customers. The number of customers buying BDS in the United States is measured in thousands, not hundreds of millions. For example, large network providers often buy and sell services to each other. While this market is virtually invisible to the general public, it is very large. The FCC estimates the market size at \$45 billion for stand-alone BDS and \$75 billion for the broader enterprise service industry, which includes BDS sold as an input to enterprise services such as voice, Internet, private network, web-security, cloud connection, and other digital services.² Customers complain that long-term agreements with large network providers lock them in; they cannot look for alternative network providers. Many smaller BDS

customers believe prices are too high, especially for services using old, but still widely used, technology that preceded the packet revolution.³

Interested parties have jumped in to evaluate the market. Not surprisingly, their conclusions are starkly different. Bruce Kushnick, a telecom analyst claims that traditional landline consumers are subsidizing multi-billion dollar build-outs by Verizon and AT&T to cell towers. He claims that Verizon wireless is paying a fraction of what it costs to provide these links, and competitors like Sprint are being overcharged for the same service. In Sprint's case, Kushnick believes the overcharge could be as much as \$1 Billion.⁴ The Consumer Federation of America estimates that market concentration is costing the US economy \$150 billion since 2010.⁵ On the other side, Ballhoff and Williams, also analysts, claim that the market is competitive and that if the FCC rolls back BDS prices and imposes new and vague regulations, major network providers like AT&T and Century Link may curtail investing in BDS and their stock prices would likely decline.⁶

The remainder of the paper is designed to give interested parties an overview of (1) how BDS had been regulated since 1999—the starting point for the controversies among stakeholders and the FCC's decision to reregulate, (2) the 2016 proposed rules and the reactions to them, (3) the forces that may have shaped the revised regulatory strategy defined in Chairman Wheeler's Fact Sheet issued in late 2016, and (4) likely business strategies in the face of regulatory uncertainty.

Previous Regulation of Business Data Services

This battle between large landline network providers and users of their networks is not new. It is more like a new round of an on-again, off-again battle that has been going on since 1999. At that time, the FCC believed that competition in the BDS was developing rapidly. In response it set up a path towards deregulating the BDS market. Complaints of price gouging occurred soon after.

Before the 1999 Order, BDS, originally called special access services, had their prices regulated through a price cap formula that took effect in October 1990.⁷ Overall prices changed each year by the difference between inflation and expected productivity. Since the expected productivity target exceeded inflation in the 1990s, BDS access prices were declining as a result.

At the same time, competitors such as Teleport Communications Group (TCG)⁸ and Metropolitan Fiber Systems (MFS)⁹ began competing successfully for BDS customers. The network providers sought relief. They

wanted zonal pricing regulation, which would give them more pricing flexibility in competitive geographic areas.

In response, the FCC released the 1999 Order, in conjunction with an industry settlement of other access charge issues. It modified regulation in the following ways.¹⁰

1. When competitive providers exceed certain bright line thresholds (defined by competitors' collocating in certain percentages of wirecenters and/or in wirecenters accounting for certain percentages of the incumbent's revenues in a Metropolitan Statistical Area (MSA), the incumbent was granted a degree of pricing flexibility.¹¹
 - a. If amount of competitive entry satisfied the lower of two thresholds, the incumbent could exercise downward flexibility in the form of volume or term discounts and contract tariffs (Phase I flexibility).¹²
 - b. If competitive presence exceeded the higher of the two thresholds, the incumbent was no longer subject to price regulation throughout a qualifying MSA (Phase II flexibility).¹³
2. If competitive entry in an MSA fell below the lower threshold, an incumbent's services were subject to price cap regulation, which adjusts prices each year to account for inflation and expected gains in productivity. These regulated prices decreased by about 14 percent in nominal terms from mid-2000 to mid-2004, and then were frozen in nominal terms from mid-2004 onward.¹⁴

During the period in which this regime was in place, the FCC approved 217 requests for pricing flexibility, resulting in Phase I flexibility available in MSAs accounting for 50 percent of US population living in MSAs and Phase II flexibility in MSAs accounting for an additional 33 percent of total MSA population.¹⁵

Despite the seeming progress towards deregulation, pricing flexibility for BDS (special access services) has been controversial from the beginning. Although the Court of Appeals for the DC Circuit upheld the order,¹⁶ legacy AT&T (which was later purchased by Southwestern Bell and in turn changed its name to AT&T) requested the order be rescinded in 2002. The FCC initiated a proceeding to evaluate how the price flexibility regime was performing in 2005.¹⁷ This investigation eventually led to a suspension in 2012 (i.e., no new requests for price flexibility would be considered).¹⁸ The suspension was based on the following conclusion:

Based on the evidence in the record and thirteen years of experience with this regime, we now conclude that the Commission's existing collocation triggers are a poor proxy for the presence of competition sufficient to constrain special access prices or deter anticompetitive practices throughout an MSA.¹⁹

The FCC cited two reasons to suspend and ultimately replace the regime established in the 1999 Special Access Order for two reasons (1) new entrants enter areas smaller than MSAs and (2) competitive entry has not eliminated incumbents' market power with respect to their legacy DS1 and DS3 services.

The FCC's Initial Proposal: Rationale and Stakeholder Reaction

The FCC commissioned a white paper by Professor Mark Rysman that examined the impact of competitive entry on the prices incumbent charged for DS1, DS3, and higher capacity services as well as packet services in 2013.

DS1 and DS3 are services based on a legacy technology called time division multiplexing (TDM). DS1, for example, is capable of transporting 24 voice calls simultaneously by reserving for each call a time slot. DS3 has the capacity of 28 DS1s. The problem with TDM is that many of the time slots were not being used because of pauses in voice calls. By contrast, packet technology broke voice into data packets, each with the origin and destination addresses. This method eliminated empty transmission space by eliminating empty time slots.

To provide context for Professor Rysman's findings, the annual revenues from incumbent services in what the FCC characterizes as a \$45 billion marketplace are shown in Table 1.²⁰

Table 1. Revenues for incumbent services

Service	Estimated Revenue (billion \$)
Incumbent DS1	\$10.6
Incumbent DS3	\$5.5
Incumbent Packet	\$5.6
Competitor Circuit	\$9.7
Competitor Packet	\$13.3
Total Revenue	\$44.7

Professor Rysman estimated that the presence of a competitor in the same census block led to prices lower on the order of 5 percent for DS1, 10 percent lower for DS3, but statistically insignificantly *higher* for high capacity services.²¹ Professor Rysman characterized the competitive effect on DS1 prices as “not especially large by the standards of competitive analysis.”²² With respect to the effect of competition on incumbents’ high capacity prices, Professor Rysman observed:

Overall, my approach to detecting market power finds inconsistent and insignificant results for high bandwidth customers. A potential explanation is that multiple CPs [competitive providers] are willing to build to high bandwidth customers, so that this market is relatively competitive.²³

Despite the mixed results, on May 2, 2016 the FCC ordered certain contract arrangements to be unfair and must be eliminated. In the Order, the FCC expressed its frustration with not regulating this market properly.²⁴

For several decades, the Federal Communication Commission has struggled to find the best way to ensure that competitive benefits flow customers, and onward to consumers from the provision of so-called “special access” – the business data service(s) (BDS) firms use to fulfill their enterprise-level broadband requirements. The Commission has tried a variety of regulatory approaches – from traditional tariff regulation, to price caps, to methodologies that attempted, with little success, to predict where competition would exist and where it would not.²⁵

Since 2012, the Commission has been looking for a new path forward. At the same time as it issued the Order, the FCC also issued a Further Notice to develop a plan for regulating BDS that would prevent practices that were limiting competition.²⁶ The goal was a set of tailored rules that would improve market performance and accelerate the markets’ uneven progress towards widespread competition.²⁷

Initial Proposal: Key Elements

The FCC’s Notice outlined its vision of a new start for regulating BDS that seemed to signal far-reaching, detailed regulations that would apply to all

network providers, including those previously exempted from regulation. The essential elements of the proposal are as follows:

- **Defined the BDS market as high-quality, symmetrical, two-way transmission paths.** Excluded from the definition were best efforts services such as Broadband Internet Access Services (BIAS) and other broadband services that have quality assurance levels below those required by businesses.²⁸
- **Eliminated dominant and non-dominant network providers as the basis for regulation.** In the past, only dominant network providers were regulated. In effect any network provider could be subject to new FCC regulations.²⁹
- **Developed a granular market test for the presence of competition.** The test would be based on multiple criteria such as bandwidth, different customer classes, business density, and the number of providers in areas consisting of census blocks where each block in the relevant market meets the specified criteria.³⁰
- **Envisioned updating its competitive findings every three years.** Regulation of markets should be updated to account for changes in business density and network extensions by competitors.³¹
- **Refined the FCC's definition of contract terms that it deemed unreasonable in the Order.** These include "all-or-nothing" provisions [that require all demand commitments be part of a single pricing plan,³² shortfall penalties, and early termination fees – as well as other contractual terms and conditions that have been subject to public comment. The Commission sought comment on whether these provisions should be applied in non-competitive markets or more generally in all markets.³³
- **Developed a tailored set of rules to safeguard customers in noncompetitive markets.** The FCC proposed "to continue to apply price cap regulation to time-division multiplexing (TDM)-based BDS in non-competitive markets, including non-competitive areas subject to pricing flexibility. The Commission also [sought] comment on the application of rate regulation in non-competitive markets to packet-based BDS."³⁴
- **Developed Anchor Pricing and Benchmarking for non-competitive packet-based services.** The FCC considered three options: "(1) relying on regulated TDM-based services pricing to anchor prices for similar packet-based services, (2) establishing a price

for packet-based BDS which could serve as an anchor for similar packet-based services, and (3) initially using reasonably comparable prices for TDM-based services as a benchmark for packet-based services to determine whether those rates are just and reasonable."³⁵

- **Prohibited contractual tying arrangements that condition the sale of BDS in non-competitive markets to the sale of services in competitive markets.** The FCC does not want network providers to raise prices in non-competitive markets if it loses a customer's business in a competitive market.³⁶
- **Eliminated regulatory forbearance previously granted to companies such as Verizon.** This provision would allow the FCC to re-impose price regulation in geographic areas where the network provider previously was granted pricing flexibility.³⁷

FCC Commissioner Reactions

Although (as in the battle over regulating Broadband Internet Access Services (BIAS)³⁸) the same Commissioners were on opposite sides; Chairman Wheeler's and Commissioner Clyburn's support for BDS regulation was much more muted than it was for BIAS regulation. Chairman Wheeler said something was wrong with current regulation, and it needed to be fixed.³⁹ Commissioner Clyburn agreed that in areas where competition exists, she believed prices were reduced. However, she questioned the complexity of the Further Notice, stating the proposed would be hard to administer.⁴⁰ Commissioner Pai, a strong opponent of BIAS regulation, used his signature verbal flourishes to lambaste the Commission for attempting to impose new regulations on BDS. Pai said, "Reading today's *Notice*, it appears the Commission has followed Alice through the looking-glass. Because practically nothing in it makes any sense."⁴¹ He questioned whether the FCC can define BDS clearly. According to Pai, the FCC's hands-off policy has led to vigorous, facilities-based competition. Sophisticated customers are abandoning legacy services offered by large network providers in favor of non-regulated packet-based services. Pai concluded by saying the FCC is essentially claiming network providers that are rapidly losing market share have market power, so the FCC needs to regulate them. This only makes sense, "In the world of the looking-glass, everything is backward."⁴² Commissioner O'Reilly, the other opponent of BIAS regulation, calls the proposed rules "are just another power grab by the Commission."⁴³

Shareholder Reactions: A Flood of Reply Comments

Judging by the heft of the Order and Further Notice – almost 300 pages – supporters and foes of BDS regulation had reason to believe the “tailoring” would likely be quite intricate and expansive in reach. The proposed rules had the potential for regulating services and prices at the building or census block level, and regulations would apply to virtually all network providers. Previous regulation applied to incumbent carriers and was enforced within MSAs in the United States, which number 374 geographic regions.⁴⁴ In contrast, Professor Rysman’s data identified business data services in over 1.2 million buildings.⁴⁵

Thousands of pages of reply comments were received by the FCC from large and small network providers and other interested parties. Most of the positions could be anticipated but not all. Cable companies, classified as non-dominant, wanted no part of the new rules that would impose regulation on them. Large network providers, in general, were against the very detailed regulations because (1) they were not convinced that more regulation was called for and (2) implementing the FCC’s proposal would impose high costs. Small network providers welcomed the protection the proposed rules afforded them. One large network provider was an exception to the rule. Verizon, agreed to become part of a coalition that mainly supported the small network provider position.

While many parties responded to the FCC’s requests for comments on its proposed rules, we focus on three representative parties—Comcast, AT&T, and the coalition of Verizon and INCOMPAS (an association of competitive providers that use incumbent-provided BDS in some cases as inputs to providing BDS to their own customers). They are illustrative of the competing stakeholder positions.

Comcast

The FCC’s sweeping proposal to regulate TDM and low-speed packet-based services (50 Mbps or less) regardless of whether a network provider was considered dominant drew heavy criticism from cable companies that are investing billions of dollars to compete in the lucrative BDS market that is growing rapidly. Comcast was especially vocal, saying that new entrants in the BDS market were given assurances of not being regulated as late as 2015.

When the Commission adopted the *2015 Open Internet Order*, [Commissioner Wheeler] pledged that there would be “no rate regulation,

no tariffs, no last-mile unbundling” for broadband services and facilities, precisely because eschewing such measures would “preserve incentives for broadband operators to invest in their networks,” and “provide returns necessary to construct competitive networks.”⁴⁶

Furthermore, according to Comcast, the FCC was reneging on its long-standing policy of not imposing monopoly-style regulation on new entrants in telecommunication markets. Comcast noted the FCC exempted Internet Service Providers from long-distance service regulations. Voice over the Internet Providers (VoIP) did not have to file tariffs for their services.⁴⁷

Imposing regulation now would harm Comcast financially. Comcast expanded its network under the assumption that it could set prices that would produce a healthy return on investment. The potential profits are there because customers want customized services, where margins are potentially large as opposed to margins in a mass market.

The large margins do not translate into exploitative profiteering. The customers are generally large sophisticated businesses, or wireless providers, or landline network providers seeking to accommodate their customers outside their territories, or simply win customers that are dissatisfied with their current service provider.

If the FCC rolls back prices and place price ceilings on BDS, Comcast states that:

Comcast’s financial models suggest that *more than half* of Comcast’s fiber buildout projects for cell backhaul would have been put at risk and likely not have occurred if prices were 25 percent lower than the prices negotiated by Comcast and its customers.⁴⁸

Comcast does not want to be penalized if AT&T’s or Century-Link’s prices for legacy broadband services or for new low-speed Ethernet services are too low. Non-dominant carriers – carriers without market power – should not be regulated.

Comcast questions why the FCC is even contemplating imposing price regulation in this market, even on the supposedly dominant carriers. All market measures point towards robust competition. The market is growing rapidly.

The Commission has observed, for example, that business IP traffic has grown from 3 exabytes¹⁶ in 2005 to 39 exabytes in 2015 and is expected to reach approximately 85 exabytes by 2019.⁴⁹

According to Vertical Systems Group:

the percent of U.S. buildings connected to fiber has increased from approximately 11 percent in 2004 to 39 percent in 2013 and reached 42 percent in 2014. Vertical Systems Group noted that fiber-based business services in the U.S. “nearly quadrupled between 2004 and 2014 as service providers like AT&T, cable operators, and a host of competitive carriers equipped thousands of business sites with 20 or more employees with fiber over the course of this period.⁵⁰

Vertical Systems Group also notes that prices for BDS have come down sharply in recent years:

Vertical Systems Group reports that U.S. retail Carrier Ethernet pricing fell by double digit rates for all services across all tracked speed segments between 2010 and 2015. These data do not convey any indication that monopoly power is manifest in the provision of BDS.⁵¹

Comcast and other cable companies’ successes in gaining market share attest to the success of not extending regulation to non-dominant carriers.

According to Comcast, even the FCC’s own research doesn’t show that market power was inflating prices in 2013 – a year that is stale, almost like ancient history in this fast evolving market. At most, the FCC purports to show that DS1 service was overpriced by 3.2% in areas when network providers appear to have market power.⁵²

Professor Farrell, a Comcast consultant, concluded after reviewing Professor Rysman’s models that:

the general magnitude of price effects of additional competitors...is within the normal run of ordinary oligopoly effects from more competitors...In oligopoly markets generally we are alert to opportunities to better protect competition, but except for monopolies (and by no means always for monopolies), few economists would seriously suggest price regulation.⁵³

Professor Mayo, another Comcast consultant, went further and noted that prices for some of the BDS included in Professor Rysman's data were established in term contracts executed prior to 2013, i.e., the competitive conditions when prices were established could well have been different from 2013 competitive conditions.⁵⁴ When data are limited to services for which prices were established in 2013, Professor Mayo found that Professor Rysman's competitive effects either disappeared or were greatly attenuated.⁵⁵

With this type of flimsy evidence, Comcast asks: Does it make sense to impose regulations that will cost many providers enormously by making previous investments unprofitable, by making negotiations with customers more cumbersome, and by imposing huge billing systems expenses? In this case, the over-regulation is a far greater threat than under-regulation?

And how would the FCC determine if a market that could be as narrow as a building is competitive? Comcast rejects the idea, for example, that if one network provider serves a building it means that this market is not competitive. Often, a build-out is at the behest of a customer, according to Comcast. Many network providers bid for the business. Only one wins the bid. The fact that one carrier serves a building does not mean that competition doesn't exist.⁵⁶

Comcast, as one would expect from a new entrant in the market, offers alternative approaches to break down market barriers that are narrowly tailored and easily identified. For example, building access and rights of way remain impediments.⁵⁷ At a minimum, Comcast and other cable providers want a non-dominant exemption from new regulations. This has been the practice of the FCC and should continue to be so.

AT&T

AT&T asks a basic question: Is there persuasive evidence that network providers can exert market power in the BDS market? AT&T answers "No." If the Commission looks at the facts objectively, AT&T is confident that the Commission should agree with its conclusion. AT&T's broadside begins with the Commission's own analysis. The FCC hired Dr. Marc Rysman, who estimated econometric models with as many as 1.4 million observations, to determine if competition lowered prices for business data services.⁵⁸ The results, according to AT&T show almost no reduction in prices for legacy TDS services and none for Ethernet services for speeds above 50 Mbps.

Further, AT&T's consultants, Drs. Israel, Rubinfeld, and Woroch claim Rysman's model has methodological problems that may overstate the price effect of competition. They also found no market power for Ethernet speeds below 45 Mbps.⁵⁹ To reinforce this claim, AT&T points out that at low speeds, BDS competes with Hybrid Fiber Coaxial (HFC) services offered by cable companies. Business customers can substitute lower-quality service for a lower price.⁶⁰

AT&T also claims the data on which the model was estimated is stale. In this fast growing market, 2013 is ancient history. Network providers see the future – and it is Ethernet. TDM is disappearing rapidly.⁶¹ A distinguishing feature of the Ethernet market is that it is built on fiber. The need for fiber links to the customer forced all network providers to start from scratch because their previous links to customers were copper.⁶² To prove the market for Ethernet services was new and highly competitive, AT&T noted that no network provider exceeds twenty-five percent of Ethernet ports.⁶³ Moreover, many competing networks have fiber in close proximity to customers, according to AT&T, another indication of a competitive market.⁶⁴

Given that the BDS market is growing rapidly and market shares are low for the new service offerings, AT&T then focuses on the cost of over-regulation. If the Commission is going to regulate, geographically granular regulation makes no sense because it adds to billing costs enormously.⁶⁵ If regulation were necessary, the use of census tracts as geographic markets would both address the FCC's concerns over MSAs being too large and the costs and administrative impracticalities of geographic markets defined as millions of census blocks.⁶⁶

There are also costs and uncertainties resulting from vaguely-defined market power triggers. What types of facilities, e.g., copper or fiber, compete with each other? Do fiber links within a certain distance of each other compete?⁶⁷ What types of customers constitute a market? Should markets be broken into market segments: large versus small customers, single location and multi-location customers?⁶⁸ How will the Commission link price ceilings for different service speeds or using different technologies? Should the Commission regulate contract terms and conditions in a market where customized services are widespread and the customers are typically sophisticated users of broadband services?⁶⁹ How would the Commission do it and what would be the effect of the services desired by customers?

There is a less well-defined regulatory cost: stretching the meaning of regulations to justify a new regulatory regime for BDS. AT&T points out that

Sections 201 and 202 of the Telecommunications Act—the two provisions upon which the Commission relies—do not address discounts; they focus on reasonable and non-discriminatory rates.⁷⁰ Similarly, Sections 251 and 252 of the Act focus on mass market service; business data is a customized service.⁷¹

Rolling back the prices on legacy TDM services makes no sense, according to AT&T. Lowering the price of TDM services would encourage customers to stick with legacy technology, which would frustrate President Obama's stated priority for a rapid transition to packet technology.⁷² In response to the Commission's justification that network providers have not passed along productivity gains to their customers, AT&T questioned whether a dying service that network providers are rushing to replace delivers any productivity gains?⁷³

Verizon/INCOMPAS Coalition

The Verizon/INCOMPAS proposal has the following major elements:⁷⁴

- Services with capacities less than 50 Mbps (marginally above the capacity of legacy DS3 service) would be considered non-competitive and subject to price cap regulation and an up-front price reduction.
- Services with capacities in excess of 1 Gbps would be considered competitive and therefore no longer subject to *ex ante* price regulation.
- Services with capacities between these benchmarks would be subject to a competitive test under which (1) the geographic area would be the census block and (2) four competitors in that block and adjacent blocks would be necessary for price deregulation.⁷⁵
- Benchmarks—based on comparable incumbent legacy services—would be established for non-competitive Ethernet services

INCOMPAS, an association of independent network providers that compete against large incumbent networks,⁷⁶ traditionally has fought for more stringent regulation of those incumbents. Accordingly, the availability of Verizon and a few smaller incumbent network providers as partners in this regulatory reform proceeding made the INCOMPAS proposal appear to be an industry compromise.⁷⁷ Because competitive carriers are typically net purchasers of from large incumbents, they would benefit from the FCC lowering or capping the prices (at least in the short run and in the long-run to the extent that investment incentives are not unduly attenuated). The only surprising member is Verizon. As a provider of legacy BDS, it stands to lose revenue from its landline customers if the INCOMPAS proposal takes effect,

but as a wireless company it stands to gain in territories not served by its landline network.

The coalition's challenge was to show that many network providers set prices above competitive levels because they have market power. The main debate on market power centered on how many network providers compete in a particular market. Although AT&T reported that 98.7 percent of buildings are within a half-mile of buildings with BDS demand,⁷⁸ INCOMPAS opined that the true market for BDS is the building itself: "99 percent of commercial buildings with demand for Business Data Services were served by one or two facilities-based competitors as of 2013."⁷⁹ However, INCOMPAS conceded that for administrative ease, a census block-based test would be reasonable⁸⁰ and would deem a market competitive if a minimum of four facilities-based network providers are operating within a census block or any adjacent census block.⁸¹ The number of competitors is based on an empirical study conducted by Dr. Jonathan Baker, a former chief economist at the FCC. He claims that the "prices of high-bandwidth connections are likely substantially in excess of competitive levels" and that "the presence of four or more in-building and four or more in-block high-bandwidth rivals lowers the prices of high bandwidth connections by 43 percent according to one estimate and by 25 percent according to another."⁸²

Rolling back BDS prices and establishing price benchmarks for packet services would benefit customers, competitors within the BDS market, and the overall performance of the economy, according to INCOMPAS. A recent study by the Consumer Federation of American, "found that the overcharges resulting from the market failure in the Business Data Services markets have costs consumers over \$150 billion over the past five years."⁸³ INCOMPAS also cites a 2003 study by Paul Rappoport and Lester Taylor that shows a substantial BDS price reduction would add 132,000 jobs and \$14.5 billion to Gross Domestic Product. At the same time, network providers would also benefit because demand was very sensitive to price reductions. As a result, lower prices would increase overall BDS revenue.⁸⁴

INCOMPAS recommends that price regulation should not apply to new entrants for three years.⁸⁵ Cable companies would not meet this requirement. In fact, INCOMPAS attacks Comcast's position that it is not a common carrier of BDS and that FCC regulations should not apply to cable companies. INCOMPAS goes so far as to suggest that customized service and pricing packages are indicators of customer discrimination associated with market power.⁸⁶

The FCC Changes Course

After mountains of comments came in, something completely unexpected happened. The FCC released Chairman Wheeler's Fact Sheet on October 7, 2016.⁸⁷ Typically, the Fact Sheet would outline the new regulations that the Commission would formally adopt when it issued its BDS Order. The details of the revised regulations were at the same time astonishing, strangely familiar, and probably troubling to the same network providers that fought against the Net Neutrality Order.

Elements of Revised Plan

The details were astonishing because the Fact Sheet suggested the FCC was backing off from a highly complex proposal to regulate BDS in the name of opening the market to competition. The expectation that the proposed regulations would take effect was bolstered by a coalition of large and small network providers siding with the Commission. Many others, opposed the plan, but in the past, a coalition usually won the argument because it supposedly represented a diverse set of interests.

Yet the Fact Sheet went against many of these expectations. The Fact Sheet stated the Commission was planning to regulate only incumbent network providers of services built on legacy technology, and re-impose price cap regulations for these legacy services, but granted flexibility to develop customized contracts. The price ceilings were national in scope. Services with higher capacities—typically deploying IP-based technologies would not be subject to *ex ante* price regulation, although they would be classified as telecommunications services, making them subject to among other provisions, a "robust complaint process."⁸⁸

Although the revisions were astonishing to followers of this market, the regulations proposed for higher capacity services were strangely familiar: a form of light regulation for these new packet-based services. The Commission would not price-regulate Ethernet-based packet services, but proposed to collect data that would allow it to determine "what administrable means can be developed, if necessary, to deal with any concerns that may emerge with respect to pricing for packet-based BDS."⁸⁹ This approach is similar to the one used by the FCC to regulate the Internet. The other familiar result is to re-impose price cap regulations on legacy BDS services that are sold primarily by large, incumbent network providers. The annual productivity factor (X factor) of three percent and the eleven percent proposed roll-back of TDM prices also have the familiar look of a brokered

deal where the Commission split the difference between the side that wanted a lower productivity factor (1.99 percent) no price rollback and the other that wanted a higher productivity factor (4.4 percent) and a 25 percent rollback.⁹⁰

Future battles are likely to occur as a result of the residual powers claimed by the Commission. The Commission's oversight allowed it to arbitrate local, often customized, business data service bundles. Re-imposing price cap regulation on TDM services and rolling back prices would also have its detractors. Why lower prices for services that are technically obsolete? Despite that complaint, the market is shrinking rapidly. A network provider might say, well, it doesn't matter if the government sets the price of plain old telephone service too low, no one buys it anyway.⁹¹

The big question is: "Why did the FCC move back from potentially prescribing very detailed price regulations at the Census Block level for legacy and packet-based services?" The possible answers are instructive. It may well be that the lack of publicity allowed the proceeding to a more traditional track of analyzing the evidence for market power. John Oliver would be hard put defending "predatory" banks against the "predatory" practices of network providers. This market is composed of a core group of sophisticated insiders trying to squeeze the best deal from the other side. Unlike BIAS, which is based on a best effort technology, end-to-end quality of service options that will span many networks are being rapidly developed for BDS. A customer locked into a bad deal is not happy, and a network provider that has the key wants a reward for setting the customer free.

This market is going to expand as network providers push to offer high-quality services to small and medium sized businesses that cannot afford Internet glitches. The Wheeler plan was to collect data to monitor future developments.

Then the election happened and another shock occurred – no, not who won the election. It was the fallout from the election. Deregulation is the new watchword. Pressure from the Republicans forced Chairman Wheeler to table his plan, and since the new administration has designated Ajit Pai as the new Chairman, the former chairman's plan is all but dead.⁹²

Assessment

The FCC's original tailored-regulation strategy required answers to a number of fundamental questions, which commenting parties have very different viewpoints and provided very different answers. In a particular, in order to devise a workable new plan for selective deregulation of BDS, the

FCC needed to address five policy issues: (1) what is the product market, which is very unclear for customized services as opposed to commodities such as BIAS; (2) where and how to measure competition; (3) how much competition is there; (4) what is the effect of more competitors on price (market power detection); and (5) what are the costs and benefits of changing regulation.

Answers to these questions proved to be anything but clear-cut, no doubt in large part because of the rapid changes in BDS markets (making time-consuming data collection efforts nearly obsolete when results are finally obtained) and also attributable to the noisy nature of the data collected to support a new regulatory regime. Dueling economists used the same data to arrive at very different conclusions on the fundamental question of to what extent does competition in BDS markets restrain the ability of providers' charging prices in excessive of competitive levels.

The first impression of the regime outlined in Chairman Wheeler's Fact Sheet is of a very different regulatory structure than either the previous regime or what had been outlined in the 2016 BDS Order. In particular, both the approach to identifying geographic areas with sufficient competition that had been suspended in 2012 and more granular approaches based on smaller areas than MSAs were abandoned, at least until more data is collected in a subsequent review. The practical questions that emerged were (1) how much different is the new regime from the one that it replaced and (2) what is the apparent rationale for the FCC's reregulation decision.

Turning to the first question, under the former regime incumbents providing legacy DS1 and DS3 BDS had been granted Phase I (downward) pricing flexibility in MSAs accounting for half the total population in MSAs, Phase II flexibility (price deregulation) in MSAs accounting for another one-third of MSA population, and were subject to price caps with no flexibility in the remaining MSAs, which account for one-sixth of MSA population. In addition, prices in areas subject to price caps had been frozen since 2004. The new regime would have capped prices everywhere and reduce them by 11 percent. In addition, if inflation continues to average two percent annually (as it has for the last decade), the productivity factor of three percent would result in a one percent annual price reduction (in nominal terms) in capped prices. Further, while the FCC's proposal eliminated price deregulation everywhere for legacy BDS, it provides Phase I (downward) price flexibility everywhere.

Apart for the changes in the price levels for legacy BDS, incumbents (1) serving MSAs that qualified for Phase I flexibility would experience no change, (2) those serving areas with Phase II flexibility would no longer be able to increase prices beyond the price cap limits, and (3) those serving areas that previously did not qualify for any pricing flexibility would now have downward flexibility. Finally, prices for services using newer technologies would continue to be price deregulated, albeit with the addition of a “robust complaint process.”

In light of (1) the length of time required to address the concerns with the previous regime and (2) the difficulty of obtaining clear-cut results from the data intended to measure the extent of competition, this new regime could remain in place indefinitely. This likelihood is reinforced if, as many parties anticipate, legacy technology is replaced by newer packet-based technology. The reason is that a natural reduction in the revenues subject to price regulation would make legacy service less important, and so the urgency to make changes in the regulation of legacy services. On the other hand, new price restrictions on legacy services would have retarded the transition to newer technologies because (1) incumbents would have fewer internally-generated funds available for investment and (2) the price restrictions on legacy services could make investments from facilities-based competitors such as Comcast less attractive.⁹³

The FCC's now abandoned regime could also be compared to proposals presented by the various stakeholders. From this perspective, the practical coincidence of the Verizon/INCOMPAS proposal that BDS is not competitive at capacities below 50 Mbps and Professor Rysman's conclusion that incumbents have market power with respect to legacy services may have provided the FCC sufficient justification to abandon its attempts to identify geographic markets with sufficient competition. Similarly, Professor Rysman's inability to find market power for services with greater capacities, in conjunction with (1) the fact that such services have not been price-regulated, (2) the FCC has often refrained from price-regulating services provisioned on new technologies, and (3) a “robust complaint process” will be established for packet-based services could well explain the FCC's course of action.

Business Strategies

Tabling the revised plan is clearly a big win for AT&T, Comcast, and other large landline network providers. Even so, they should still be wary of a

backlash if their market behavior is perceived as anticompetitive. The Wheeler Fact Sheet has provided a set of guidelines that if followed would decrease the rationale for a new push to regulate BDS.

- Wholesale rates may be perceived as presumptively unreasonable if they exceed retail rates for like services. Also applies to legacy services.
- The FCC may still apply greater scrutiny when there is evidence of rates that are materially higher than those charged by the same provider for the same circuit in nearby buildings with competition.
- The FCC also had expected to apply greater scrutiny when there is evidence of rates for low-bandwidth Ethernet service that are materially higher than rates for the nearest-bandwidth rates for legacy services.
- Rates of new entrants and parties with smaller market shares are unlikely to be questioned.
- Staff-supervised mediation may be employed prior to the filing of a complaint, which could expedite adjudication.
- Providers will likely be required to furnish specific rate information during adjudication.
- Requirements for the unreasonable terms and conditions banned for legacy service providers will be applied as a yardstick for adjudication.
- Non-disclosure agreements barring disclosure of information related to the provision of BDS to the FCC are prohibited. Also applies to legacy services.

In the unlikely event that despite the anti-regulatory climate the FCC attempted to extend its power, network providers would likely question the efficacy of a new large-scale data collection effort. A good case could be made as a result of the first data collection that data quality is poor at very granular geographic territories. Moreover, the BDS market is still evolving rapidly, making a new dataset stale because of the lead time needed to collect and analyze the data.

Small network may still see INCOMPAS as a useful clearinghouse for processing complaints and building cases for systematic price discrimination. They should also be vigilant that the FCC does not extend BDS regulation to companies that have little market power in comparison to the large network providers. They should also try to limit any new administrative burden because they presumptively do not have market power that needs to be monitored. Perhaps this exemption could extend to data collection efforts

directed at network providers that are not building regional or national BDS networks.

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Endnotes

1. The FCC defines BDS as "a telecommunications service that: transports data between two or more designated points at a rate of at least 1.5 Mbps in both directions (upstream/downstream) with prescribed performance requirements that typically

- include bandwidth, reliability, latency, jitter, and/or packet loss. BDS does not include “best effort” services, e.g., mass market BIAS such as DSL and cable modem broadband access.” Federal Communications Commission, Tariff Investigation Order and Further Notice of Proposed Rulemaking (2016): Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Released May, 2, par. 279. Retrieved October 10, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-54A1.pdf (“2016 BDS Order”). BDS is an important building block for creating private or virtual private networks across a wide geographic area and enabling the secure and reliable transfer of data between locations. As the examples presented below illustrate, point-to-point BDS lines can also provide dedicated access to the Internet and access to innovative broadband services. Mobile wireless providers purchase BDS to backhaul voice and data traffic from cell sites to their mobile telephone switching offices. Branch banks and gas stations use BDS connections for ATMs and credit card readers. Businesses, governmental institutions, hospitals and medical offices, and even schools and libraries use BDS to create their own private networks and to access other services such as Voice over IP (VoIP), Internet access, television, cloud-based hosting services, video conferencing, and secure remote access. Carriers buy BDS from providers as a critical input for delivering their own customized, advanced service offerings to end users. FCC. (2016). BDS Order, par. 12.
2. 2016 BDS Order, par. 44.
 3. Time division multiplexing (TDM) is a circuit-switch technology, which has widely been supplanted by Internet Protocol (IP) packet switching technology.
 4. Retrieved November 8, 2016 from http://www.huffingtonpost.com/bruce-kushnick/fccs-business-data-servic_b_11960050.html.
 5. Retrieved November 8, 2016 from http://consumerfed.org/press_release/cfa-study-finds-special-access-market-concentration-cost-consumers-and-the-u-s-economy-150-billion-since-2010/.
 6. Retrieved November 8, 2016 from <http://www.investinbroadband.org/2016/09/assessing-fccs-proposed-reform-business-data-services/>.
 7. See Policies and Rules Concerning Rates for Dominant Carriers, CC Docket No. 87-313, Second Report and Order, 5 FCC Rcd 6786/1990), Erratum 5 FCC Rcd 7664 (1990), Final Rule Correction, 55, Fed Reg 50558 (1990)
 8. https://en.wikipedia.org/wiki/Teleport_Communications_Group, Retrieved Feb. 3, 2017
 9. https://en.wikipedia.org/wiki/Metropolitan_Fiber_Systems, Retrieved Feb. 3, 2017
 10. Federal Communications Commission, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45 (2000): Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Low-Volume Long Distance Users, Federal-State Joint Board on Universal Service, Released March 31, Retrieved October 10, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/FCC-99-206A1.pdf (“CALLS Order”).

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11. A wirecenter consists of the area served by a particular switch. The number of customer lines served by a wirecenter within an MSA can range from a few hundred to tens of thousands.
12. Federal Communications Commission, Fifth Report and Order and Further Notice of Proposed Rulemaking (1999): Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Interexchange Carrier Purchases of Switched Access Services Offered by Local Exchange Carriers, Petition of U.S. West Communications Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MS, , Released August 27, pars. 93, 100, and 122. Retrieved October 10, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/FCC-99-206A1.pdf (“1999 Special Access Order”).
13. 1999 Special Access Order, pars. 149, 150, and 153.
14. CALLS Order, par. 149. The CALLS Order specified real price reductions totaling about 20 percent for the first four years. The inflation component for these years (as measured by GDP-PI) totaled about 8 percent, resulting in the 14 percent nominal price decrease ($0.8 \times 1.08 = 0.86$).
15. Tardiff, T.J. (2014): Reregulation or Better Deregulation?: Economic Evaluation of Recent FCC Competition Actions, *Journal of Competition Law & Economics*, 11(1) 160 (note 61) (“Tardiff Reregulation”).
16. *WorldCom, Inc. v. FCC*, 238 F.3d 449 (D.C. Cir. 2001).
17. Federal Communications Commission, Order and Notice of Proposed Rulemaking (2005): Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Released January 31, par. 5. Retrieved October 10, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/FCC-05-18A1.pdf.
18. Federal Communications Commission, Report and Order (2012): Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Released August, 22, Retrieved October 10, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/FCC-12-92A1.pdf “Special Access Suspension Order”).
19. Special Access Suspension Order, par. 5.
20. Estimated by authors from data presented in Rysman, M. (2016). Empirics of Business Data Services. *White Paper*, Revised June 2016, Tables 1 and 12. Retrieved October 11, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/DOC-340040A6.pdf (“Rysman White Paper”).
21. Rysman White Paper, p. 27 (Table 14).
22. Rysman White Paper, pp. 21-22.
23. Rysman White Paper, pp. 23-24. Consistent with Professor Rysman’s observation, the FCC had proposed to refrain from imposing ex ante price regulation on packet-based services. However, the FCC defines these services as telecommunications services (subject to the just and reasonable terms and conditions provisions of the Communications Act) and has specified a “robust complaint process.” Wheeler Fact Sheet, third page.
24. FCC. (2016). BDS Order, par. 1.

25. The identification of specific areas where competition exists is an intermediate step in evaluating whether there has been sufficient entry in a larger area, e.g., a Metropolitan Statistical Area (MSA), so prices are at competitive levels.
26. 2016 BDS Order.
27. 2016 BDS Order, par. 4.
28. 2016 BDS Order, Appendix D, par. 4.
29. 2016 BDS Order, par. 4.
30. 2016 BDS Order, Appendix D, par. 4.
31. 2016 BDS Order, Appendix D, par. 4.
32. 2016 BDS Order, par. 95.
33. 2016 BDS Order, Appendix D, par. 5.
34. 2016 BDS Order, Appendix D, par. 6.
35. 2016 BDS Order, Appendix D, par. 7.
36. 2016 BDS Order, Appendix D, par. 8.
37. 2016 BDS Order, Appendix D, par. 10.
38. Glass, V. (2016). The Internet as a Telecommunications Service: Framing the Legal Issues and Business Strategies, *Rutgers Business Review*, 1(1) 60.
39. 2016 BDS Order, pp. 278-279.
40. 2016 BDS Order, pp. 280-281.
41. 2016 BDS Order, p. 283.
42. 2016 BDS Order, p. 284.
43. 2016 BDS Order, p. 285.
44. See https://en.wikipedia.org/wiki/Metropolitan_statistical_area.
45. Rysman White Paper, p. 11.
46. Comments of Comcast Corporation (2016): Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Priding Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, June 28, p. 40 ("Comcast Comments").
47. Comcast Comments, p. 47.
48. Declaration of Mayo, J.W. (2016). Exhibit B to the Comments of Comcast Corporation, Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Priding Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, June 28, par. 15.
49. Mayo Declaration, par. 32.
50. Mayo Declaration, par 39.
51. Mayo Declaration, par. 104
52. In light of Professor Rysman's findings that (1) the effect of competition on incumbents' prices is not especially large for DS1 services and (2) competition may be sufficient for high capacity services, the remaining concern over incumbent market power would appear to be confined to DS3 services, which according to Table 1 account for only 25 percent of incumbent BDS revenue and 12 percent of total industry revenue. (Since incumbent revenue totaled \$21.7 billion (first three rows of Table 1, DS3 revenues are 25

- percent of that amount and 12 percent of the \$44.7 billion of industry revenues.) To provide context for incumbent revenue, the FCC reported incumbents' revenues for BDS services (private line and special access) through 2007 in its ARMIS data. Revenue for large incumbents totaled \$19.7 billion in 2007. Although possible differences in how revenues are measured in the BDS and ARMIS data may make an exact comparison problematic, comparing the incumbents' revenue from the two sources suggests very little growth between 2007 and 2013, and perhaps even a reduction in DS1 and DS3 revenue (because high capacity revenues were likely considerably smaller in 2007). In contrast, ARMIS data shows a growth of 42 percent in incumbents' BDS revenues in the six year period between 2001 and 2007.
53. Reply Declaration of Farrell, J. (2016). Exhibit A to the Reply Comments of Comcast Corporation, Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, August 9, par. 53 and Figure 1.
 54. Mayo Declaration, par. 71.
 55. Mayo Declaration, pars. 75-76.
 56. Mayo Declaration., par 58.
 57. Mayo Declaration, p. 25.
 58. See, for example, FCC. (2016). BDS Order, p. 223 (Table 14), which reports almost 1.4 million observations for DS1 models.
 59. Comments of AT&T Inc. (2016). Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, June 28, p. 3 ("AT&T Comments").
 60. AT&T Comments, p. 27.
 61. AT&T Comments, p. 55.
 62. AT&T Comments, p. 30.
 63. AT&T Comments, p. 31.
 64. AT&T Comments, pp. 2, 12, and 13.
 65. AT&T Comments, pp. 6 and 37.
 66. AT&T Comments, pp. 39-41.
 67. AT&T Comments, pp. 42-43.
 68. AT&T Comments, pp. 48-50.
 69. AT&T Comments, pp. 73, 75, and-76.
 70. AT&T Comments, p. 67.
 71. AT&T Comments, pp. 67-70.
 72. AT&T Comments, p. 1.
 73. AT&T Comments, p. 8.
 74. Reply Comments of INCOMPAS. (2016). Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local

- Exchange Carrier Rates for Interstate Special Access Services, August 9, pp. 5-14 (“INCOMPAS Reply Comments”).
75. INCOMPAS proposes additional restrictions beyond its proposal with Verizon: (1) that services between 50 Mbps and 100 Mbps be considered non-competitive and (2) a price squeeze test be imposed. INCOMPAS Reply Comments, p. 8 and pp. 14-20.
 76. INCOMPAS’ web site (<http://www.incompas.org/history>) provides more details.
 77. INCOMPAS summarized the comments of several other parties that generally support more stringent regulation of BDS in support of the reasonableness of the proposal. INCOMPAS Reply Comments, pp. 3-4.
 78. AT&T Comments, p. 12.
 79. Comments of INCOMPAS (2016): Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, June 28, p. 3 (“INCOMPAS Comments”).
 80. INCOMPAS Comments, p. 28.
 81. INCOMPAS Reply Comments, p. 7.
 82. INCOMPAS Reply Comments, p. 11.
 83. INCOMPAS Comments, p. 3-4.
 84. INCOMPAS Reply Comments, pp. 10-11.
 85. INCOMPAS Reply Comments, p. 13.
 86. INCOMPAS Reply Comments, pp. 23-27.
 87. Federal Communications Commission. (2016). Chairman Wheeler’s Proposal to Promote Fairness, Competition, and Investment in the Business Data Services Market, October 7. Retrieved October 11, 2016 from <https://www.fcc.gov/document/chmn-wheeler-update-business-data-services-rules>. (“Wheeler Fact Sheet”).
 88. Wheeler Fact Sheet, second page.
 89. Wheeler Fact Sheet, third page.
 90. Mark E. Meitzen and Philip E. Schoech, on behalf of incumbent providers, proposed an X factor of 1.99 percent—virtually identical to inflation in the GDP-PI since regulated special access rates were frozen in 2004. Reply Comments of Mark E. Meitzen and Philip E. Schoech (2016): Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, August 9, p. 1. David E.M. Sappington and William P. Zarakas proposed an X factor of at least 4.4 percent and price reduction of at least 25.2 percent. Declaration of David E.M. Sappington and William P. Zarakas (2016): Exhibit E. to the Comments of Sprint Corporation, Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, June 28, par. 5. The simple average of these competing proposals is a price reduction of 12.6 percent and an X of 3.2 percent. The Verizon-INCOMPAS proposal falls within the

- range defined by Meitzen/Schoech and Sappington/Zarakas. It calls for a 15 percent price reduction (10 percent immediate and 5 percent in the following year) and an X factor of 4.4 percent (same as Sappington/Zarakas). Reply Comments of INCOMPAS. (2016). Business Data Services in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, August 9, pp. 12-13 (“INCOMPAS Reply Comments”).
91. The current situation with regard to proper regulation of BDS bears some resemblance to the situation that prevailed in the mid-2000s, when pursuant to a court mandate, the FCC limited the availability of wholesale inputs used by entrants that compete with incumbent companies to provide local service. The early entrants relied primarily on inputs obtained from the incumbents (similar to some of today’s competitors relying on incumbent BDS to serve some of their customers). Before access to wholesale inputs was restricted—primarily by phasing out a low-cost form of resale and rebranding known as UNE-P—competitors relied on inputs obtained from incumbents to serve 76 percent of the 27 million lines they provided in June 2003. Tardiff, T.J. (2007). Changes in Industry Structure and Technological Convergence: Implications for Competition Policy, *International Economics and Economic Policy*, 4(2), 118 (Table 1). Incumbents then served 156 million lines. Federal Communications Commission (2003): Local Telephone Competition: Status as of June 2003, December, Table 1. Retrieved October 26, 2016 from https://transition.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom1203.pdf. By the end of 2013, competitors’ volumes had increased to 58 million lines (largely due to the provision of telephone services by cable television companies), with only 25 percent of these lines relying on inputs obtained from incumbents. In contrast, the number of lines served by incumbents decreased to 76 million lines. Federal Communications Commission (2014): Local Telephone Competition: Status as of December 2013, October, Figures 3 and 8. Retrieved October 26, 2016 from https://apps.fcc.gov/edocs_public/attachmatch/DOC-329975A1.pdf. In other words, despite the fact that the FCC was apparently less accommodating of the concerns of competitors that rely on wholesale inputs than it appears to be now, competition in the form of facilities-based entry (which recent cable company provision of BDS seems to resemble) more than took up the slack.
92. U.S. FCC drops plan to vote on business data services reforms, <http://www.cnn.com/2016/11/16/reuters-america-us-fcc-drops-plans-to-vote-on-business-data-services-reforms.html>, retrieved Nov. 22, 2016.
93. Tardiff Reregulation, 160, note 67.