

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Reexamination of Roaming Obligations of) WT Docket No. 05-265
Commercial Mobile Radio Service Providers and)
Other Providers of Mobile Data Services)

PETITION FOR EXPEDITED DECLARATORY RULING OF T-MOBILE USA, INC.

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May 27, 2014

SUMMARY

T-Mobile USA, Inc. (“T-Mobile”) hereby petitions the Federal Communications Commission (“FCC” or “Commission”) to expeditiously issue a declaratory ruling that provides prospective guidance and predictable enforcement criteria for determining whether the terms of any given data roaming agreement or proposal meet the “commercially reasonable” standard adopted by the Commission in the *Data Roaming Order*. Carriers need this modest guidance to provide necessary clarity in individualized negotiations and to help parties better evaluate the commercial reasonableness of offered terms and to reach agreements.

The Commission adopted the data roaming rule because it found that providers require access to data roaming in order to be able to compete, and that an extensive record showed that many were having difficulty obtaining such access on reasonable terms. Despite adoption of the rule, however, real-world industry experience shows that providers continue to be stymied in their efforts to negotiate data roaming agreements on commercially reasonable terms.

These problems are due in large part to certain ambiguities in the “commercially reasonable” standard for data roaming – ambiguities that could not have been foreseen at the time, but which have become apparent with experience. The data roaming marketplace, and the consumers who rely on it for ubiquitous, affordable wireless service, would benefit substantially if the Commission provided greater clarity on the meaning of its “commercially reasonable” standard in the context of data roaming. T-Mobile submits this Petition in response to the *Data Roaming Order*’s invitation to seek just such a declaratory ruling if circumstances required it.

As explained in the attached declarations by former FCC Chief Economist Dr. Joseph Farrell and T-Mobile Senior Vice President Dirk Mosa, data roaming is (and will remain for the foreseeable future) essential to the provision of nationwide mobile data services. But the lack of sufficient guiding principles in the Commission’s data roaming rules leaves carriers with little

real-world guidance when faced with unreasonable tactics deployed by “must-have” roaming partners.

To assist the Commission in providing prospective guidance to all parties, Dr. Farrell proposes four benchmarks for assessing commercial reasonableness in the data roaming context: (1) whether a wholesale roaming rate offered to a retail competitor substantially exceeds the relevant retail rate; (2) whether a wholesale roaming rate substantially exceeds roaming rates charged to foreign carriers when their customers roam in the U.S.; (3) whether a wholesale roaming rate substantially exceeds the price for wholesale data service that a seller charges to mobile virtual network operator (“MVNO”) customers; and (4) how the proposed wholesale roaming rate compares to other competitively negotiated wholesale roaming rates. T-Mobile recognizes that the benchmarks are guiding principles that must be applied flexibly, and that no single benchmark can fit every circumstance. Nevertheless, by providing additional guidance to negotiating parties and to the industry in general, the proposed benchmarks will help give more concrete effect to the policy objectives that the Commission pursued in the *Data Roaming Order*.

In addition, two other rulings would enhance the effectiveness of the data roaming rule. First, as Dr. Farrell explains, the Commission should make clear that the presumption that the terms of an existing roaming agreement are commercially reasonable applies only with respect to challenges to the terms of *that agreement*, and not to the reasonableness of *future* roaming agreements or proposed agreements. The terms of existing roaming arrangements may fall well outside the bounds of commercial reasonableness due to unequal bargaining power between the parties, a lack of competition for potential roaming providers in any given market, technological advances that drive down roaming costs, or ambiguities in application of the *Data Roaming Order*. Second, the Commission should clarify that its inclusion of “the extent and nature of

providers' buildout" in the *Data Roaming Order* as one of a number of non-exclusive factors was not intended to allow a host carrier to deny roaming in a particular area where the otherwise built-out requesting provider has not built out.

The industry guidance that T-Mobile requests would not amount to the prescription of rates, nor will it interfere with providers' ability to negotiate data roaming arrangements on individualized terms. Rather, it will provide guidance to encourage commercially reasonable individualized practices and, if disputes arise, provide the basis for the Commission to evaluate particular practices or disputes. The requested ruling is well within the Commission's authority and will help achieve the goals the Commission sought to promote when it originally adopted the rule. Those goals – including enhancing competition, facilitating innovation and investment, and promoting nationwide broadband connectivity – remain key priorities of the Commission today.

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PETITION FOR EXPEDITED DECLARATORY RULING OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile”)^{1/} submits this petition for expedited declaratory ruling to remove uncertainty regarding the FCC’s data roaming rule. While the rule requires providers of commercial mobile data services to offer data roaming arrangements on “commercially reasonable terms and conditions,”^{2/} providers continue to experience severe difficulties in obtaining access to data roaming due to the lack of clarity regarding practical application of the “commercially reasonable” standard to data roaming and the exploitation of that lack of clarity.

The Commission stated in the *Data Roaming Order* that, when roaming-related petitions for declaratory ruling are filed, “we intend to address them expeditiously.”^{3/} Because existing roaming agreements (many of which include base terms that were negotiated prior to the *Data Roaming Order*) continue to enter re-negotiation and renewal, it is essential that the Commission act expeditiously on this request.

^{1/} T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{2/} 47 C.F.R. § 20.12(e); *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, Second Report and Order, 26 FCC Rcd. 5411, ¶¶ 40-41 (2011) (“*Data Roaming Order*”), *aff’d sub nom. Cellco P’ship v. FCC*, 700 F.3d 534 (D.C. Cir. 2012).

^{3/} *Data Roaming Order* ¶ 77.

As discussed herein, the lack of practical guidance in the data roaming context has left carriers with insufficient real-world guidance in their negotiations, and has encouraged “must-have” roaming partners to engage in unreasonable tactics by exploiting ambiguity in the rules to deny roaming requests.^{4/} Because this lack of clarity undermines the purpose of the *Data Roaming Order*, T-Mobile respectfully urges the Commission to act on its promise “to closely monitor further development of the commercial mobile broadband data marketplace” and “take additional action” to achieve the goals underlying the data roaming rule.^{5/} This is precisely the sort of experience-based, evolutionary guidance that the “commercially reasonable” standard makes possible due to its flexible adaptability to real-world industry developments.

I. BACKGROUND

Every wireless carrier, including AT&T and Verizon as well as T-Mobile and all other domestic carriers, utilizes roaming. The very concept of nationwide (or global) coverage is premised on the provision of roaming.^{6/} Indeed, mobile wireless consumers have come to expect to be able to use their devices for mobile data service wherever they might be, a trend that will only continue as more mobile consumers adopt smartphones and increasingly rely on mobile data in their everyday business and personal lives.^{7/}

Even in markets robustly built out by multiple carriers, there will be discrete areas that are served by only one carrier. This occurs for many reasons, including zoning limits on tower construction, limited access to backhaul, and other cost challenges. Roaming is and will

^{4/} See Declaration of Dirk Mosa (“Mosa Decl.”), attached hereto as Ex. 1, ¶ 33.

^{5/} *Data Roaming Order* ¶ 27.

^{6/} Mosa Decl. ¶ 5.

^{7/} Declaration of Joseph Farrell, D.Phil., In Support of Petition for Declaratory Ruling of T-Mobile USA, Inc. (“Farrell Decl.”), attached hereto as Ex. 2, ¶¶ 29, 32-33.

continue to be needed in order to offer customers the reliable, complete coverage they demand.^{8/} It is therefore essential for carriers to be able to negotiate commercially reasonable nationwide data roaming rates from nationwide providers.

The relentlessly increasing demand for mobile data services also makes the need for access to data roaming ever more critical. As the Commission reported, “[i]t is estimated that U.S. mobile data traffic increased 270 percent from 2010 to 2011, and that it has more than doubled each year for the past four years.”^{9/} And Cisco predicts that from 2012 levels, global mobile data traffic will increase 13-fold by 2017.^{10/}

T-Mobile continues to build out its network, but it is unrealistic to expect that T-Mobile (or any other carrier) will ever be able to provide 100 percent coverage of the entire United States on its own network alone. Wireless carriers will likely always require roaming on commercially reasonable terms in order to offer customers the widest possible coverage footprint.^{11/} Despite this fact, however, a competitive market for roaming partners does not exist in many parts of the country. As a result, for example, carriers that rely upon GSM-based technologies, including T-Mobile, have no choice but to obtain access to data roaming from certain “must-have” roaming partners in order to provide consumers with the nationwide coverage they demand. This results in unequal bargaining that enables the “must-have” carriers

^{8/} Farrell Decl. ¶ 32; Mosa Decl. ¶ 5.

^{9/} *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Sixteenth Report, 28 FCC Rcd. 3700 ¶ 2 (2013) (“*Sixteenth Competition Report*”) (citing Cisco, Visual Networking Index U.S. Mobile Data Traffic Forecast Update (Feb. 2012)).

^{10/} Cisco, Visual Networking Index U.S. Mobile Data Traffic Forecast Update, at 3 (Feb. 2013), available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf.

^{11/} Mosa Decl. ¶ 5; Farrell Decl. ¶¶ 30-32.

to dictate commercially unreasonable roaming rates on terms highly unfavorable to the requesting provider.^{12/}

It was precisely this state of affairs that the *Data Roaming Order* sought to address. The *Data Roaming Order* requires facilities-based providers of commercial mobile data services to offer data roaming arrangements to other providers of such services on “commercially reasonable terms and conditions.”^{13/} This standard applies both to a provider’s conduct during negotiations and to its proposed terms and conditions.^{14/}

The Commission possesses the general power to “issue a declaratory ruling terminating a controversy or removing uncertainty,”^{15/} and the *Data Roaming Order* specifically invited petitions for a declaratory ruling “to resolve any disputes arising out of the data roaming rule.”^{16/} The *Data Roaming Order* also emphasized that the Commission “intend[s] to closely monitor further development of the commercial mobile broadband data marketplace and stand[s] ready to take additional action if necessary to help ensure that [its data-roaming-related] goals . . . are achieved.”^{17/} As discussed below, marketplace experience in the three years since the Commission adopted the data roaming rule amply demonstrates that such additional action is expeditiously needed.

^{12/} Mosa Decl. ¶ 12.

^{13/} *Data Roaming Order* ¶¶ 40-41.

^{14/} *Id.* ¶ 79. The Commission explained that “commercial reasonableness” would be assessed on a case-by-case basis taking into consideration the totality of the circumstances, using a non-exclusive list of 17 factors. *Id.* ¶¶ 23, 42, 85-86. It also “emphasize[d] that these factors are not exclusive or exhaustive and that providers may argue that the Commission should consider other relevant factors in determining the commercial reasonableness of the negotiations, providers’ conduct, and the terms and conditions of the proffered data roaming arrangements, including the prices.” *Id.* ¶ 87.

^{15/} 47 C.F.R. § 1.2.

^{16/} *Data Roaming Order* ¶ 75.

^{17/} *Id.* ¶¶ 27, 56.

II. CLARIFICATION OF THE “COMMERCIALLY REASONABLE” STANDARD IN THE DATA ROAMING CONTEXT IS NECESSARY TO ENSURE THAT THE DATA ROAMING RULE ACHIEVES ITS INTENDED PURPOSES.

A. Problems Continue Today.

As the Commission found in adopting the data roaming rule, facilitating access to data roaming on commercially reasonable terms “promote[s] consumer access to seamless mobile data coverage nationwide, appropriately balance[s] the incentives for new entrants and incumbent providers to invest in and deploy advanced networks across the country, and foster[s] competition among multiple providers in the industry.”^{18/} Beyond these benefits, the Commission found that a data roaming rule was necessary because providers were “encounter[ing] significant difficulties obtaining data roaming arrangements,” primarily from the two largest providers.^{19/} The Commission concluded that access to data roaming on reasonable terms is critical to a provider’s ability to compete,^{20/} and predicted that adoption of the data roaming rule would result in benefits from increased competition “in the billions of dollars per year.”^{21/} Not surprisingly, only the two largest carriers – Verizon and AT&T – opposed adoption of a data roaming rule.^{22/}

^{18/} *Id.* ¶ 13; *see also Sixteenth Competition Report* ¶ 208 (discussing the importance of roaming to providers).

^{19/} *Data Roaming Order* ¶ 24; *id.* ¶¶ 25-26 (observing that “AT&T has largely refused to negotiate domestic 3G roaming arrangements until recently” and that parties “also assert difficulties reaching agreements with Verizon Wireless”); *Cellco P’ship*, 700 F.3d at 539 (“Absent an obligation to permit roaming, some mobile-data providers were voluntarily entering into data roaming agreements, but this was often not the case.”).

^{20/} *Data Roaming Order* ¶¶ 13-20.

^{21/} *Id.* ¶ 31.

^{22/} *Cellco P’ship*, 700 F.3d at 539.

Since adoption of the data roaming rule, however, carriers have continued to report that “the negotiation of data roaming agreements has not meaningfully progressed.”^{23/} Problems have included offers of wholesale data roaming rates many orders of magnitude higher than the offering carrier’s retail rates to its own data customers, delays of more than eight months to obtain even initial responses to roaming requests, requests for detailed long-term traffic projections and proposed hefty penalties for any resulting deviations from those projections, and testing procedures and queues that would drag on for undisclosed or indeterminate periods of time.^{24/}

These issues continue to persist today, and in some cases are getting worse.^{25/} As the most recent Wireless Competition Report observed, “although the Commission adopted the *Data Roaming Order* in 2011, the ability to negotiate data roaming agreements on non-discriminatory terms and at reasonable rates remains a concern” of providers.^{26/} Similarly, a survey submitted by NTCA—The Rural Broadband Association (“NTCA”), an association of nearly 900 rural independent telephone companies, found that 58 percent of survey respondents identified

^{23/} Comments in Support of the Blanca Telephone Company Petition for Reconsideration, WT Docket No. 15-265, at 2-3 (filed Dec. 16, 2011) (expressing the views of MetroPCS Communications, Inc., National Telecommunications Cooperative Association, NTELOS Holdings Corp., PRWireless, Inc., Revol Wireless, Rural Cellular Association, Rural Telecommunications Group, Inc., and United States Cellular Corporation).

^{24/} *Id.* at 7-8.

^{25/} See, e.g., Letter from James H. Barker, Latham & Watkins LLP, Counsel to Leap Wireless International and Cricket Communications, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 05-265 (filed Jan. 23, 2013) (reporting “the continuing challenges that Leap has encountered in attempting to enter into 4G data roaming agreements with other wireless carriers”); Comments of Competitive Carriers Association, WT Docket No. 13-135, at 17 (filed June 17, 2013) (stating that wireless carriers “continue to face challenges in achieving roaming arrangements with AT&T and Verizon on commercially reasonable terms and conditions” and continue to “find it challenging to negotiate roaming agreements without information regarding the terms and conditions that the Twin Bells are offering to other carriers, or to their own affiliates.”); Reply Comments of T-Mobile USA, Inc., WT Docket No. 13-135, at 17 (filed July 25, 2013) (“[D]espite the Commission’s imposition of roaming obligations, carriers are still encountering difficulty obtaining commercially reasonable roaming arrangements.”).

^{26/} See *Sixteenth Competition Report* ¶ 210.

“negotiating roaming agreements” as a major area of concern, and that 69 percent “categorized their experience in negotiating data roaming and in-market roaming agreements with other carriers as moderately to extremely difficult.”^{27/} In late 2013, the Competitive Carriers Association (“CCA”) also advised that “competitive carriers face ongoing exclusionary actions by AT&T and Verizon, such as denial of data roaming on commercially reasonable terms and conditions . . .”^{28/}

The continued and growing dominance of certain carriers substantially exacerbates the problem. As noted in the last Wireless Competition Report, the two largest carriers already account for approximately 67 percent of all wireless service revenue^{29/} and have extensive spectrum holdings,^{30/} giving them a significant competitive advantage. This market dominance is only expected to increase as the two largest carriers continue to purchase substantial spectrum assets through piecemeal transactions and enter into arrangements to acquire their competitors.^{31/}

^{27/} NTCA, *NTCA 2012 Wireless Survey Report*, at 3, 13 (Sept. 2012), attached to Reply Comments of NTCA—The Rural Broadband Association, WT Docket No. 13-135 (filed July 1, 2013).

^{28/} Competitive Carriers Association, *A Framework for Sustainable Competition in the Digital Age: Fostering Connectivity, Innovation and Consumer Choice*, GN Docket No. 12-268, *et al.*, at 10 (filed Dec. 4, 2013) (internal citations omitted).

^{29/} *Sixteenth Competition Report* ¶ 52, Table 12.

^{30/} *See id.* ¶ 118, Table 17 (reporting that the two largest carriers now together hold more than 78 percent of the valuable spectrum below 1 GHz). The Department of Justice has even suggested that this figure likely understates the carriers’ actual holdings. *See Ex Parte* Submission of the United States Department of Justice, WT Docket No. 12-269, at 14 n.21 (filed Apr. 11, 2013).

^{31/} *See, e.g.*, Application of AT&T Inc. and Long Lines Communications, LLC for Consent to the Assignment of 15 PCS and Seven AWS-1 Licenses and an International Section 214 Authorization, ULS File No. 0005865319, *et al.* (filed Aug. 22, 2013); Application of Cellco Partnership d/b/a Verizon Wireless and Barat Wireless, L.P. for Consent to the Assignment of an Advanced Wireless Services B Block License from Barat to Verizon Wireless, ULS File No. 0005881395 (filed Aug. 16, 2013); Application of AT&T Inc. and Atlantic Tele-Network, Inc. for Consent to the Transfer of Control and Assignment of Licenses, Spectrum Leasing Authorizations, and an International Section 214 Authorization, ULS File No. 0005632405, *et al.* (filed April 3, 2013); Verizon Wireless and Cincinnati Bell Enter Agreement for Spectrum License Purchase, Verizon News Release (Apr. 7, 2014), <http://www.verizonwireless.com/news/article/2014/04/verizon-wireless-cincinnati-bell.html>.

Indeed, AT&T's recent acquisition of Leap Wireless International, Inc., including its Cricket brand, has further reduced the number of competitors in the wireless market and increased AT&T's market share, thereby also further limiting AT&T's need for roaming and reducing the number of roaming providers in the marketplace.^{32/} As the Commission itself recognized, interested parties were vocal in the transaction review docket in drawing attention to roaming-related market concerns further aggravated by the transaction.^{33/} For example, CCA, after noting its members' current "challenges in . . . obtaining reasonable roaming arrangements, particularly 4G LTE roaming arrangements,"^{34/} outlined the harmful impact the "loss of Leap as an actual and potential roaming partner" would have on an already dysfunctional roaming marketplace.^{35/} Youghioghny Communications, LLC ("YC"), an owner of interests in regional wireless carriers situated in southern Texas, similarly explained that "[t]here is a fundamental market failure in the provision of roaming services that requires immediate regulatory

^{32/} See Application of AT&T Inc. and Leap Wireless International, Inc. for Consent to the Transfer Control of Licenses, ULS File No. 0005860676, *et al.* (filed Aug. 1, 2013).

^{33/} *Applications of Cricket License Company, LLC, et al., Leap Wireless International, Inc., and AT&T Inc. for Consent to Transfer Control of Authorizations, et al.*, Memorandum Opinion and Order, WT Docket No. 13-193, DA 14-349, ¶ 104 (rel. Mar. 13, 2014) ("*AT&T/Leap Order*") (discussing concerns expressed by a number of interested parties that "the loss of Leap as a roaming partner reduces competitive pressure on nationwide providers to maintain reasonable roaming rates and to compete fairly in the marketplace," that "the loss of Leap as a roaming partner will increase roaming rates," and that "AT&T has refused to offer data roaming agreements to other providers at commercially reasonable terms and conditions, a problem that may be exacerbated by this transaction").

^{34/} See Letter from Michael Lazarus, Telecommunications Law Professionals PLLC, Counsel to CCA, to Ms. Marlene H. Dortch, Secretary, FCC, WT Docket No. 13-193, at 1 (filed Feb. 6, 2014) ("*CCA February 2014 Ex Parte*"); Letter from Michael Lazarus, Telecommunications Law Professionals PLLC, Counsel to CCA, to Ms. Marlene H. Dortch, Secretary, FCC, WT Docket No. 13-193, at 2 (filed Jan. 3, 2014) ("*CCA January 2014 Ex Parte*") ("*CCA's members have consistently detailed their long-running battles with AT&T to negotiate and obtain commercially reasonable roaming agreements, only to be met with stonewalling tactics and outrageous proposed terms or conditions.*"). CCA has also noted that it "is unaware of AT&T having entered into *any* 4G LTE roaming agreements with U.S. carriers to date." *CCA January 2014 Ex Parte* at 2-3 (emphasis in original).

^{35/} *CCA February 2014 Ex Parte* at 2 (explaining Leap's existing "incentive to enter into LTE roaming agreements" and its current role "as a competitive check on roaming prices [by allowing] other carriers to have prices to benchmark against – an important function which allows all roaming rates to be lower").

intervention if the crisis is not to worsen,” and that this “crisis will be demonstrably aggravated by approval of the proposed transaction.”^{36/}

These parties noted that AT&T offered Leap a “steeply discounted” roaming rate in the LTE roaming agreement the parties negotiated as part of the “break-up” fee in the event the transaction was terminated.^{37/} While a “break-up” roaming agreement might reflect other economic factors beyond simply the cost of roaming, this significantly reduced rate suggests that roaming rates currently offered by AT&T are artificially high.^{38/} Using a “cost-plus” method (among others) to derive the level of cost to provide a GB of roaming, YC determined that “data costs no more than \$2.20-2.40 per GB to deliver to a wireless subscriber,” and should be even lower for a carrier of AT&T’s size.^{39/} YC concluded that “[t]he rates charged for roaming are so high that no carrier can profitably afford to let its customers roam on a high cost roaming partner because the roaming charges would quickly exceed the rates paid by the customer to the home carrier.”^{40/}

^{36/} Letter from Donald J. Evans, Fletcher, Heald & Hildreth, P.L.C., Counsel to YC, to Marlene H. Dortch, FCC, WT Docket No. 13-193, at 2 (filed Feb. 3, 2014) (“YC February 3, 2014 *Ex Parte*”).

^{37/} CCA February 2014 *Ex Parte* at 2-3; CCA January 2014 *Ex Parte* at 4; YC February 3, 2014 *Ex Parte* at 3.

^{38/} See, e.g., CCA January 2014 *Ex Parte* at 6 (urging “the Commission to require that AT&T offer this disclosed rate as the absolute ceiling for rates in any future 4G LTE roaming agreement that AT&T enters into with any requesting carrier,” and offer such carriers roaming arrangements with terms and conditions at least as favorable as those being offered to Leap); YC February 3, 2014 *Ex Parte* at 3 (“The fact that AT&T is willing and able to offer dramatically lower rates to Leap if this deal blows up is the surest sign that dramatically lower rates could and should also be available to *all* carriers who request LTE roaming.”).

^{39/} See Letter from Donald J. Evans, Fletcher, Heald & Hildreth, P.L.C., Counsel to YC, to Philip Verveer, Senior Counselor, FCC, WT Docket No. 13-193, at 3 (filed Feb. 6, 2014) (“YC February 6, 2014 *Ex Parte*”) (adding that “over 1/3 of that total [includes] depreciation of network equipment and amortization of spectrum purchased at \$1.00/MHz/pop”); see also Letter from Donald J. Evans, Fletcher, Heald & Hildreth, P.L.C., Counsel to YC, to Philip Verveer, Senior Counselor, FCC, WT Docket No. 13-193 (filed Feb. 7, 2014) (submitting an attachment calculating data roaming costs, which was referenced but inadvertently omitted from the YC February 6, 2014 *Ex Parte*).

^{40/} YC February 6, 2014 *Ex Parte* at 4.

B. Commission Action is Needed to Resolve These Problems.

Simply put, the roaming market is dysfunctional. By providing greater clarity as to the meaning of “commercially reasonable” in the limited context of data roaming, the Commission will help arm providers with the tools they need to obtain the data roaming agreements necessary to enable them to compete.^{41/} As one commenter observed, “[i]t would serve to expedite roaming negotiations considerably if the Commission would offer guidelines as to the reasonableness of the proffered terms.”^{42/} Clarification will help parties better understand their data roaming rights and obligations, help narrow the issues in dispute in roaming negotiations, and allow parties to arrive at commercially reasonable terms more consistently and more quickly.

^{41/} In this petition, we focus on the “commercially reasonable” standard that the Commission adopted in the data roaming context, and the unique competitive considerations in that particular context.

^{42/} NTCH, Inc.’s Comments in Support of Petition, WT Docket No. 05-265, at 2 (filed Dec. 16, 2011); *see also* Comments of Rural Telecommunications Group, Inc., WT Docket No. 13-135, at 13 (filed June 17, 2013) (“Mandating access to data roaming was only the first half of the battle to create a level playing field in the realm of roaming access. The second and equally important step is to make sure that all carriers across the country, large and small, offer commercially reasonable wholesale data roaming rates.”); YC February 6, 2014 *Ex Parte* at 4 (“[W]e feel that the rule mandating ‘commercially reasonable rates’ has been an utter failure in ensuring that reasonable rates are available. The roaming rates currently being offered are patently outrageous by any measure.”); Letter from Martyn Roetter and Alan Pearce, Information Age Economics, to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 05-265, *et al.* (filed Feb. 19, 2014) (stating that the *Data Roaming Order* “has not achieved its purpose of ensuring that all mobile operators have access to roaming services at ‘commercially reasonable’ rates” and therefore advocating that the Commission adopt more “precise, tighter and meaningful definition(s) of the term ‘commercially reasonable,’” establish quantitative targets for current and future commercially reasonable wholesale roaming rates, and implement monitoring and enforcement procedures to ensure compliance with *Data Roaming Order* requirements).

III. THE FCC SHOULD ADOPT THE FOLLOWING CLARIFICATIONS IN ORDER TO PROVIDE GREATER CERTAINTY TO ALL PARTIES IN THE DATA ROAMING CONTEXT.

A. “Commercial Reasonableness” Should be Based on Predictable Criteria.

As explained in the attached declaration by Dr. Joseph Farrell, while the Commission should be cautious in diagnosing commercially unreasonable demands, it should not allow that to prevent it from providing prospective guidance and predictable enforcement.^{43/}

In drafting prospective guidance, the Commission should consider four benchmarks for the industry: (1) whether a wholesale roaming rate offered to a retail competitor greatly exceeds a “suitable measure” of retail price (which Dr. Farrell explains); (2) whether a wholesale roaming rate substantially exceeds roaming rates charged to foreign carriers when their customers roam in the U.S.; (3) whether a wholesale roaming rate substantially exceeds the price for wholesale data service that a seller charges to MVNO customers (keeping in mind that MVNO customers may use the host carrier’s network in substantially different ways compared to a roaming customer of a facilities-based competitor); and (4) how the proposed wholesale roaming rate compares to other competitively negotiated wholesale roaming rates (understanding that some prevailing roaming rates may reflect the past exercise of market power or attempts to weaken retail rivals).^{44/}

^{43/} Farrell Decl. ¶ 8.

^{44/} *Id.* ¶¶ 8-13. Regarding the fourth benchmark – domestic wholesale data roaming rates – Dr. Farrell cautions that (1) some of the comparison agreements may not themselves be commercially reasonable; (2) an unreasonable demand might appear only modestly different if it involves a blended rate; (3) there has been a strong downward trend in wholesale data roaming rates in recent years such that a formerly reasonable rate may not now reflect current market conditions; and (4) the marginal cost to the purchasing carrier of data roaming under recently negotiated agreements might be significantly lower than the average cost of roaming, and perhaps zero. *Id.* ¶ 84; *see also* Mosa Decl. ¶¶ 26, 30. Nevertheless, “[d]espite such issues, it can be informative to examine whether a proposed rate is comparable to this benchmark.” Farrell Decl. ¶ 84.

1. Retail Benchmark – “Suitable Measure of Retail Price”

As Dr. Farrell discusses in his paper, a natural benchmark for wholesale mobile data pricing is retail mobile data pricing.^{45/} Particularly in a market such as the one for wireless services, where wholesale roaming partners also compete for retail customers, the Commission should be particularly wary of wholesale roaming rates that are intended to, and have the effect of, keeping retail data rates unnecessarily high for the wireless customers of competitors.

As Dr. Farrell calculates using publicly available data, and making conservative estimates, the wholesale roaming rates demanded by certain of T-Mobile’s roaming partners for a unit of data roaming are, on average, many times higher than the price charged for the same unit of data in even the most expensive retail data plans.^{46/}

While other factors may justify some gap between a carrier’s wholesale roaming rates and the retail rates charged to consumers, the existence of a large gap may be evidence that the host carrier is attempting to raise its rivals’ costs by insisting on high wholesale data roaming rates, thereby inducing the requesting carrier to raise its retail prices or compromise its service quality, for instance by throttling or capping roaming for its subscribers.^{47/}

Such an anticompetitive incentive would appear particularly likely when a “must-have” carrier like AT&T negotiates a wholesale data roaming agreement with T-Mobile (particularly given the high rates that AT&T charges to T-Mobile), since AT&T is one of the two largest mobile wireless carriers with an estimated market share in 2012 of in excess of 30 percent^{48/} (and would thus gain significantly from raising rivals’ costs), while T-Mobile has been viewed as an

^{45/} Farrell Decl. ¶¶ 59-73.

^{46/} *Id.* ¶¶ 64-73; Mosa Decl. ¶ 16.

^{47/} Farrell Decl. ¶ 45; Mosa Decl. ¶ 17.

^{48/} *Sixteenth Mobile Competition Report* at Table 12.

industry innovator whose costs AT&T would benefit from raising.^{49/} As explained in the attached Declaration of Dirk Mosa, T-Mobile has been forced to throttle and cap its customers' ability to roam on AT&T's data network due to AT&T's unreasonably high data roaming rates.^{50/} This is precisely the type of impact on consumers that the "commercially reasonable" standard should be interpreted to prevent. Data roaming traffic carried by the substantial majority of roaming partners other than AT&T is generally offered at rates that do not require throttling or capping.^{51/}

2. Rates Charged to Foreign Carriers

i. Rates T-Mobile Charges to Foreign Carriers who Roam in the United States

Another benchmark for commercially reasonable rates for domestic wholesale roaming can be developed from the rates that T-Mobile has negotiated with non-affiliated foreign carriers that apply when the foreign carriers' customers roam in the United States.^{52/} This benchmark is attractive for two reasons.

First, foreign carriers (who predominantly use GSM technology) often have a choice of at least two U.S. roaming partners – AT&T and T-Mobile – and also may be able to roam on regional carriers' networks in some areas of the country.^{53/} As a result, the more competitive market for wholesale roaming helps to prevent a carrier from charging exorbitant rates for roaming.

^{49/} Farrell Decl. ¶ 46.

^{50/} Mosa Decl. ¶ 10.

^{51/} *Id.* ¶ 11.

^{52/} Farrell Decl. ¶¶ 74-77.

^{53/} *Id.* ¶ 74; Mosa Decl. ¶ 32.

Second, because foreign carriers generally do not compete against domestic carriers for customers in the United States, domestic carriers have little incentive to raise costs for these carriers in order to limit retail competition.^{54/}

Not surprisingly, then, several of these contracts allow the international operator to enjoy unlimited use of T-Mobile's data network in 2014 for a fixed dollar amount under reciprocal terms. This has the pro-consumer result that, at least during the contract term, marginal costs to roam become zero.^{55/}

ii. Rates T-Mobile Pays Outside of the United States

Like other U.S. carriers, T-Mobile has reciprocal agreements for data roaming with unaffiliated foreign carriers. These agreements specify not only the rate T-Mobile charges foreign carriers when their customers roam on T-Mobile's U.S. network, but also the rates T-Mobile pays for data roaming services that T-Mobile purchases from the foreign carriers.^{56/} These rates similarly can provide a helpful benchmark for assessing whether rates for domestic wholesale roaming are commercially reasonable. The available data show that rates charged for wholesale data roaming by carriers outside of the United States are consistently lower than those charged inside the United States by certain of T-Mobile's roaming partners, including AT&T.^{57/}

3. Rates Charged to MVNOs

Another recommended benchmark is to consider the rates that facilities-based carriers charge Mobile Virtual Network Operators for data. The T-Mobile network hosts a handful of MVNOs, to which it provides "permanent data roaming services." Although, as Dr. Farrell

^{54/} Farrell Decl. ¶ 74; Mosa Decl. ¶ 30.

^{55/} Farrell Decl. ¶ 77; Mosa Decl. ¶ 30.

^{56/} Farrell Decl. ¶¶ 78-81; Mosa Decl. ¶¶ 29-30.

^{57/} *Id.*

points out, there are differences between MVNO agreements and roaming agreements,^{58/} providing data services to MVNOs is similar to providing data roaming services in that the provider of the network services – in this case T-Mobile – is allowing another operator’s customers to use its network to retrieve and deliver data.^{59/} As Mr. Mosa explains in his Declaration, there is no reason why the wholesale rates for minutes and megabytes charged to other carriers (*i.e.*, roaming) should be so much higher than the wholesale rates for minutes and megabytes charged to MVNOs.^{60/} In addition, given the nature of their relationship with their MVNO partners, the host facilities-based networks that supply the MVNOs may be less likely to have incentives to raise rivals’ costs.^{61/}

4. Rates Charged by Other Carriers

Another benchmark for evaluating the commercial reasonableness of wholesale roaming rates is to compare a proposed wholesale roaming rate to other competitively negotiated wholesale roaming rates.^{62/} As with the other proposed benchmarks, T-Mobile recognizes that this one should be used with caution, because if some of the comparison agreements were not themselves commercially reasonable, then similarity will not imply reasonableness. For example, the rate that AT&T charges T-Mobile for data roaming is very high – in the 90th percentile – when compared to the rates that other carriers charge T-Mobile for data roaming.^{63/} It has been T-Mobile’s experience that data roaming traffic carried by the substantial majority of roaming partners other than AT&T is generally offered at rates that do not require throttling or

^{58/} Farrell Decl. ¶ 12.

^{59/} *Id.* ¶ 82.

^{60/} Mosa Decl. ¶ 27.

^{61/} *Id.* ¶ 27.

^{62/} Farrell Decl. ¶ 84-90.

^{63/} *Id.* ¶ 90, Figure 8.

capping.^{64/} Thus, a facially unreasonable “outlier” rate such as the rate charged by AT&T cannot be used to measure the commercial reasonableness of any other rate.

Even if the comparison agreements are reasonable, an unreasonable demand might appear only modestly different if it involves a blended rate that covers both areas where the roaming provider holds substantial market power and areas where it faces competition from other providers of wholesale data roaming services.^{65/} There has also been a strong downward trend in wholesale data roaming rates in recent years, so while a wholesale data roaming rate negotiated a year ago might have been commercially reasonable at that time, it may no longer reflect current market conditions.^{66/}

Finally, T-Mobile has recently been negotiating wholesale data roaming agreements that, for a fixed fee, provide either a large bucket of MBs or unlimited data roaming. Under these plans, the marginal cost (to the purchasing carrier) of data roaming, which is the relevant cost for such decisions as whether to limit customers’ roaming, is likely to be significantly lower than the average cost of roaming (and perhaps zero).^{67/}

B. The FCC Should Clarify That the Terms of Existing Roaming Arrangements Are Not Presumptively Commercially Reasonable For *Future* Agreements.

In order to limit challenges to signed data roaming agreements, the *Data Roaming Order* establishes a presumption that the terms of such agreements meet the commercial reasonableness standard.^{68/} While there may be value in limiting the opportunities to reopen existing

^{64/} Mosa Decl. ¶ 11.

^{65/} Farrell Decl. ¶ 84.

^{66/} *Id.*

^{67/} *Id.*

^{68/} *Data Roaming Order* ¶ 81 (“Because the standard of commercial reasonableness is one that we expect to accommodate a variety of terms and conditions in data roaming, and to discourage frivolous claims regarding the reasonableness of the terms and conditions in a signed agreement, we will presume

agreements, the Commission should clarify that the presumption does not apply with respect to *future* agreements or proposed agreements. The terms of existing roaming arrangements may fall well outside the bounds of commercial reasonableness due to a variety of reasons, including unequal bargaining power between the parties, a lack of competition in any given market, or ambiguity surrounding application of the *Data Roaming Order*.

1. Existing Agreements Often Reflect Unequal Bargaining Power

As the D.C. Circuit has explained, “[i]n a competitive market, where neither buyer nor seller has significant market power, it is rational to assume that the terms of their voluntary exchange are reasonable, and specifically to infer that price is close to marginal cost, such that the seller makes only a normal return on its investment.”^{69/} However, in situations where there is a disparity in bargaining power, the simple fact that an agreement has been reached does not mean that the terms of the agreement can be presumed to be reasonable.^{70/}

This disparate bargaining power remains a characteristic of the data roaming marketplace. For example, carriers using GSM-based technologies other than AT&T need access to data roaming from AT&T in order to provide consumers with the nationwide coverage they demand; by contrast, AT&T has only a limited need for roaming as compared to its roaming partners due to its already sweeping network coverage. As Dr. Farrell notes, while multi-mode handsets could potentially roam on the existing, incompatible GSM and CDMA technologies, “such handsets would raise costs and have less appealing physical characteristics such as size

in such cases that the terms of a signed agreement meet the reasonableness standard and will require a party challenging the reasonableness of any term in the agreement to rebut that presumption.”).

^{69/} *Tejas Power Corp. v. FERC*, 908 F.2d 998, 1004 (D.C. Cir. 1990).

^{70/} *See, e.g., id.* (finding that a federal agency was wrong to “assume[], because the [parties] had agreed to it, that the terms of [an agreement] – both price and non-price – were reasonable, without first determining” whether one party possessed “significant market power”); *id.* (stating that the federal agency should “not be complacent about the possibility that the [agreement] is so structured as to enable [one party], through the exercise of significant market power, to impose unreasonable terms . . .”).

and battery performance.”^{71/} A carrier may therefore have only one choice of roaming provider “even where there are two or more built-out, but incompatible, networks.”^{72/} This imbalance enables AT&T to exceed the bounds of reasonableness, for example, by dictating the highest possible prices on terms highly unfavorable to the requesting provider. Given its limited options, the requesting provider may have no alternative – or “meaningful choice” – but to accept AT&T’s terms. And, as noted, technological limitations and industry consolidation further limit the number of roaming partners for any given requesting carrier and market area, again exacerbating these anti-competitive effects.

As discussed above, these problems were most recently identified and evaluated by participants in the Commission’s docket regarding the acquisition by AT&T of Leap. As YC explained, “[t]he structural dynamic of the roaming market leaves AT&T and Verizon, which have the most ubiquitous coverage, in a position to dictate roaming terms. They can and do charge whatever they want because there are no practical alternatives for most carriers in many areas.”^{73/} And other interested parties discussed that the “steeply discounted” roaming rate offered to Leap as part of the “break-up” fee if the transaction was terminated shows how unreasonable existing roaming rates are and that lower rates can be made available to all carriers.^{74/}

^{71/} Farrell Decl. ¶ 35; *see also* Mosa Decl. ¶ 14 (“[E]ven if multimode handsets were consistent with consumer demand, their use to solve technical incompatibilities would be cost prohibitive.”).

^{72/} Farrell Decl. ¶ 35. Dr. Farrell goes on to note that these technological incompatibilities will not vanish with the deployment of LTE. *Id.* ¶¶ 36-37.

^{73/} YC February 3, 2014 *Ex Parte* at 2; *see also* YC February 6, 2014 *Ex Parte* at 3-4 (showing that “roaming rates are grossly excessive and unchecked by economic constraints” and concluding that “[s]uch a situation could not exist in a market where the carriers involved had any reasonable alternative”).

^{74/} *See, e.g.*, YC February 3, 2014 *Ex Parte* at 3 (discussing that the significantly reduced roaming rate offered by AT&T to Leap provides evidence that “dramatically lower rates could and should also be available to all carriers who request LTE roaming”); CCA February 2014 *Ex Parte* at 2-3 (“Most

2. Legacy Terms That Reflect Unequal Bargaining Power Should Not be Assumed to be Commercially Reasonable in Future Negotiations

Because the imbalance in bargaining power caused by these market conditions is memorialized in existing roaming agreements with “must-have” providers, the terms of those agreements cannot be used to judge the commercial reasonableness of future agreements. As Dr. Farrell points out, “the prevailing general level is more akin to an upper bound on reasonable rates than it is to an unbiased benchmark for such rates.”^{75/} For example, T-Mobile submits that its existing roaming agreements with AT&T simply memorialize the monopoly pricing power or near-monopoly pricing power that AT&T has over data roaming in areas where it is the only other provider of GSM/UMTS (HSPA) service.^{76/} AT&T is the only GSM/UMTS (HSPA) provider in many (often rural) markets.^{77/} In these markets, T-Mobile has had no choice but to request roaming from AT&T, and AT&T has been able to leverage the pricing power it has in these markets to charge T-Mobile an anticompetitive, commercially unreasonable *nationwide* roaming rate.^{78/} T-Mobile believes that its current nationwide roaming arrangement with AT&T reflects this pricing power.^{79/}

At the same time, T-Mobile’s existing roaming agreements with some other carriers also cannot be presumed to be commercially reasonable as they are often in effect “locked in” to an

distressingly, AT&T has called this rate ‘steeply discounted,’ and suggested that other carriers should expect to receive a rate far in excess of the rate that it has offered to Leap.”); CCA January 2014 *Ex Parte* at 3-4 (discussing that while “under ordinary circumstances, a regional or rural carrier attempting to negotiate a roaming agreement with AT&T has little to no leverage,” Leap has “negotiated a break-up-fee 4G LTE roaming agreement with AT&T on a more even keel, due to the fact that Leap finally has something AT&T wants” (*i.e.*, Leap’s brand, customers, assets, and spectrum), and therefore the roaming rates and conditions offered to Leap should be offered to other carriers requesting data roaming).

^{75/} Farrell Decl. ¶ 13.

^{76/} Mosa Decl. ¶¶ 15-16; Farrell Decl. ¶¶ 3, 35-37.

^{77/} Mosa Decl. ¶ 15; Farrell Decl. ¶¶ 3, 35-37.

^{78/} Mosa Decl. ¶ 15.

^{79/} *Id.*

unreasonably high rate because of AT&T's aggressive use of Most Favored Nations ("MFN") clauses in its roaming contracts. In several instances, T-Mobile has been told by other roaming partners that they cannot offer T-Mobile better rates because, under AT&T's MFNs, they are prohibited from offering lower rates to other partners (such as T-Mobile) without facing a substantial decrease in inbound roaming traffic from AT&T—a choice that results in many carriers deciding to keep the higher roaming price.^{80/} AT&T's leverage of its "must-have" status via MFNs in this way keeps prices unreasonably high for competitors.^{81/}

An existing roaming agreement also may not reflect "commercial reasonableness" if there are too few roaming partners in an area to establish a competitive market. As Dr. Farrell points out, "there remain, and will continue to remain, geographic pockets of monopoly in the provision of data roaming despite generally more competitive retail conditions in mobile wireless markets" which are "likely to give some carriers market power in supplying wholesale data roaming services to a requesting carrier."^{82/} This has the potential to harm competition, which leads to higher prices and/or reduced service quality, all to the detriment of consumers.^{83/} Using the results of signed agreements as a benchmark for subsequent negotiations could essentially gut the "commercially reasonable" standard by effectively extending the past exercise of market power to future arrangements.

Finally, the terms of existing roaming agreements do not reflect the price-lowering effects of technological advancement and increasing efficiency. As carriers become more

^{80/} *Id.* ¶ 18.

^{81/} *Id.*

^{82/} Farrell Decl. ¶ 37.

^{83/} *Id.*

efficient and utilize more advanced technologies, per-unit prices fall.^{84/} As Mr. Mosa explains, costs to produce a megabyte of data continue to decline, with 4G/LTE being more efficient than its predecessor technologies 2G GSM and 3G UMTS/HSPA.^{85/} Consequently, commercially reasonable rates should also decline over time due to the lower costs associated with the new technologies, such as 4G/LTE.^{86/} In T-Mobile’s roaming agreements with carriers that lack market power, the marginal cost of an additional unit of data roaming is low enough to provide roaming without need of throttling or capping, and in some agreements is effectively zero dollars.^{87/} By contrast, legacy contracts negotiated years ago will tend to “lock in” prices that keep these efficiency gains from being passed on to consumers in the form of lower prices and unlimited roaming.

Given the unequal bargaining power and lack of competition particularly in certain market areas with few providers, and the dire specter of being left with no agreement at all, the mere fact that parties have entered into a data roaming agreement in the past should not lead to a presumption that the terms of such an agreement meet the “commercially reasonable” standard. To the contrary, “[o]ver-reliance on historical roaming rates in these contexts would risk perpetuating excessive rates.”^{88/} Thus, the FCC should clarify that, to the extent that existing roaming arrangements are viewed as a benchmark for assessing the commercial reasonableness of subsequent data roaming offers, it will take into account the competitive environment at the time the parties entered into the contract as well as market trends occurring between the date of

^{84/} Mosa Decl. ¶ 21.

^{85/} *Id.*

^{86/} *Id.*

^{87/} *Id.* ¶¶ 26, 30; Farrell Decl. ¶¶ 13, 77.

^{88/} Farrell Decl. ¶ 13.

the previous arrangement and the present in examining the commercial reasonableness of the proposed arrangement.

C. The FCC Should Declare That It Will Not View the Lack of Build-Out In A Given Area by an Otherwise Built-Out Carrier As A Basis to Deny Roaming or Charge Higher Rates.

The *Data Roaming Order* set forth a non-exclusive list of factors to inform determinations of commercial reasonableness, including the “extent and nature of providers’ build-out.”^{89/} The Commission should clarify that its inclusion of this factor was not intended to allow a host carrier to deny roaming, or to charge commercially unreasonable rates for roaming, in a particular area where the otherwise built-out requesting provider has not built out. Otherwise, this factor could swallow the rule since, almost by definition, a requesting carrier will not likely have facilities to serve the area for which roaming is requested.

As the Commission has found, in some areas of the country it is simply uneconomic for multiple carriers to build out, and in other areas a carrier may face significantly increased costs to build out based on its licensed frequencies in that area.^{90/} And as Mr. Mosa explains, even in areas robustly built out by multiple carriers, there will be discrete areas that are served by only one carrier.^{91/} This occurs for many reasons, including zoning limits on tower construction, limited access to backhaul, and other cost challenges, including the inability to recoup investment costs.^{92/}

^{89/} *Data Roaming Order* ¶ 86.

^{90/} *Id.* at n.51.

^{91/} Mosa Decl. ¶ 5.

^{92/} *Id.*

Wireless carriers will likely always require roaming on commercially reasonable terms in order to offer customers the widest possible coverage footprint.^{93/} In light of these considerations, the Commission should clarify that this factor is primarily designed to detect a requesting provider that has only a very limited or non-existent network, and that is looking to design its business primarily to “piggyback” on other providers’ network investments. Clarification of this factor would provide parties with additional guidance regarding the bounds of commercial reasonableness for purposes of the data roaming rule and thereby facilitate agreements.

IV. ADOPTION OF THE PROPOSED CLARIFICATIONS FALLS SQUARELY WITHIN THE COMMISSION’S AUTHORITY AND IS CONSISTENT WITH THE FCC’S DATA ROAMING RULE AND THE D.C. CIRCUIT’S GUIDANCE.

A. Adoption of the Proposed Clarifications Is Justified Under the FCC’s Authority to Manage Spectrum, Prescribe the Nature of FCC-Licensed Services, and Promote Deployment of Advanced Services Consistent with the Public Interest.

The D.C. Circuit upheld the data roaming rule as an appropriate exercise of the Commission’s authority under Title III of the Communications Act,^{94/} which confers upon the Commission “broad authority to manage spectrum . . . in the public interest,” and which “endow[s] the Commission with expansive powers and a comprehensive mandate to encourage the larger and more effective use of radio in the public interest.”^{95/}

^{93/} *Id.*

^{94/} *Cellco P’ship*, 700 F.3d at 537, 540. As referenced by the D.C. Circuit and held by the Supreme Court last year, even if the Commission’s statutory authority to clarify the data roaming standard is unclear – which it is not – the agency’s interpretation of the scope of its authority in clarifying the standard is entitled to deference. *Id.* at 541; *City of Arlington v. FCC*, 133 S. Ct. 1863 (2013).

^{95/} *Cellco P’ship*, 700 F.3d at 541-42 (internal quotations omitted); *see also Data Roaming Order* ¶ 62 (“Title III of the Act provides the Commission with broad authority to manage spectrum, including allocating and assigning radio spectrum for spectrum based services and modifying spectrum usage conditions in the public interest.”).

Issuance of the requested declaratory ruling also falls well within the Commission’s “broad authority to manage spectrum” under Title III, and would encourage access to data roaming on reasonable terms; this, in turn, would promote a number of Commission objectives, including greater spectrum utilization and broadband deployment, more seamless network coverage and lower prices for consumers, and a more competitive wireless marketplace.^{96/}

Clarification of the data roaming rule is also supported by §§ 706(a) and (b) of the Telecommunications Act of 1996, provisions that the D.C. Circuit recently ruled vest the Commission with affirmative authority to encourage the deployment of advanced services.^{97/}

Section 706(a) directs the Commission to encourage the deployment of “advanced telecommunications capability” by utilizing, in a manner consistent with the public interest, various tools including “measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.”^{98/}

Section 706(b) directs the Commission to undertake annual inquiries concerning the availability of advanced telecommunications capability and requires that, if the Commission finds that such capability is not being deployed in a reasonable and timely fashion, it “shall take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market.”^{99/} Further

clarifying the data roaming rule as proposed will advance the goals the rule was designed to

^{96/} See *Data Roaming Order* ¶¶ 63-64 (discussing that imposition of the data roaming rule is supported by 47 U.S.C. §§ 301, 303, 304, 309, 316, 1302).

^{97/} See *Verizon v. FCC*, No. 11-1355, at 17-44 (D.C. Cir. Jan. 14, 2014) (“*Net Neutrality Decision*”); 47 U.S.C. § 1302(a)-(b).

^{98/} 47 U.S.C. § 1302(a).

^{99/} *Id.* § 1302(b).

achieve, “encourag[ing] service providers to invest in and upgrade their networks and to deploy advanced mobile services ubiquitously.”^{100/}

With the FCC’s data roaming authority now beyond question, issuance of a declaratory ruling is the next essential step to ensure the effectiveness of the data roaming rule.

B. Adoption of the Proposed Clarifications Does Not Amount to Prohibited Common Carrier Regulation, as the Clarifications Preserve Providers’ Ability to Negotiate the Terms of Their Roaming Arrangements, Including Prices, on an Individualized Basis.

T-Mobile individually negotiates hundreds of commercially reasonable roaming agreements and will continue to do so in the future.^{101/} As discussed herein, however, without prospective guidance of the sort requested by T-Mobile, the Commission’s *Data Roaming Order* will not provide sufficient guidance to address actual, real-world negotiations involving carriers with unequal bargaining power.^{102/}

In upholding the data roaming rule, the D.C. Circuit determined that the rule did not constitute prohibited common carrier regulation because it “expressly permits providers to adapt roaming agreements to ‘individualized circumstances without having to hold themselves out to serve all comers indiscriminately on the same or standardized terms.’”^{103/} The court noted the “considerable flexibility” afforded to providers under the standard, finding that although the rule obligates providers to “offer a roaming agreement where technically feasible, the ‘commercially reasonable’ standard largely leaves the terms of that agreement up for negotiation.”^{104/}

^{100/} *Data Roaming Order* ¶ 64.

^{101/} Mosa Decl. ¶ 33.

^{102/} *Id.*

^{103/} *Cellco P’ship*, 700 F.3d at 547-48 (quoting *Data Roaming Order* ¶ 45).

^{104/} *Id.* at 548.

The D.C. Circuit reaffirmed that approach in its recent decision addressing the Commission’s *Open Internet Order*. There, the court distinguished the *Open Internet Order*’s non-discrimination rule for fixed broadband providers (which the court viewed as imposing a common carriage obligation) from the “commercially reasonable” standard of the *Data Roaming Order*, which allows “considerable flexibility” for negotiations.^{105/}

And as the Commission noted in its recent *Open Internet NPRM*,^{106/} there are significant differences between the open Internet and the data roaming contexts, including a broader range of open Internet practices at issue and a greater diversity of parties affected by such practices. And unlike the Internet-related issues addressed in the *Open Internet NPRM*, many of which require foresight to predict future harms, the roaming market is established, and the problems in the marketplace are known and well documented. There is no need to predict future consequences of the data roaming practices at issue here; their real-world effects are clearly visible today.

Issuance of the declaratory ruling requested by T-Mobile, including clarification of what is meant by “commercially reasonable” in the data roaming context, would still leave providers with “wide room for variation” in negotiating roaming agreements^{107/} and ensure “that the discretion carved out in the rule’s text remains carved out in fact,” as instructed by the D.C. Circuit.^{108/} Providers would retain “substantial room for individualized bargaining and

^{105/} *Net Neutrality Decision* at 59 (internal quotations omitted).

^{106/} *In the Matter of Protecting and Promoting the Open Internet*, Notice of Proposed Rulemaking, FCC 14-61, GN Docket No. 14-28, at n. 252 (rel. May 15, 2014) (“*Open Internet NPRM*”).

^{107/} Brief for Respondents at 40, *Cellco P’ship v. FCC*, 700 F.3d 534 (D.C. Cir. 2012) (Nos. 11-1135 & 11-1136).

^{108/} *Cellco P’ship*, 700 F.3d at 549.

discrimination in terms,”^{109/} and the “commercial reasonableness of terms offered to a particular provider may [still] depend on numerous individualized factors.”^{110/} Providers would simply have more guidance on what is meant by the “commercially reasonable” standard against which data roaming terms and conditions would be assessed.

Finally, adoption of the benchmarks that Dr. Farrell has proposed to assess commercially reasonable rates would not amount to the “prescriptive” regulation of data roaming rates.^{111/} The benchmarks are not mathematical algorithms that produce a prescribed rate (or other term of service) in every case. Rather, considered together – and in the context of the particular circumstances (including an overall assessment of the competitive risks) – they operate as useful guideposts to inform whether the proposed terms of a roaming agreement are commercially reasonable.

^{109/} *Id.* at 548; *Net Neutrality Decision* at 50.

^{110/} *Data Roaming Order* ¶ 68; *see also Net Neutrality Decision* at 59.

^{111/} *Data Roaming Order* ¶ 21 (“[W]e adopt a general requirement of commercial reasonableness for all roaming terms and conditions, including rates, rather than a more prescriptive regulation of rates requested by some commenters.”); *id.* ¶ 68 (“[T]he rule we adopt does not impose any form of common carriage rate regulation or obligation on providers of mobile data services to publicly disclose the rates, terms, and conditions of their roaming agreements.”); *id.* ¶ 85 (“[P]roviders can negotiate different terms and conditions, including prices, with different parties, where differences in terms and conditions reasonably reflect actual differences in particular cases.”).

V. CONCLUSION

In order to ensure that the FCC’s “commercially reasonable” standard for data roaming achieves its intended purposes of promoting seamless nationwide coverage for consumers, innovation, investment, and competition, T-Mobile respectfully requests that the Commission expeditiously adopt the proposed clarifications to the standard outlined above.

Respectfully submitted,

/s/

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May 27, 2014

EXHIBIT 1

Declaration of Dirk Mosa

DECLARATION OF DIRK MOSA

I, Dirk Mosa, do hereby declare and state as follows:

1. My name is Dirk Mosa. I am the Senior Vice President, Corporate Development and Roaming at T-Mobile USA, Inc. ("T-Mobile"). I joined T-Mobile International in April of 1994 in Bonn, Germany, and later joined T-Mobile USA in September of 2001 after the successful completion of the Deutsche Telekom/VoiceStream merger. My responsibilities include mergers & acquisitions, FCC spectrum auctions and other spectrum acquisitions, and domestic and international roaming, among other responsibilities.

2. My 20 years of experience in the industry includes 9 years of heading up T-Mobile USA's roaming department. In that capacity, I have been in charge of negotiating roaming agreements with carriers across the country and around the world, as well as the operationalization of such roaming agreements. In my time at T-Mobile, I have overseen negotiation of more than 1,000 roaming agreements. T-Mobile currently has approximately 50 domestic roaming agreements and 120 international roaming agreements covering approximately 420 unique networks (several contracts cover a number of countries/networks, for example with the Vodafone Group, Deutsche Telekom Group or Orange Group).

3. T-Mobile has introduced several Un-carrier innovations that are helping to reshape the industry. For example, during 2013, T-Mobile launched its Simple Choice offerings providing customers with simplified unlimited pricing while eliminating annual service contracts, and decoupling plan and device pricing to improve customer transparency. T-Mobile also launched the Simple Global offering that allows customers to use voice services at low cost, and data and text free of charge, while traveling in more than 100 countries. T-Mobile subsequently enhanced its Simple Choice offerings to include payment of early termination fees for customers that choose to switch from other carriers, and introduced its JUMP! device upgrade program and Free Data for Life for tablets. Most recently, T-Mobile launched the budget-friendly Simple Starter plan and announced that it will eliminate domestic overage fees for all of its customers. These innovative offerings have appealed to and benefited consumers, as evidenced by the fact that, in 2013, T-Mobile won 2,000,000 additional postpaid customers and 400,000 prepaid customers.

4. Customers expect their devices to work wherever their travels take them. Voice and data roaming enables T-Mobile to fulfill this expectation and provide our customers with access to seamless nationwide and international coverage. While voice roaming usage per customer is stable or even declining, data roaming traffic per customer is increasing dramatically, among other things due to increased network speeds, the wide adoption of smartphones, and growing use of mobile applications. For instance, the percentage of T-Mobile customers that have smartphones grew from 70% in Q4 2012 to 81% in Q4 2013. In addition, 91% of T-Mobile customers purchasing a new device in the fourth quarter of 2013 purchased a smartphone. T-Mobile's average usage per subscriber per month was about 1,700 MB in January 2014, about 2.5 times the average usage in January 2013.

5. Every wireless carrier, including AT&T and Verizon as well as T-Mobile and all other domestic carriers, utilizes roaming. The very concept of nationwide (or global) coverage is

premised on the provision of roaming. T-Mobile continues to build out its network, but I do not foresee a time when T-Mobile will be able to provide 100% coverage of the entire United States on its own network. Even in markets robustly built out by multiple carriers, there will be discrete areas that are served by only one carrier. This occurs for many reasons, including zoning limits on tower construction, limited access to backhaul, and other cost challenges, including the inability to recoup investment costs. Wireless carriers will likely always require roaming on commercially reasonable terms in order to offer customers the widest possible coverage footprint.

6. Obtaining access to data roaming on commercially reasonable terms is critical to T-Mobile's ability to provide customers with seamless access to nationwide data coverage and to effectively compete in today's marketplace, in which wireless service has become an essential part of everyday life for customers who rely on ubiquitous networks.

7. Given the importance of data roaming, T-Mobile routinely engages in a detailed process to develop roaming forecasts. T-Mobile prepares these internal forecasts as part of its financial planning, budget, plan, and forecast processes. Historically, comparing actual performance to the forecasts has consistently demonstrated accuracy to within 5% on volume and financials. T-Mobile's roaming and financial planning teams work together closely to ensure the accuracy of this process.

8. T-Mobile's 2014 forecasts relied upon in the Petition reflect all current agreement terms. Roaming agreement negotiations are ongoing, including the sunset of certain of T-Mobile's most critical roaming agreements at the end of 2014 – which is one reason why expeditious Commission action is needed. Other of T-Mobile's agreements covering 2014 volume also remain in place through 2015, with a few extending through 2016. For purposes of forecasting, existing rates are assumed to be constant. The forecast process is performed at the roaming partner level and takes into account all known agreement terms and current go-forward volume dynamics. T-Mobile's roaming forecasts are developed for business planning purposes; the 2014 forecasts provided by T-Mobile in preparation for drafting the Petition and other documents supporting it were forecasts developed in the ordinary course of T-Mobile's business.

9. In my view, certain “must-have” carriers are using the ambiguity of the *Data Roaming Order* as a shield to protect and extend unreasonable roaming practices. T-Mobile currently is unable to obtain data roaming at commercially reasonable rates and terms from these carriers. While these problems are not limited to any one carrier, T-Mobile's experience with AT&T provides a concrete example of the need for further action by the Commission.

10. As a direct result of the refusal to provide roaming at commercially reasonable rates, T-Mobile has been forced to throttle and cap roaming data usage from the first MB when our customers roam onto certain networks, including AT&T's network.

11. Data roaming traffic carried by the substantial majority of roaming partners other than AT&T is generally offered at rates that do not require throttling or capping.

12. Over the past several years, AT&T has acquired a number of our roaming partners. As a result, carriers, including T-Mobile, face increased need for access to data

roaming from AT&T in order to provide consumers with the nationwide coverage they demand. In contrast, AT&T only requires roaming from a select few operators, presumably giving them an imbalance in bargaining power with the majority of domestic operators requesting roaming. In my view, AT&T uses its significant pricing power to keep roaming prices for T-Mobile at commercially unreasonable levels – which is why additional Commission guidance is urgently needed to ensure achievement of commercially reasonable rates and terms.

13. It is essential for T-Mobile to negotiate a commercially reasonable nationwide data roaming rate from “must-have” providers like AT&T. This enables T-Mobile to offer the nationwide data roaming access that customers have come to expect even as their consumption of data grows dramatically.

14. Mobile wireless carriers in the U.S. employ two incompatible 2G and 3G technology platforms, GSM vs. CDMA, with each of the two largest carriers in particular supporting one and not the other (*i.e.*, AT&T using GSM and Verizon using CDMA). Therefore a carrier may have only one choice of roaming provider in an area even where there are two or more built-out, but incompatible, networks. It is well-established that multimode handsets and other work-arounds to resolve incompatibility between the two technologies are not adequate. Multimode handsets require additional circuitry and antennas, consume more power, require larger batteries, and so are costlier and do not offer the modern, sleek form factors demanded by consumers. And even if multimode handsets were consistent with consumer demand, their use to solve technical incompatibilities would be cost prohibitive. T-Mobile would be forced to convert its entire base of customer handsets to more expensive multimodal handsets, and thereby increase the costs of all its handsets for all of its customers.

15. T-Mobile uses GSM/UMTS (HSPA) technology, and AT&T is the only GSM/UMTS (HSPA) provider in many (often rural) markets. AT&T has a monopoly or near-monopoly over GSM/UMTS (HSPA) roaming in many such markets. AT&T has been able to leverage the pricing power it has in these markets to charge T-Mobile an anticompetitive, commercially unreasonable nationwide roaming rate. T-Mobile’s current nationwide roaming arrangement with AT&T reflects this pricing power.

16. In my position as head of the T-Mobile roaming department, I am exposed to data rates throughout the world. AT&T’s roaming rates with T-Mobile – despite our best efforts over many years to negotiate them down – remain in my opinion significantly higher than a commercially reasonable rate. Because AT&T’s roaming rates are significantly higher than what a reasonable rate would be, T-Mobile typically only roams on AT&T’s network where AT&T provides the only available network. AT&T is by far T-Mobile’s largest domestic roaming partner; however, the share of T-Mobile’s outbound voice and SMS roaming volume that it sends to AT&T is roughly double the volume of outbound data roaming that T-Mobile sends to AT&T. Were AT&T’s data roaming rate commercially reasonable, I would expect the portion of data roaming traffic directed to AT&T to more closely track the portion of voice and SMS roaming traffic directed to AT&T.

17. In my view, T-Mobile also has been subject to anticompetitive negotiation tactics used by AT&T that seem designed to weaken T-Mobile rather than to maximize the incremental revenue T-Mobile could offer to AT&T by expanding its roaming on AT&T’s network. For

example, T-Mobile has at times offered to make minimum annual revenue commitments for data services in exchange for lower rates that would have in total provided AT&T additional revenue. Under this approach, T-Mobile would have removed throttling and cap limitations on its customers' roaming on AT&T's network and driven significantly greater volume, revenues, and profits to AT&T.

18. Additionally, in several instances we have been told by other roaming partners that they cannot offer T-Mobile better rates due to AT&T's aggressive use of Most Favored Nations ("MFN") clauses in its roaming contracts. Under MFNs, a carrier is prohibited from offering lower rates to other partners (such as T-Mobile) without facing a substantial decrease in inbound roaming traffic from AT&T or the need to substantially lower their price for a large volume of inbound roaming traffic – a choice that results in many carriers deciding to keep the higher roaming price. AT&T's leverage of its "must-have" status via MFNs keeps prices unreasonably high for competitors such as T-Mobile.

19. Commercially reasonable wholesale roaming rates may be negotiable in situations where a roaming purchaser has a choice among roaming partners. Examples of scenarios where a competitive environment exists and reasonable prices can be achieved include: (1) when (legacy) MetroPCS can choose between Verizon and Sprint in obtaining CDMA-based roaming services; (2) when smaller carriers can choose between AT&T and T-Mobile in obtaining GSM-based roaming services; (3) for international carriers seeking roaming services in the United States from multiple carriers; or (4) for T-Mobile when seeking roaming services abroad from multiple carriers within one country.

20. T-Mobile is often able to negotiate commercially reasonable rates with overseas carriers for international roaming where it has a choice among international roaming providers. For example, T-Mobile's Simple Global offering shows that the competitive market for international roaming provides commercially reasonable rates that allow carriers to price their international retail offering competitively, or, in T-Mobile's case with its Simple Global offering, for free.

21. The actual cost to provide a megabyte of data to roaming partners mirrors the cost to provide a megabyte for one's own customers, and T-Mobile's internal (and very likely AT&T's internal) cost is only a small fraction of the roaming rates charged by AT&T. Costs to produce a megabyte continue to decline, with 4G/LTE being more efficient than its predecessor technologies 2G GSM and 3G UMTS/HSPA. Consequently, commercially reasonable rates should also decline over time due to the lower costs associated with the new technologies, such as 4G/LTE.

22. However, in my opinion, the availability of 4G/LTE roaming will not in the foreseeable future negate the need for 2G and 3G roaming. First, today carriers deploying LTE still typically require their customers to use 2G or 3G when making voice calls, so the roaming provider's network must use a 2G/3G technology that is compatible with the roaming customer's handset. Second, while LTE technology will enable more voice calls on LTE networks in the future, LTE handsets will continue to have to revert to 2G/3G technology for voice calls and data sessions where the LTE signal is too weak. Third, because many customers are slow to adopt the most modern handsets, carriers will need a roaming partner that continues to provide the

compatible last-generation technology, so that its customers who still have legacy phones can roam outside their carrier's facilities-based service territory.

23. Consequently, I do not believe that the adoption of LTE technology will alleviate AT&T's pricing power in certain areas, as technological incompatibilities will remain that will require T-Mobile to roam only with carriers using GSM technology. As a result, we need further guidance from the Commission in order to obtain commercially reasonable rates for these services.

24. Under the wholesale roaming rates currently charged by AT&T, T-Mobile at times finds itself suffering a net loss with respect to certain customers simply by virtue of T-Mobile providing the customers with roaming service on AT&T's network even as they are throttled and capped to contain costs.

25. Roaming rates such as these, which are so high as to require T-Mobile and other carriers to limit customers' ability to roam freely from the first MB in order to simply break even economically, are by definition commercially unreasonable and harm consumers. When throttling and cap limitations are removed, consumers use significantly more data, typically in the range of 10-20x.

26. With commercially reasonable data roaming rates (which many carriers provide), the marginal cost of enabling data roaming is low enough to justify elimination of throttling or capping.

27. Another potential benchmark for assessing commercially reasonable data pricing is that offered in the MVNO wholesale market. Nationwide carriers such as AT&T, Verizon, Sprint, and T-Mobile enable Mobile Virtual Network Operators ("MVNOs") to resell their services domestically at "per minute/per megabyte" or "big bucket" rates. The wholesale rates that T-Mobile charges to MVNOs are much lower than the wholesale roaming rates offered by AT&T. In my opinion, there is no reason why the wholesale rates for minutes and megabytes charged to other carriers (*i.e.*, roaming) should be so much higher than the wholesale rates for minutes and megabytes charged to MVNOs. I expect that T-Mobile's volume is much greater with AT&T than AT&T has with several of its MVNOs, who pay lower rates at lower (wholesale) volumes. In my view, this is further evidence that AT&T keeps roaming rates artificially high and commercially unreasonable.

28. International roaming agreements may be based on negotiated discounts or may rely on published standard Inter-Operator Tariff ("IOT") rates. In 2013, there were 450 international operators that purchased wholesale U.S. data roaming traffic from T-Mobile, with 298 of them purchasing U.S. roaming through discount agreements negotiated with T-Mobile and with the remaining 152 operators operating under the standard IOT rates. The vast majority of international carriers that do operate under IOT rates have roaming volumes that are very small, which do not justify the costs of negotiating a discount agreement.

29. In Dr. Joseph Farrell's Declaration, he calculates the volume weighted distribution of wholesale prices that T-Mobile charges international operators for data roaming in the U.S. through negotiated discount agreements. Some of the actual and forecasted average

rates used in his calculation reflect the fact that the international carrier has committed to purchase a larger volume of roaming services than it actually used or is expected to use currently. In some cases, the foreign carrier has made reciprocal agreements with T-Mobile for unlimited roaming for a fixed fee, but volume has not grown considerably yet. In these cases, it is important to note that the actual and forecasted rates do not yet reflect the impact of operators altering retail offers for customers to fully utilize the value provided in the agreements, and will likely be much lower once this occurs.

30. T-Mobile has renegotiated its contracts with more and more international operators for 2014 to provide substantially lower data roaming rates. Several of these contracts allow the international operator to enjoy unlimited use of T-Mobile's data network in 2014 for a fixed dollar amount under reciprocal terms, with the pro-consumer result that, at least during the contract term, marginal costs are zero.

31. T-Mobile recently negotiated a substantial number of unlimited use reciprocal contracts and has launched a retail plan (Simple Global) that passes through favorable (marginal) wholesale terms by allowing T-Mobile subscribers to enjoy free, unlimited data roaming (and SMS) services abroad in more than 100 countries. T-Mobile is aware of only a handful of foreign carriers thus far who have offered similar retail plans to their customers. As a consequence, T-Mobile's subscribers are expected to generate a much larger volume (in fact, multiples larger) of traffic than their foreign counterparts and thus achieve much lower blended costs per MB under the same contractual terms.

32. The vast majority of international carriers that have wholesale data roaming agreements with T-Mobile very likely also have agreements with AT&T to enable roaming in areas where T-Mobile lacks coverage, where their handsets are incompatible with the spectrum bands T-Mobile's network uses, or where they feel they need to use AT&T for roaming to provide AT&T with an incentive to use their networks for roaming. For these providers, AT&T and T-Mobile directly compete to provide roaming.

33. T-Mobile individually negotiates – and I myself have negotiated – hundreds of commercially reasonable roaming agreements. But the lack of any practical guiding principles in the Commission's data roaming rules leaves carriers with little real-world guidance when faced with unreasonable tactics deployed by “must-have” roaming partners. In my opinion, without real-world guidance of the sort requested by T-Mobile, the Commission's *Data Roaming Order* will remain of little relevance to actual, real-world negotiations involving carriers with imbalanced bargaining power.

I have read the forgoing Petition for Declaratory Ruling of T-Mobile USA, Inc. With respect to statements made in the Petition, other than those of which notice can be taken, the facts contained therein are true and correct to the best of my personal knowledge, information, and belief.

A handwritten signature in black ink, appearing to read "Dirk Mosa", written over a horizontal line.

Dirk Mosa

Date: May 22, 2014

EXHIBIT 2

**Declaration of Joseph Farrell, D.Phil.
In Support of Petition for Expedited
Declaratory Ruling of T-Mobile USA, Inc.**

DECLARATION OF JOSEPH FARRELL, D.PHIL.

**IN SUPPORT OF PETITION FOR EXPEDITED DECLARATORY RULING
OF T-MOBILE USA, INC.**

May 19, 2014

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I. Executive Summary

- (1) Data roaming services are increasingly important for retail competition among wireless carriers.
 - Consumers have come to expect national coverage.
 - All carriers rely on roaming (to differing extents) to provide the national coverage.
 - A carrier facing especially high costs for roaming services faces a competitive disadvantage in the retail market. At the same time, if all carriers face unduly high costs for roaming, such an overall cost elevation is especially likely to be strongly passed on to consumers.

 - (2) I have been asked by T-Mobile USA (“T-Mobile”) to comment on the potential for consumers and competition in wireless markets to be harmed by unreasonable demands in data roaming negotiations or agreements (including rates).
 - In some cases, carriers have both substantial market power in supplying roaming and a substantial economic incentive to use this power to raise rivals’ costs, either unilaterally or as a reciprocal agreement to soften competition between contracting carriers. In such cases, the Commission should deem high rates (or unduly burdensome non-price terms) to be not commercially reasonable.
 - The Data Roaming Order states that, in determining whether a rate is commercially unreasonable, the Commission will consider “the level of competitive harm in a given market and the benefits to consumers.”
 - The Order also says that the Commission will consider “whether the terms and conditions offered by the host provider are so unreasonable as to be tantamount to a refusal to offer a data roaming arrangement.”

 - (3) While competition in offering wholesale roaming exists in most urban areas, “pockets of monopoly” give some carriers (large and small) a degree of market power in wholesale data roaming markets.
 - A carrier may have monopoly power or substantial market power in roaming services in a certain area sold to certain requesting carriers, without also having substantial market power in retail markets, especially retail markets for nationwide service.
 - A carrier with market power in a region may charge a rate substantially above the price that would prevail in a more competitive market. Indeed, even some small providers may charge high wholesale rates in order to “harvest” roaming revenues in sparsely populated areas with little competition and few retail customers.
-

- Where a roaming agreement covers a broad geography where the supplier faces a range of competitive conditions, but includes a flat “blended” rate that does not vary with geographic competitive or cost conditions, localized market power can still be expected to affect the rate negotiated. The effect will likely be smaller on a per-MB basis than would be negotiated if the supplier had more geographically uniform market power, but will extend more widely, and there is no economic reason to expect that such blending would make the total effect negligible.
 - Such market power is not a purely transient phenomenon that will be cured in the foreseeable future as additional networks are built out. In many parts of the country, it likely is economically infeasible and/or undesirable to build out multiple networks because of high fixed costs relative to a low density of potential users. Furthermore, even in areas that are built out there can be holes in coverage, due for instance to zoning limitations on towers. So in order to offer its customers reliably complete coverage, a carrier may require roaming even in territory that it generally serves based on its own facilities. The commercial and competitive need for roaming will therefore persist.
 - Wholesale market power is more likely to be a problem when a carrier seeking roaming lacks adequate potential roaming partners. This can happen because there are few potential partners in a geographic area, or because there are few who use a compatible technology. For example, as I discuss below, customers of domestic carriers using GSM technology generally cannot roam on CDMA networks. Such incompatibilities between handsets and networks are likely to limit competitive alternatives for the foreseeable future, and future technological developments not yet foreseen could as easily create incompatibilities as solve them.
- (4) A serious competitive problem can arise when a wireless carrier must purchase wholesale roaming services from a retail competitor in order to compete in the retail market. In this case a seller of roaming services with market power may have an additional incentive to raise the rival’s costs by charging a rate even higher than would be charged absent this consideration.
- Wholesale rates that exceed the monopoly price can arise from this incentive.
 - Such a strategy of “raising rivals costs” to weaken the rival’s competitive abilities and incentives in a downstream market is condemned in the antitrust literature.
 - Higher wholesale rates will normally induce the purchasing carrier to raise retail prices, unless it instead limits consumers’ use of data roaming, an option whose use is observed in today’s markets, and that reduces service quality for consumers.
- (5) Recognizing competitive concerns related to roaming, the Commission issued the Data Roaming Order.
- The Order lays out a number of objectives, including competition.

- It mandates that facilities-based carriers provide data roaming access to other carriers on “commercially reasonable” terms.
 - It offers a long list of possible factors that “... the Commission may consider in determining whether terms are commercially reasonable,” but clearly there is scope for further guidance that could assist carriers during negotiations or that could clearly guide the resolution of a complaint proceeding.
- (6) The European Commission has also expressed related concerns about the potential for competitive harm in international roaming markets, but recently has adopted a different approach that caps roaming rates directly. The Euro rate cap will fall to 0.05 Euro per MB by July 1, 2014, approximately equivalent to seven US cents per MB at today’s exchange rate.
- (7) I propose that, when deciding whether a proposed data roaming rate (or agreement) is commercially reasonable, the Commission should be especially concerned about high rates charged to a significant retail competitor that lacks adequate alternative roaming providers. The Commission should develop appropriate local measures of competition in wholesale data roaming markets to aid detection of rates likely to have been influenced by such effects (recognizing that the effects of local market power may be blended into a nationwide roaming rate).
- High rates may reflect incentives to raise rivals’ costs and/or an exercise of substantial market power in this setting.
- (8) I discuss several benchmarks that the Commission should consider in drafting prospective guidance for the industry and also in evaluating whether a proposed wholesale data roaming rate is “high” in a sense relevant to determining whether it is commercially unreasonable.
- None of these benchmarks is or can be ideal. In addition to various measurement issues, the force of benchmarks is limited by the fact that price discrimination is not inherently harmful in settings such as mobile wireless services. Nevertheless, as the Commission rightly found, there is a real risk of a competitive and consumer problem in mobile data roaming. Thus, while the Commission should be cautious in diagnosing commercially unreasonable demands, it should not allow the complexities to prevent it from providing prospective guidance and predictable enforcement. Whether a proposed rate is significantly higher than a number of imperfect benchmarks is an appropriate part of the Commission’s consideration of all the circumstances in deciding whether such a rate is commercially unreasonable. The Commission should apply benchmarks cautiously and in conjunction with one another and with an analysis of competitive risks.
- (9) I illustrate these benchmarks using data available from public sources and from T-Mobile; of course, Commission staff may have access to a variety of relevant industry data.

- (10) As a natural first benchmark, the Commission should consider whether a roaming rate offered to a retail competitor greatly exceeds a suitable measure of retail price—meaning, in this context, an estimate designed not to underestimate effective retail prices of data services.
- Such a comparison must recognize that customers purchase data services in varying amounts as part of packages that include other goods and services and “buckets” of data services. Below, I discuss approaches to constructing a suitable measure of retail price for this purpose.
 - In particular, it may be informative to examine retail prices that the roaming provider charges its own retail customers who reside in areas where the wholesale customer requires roaming services. Data services provided to the roaming customer and to the seller’s own retail customer are likely to be similar in such cases.
- (11) As a second benchmark, the Commission should consider whether a wholesale roaming rate substantially exceeds roaming rates charged to foreign carriers when their customers roam in the United States.
- Since the foreign carriers do not offer retail service in the United States, the raising rivals’ cost motive for charging a high price likely does not apply in this setting, subject to caveats in the case of international affiliations.
 - One can also compare rates charged by foreign carriers when a US carrier’s customer roams abroad. Based on T-Mobile’s recent experience, these appear to be lower, at least as measured by average price, than the inbound rates.
 - In applying this and some other benchmarks, one should keep in mind that in a two-way roaming agreement, each party provides roaming to the other, in addition to any money that changes hands.
- (12) As a third benchmark, the Commission should consider the price for wholesale data service that a seller charges to MVNO customers.
- The MVNO benchmark is closer to a simple exchange of roaming for dollars without the measurement issues involved in two-way agreements.
 - The raising rivals’ cost motive for charging high wholesale prices is tempered in this setting to the degree that MVNO service is a qualitatively different retail product from that sold by facilities-based carriers. Specifically, many MVNOs focus on the pre-paid market and target price-sensitive customers that facilities-based host carriers are less focused on serving. Consequently, the MVNOs may be seen as competing less directly against the range of services offered by the host network.

- The MVNO benchmark must also be interpreted cautiously because MVNO customers may use the host carrier's network in substantially different ways compared to a roaming customer of a facilities-based competitor.
- (13) A fourth benchmark is the general level of prevailing domestic wholesale roaming agreements. This exercise is complicated on a going-forward basis because of changes in technology/costs, consumption patterns, and market competition/concentration.
- Wholesale rates have trended downward strongly in recent years, so that historical wholesale rates may no longer be consistent with the general level in the industry even if they were when first negotiated. In addition to the downward trend in average prices, marginal prices have declined to zero for many of T-Mobile's roaming partners who offer unlimited data roaming (or a very large amount) for a fixed fee.
 - Some prevailing roaming rates may reflect the past exercise of market power or attempts to weaken retail rivals. Thus, especially at a time of generally declining rates, the prevailing general level is more akin to an upper bound on reasonable rates than it is to an unbiased benchmark for such rates. Over-reliance on historical roaming rates in these contexts would risk perpetuating excessive rates.

II. Charge and Qualifications

- (14) I have been asked by counsel for T-Mobile to comment on how the Commission might provide prospective guidance and predictable enforcement criteria for evaluating the commercial reasonableness of wholesale data roaming rates. This initial evaluation is based on my familiarity with the telecommunications industry (and the commercial mobile wireless industry in particular), my review of publicly available documents and data sources, documents and information provided to me by T-Mobile and its counsel, and discussions with executives of T-Mobile.
- (15) I have been asked specifically to consider potential harm to competition from roaming rates that reflect incentives to raise rivals' costs and other exercise of localized monopoly or substantial market power, and to offer my opinions how the Commission might interpret its 2011 Data Roaming Order¹ in order to account for such potential for harm.
- (16) I also have been asked to also identify some data benchmarks that the Commission might consider in providing prospective guidance and predictable enforcement criteria for evaluating whether a proposed data roaming agreement is commercially unreasonable on grounds that it is likely to harm competition.
- (17) I am Professor of Economics at the University of California, Berkeley, where I am also an Affiliate Professor of Business and have served as the Chair of the Competition Policy Center. I am also a Partner with Bates White, LLC. I received my D.Phil., M.Sc., and B.A. degrees from Oxford University.
- (18) From 2009 to 2012, I served as Director of the Bureau of Economics at the Federal Trade Commission, where I supervised approximately 70 Ph.D.-level economists and reported directly to the Chairman and Commissioners. I was responsible for economic analysis relating to the Commission's broad antitrust and consumer protection portfolios.
- (19) Earlier, in 2000 to 2001, I served as Deputy Assistant Attorney General for Economic Analysis for the Antitrust Division of the U.S. Department of Justice. In this position, which is the chief economist position at the Division, I supervised approximately 50 Ph.D.-level economists and reported directly to the Assistant Attorney General for Antitrust.
- (20) Earlier, in 1996-1997, I served as Chief Economist for the Federal Communications Commission (FCC), where I reported directly to the Chairman and Commissioners.

¹ *Reexamination of Roaming Obligations Of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, WT Docket No. 05-265, Second Report and Order, 26 FCC Red 5411 (2011) (“*Data Roaming Order*”).

- (21) I have taught undergraduate and Ph.D.-level courses at the University of California at Berkeley and earlier at the Massachusetts Institute of Technology (MIT), and the University of Michigan, on microeconomic theory, industrial organization, and game theory. My teaching experience includes both theoretical and empirical analysis.
- (22) I have published extensively in peer-reviewed academic journals and elsewhere on topics centering on the economics of competition, industrial organization, and innovation.
- (23) I have served on the editorial boards of professional journals, including serving as Editor of the *Journal of Industrial Economics* from 1995–2000 and on the Board of Editors of *Information Economics and Policy* from 2004–2007. I am a Fellow of the Econometric Society, past President of the Industrial Organization Society, and former Board Member for the National Academies' Computer Science and Telecommunications Board.
- (24) I have been retained as a consultant or expert witness in a variety of matters involving telecommunications, intellectual property, antitrust and merger analysis. I have served as a consultant to the Department of Justice (DOJ), Federal Trade Commission (FTC), Canadian Bureau of Competition, Reserve Bank of Australia, and to many private parties. I have testified on matters related to economic policy in hearings before the Senate Judiciary Committee, FCC, FTC, and DOJ.

III. The Growing Importance of Data Roaming

- (25) In 1998, AT&T introduced its National One-Rate plan, the first plan that allowed customers to purchase a bucket of voice minutes of use (MOUs) that they could use anywhere in the nation without incurring (consumer-level) roaming or long distance charges. This digital one-rate (DOR) plan proved extremely popular, and almost all other major wireless providers subsequently introduced similar DOR plans.² As more wireless customers subscribed to these DOR plans, they came to expect and demand that they be able to use their device wherever they traveled within the United States.
- (26) With the deployment of 3G technology, customers rapidly began to purchase smartphones. According to Commission data, 41 percent of mobile wireless consumers had a smartphone in July 2011, but this figure had grown to 55.5 percent in 2012.³ According to a more recent Nielsen estimate, the percentage of mobile wireless consumers that own a smartphone had grown to as high as 64% by September 2013.⁴ The percentage of T-Mobile customers with smartphones grew from 70% in the fourth quarter of 2012 to 81% in the fourth quarter of 2013, and 91% of T-Mobile customers who purchased a new device in the fourth quarter of 2013 purchased a smartphone.⁵
- (27) With increased usage of smartphones and other mobile devices, the amount of data that mobile subscribers consume has grown even more dramatically. The Commission's *Sixteenth Mobile Competition Report* estimated that "U.S. mobile data traffic [had] increased 62 percent from 2011 to 2012, and that mobile data traffic in 2012 was approximately 73 times the volume of mobile traffic in 2007."⁶ The *Sixteenth Report* further noted that in 2012 the average U.S. mobile connection consumed an estimated 568 MB of data per month.⁷

² *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Sixth Report, 16 FCC Rcd 13350, at 28-29 (2001) (*Sixth Mobile Competition Report*); *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Fifteenth Report, 26 FCC Rcd 9964, ¶ 81(2011) (*Fifteenth Mobile Competition Report*). In addition, since 2003, all nationwide carriers have offered some version of a family plan. *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Tenth Report, 20 FCC Rcd 15908, ¶ 98 (2005); *Fifteenth Mobile Competition Report* ¶ 81 (2011).

³ *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Sixteenth Report at 23 (2012) (*Sixteenth Mobile Competition Report*).

⁴ Sean Patterson, *U.S. Smartphone Penetration Hits 64%, Young People Lead the Way* (Sept. 19, 2013) (<http://www.webpronews.com/u-s-smartphone-penetration-hits-64-young-people-lead-the-way-2013-09>). In addition, according to Nielsen, 80% of Americans who had recently bought a mobile phone (within the past three months) bought a smartphone. *Id.* Based on a separate survey, the Pew Research Center's Internet & American Life Project found that, for the period April 17, 2013 through May 19, 2013, 56% of mobile phone users surveyed reported that they used a smartphone. This was up from 35% of mobile phone users that were surveyed between April 26, 2001 and May 22, 2011. (<http://www.pewinternet.org/2013/06/05/smartphone-ownership-2013/>).

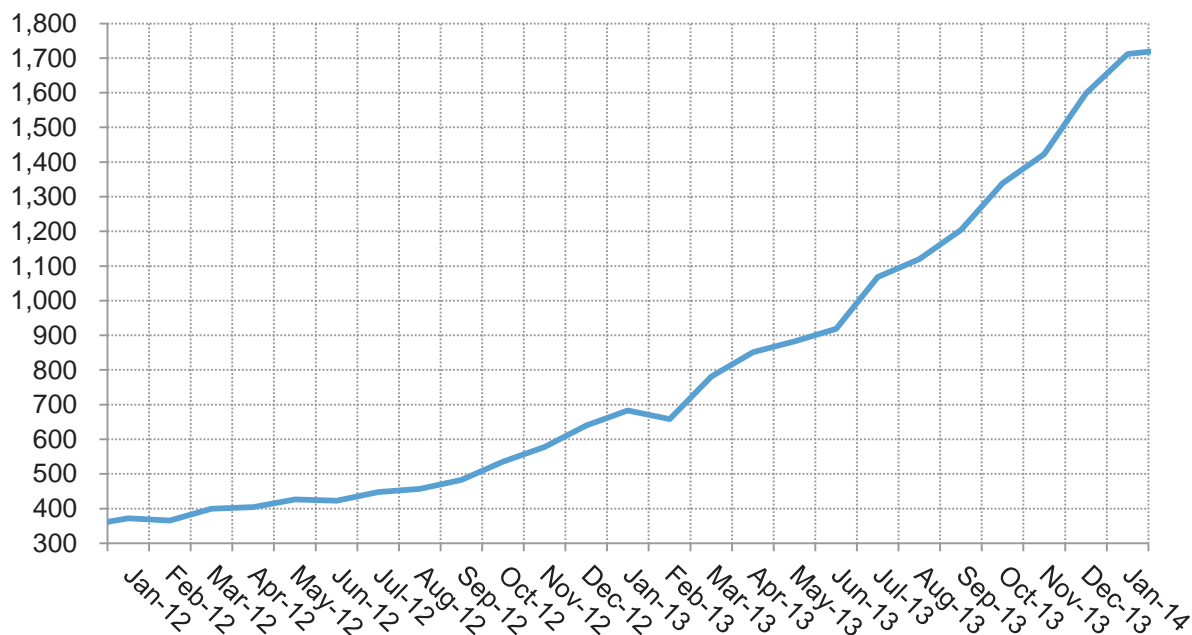
⁵ Declaration of Dirk Mosa, May 22, 2014 ("Mosa Declaration") ¶ 4.

⁶ *Sixteenth Mobile Competition Report*, *supra* note 3, at 175.

⁷ *Id.*

- (28) Since release of that report, average subscriber data use appears to have continued to grow. According to T-Mobile’s internal data displayed in Figure 1, the average usage per subscriber per month was about 1,700 MB in January 2014, about 2.5 times the average usage in January 2013.

Figure 1. T-Mobile subscribers’ average data use, MB per month



Source: T-Mobile.

- (29) With these trends, mobile wireless consumers have come to expect to be able to use their devices for mobile data service wherever they might be. As the Commission recognized in its *2011 Data Roaming Order*,

[a]s data services increasingly become the focus of the mobile wireless services, consumers increasingly expect their providers to offer competitive broadband data services, and the availability of data roaming arrangements can be critical to providers remaining competitive in the mobile services marketplace. We agree that the availability of roaming capabilities is and will continue to be a critical component to enable consumers to have a competitive choice of facilities-based providers offering nationwide access to commercial mobile data services.⁸

- (30) In the *2011 Data Roaming Order*, the Commission recognized that it was unlikely that any carrier would find it feasible to deploy a truly ubiquitous national network⁹ and that roaming therefore

⁸ *Data Roaming Order*, *supra* note 1, 26 FCC Rcd at 5419, ¶ 15.

⁹ *Id.* (“[T]here may be areas where building another network may be economically infeasible or unrealistic.”); *see also id.* ¶ 34 (noting that requiring host providers to offer data roaming on commercially reasonable terms and conditions “will

would remain necessary for offering national mobile data services. As the Commission observed, “providers with local or regional service areas need roaming arrangements to offer nationwide coverage.”¹⁰ And even nationwide providers continue to need roaming. Addressing the continuing need for voice roaming in its *2010 Roaming Reconsideration Order*, the Commission explained:

[B]uilding another network may be economically infeasible or unrealistic in some geographic portions of licensed service areas. We find that, in some areas of the country with very low population densities, it is simply uneconomic for several carriers to build out. Further, we note that it may be significantly more costly to build out when the carrier only has access to higher spectrum frequencies where propagation characteristics are less advantageous. Indeed, every carrier, including every nationwide carrier holding licenses that cover the entire country, relies on roaming to some extent to fill in gaps in its network coverage. In particular, the record reflects that for many CMRS carriers, there are areas within their licensed service areas where there is insufficient demand to support construction in those areas by another carrier.¹¹

- (31) Furthermore, even in areas that a carrier has built out, there can be holes in coverage for a variety of reasons, such as zoning limitations on the placement of towers.¹² So in some instances in order to offer its customers reliable complete coverage, a carrier may require roaming even in its own territory.
- (32) Given consumers’ desire for ubiquitous mobile data service and the economic infeasibility that all mobile data providers will be able to construct ubiquitous nationwide networks, carriers will continue to need to rely on wholesale roaming to satisfy consumer demands. This is particularly true for carriers other than AT&T and Verizon Wireless, and, as the Commission staff found in the context of the proposed merger of AT&T and T-Mobile, competition from carriers other than AT&T and Verizon is essential to preserve the competitive structure and performance of the industry.¹³

provide the requesting provider with sufficient incentive to invest in facilities, except where doing so would be economically infeasible or unrealistic, regardless of the availability of roaming agreements.”); *USF/ICC Transformation Order* ¶ 295 (“[T]here remain many areas of the country where people live, work, and travel that lack any mobile voice coverage, and still larger geographic areas that lack current generation mobile broadband coverage.”)

¹⁰ *Data Roaming Order*, *supra* note 1, 26 FCC Rcd at 5419, ¶ 15.

¹¹ Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and *Other Providers of Mobile Data Services*, Order on Reconsideration and Second Further Notice of Proposed Rulemaking, 25 FCC Rcd 4181, at 4192, ¶ 23 (2010) (*2010 Roaming Reconsideration Order*).

¹² Mosa Declaration ¶ 5.

¹³ *Application of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses or Authorizations*, WT Docket No. 11-65, Staff Analysis and Findings 11-15, 42-43 (rel. Nov. 29, 2011) (*AT&T/T-Mobile Staff Report*).

- (33) Indeed, wholesale data roaming is likely to become a more critical input over time as more mobile consumers adopt smartphones and increasingly rely on mobile data, as reflected in part in the rapid increases in the amount of data traffic they consume. And excessive prices for wholesale data roaming, especially if anticompetitively motivated, would likely correspondingly become an increasing hindrance to effective competition.

IV. Market Power in Data Roaming Markets

IV.A. Sources of Market Power

IV.A.1. Geographic areas with only one facilities-based provider

- (34) In certain areas, demand is insufficient to support the deployment of even a single network, as the Commission recognized when it established the Mobility Phase I and Mobility Phase II broadband universal service support mechanisms to provide federal support so that a single wireless carrier could deploy a mobile wireless broadband network in un-served areas.¹⁴ That there are numerous un-served areas suggests that there are likely numerous other areas where it is, and will remain, economically feasible for only one carrier to deploy a network.¹⁵

IV.A.2. Network compatibility issues

- (35) For 2G and 3G services in the United States, mobile wireless carriers (and, in particular, the two largest and most built-out carriers) employ two incompatible 2G and 3G technologies (GSM-based technologies v. CDMA-based technologies). While multi-mode handsets potentially could roam on GSM and CDMA technologies, such handsets would raise costs and have less appealing physical characteristics such as size and battery performance.¹⁶ As a result, a carrier may have only one choice of roaming provider in an area even where there are two or more built-out, but incompatible, networks.
- (36) These technological incompatibilities will not vanish with the deployment of LTE. First, today carriers deploying LTE still require their customers to use 2G or 3G when making voice calls, so the roaming provider's network must use a 2G/3G technology that is compatible with the roaming customer's handset.¹⁷ Second, while VoLTE technology may enable voice calls on LTE networks sometime in the future, LTE handsets will continue to have to revert to 2G/3G technology for voice calls and data sessions where the LTE signal is too weak.¹⁸ Third, because many customers

¹⁴ *Connect America Fund et al.*, WC Docket No. 10-90 et al., Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17771-73, ¶¶ 295-99; (2011) (*USF/ICC Transformation Order*), *pets. for review pending sub nom. In re: FCC 11-161*, No. 11-9900 (10th Cir. filed Dec. 18, 2011).

¹⁵ According to the *Sixteenth Wireless Competition Report*, as of October 2012, over 48% of total U.S. square miles had either no wireless broadband coverage or only one wireless broadband provider. This was probably an underestimate at that time, because the Mosaic data treat a census block as completely served if there is coverage anywhere within the census block. See *Sixteenth Mobile Competition Report*, *supra* note (3), at Table 9.

¹⁶ Mosa Declaration ¶ 14.

¹⁷ *Id.* ¶ 22.

¹⁸ *Id.*

are slow to adopt the most modern handsets, carriers will need a roaming partner that continues to provide the compatible last-generation technology, so that its customers who still have legacy phones can roam outside their carrier's facilities-based service territory.¹⁹ Finally, it is not clear whether technological incompatibilities may reappear when fifth (or later) generation wireless technology is deployed.

- (37) Thus, there remain, and will continue to remain, geographic pockets of monopoly in the provision of data roaming despite generally more competitive retail conditions in mobile wireless markets. These pockets of monopoly, and additional pockets of insufficient competition, are likely to give some carriers market power in supplying wholesale data roaming services to a requesting carrier. As explained below, exercise of market power in data roaming markets has significant potential to harm competition leading to higher prices and/or reduced service quality, to the detriment of consumers.

IV.B. Competitive Effects from Exercise of Market Power

- (38) A provider of wholesale data roaming services that possesses market power has an incentive to exercise this market power by raising wholesale prices above what they would be in a more competitive environment.
- (39) Such a price increase need not be expressed in a high explicit price for roaming in that local area: if (for example) the carrier charges a single uniform price for roaming across both local monopoly areas and areas with more competition, the local monopoly power may instead be expressed as a higher uniform price than the carrier could charge if all areas were subject to competition. Moreover, roaming providers with market power may be able to impose ancillary volume commitments or other contract provisions that induce the roaming carrier to pay the blended price even where a more attractive roaming price may be available from another supplier of roaming. Local monopoly may find expression in varying ways, and the Commission should be alert to this variety.
- (40) It is worth stressing that there is nothing inconsistent about recognizing that even straightforward exploitation of legitimately acquired monopoly power can significantly harm efficiency and consumers, even if such exploitation is blended or blurred, while simultaneously finding that, at the retail level, mobile wireless markets are sufficiently competitive that price regulation would be unwise and counterproductive. For example, monopoly power in an input market such as roaming can readily raise costs and prices to some or all competitors above efficient levels in a reasonably competitive downstream market, whether or not it also affects downstream competition as such.

¹⁹ *Id.*

- (41) A purchaser of roaming services at high prices may pass on some or all of the cost to its own retail customers, either as a special charge for roaming or as part of the overall price of service. Alternatively, such carriers may be induced (as T-Mobile at least actually already has been induced) to curtail roaming either through throttling or data caps or both, and T-Mobile's experience is that consumers use significantly more data when caps and throttling limitations are removed.²⁰
- (42) An offer of data roaming on such burdensome terms that the roaming carrier predictably responds—reasonably and in good faith, not purely as a bargaining tactic—by preventing its customers from roaming at all on that provider's network would be “tantamount” to denial of roaming. It is, of course, a matter of degree, but an offer that induces the roaming carrier to impose severe throttling or highly constraining usage caps on its customers' data roaming would seem to fall into the same category as a denial of roaming.
- (43) These potential demand responses by a wholesale purchaser of roaming services harm consumers by reducing the quality of their mobile data service while roaming, raising the prices that they pay for services, or both. Curtailment of roaming may also endanger mobile wireless consumers if they lack access to their data service during an emergency.
- (44) A further concern arises when the carriers negotiating a wholesale roaming agreement compete directly for retail customers. If there would be strong upward pricing pressure (at the retail level) following a merger of the negotiating carriers, the same economic logic would suggest that they could find it in their joint interest to raise one another's costs by mutually agreeing on above-cost roaming rates, in order to induce one another to raise retail prices.²¹
- (45) Another competitive risk is that, rather than attempting a “collusive” mutual raising of costs,²² one carrier may find it profitable to raise the other's costs by insisting on high wholesale data roaming rates and thus induce the second carrier to raise its retail prices or compromise its service quality, for instance by throttling or capping roaming for its subscribers. This is particularly likely to be profitable if (a) the second carrier is extensively dependent on the first for data roaming, and (b) the diversion ratio from the second to the first (the fraction of the second carrier's marginal subscribers whose second choice would be the first carrier) is substantial.

²⁰ *Id.* ¶ 25 (describing increases in the range of 10x-20x).

²¹ For a description of this economic logic, see JEAN-JACQUES LAFFONT & JEAN TIROLE, *COMPETITION IN TELECOMMUNICATIONS* Sec. 5.4 (2000). Note that the “endogenous marginal cost effect” that, as they describe, complicates and can reverse this incentive in two-way terminating access problems does not apply for roaming rates: the roaming cost for each existing customer of a network does not automatically fall when the network acquires an additional customer.

²² The term “collusion” is used by Laffont and Tirole. I understand this in an economic sense of softening competition, and do not understand it to imply, or to require, that the result is at or near the monopoly price, nor that the negotiating carriers have violated the Sherman Act.

- (46) Such an anticompetitive incentive would appear particularly likely when AT&T is negotiating a wholesale data roaming agreement with T-Mobile, since AT&T is one of the two largest mobile wireless carriers with an estimated market share in 2012 of in excess of 30 percent²³ (and would thus gain significantly from raising rivals' costs), while T-Mobile is widely viewed as an industry maverick. As the Commission staff, in reviewing the proposed AT&T/T-Mobile merger, recognized, T-Mobile has "repeatedly acted as a pricing innovator over the past few years."²⁴ Among T-Mobile's innovative offerings, the Commission staff cited its introduction of HotSpot calling in 2007 and T-Mobile Hotspot @ Home in 2008, its offering of month-to-month postpaid plans in 2008, and its introduction of unlimited data plans with "soft" caps in 2010.
- (47) Since release of the *Staff Report*, T-Mobile has continued to be an aggressive and disruptive competitor. For example, T-Mobile's Simple Choice offerings, launched in 2013, provided simplified unlimited pricing without annual service contracts, and offered separate pricing for plans and devices to improve customer transparency.²⁵ T-Mobile also launched the Simple Global offering, which allows customers to utilize voice services at low cost, and data and text free of charge, while travelling in more than 100 countries. Most recently, T-Mobile enhanced Simple Choice offerings to include payment of early termination fees for customers that switch from other carriers.²⁶ That these innovative offerings have appealed to and benefitted consumers has been reflected in the fact that, in 2013, T-Mobile won 2 million additional postpaid customers and 400,000 prepaid customers.²⁷ In light of T-Mobile's success in winning customers away from other major carriers, including AT&T,²⁸ it would not be surprising if AT&T were to seek to raise T-Mobile's costs (or reduce the quality of its data service) by charging high wholesale roaming rates.

²³ *Sixteenth Mobile Competition Report*, *supra* note 3, at Table 12.

²⁴ *AT&T/T-Mobile Staff Report*, *supra* note 13, at 13 (2011).

²⁵ Mosa Declaration ¶ 3.

²⁶ *Id.*

²⁷ *Id.*

²⁸ Diversion ratios were calculated but redacted in the public version of the Staff Report. Note that the point made in the text does not rely on either of these firms being the other's closest competitor, only on one being competitively significant for the other. A recent example of strong direct competition between T-Mobile and AT&T is AT&T's recent \$450 offer directed specifically at T-Mobile's customers (AT&T press release January 3, 2014, available at <http://www.att.com/gen/press-room?pid=25181&cdvn=news&newsarticleid=37365&mapcode>).

V. The 2011 Data Roaming Order

- (48) In April 2011, the Commission released a Second Report and Order in the *Roaming Obligations Docket*.²⁹ That order required CMRS providers and certain other providers of mobile data services to offer data roaming arrangements on “commercially reasonable terms and conditions,” subject to specified limitations.³⁰ In the order, the Commission identified a number of goals that it sought to achieve by means of this data roaming requirement. These included: (1) allowing consumers to have seamless data coverage nationwide;³¹ (2) enabling consumers to have a competitive choice of facilities-based providers offering nationwide access to data services;³² (3) allowing providers with local or regional service areas to offer nationwide coverage;³³ (4) encouraging investment by local and regional providers by ensuring that they will be able to offer competitive service options “through a combination of local or regional facilities-based service and roaming arrangements;³⁴ (5) creating additional incentives for entry by “allowing network providers without a presence in an area a competitive level of local coverage during the early period of investment and buildout;³⁵ and (6) providing incentives for “those providers to invest and deploy advanced data networks, and avoid potential disincentives for those providers to invest.”³⁶
- (49) While recognizing the importance to consumers of having nationwide data service and the need for carriers to have access to wholesale data roaming if they are to offer ubiquitous, nationwide mobile data services, the Commission rejected proposals to regulate wholesale data roaming rates. Specifically, the Commission stated that it was adopting a “general requirement of commercial reasonableness for all roaming terms and conditions, including rates . . . rather than a more specific prescriptive regulation of rates requested by some commenters.”³⁷

²⁹ *Data Roaming Order*, *supra* note 1, 26 FCC Rcd 5411. In 2007, the Commission had clarified that Commercial Mobile Radio Service (CMRS) carriers had an obligation to provide automatic roaming services for interconnected voice service, push-to-talk service and text-messaging service, to other carriers upon reasonable request on just, reasonable and non-discriminatory terms pursuant to Sections 201 and 202 of the Communications Act. *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, WT Docket 05-265, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 15817, 15818 (2007) (“*2007 Roaming Order*”). Then, in 2010, in an order on reconsideration, the Commission eliminated the “home roaming exclusion.” *2010 Roaming Reconsideration Order*, *supra* note 11, 25 FCC Rcd at 4190.

³⁰ *Data Roaming Order*, *supra* note 1 at 5418, ¶ 13.

³¹ *Id.* at 5415, ¶ 9.

³² *Id.* at 5419, ¶ 15.

³³ *Id.*

³⁴ *Id.* at 5419-20, ¶ 16-17.

³⁵ *Id.* at 5421, ¶ 18.

³⁶ *Id.* at 5422, ¶ 21.

³⁷ *Id.* at 5423, ¶ 21.

(50) In addition, the Commission adopted four limitations to a carrier's duty to offer data roaming arrangements on commercially reasonable terms and conditions. These limitations were:

(1) providers may negotiate the terms of their roaming arrangements on an individualized basis; (2) it is reasonable for a provider not to offer a data roaming arrangement to a requesting provider that is not technologically compatible; (3) it is reasonable for a provider not to offer a data roaming arrangement where it is not technically feasible to provide roaming for the particular data service for which roaming is requested and any changes to the host provider's network necessary to accommodate roaming for such data service are not economically reasonable; and (4) it is reasonable for a provider to condition the effectiveness of a data roaming arrangement on the requesting provider's provision of mobile data service to its own subscribers using a generation of wireless technology comparable to the technology on which the requesting provider seeks to roam.³⁸

(51) The Commission stated that, should a dispute arise during the negotiation of a data roaming agreement, parties could file either a formal or informal complaint or a petition for declaratory ruling.³⁹ The Commission explained that, with respect to remedies in complaint proceedings, damages would be excluded as a remedy with respect to data roaming claims, but not for voice roaming claims.⁴⁰

(52) In assessing whether a particular data roaming offer contains commercially reasonable terms and conditions or whether the provider's conduct during negotiations is commercially reasonable, the Commission stated that it would address such disputes "on a case-by- case basis, taking into consideration the totality of the circumstances."⁴¹ It went on to state:

[P]roviders can negotiate different terms and conditions, including prices, with different parties, where differences in terms and conditions reasonably reflect actual differences in particular cases. Further, providers of commercial mobile data services can negotiate commercially reasonable measures to safeguard quality of service against network congestion that may result from data roaming traffic or to prevent harm to their networks. Conduct that unreasonably restrains trade, however, is not commercially reasonable.⁴²

³⁸ *Id.* at 5432-33, ¶ 43 (footnote omitted).

³⁹ *Id.* at 5449, ¶ 75.

⁴⁰ *Id.*

⁴¹ *Id.* at 5452, ¶ 85 (footnote omitted).

⁴² *Id.* (footnote omitted).

(53) Finally, the Commission listed seventeen factors that it might consider in determining whether particular terms and conditions were commercially reasonable.⁴³ These factors were as follows:

- “whether the host provider has responded to the request for negotiation, whether it has engaged in a persistent pattern of stonewalling behavior, and the length of time since the initial request;”
- “whether the terms and conditions offered by the host provider are so unreasonable as to be tantamount to a refusal to offer a data roaming arrangement;”
- “whether the parties have any roaming arrangements with each other, including roaming for interconnected services such as voice, and the terms of such arrangements;”
- “whether the providers involved have had previous data roaming arrangements with similar terms;”
- “the level of competitive harm in a given market and the benefits to consumers;”
- “the extent and nature of providers’ build-out;”
- “significant economic factors, such as whether building another network in the geographic area may be economically infeasible or unrealistic, and the impact of any “head-start” advantages;”
- “whether the requesting provider is seeking data roaming for an area where it is already providing facilities-based service;”
- “the impact of the terms and conditions on the incentives for either provider to invest in facilities and coverage, services, and service quality;”
- “whether there are other options for securing a data roaming arrangement in the areas subject to negotiations and whether alternative data roaming partners are available;”
- “events or circumstances beyond either provider’s control that impact either the provision of data roaming or the need for data roaming in the proposed area(s) of coverage;”
- “the propagation characteristics of the spectrum licensed to the providers;”
- “whether a host provider’s decision not to offer a data roaming arrangement is reasonably based on the fact that the providers are not technologically compatible;”
- “whether a host provider’s decision not to enter into a roaming arrangement is reasonably based on the fact that roaming is not technically feasible for the service for which it is requested;”
- “whether a host provider’s decision not to enter into a roaming arrangement is reasonably based on the fact that changes to the host network necessary to accommodate the request are not economically reasonable;”

⁴³ *Id.* at 5452-53, ¶ 86.

- “whether a host provider’s decision not to make a roaming arrangement effective was reasonably based on the fact that the requesting provider’s provision of mobile data service to its own subscribers has not been done with a generation of wireless technology comparable to the technology on which the requesting provider seeks to roam;” and
 - “other special or extenuating circumstances.”
- (54) The Commission is not the only regulatory body to recognize the dangers of high roaming rates. In 2012, the European Parliament and the Council of the European Union adopted a regulation governing mobile wireless roaming.⁴⁴ The European Parliament and the Council noted that high voice, SMS and data roaming prices can harm consumers and deter them from using mobile services when travelling outside their member state.⁴⁵ The EU adopted a more prescriptive approach to addressing this problem than the Commission, however.
- (55) Concluding that competition among facilities-based operators could not be relied upon to discipline wholesale and retail prices,⁴⁶ the EU introduced “structural measures,” requiring facilities-based operators to unbundle retail international roaming services from each of their tariff plans, so that the end-users could switch to other carriers for those international roaming services.⁴⁷
- (56) Finding that it would take time for the structural measure to have an effect, the EU decided that, for a certain period of time, “maximum wholesale charges for voice, SMS and data roaming services as well as safeguard caps for those services at the retail level should be maintained on a temporary basis at an appropriate level to ensure that the existing consumer benefits are preserved during a transitional period of implementation of such structural measures.”⁴⁸ Thus, in addition to the structural measures, the EU adopted a glide path that capped roaming charges. Since July 1, 2013, the “safeguard cap” for wholesale data roaming has been € 0.15 per MB. Beginning on July 1, 2014, the cap will drop to € 0.05 per MB, approximately equal to seven US cents per MB at today’s exchange rate.⁴⁹

⁴⁴ Regulation (EU) No. 531/2012 of the European Parliament and of the Council of 13 June 2012 on Roaming on Public Mobile Communications Networks within the Union.

⁴⁵ *Id.* ¶¶ 4, 34.

⁴⁶ *Id.* ¶¶ 22-23.

⁴⁷ *Id.*, Article 4.

⁴⁸ *Id.* ¶ 39.

⁴⁹ *Id.*, Article 12.

VI. Some Benchmarks for Wholesale Roaming Rates

- (57) In this section I discuss several benchmarks that the Commission should consider in drafting prospective guidance for the industry and also in evaluating whether a proposed wholesale data roaming rate is “high” in a sense relevant to determining whether it is commercially unreasonable. Because no benchmark is perfect, the Commission should apply the proposed benchmarks cautiously and in conjunction with one another and with an analysis of competitive risks.
- (58) I offer some quantifications of the benchmarks that are based only on data available to me from public sources and from T-Mobile, and (as to my use of data supplied by T-Mobile) are also constrained by confidentiality restrictions.

VI.A. Retail Data Prices

- (59) A natural benchmark for wholesale mobile data pricing is retail mobile data pricing. As with some of the other benchmarks discussed below, the product is basically the same; it is being sold to different customers.
- (60) Charging different prices to different customers (“price discrimination”) is normal and not inherently problematic in markets such as mobile communications. This is why I do not suggest that strong conclusions can be drawn based on this one benchmark. However, that does not mean that it is uninformative. In light of the reasons to fear anticompetitive pricing in these markets for cooperation among rivals, and in combination with other benchmarks, excessive price discrimination in the form of a *much* higher price charged to rivals than charged to customers should sharpen concerns.
- (61) Retail pricing of mobile services, including for data, is somewhat complex and nonlinear, so some analysis is required in order to translate retail offers into per-MB retail prices for mobile data. In keeping with my position that these benchmarks should be used cautiously, I calculate a high-end measure of retail pricing of data services so as to minimize “false positives.”
- (62) I describe and report such measures of retail prices for data usage for the four nationwide carriers—AT&T, Sprint, T-Mobile, and Verizon—as of February 23, 2014. My calculation indicates that the average domestic wholesale data roaming price T-Mobile pays (see below) is *several times larger* than the corresponding average retail data prices that end-users enjoy.
- (63) To put this finding in perspective, I next examine available data for wholesale roaming rates and average retail revenues for mobile voice services, and find that wholesale roaming prices for voice

were *lower* than comparable retail prices for voice even before the Commission imposed common carrier obligations for voice in 2007.

VI.A.1. Analysis of Retail Data Prices

- (64) I examined retail plans advertised by AT&T, Sprint, T-Mobile and Verizon, as posted on their respective websites on February 23, 2014. The retail plans that I compared were: *AT&T Mobile Share[®] Value Plans*; *Sprint Unlimited GuaranteeSM plans*;⁵⁰ T-Mobile's *Simple Choice* plans, and Verizon's *MORE Everything* plans. In order to ensure comparability across carriers, I examined monthly charges for retail bundles appropriate for a single device.
- (65) These retail plans are not data-only. All of the plans considered here include unlimited domestic voice minutes and unlimited domestic SMS messaging.⁵¹ Consistent with the analytical goal of calculating an upper-end estimate for retail pricing of mobile data, I calculate as if those other products had no value: that is, I allocate the entire plan price to data.
- (66) Table 1 summarizes key terms of the plans I examined: the fixed monthly charge, the MB included in the retail bundle, and the overage charges that apply if the subscriber exceeds her monthly data allowance. In most cases, the overage charge is \$15 per GB, and this is “lumpy” (i.e., the user is charged \$15 for each additional GB of data or part thereof). Two of T-Mobile's plans include unlimited data but with throttled data speeds above the indicated “included” MB.

⁵⁰ One should not necessarily interpret “unlimited” literally; the Sprint plan comes with fine print that limits certain uses, notably use as a hotspot and off-network roaming. These caveats do not seriously undermine the inferences made in the text about the general level of retail pricing for mobile data.

⁵¹ The T-Mobile plans I consider also include international roaming services. It was not clear from the websites consulted which, if any, plans also included a handset subsidy; by attributing the full price to data, I implicitly also attributed any amounts compensating for such subsidy to data.

Table 1. Select retail plans of major US operators

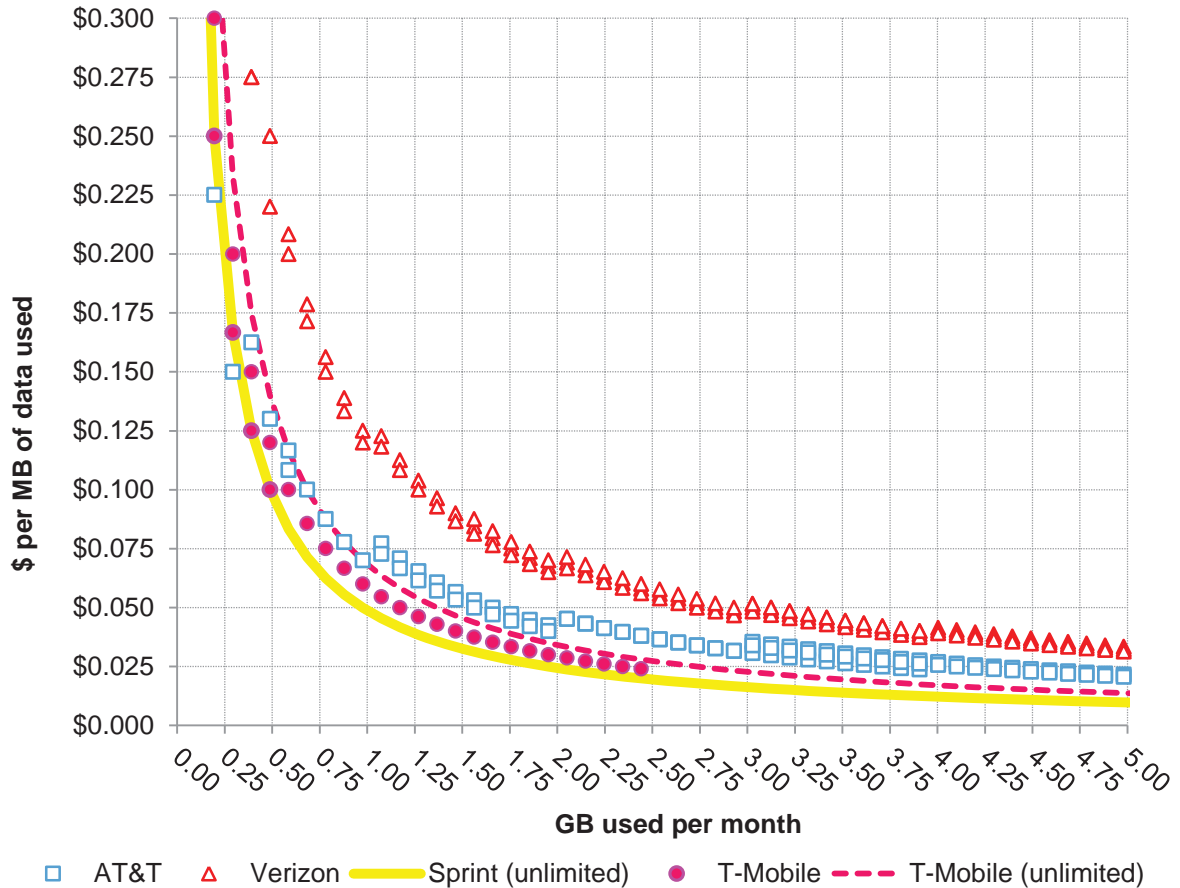
	Retail bundle price per month	Data MB included	Data overage charge
ATT, plan 1	\$45	300	\$20 for 300 MB
ATT, plan 2	\$70	1024	\$15 for 1 GB
ATT, plan 3	\$80	2048	\$15 for 1 GB
ATT, plan 4	\$95	4096	\$15 for 1 GB
ATT, plan 5	\$105	6144	\$15 for 1 GB
Verizon, plan 1	\$95	250	\$15 for 200 MB
Verizon, plan 2	\$110	500	\$15 for 500 MB
Verizon, plan 3	\$120	1024	\$15 for 1 GB
Verizon, plan 4	\$130	2048	\$15 for 1 GB
Verizon, plan 5	\$140	3072	\$15 for 1 GB
Verizon, plan 6	\$150	4096	\$15 for 1 GB
Verizon, plan 7	\$160	6144	\$15 for 1 GB
Sprint, unlimited	\$50	Unlimited	NA
T-Mobile, plan 1	\$50	500	throttled data over 500 MB
T-Mobile, plan 2	\$60	2560	throttled data over 2.5 GB
T-Mobile, unlimited	\$70	Unlimited	NA

Source: Bates White calculations from advertised retail bundles as of February 23, 2014.

- (67) The price that a user pays per MB of data usage depends both on his data usage and on the plan he chose. For various usage levels, Figure 2 reports the sum of retail prices plus applicable data overage charges for each of the plans in Table 1 on a per MB basis. This calculation allocates the *entire* monthly fee (covering voice, SMS and data) and overage charges entirely to the data actually used. For each plan, the Figure displays average retail data prices over a range of data usage levels running from half the included data allowance to twice the allowance at 100 MB increments, except that the price per used MB is calculated over the entire displayed range for the Sprint and T-Mobile unlimited plans. The Figure’s overall displayed usage range runs from zero up to 5 GB per month, or roughly three times the 1,700 MB per month that T-Mobile reports as its subscribers’ average usage.
- (68) Figure 2 illustrates that my calculated high estimate of average price per MB tends to decline as data usage increases, and that for average or above-average data users, it is largely below 10 cents per MB. More specifically, Figure 2 shows that retail customers using 1 GB per month or more can obtain data services at a cost no greater than about 12 cents per MB, even from the highest-

priced carrier (Verizon), with most carriers offering service at that level at a price less than 8 cents per MB.⁵²

Figure 2. Advertised domestic prices for data services sold in retail bundles, February 2014



Source: Bates White calculations from advertised retail bundles as of February 23, 2014.

- (69) Because retail customers cannot perfectly predict their usage and may choose a less than optimal plan, it would be optimistic to take the lower envelope of each carrier’s (or the industry’s) plans in Figure 2. To address this, Table 2 displays the *maximum* cost per MB (monthly fee plus data overage charge) to a retail customer who uses 1,700 MB per month—approximately the current average usage of T-Mobile’s customers (see Figure 1)—assuming a reasonable but not optimal choice of plan. Specifically, the maximum is calculated separately for each carrier, considering only (a) plans whose included data usage is at least half of the assumed usage level (i.e., $1,700/2 = 850$ MB per month) but no more than twice the assumed usage level (i.e., $1,700*2 = 3,400$ MB per

⁵² Because overage charges are “lumpy,” as described, this calculation depends on the choice of 100MB increment. The fact that a consumer may pay more on average if he barely over-uses his data allowance is not very relevant to the use of retail rates as a benchmark for wholesale rates.

month), and (b) plans that include unlimited data. As Table 2 displays, to a customer using 1,700 MB a month, even the most expensive carrier (Verizon) charges only about eight cents per MB, and the other carriers, including AT&T, charge no more than five cents per MB even on their most expensive of the plans considered. Again, recall that these calculations attribute the entire package price to mobile data.

Table 2. Maximum retail costs per MB for a customer who uses 1,700 MB per month

Carrier	Retail cost per MB used
AT&T	\$0.050
Verizon	\$0.082
Sprint	\$0.029
T-Mobile	\$0.041

Source: Bates White calculations from advertised retail bundles as of February 23, 2014.

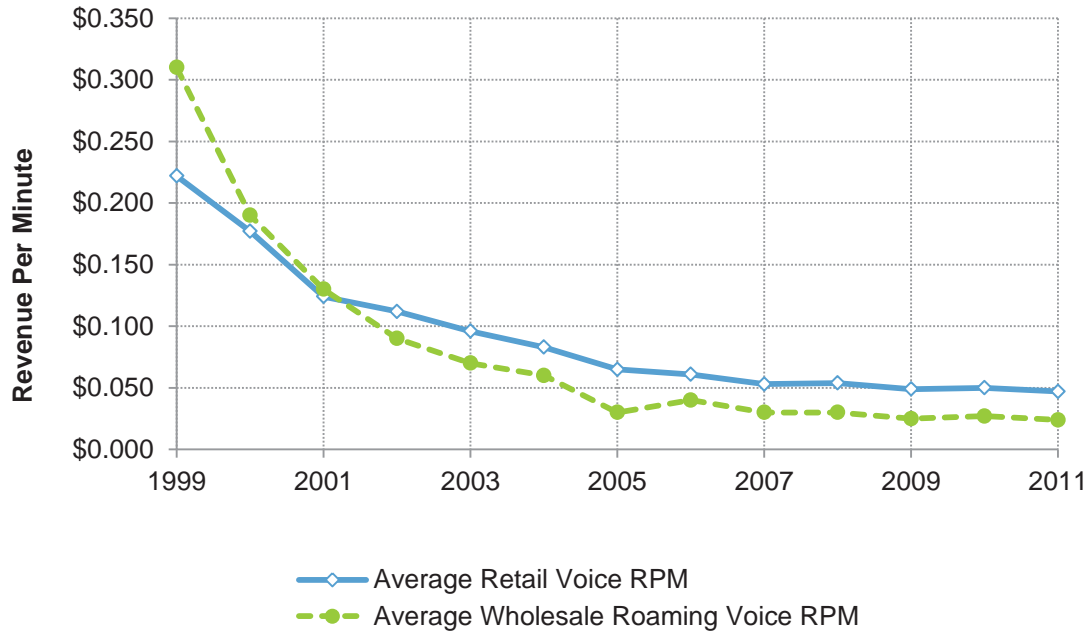
- (70) As will be seen below, these prices are a fraction of the average domestic wholesale price for data roaming services that T-Mobile paid to other operators in 2013.
- (71) Table 6 below shows that this average wholesale roaming rate was about 30 cents per MB, a figure 3.6 times the retail rate for Verizon, and 6 times the retail rate for AT&T in Table 2.

VI.A.2. Average Revenue per Minute and Average Wholesale Roaming Rates for Mobile Voice Services

- (72) To help put the comparison of wholesale data roaming rates to retail pricing of data in perspective, I examined a similar comparison for mobile voice services. In the Commission’s *Sixteenth Mobile Competition Report*, the Commission reports both the mobile wireless voice revenue per minute and average roaming revenue per minute.⁵³ These are reproduced in Figure 3.

⁵³ *Sixteenth Mobile Competition Report*, *supra* note 3, at Table 38 (retail Revenue Per Minute, RPM) and Table 41 (roaming RPM). The FCC calculates *retail RPM* as follows: “Voice RPM is calculated by dividing an estimate of average monthly revenue per subscriber (often referred to as average revenue per unit, or “ARPU”) for voice services by average monthly minutes of use (MOU) per subscriber for the equivalent period, obtaining an estimate of revenue per minute.” *Id.* ¶ 267. “To generate Voice RPM, we subtracted wireless data revenues, derived from CTIA’s survey, from ALMB [Average Local Monthly Bill] (we assumed this was the same percentage of wireless data revenues in CTIA’s measure of total service revenues), then we divided that number by CTIA’s average MOUs per month. [...] The average monthly minutes of use figure reflects voice minutes used and captured as network traffic, rather than minutes paid for as part of a monthly service package.” *Id.* n.828. The FCC calculates *retail RPM* as follows: “Inter-carrier roaming rates are set by contractual agreements that are confidential, and particular rates vary across agreements depending on the terms negotiated by service providers. However, CTIA data on roaming revenues and roaming minutes of use (MOUs) can be used to derive a metric for average voice roaming revenue per minute. CTIA reports “outcollect” roaming revenues, which are the revenues generated by roamers inside the providers’ home coverage areas. We note that CTIA’s roaming revenue estimates include revenue from both voice and data roaming services, while the roaming MOU data include traffic from only voice roaming services. [...] We derive an average roaming RPM by dividing reported annual roaming revenues by reported annual roaming MOUs. This aggregate proxy for inter-carrier roaming rates is

Figure 3. Domestic Voice Revenue Per Minute, retail and wholesale roaming



Source: FCC.

- (73) As is clear from Figure 2, wholesale voice roaming prices have been below retail average revenue per minute consistently since 2002. In particular this was true even before the Commission imposed common carrier obligations on CMRS providers of voice roaming services in 2007. As discussed below,⁵⁴ the same is not true for data roaming. Average wholesale data roaming rates are very substantially higher than current retail rates.

VI.B. Roaming agreements with foreign carriers

VI.B.1. Prices T-Mobile charges foreign carriers for data roaming in the US

- (74) A second benchmark for commercially reasonable rates for domestic wholesale roaming can be developed from rates that T-Mobile has negotiated with non-affiliated⁵⁵ foreign carriers that apply when the foreign carriers' customers roam in the United States. This benchmark is attractive for

likely to somewhat overstate average revenue per minute of voice roaming service because the numerator includes revenue from both voice and data services, while the denominator includes only voice roaming MOUs. Without separate data for voice and data roaming revenue and traffic, we do not know the degree to which this estimate of average voice roaming RPM is overstated." *Id.* ¶¶ 273-274.

⁵⁴ See § VI.D *infra*.

⁵⁵ All calculations in this section exclude prices charged to Deutsche Telekom in Germany (T-Mobile USA's parent) and its subsidiaries (T-Mobile companies in Austria, Croatia, Czech Republic, Hungary, Macedonia, Montenegro, Netherlands and Slovakia).

two reasons. First, foreign carriers (who predominantly use GSM technology) often have a choice of at least two U.S. roaming partners—AT&T and T-Mobile—and possibly can roam with regional carriers in some regions. Second, because (with some caveats in the case of international alliances) foreign carriers do not compete against domestic carriers for customers in the United States, domestic carriers have little incentive to raise costs for these carriers in order to limit retail competition.⁵⁶

- (75) In 2013, there were 450 international operators⁵⁷ that purchased wholesale US data roaming traffic from T-Mobile. Of these, 298 purchased US roaming through discount agreements negotiated with T-Mobile, usually on a reciprocal basis.⁵⁸ Agreements are typically for one year or longer. Negotiated rates account for more than 98% of the total data roaming volume that T-Mobile supplies to foreign carriers.
- (76) The volume weighted distribution of wholesale prices that T-Mobile charges international operators for data roaming in the US through negotiated discount agreements is summarized in Table 3 and plotted in Figure 4.⁵⁹ For 2014, here and below, I have reported forecasts supplied to me by T-Mobile. In his Declaration, Mr. Mosa explains that these are T-Mobile's internal forecasts prepared for the purpose of business decisions, and that in the past, similar forecasts prepared in the same manner have turned out to be generally accurate within 5 percent.⁶⁰

⁵⁶ As noted above, it is my understanding that most data roaming agreements between carriers cover roaming traffic in both directions.

⁵⁷ In computing the number of international operators purchasing US data roaming, I counted the unique country-specific roaming partner billing codes. A given international parent company operating in multiple countries (for instance, Vodafone) thus accounts for more than one international operator. There are also rare cases where a given parent company has multiple billing codes within a certain country — for instance, Everything Everywhere in the United Kingdom has two, and thus accounts for two of the international operators reported.

⁵⁸ See Mosa Declaration ¶ 28. The remaining 152 operators operate under the standard Inter-Operator Tariffs (IOTs), which T-Mobile offers to any member of the GSM Association. The majority of foreign carriers that operate under IOT rates have data roaming volumes on T-Mobile's network that are very small and do not justify negotiating a roaming discount agreement. *Id.*

⁵⁹ Some of the actual and forecasted average rates used in this calculation reflect the fact that the foreign carrier committed to purchase a larger volume of roaming services than it actually used or is expected to use. In some cases the foreign carrier has made reciprocal agreements with T-Mobile for unlimited roaming for a fixed fee. See Mosa Declaration ¶ 29.

⁶⁰ Mosa Declaration ¶¶ 7-8.

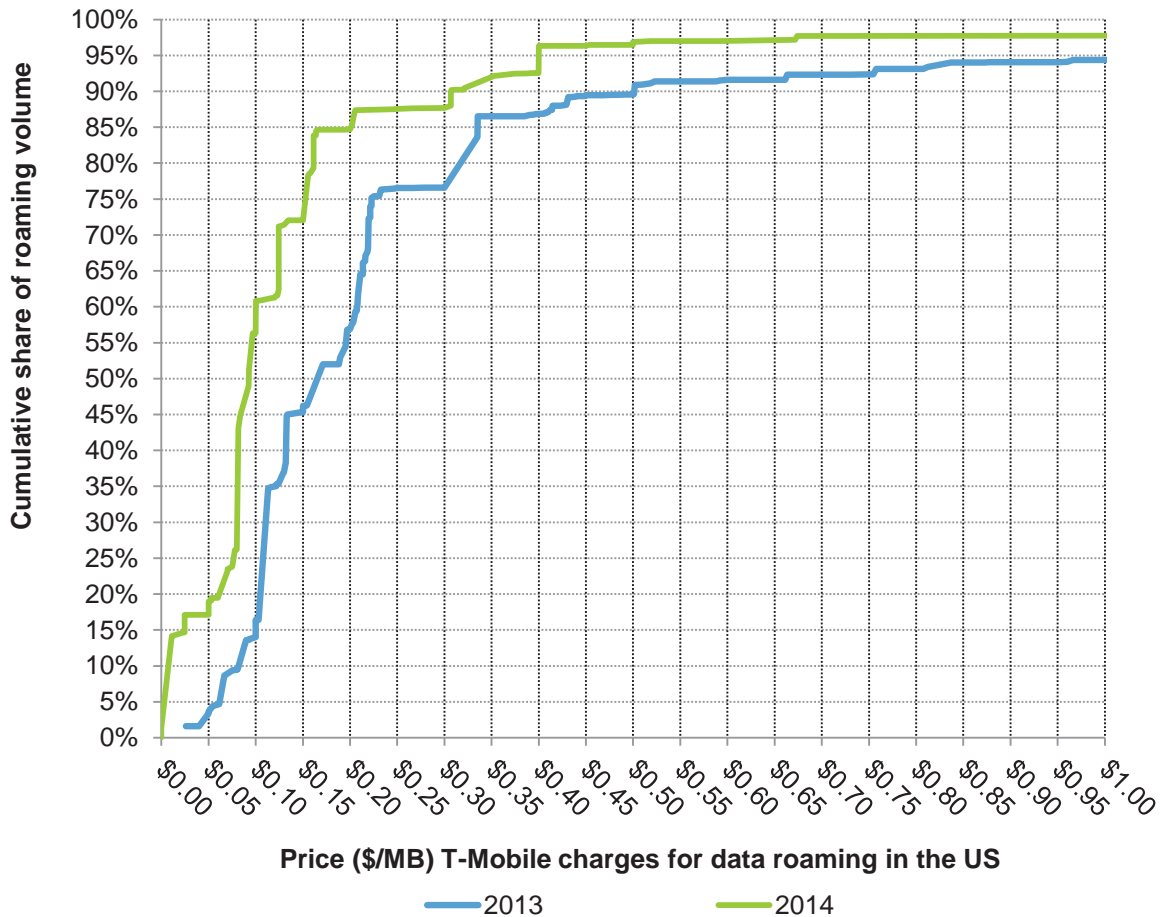
Table 3. Data roaming prices T-Mobile charges international operators in the US, 2013, and T-Mobile's projections for 2014

\$ per MB	Average	Median	75% Percentile	80% Percentile	85% Percentile	90% Percentile	95% Percentile
2013	\$0.343	\$0.171	\$0.223	\$0.335	\$0.335	\$0.502	\$1.150
2014*	\$0.204	\$0.093	\$0.156	\$0.161	\$0.202	\$0.307	\$0.400

* Based on actual values through January 2014 and T-Mobile forecasts for the rest of the year.

Source: Bates White calculations based on T-Mobile data.

Figure 4. Data roaming prices T-Mobile charges international operators in the US, 2013, and T-Mobile's projections for 2014



Note: 2014 distribution is calculated from actual values for January 2014 and T-Mobile forecasts for the rest of 2014.

Source: Bates White calculations based on T-Mobile data.

- (77) Figure 4 highlights how T-Mobile has renegotiated its contracts with more and more international operators for 2014 to provide substantially lower data roaming rates. Several of these contracts allow the international operator to enjoy unlimited use of T-Mobile’s data network in 2014 for a fixed dollar amount under reciprocal terms, with the pro-consumer result that, at least during the contract term, marginal costs become zero.⁶¹ See Table 4, which presents the distribution of average prices that T-Mobile projects it will receive based on actual usage for January 2014 and its own projections of usage for the remainder of 2014.

Table 4. Distribution of average data roaming prices T-Mobile expects to charge international operators in the US in 2014, by type of contract

Type of contract	Roaming Data Volume (MB mil)	Average	Median	75% Percentile	90% Percentile
Unlimited use	143.8	\$0.154	\$0.092	\$0.124	\$0.161
Other negotiated terms	23.5	\$0.509	\$0.204	\$0.400	\$0.400
Total	167.3	\$0.204	\$0.093	\$0.156	\$0.307

Note: Calculated from actual values for January 2014 and T-Mobile forecasts for the rest of 2014. The distribution is calculated from actual and projected roaming quantities at each price. I understand that with minor exceptions the contracts are in place and the forecasts concern usage. See Mosa Declaration ¶ 8.

Source: Bates White calculations based on T-Mobile data.

VI.B.2. Prices T-Mobile pays for data roaming outside the US

- (78) The negotiated rates that T-Mobile charges non-affiliated foreign carriers for data roaming when the foreign carriers’ customers roam in the United States are part of contracts that also set the rates T-Mobile pays for data roaming services that T-Mobile purchases from these foreign carriers.
- (79) In this section, I report the average negotiated prices T-Mobile pays for international data roaming services. Of course, prices in foreign markets in part reflect conditions there, which may differ in a variety of ways from US market conditions. However, it should be relevant to understand roaming negotiations in other market settings. Moreover, these prices result from the same agreements as the prices described in VI.B.1, and are therefore helpful in understanding those agreements.
- (80) The distribution of data roaming rates that T-Mobile pays to foreign operators for roaming outside the US is summarized in Table 5. Comparison of Table 5 with Table 3 shows that in 2013 (measuring either by median price or by average price) T-Mobile paid about 4 cents per MB less for international data roaming abroad than it charged international operators for roaming in the US. Table 5 also displays T-Mobile’s forecast that it will pay an average price of 7.8 cents per MB

⁶¹ Mosa Declaration ¶ 30.

in 2014—more than 12 cents less than the average it expects to charge foreign carriers, and a median price of 3 cents per MB—more than 6 cents less than the median price T-Mobile expects to charge foreign carriers.

Table 5. Data roaming rates that T-Mobile pays to foreign operators, 2013 and projection for 2014

\$ per MB	Average	Median	75% Percentile	80% Percentile	85% Percentile	90% Percentile	95% Percentile
2013	\$0.297	\$0.134	\$0.197	\$0.321	\$0.407	\$0.500	\$0.816
2014*	\$0.078	\$0.030	\$0.050	\$0.060	\$0.070	\$0.100	\$0.400

* Based on actual values for January 2014 and T-Mobile forecasts for the rest of 2014.

Source: Bates White calculations based on T-Mobile data.

- (81) These differences between forecast price charged and forecast price paid in 2014 may be due in part to an asymmetrical effect of unlimited-use reciprocal contracts. I understand that T-Mobile has recently negotiated a substantial number of such contracts, and recently (late 2013) has launched a retail plan (Simple Global) that passes through those favorable (marginal) wholesale terms by allowing T-Mobile subscribers to enjoy free data roaming (and SMS) services abroad in more than 100 countries.⁶² However, foreign carriers appear to have been slower to offer such retail plans to their customers for roaming on T-Mobile’s network. As a consequence, T-Mobile’s subscribers are expected to generate a much larger volume of traffic than their foreign counterparts and thus achieve much lower blended costs per MB under the same contractual terms.⁶³

VI.C. Wholesale Rates T-Mobile Charges to MVNOs

- (82) A third possible benchmark is to consider the rates that facilities-based carriers charge MVNOs for data. The T-Mobile network hosts a handful of Mobile Virtual Network Operators, to which it provides “permanent data roaming services.” Providing data services to MVNOs is similar to providing data roaming services in that the provider of the network services—in this case T-Mobile—is allowing another carrier’s customers to use its network to retrieve and deliver data. In addition, the host facilities-based networks that supply the MVNOs may be less likely to have incentives to raise rivals’ costs, because there is reason to think they do not perceive the MVNOs to be close competitors. As the Commission has pointed out, MVNOs tend to target their service

⁶² Mosa Declaration ¶ 3. Free international data roaming under this plan is available at 2G data speeds; faster speeds are also available.

⁶³ *Id.* ¶ 31 (describing it as “multiples larger”).

offerings at specific demographic, lifestyle, and market niches,” such as consumers “who are low income, are relatively price sensitive, do not want to commit to multi-year subscription contracts, have low usage needs, or do not want to buy a bundle that contains unwanted data services.”⁶⁴ As a result, the MVNOs may be seen as increasing “the range of services offered by the host facilities-based provider by targeting certain market segments, including segments previously not served by the hosting facilities-based provider,” instead of directly competing against it.⁶⁵

- (83) T-Mobile has provided me with certain data on the rates that it has charged in the last five years to MVNOs for mobile data. I am informed that the data cannot be reported here because they are confidential, but that it does not violate confidentiality to report that those rates have been falling over time and that actual average price per MB was below 3 cents by 2013.

VI.D. Domestic Wholesale Data Roaming Rates

- (84) Another intuitive benchmark for evaluating the commercial reasonableness of wholesale roaming rates is to compare a proposed wholesale roaming rate to other negotiated wholesale roaming rates. Like the other benchmarks, this one should be used with caution. First, as a matter of logic, such a comparison addresses the question of whether the proposed rate is similar to those other rates. However, if some of the comparison agreements were not themselves commercially reasonable, then similarity need not imply reasonableness. Second, even if the comparison agreements are reasonable, an unreasonable demand might appear only modestly different if it involves a blended rate that covers both areas where the roaming provider holds substantial market power and areas where it faces competition from other providers of wholesale data roaming services. Third, there has been a strong downward trend in wholesale data roaming rates in recent years, so while a wholesale data roaming rate negotiated a year ago might have been commercially reasonable at that time, it may not reflect current market conditions. Finally, I understand that at least T-Mobile has recently been negotiating wholesale data roaming agreements that, for a fixed fee, provide either a large bucket of MBs or unlimited data roaming. Under these plans, the marginal cost (to the purchasing carrier) of data roaming, which is the relevant cost for such decisions as whether to limit customers’ roaming, is likely to be significantly lower than the average cost of roaming (and perhaps zero). Despite such issues, it can be informative to examine whether a proposed rate is comparable to this benchmark.
- (85) In this section, I accordingly report data on the prices that T-Mobile has been paying for domestic wholesale data roaming, and the associated volumes.

⁶⁴ See *Fifteenth Mobile Competition Report*, *supra* note 2, ¶ 32.

⁶⁵ *Id.* ¶ 33. See also *Sixteenth Mobile Competition Report*, *supra* note 3, ¶ 31.

- (86) Table 6 presents the average rate that T-Mobile has paid for wholesale domestic data roaming in the last six years (2008-2013), and its forecasts of the average rate it expects to pay for 2014. A monthly series of average prices is displayed in Figure 5. I note that the average domestic wholesale data roaming rate that T-Mobile paid in 2013 is 3.6 times the maximum retail rate that Verizon charges a user of 1,700 MB per month, six times the rate AT&T charges, over seven times the rate that T-Mobile charges, and over ten times Sprint's maximum rate.⁶⁶ Similarly the average domestic wholesale roaming rate that T-Mobile paid in 2013 is more than ten times the average rate that T-Mobile charged MVNOs during that year.

Table 6. T-Mobile's domestic wholesale data roaming purchases, 2008-2013, and T-Mobile's forecast for 2014.

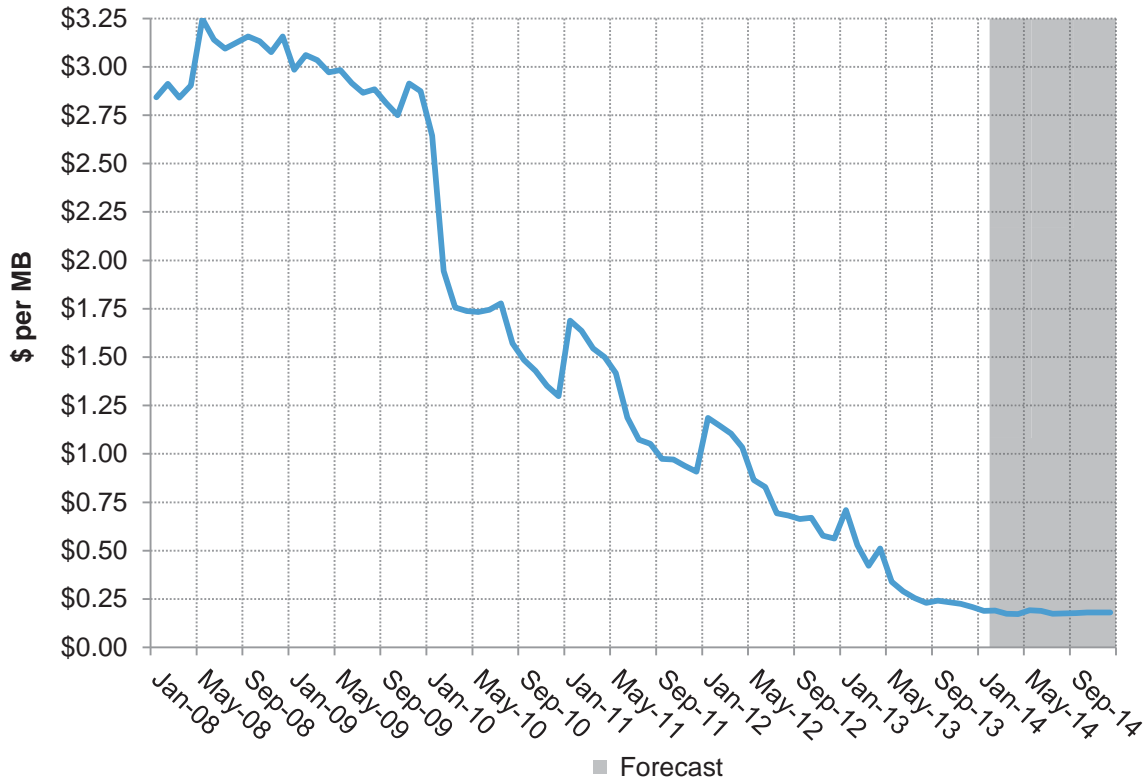
Year	Volume (MB mil)	Average Price (\$ per MB)	Roaming volume as % of T-Mobile subscribers' usage
2008	30.36	3.060	1.12%
2009	54.09	2.910	0.52%
2010	105.97	1.660	0.27%
2011	171.63	1.197	0.18%
2012	144.01	0.859	0.09%
2013	266.53	0.300	0.06%
2014*	646.54	0.181	0.16%

* Actual values up to January 2014, forecasts for the remaining months.

Source: Bates White calculations based on T-Mobile data.

⁶⁶ See Table 2, *supra*.

Figure 5. Average domestic wholesale data roaming prices T-Mobile pays, 2008-2013, and T-Mobile's projections for 2014



Note: Actual values through January 2014, forecasts for the rest of the period.

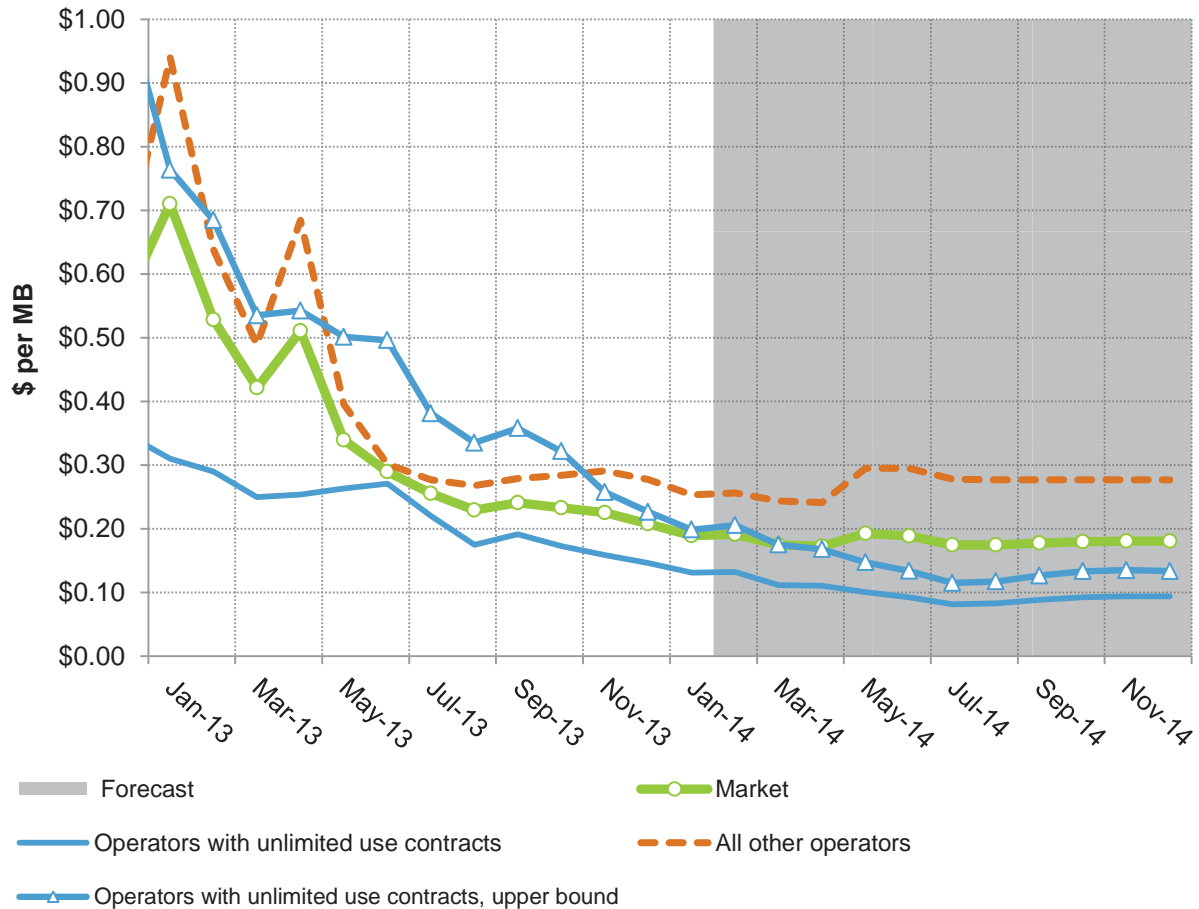
Source: Bates White calculations based on T-Mobile data.

- (87) Figure 6 shows the same data for average wholesale price that T-Mobile pays for data roaming as in Figure 5, except broken down by type of contract. The figure plots separately the average rates under roaming agreements with unlimited usage in exchange for a flat fee on one hand, and all other agreements on the other. As displayed in the figure, wholesale roaming agreements with unlimited usage have involved lower average wholesale roaming rates than have more traditional agreements.⁶⁷ And (at least during the contract term) the marginal cost of an additional MB under an unlimited agreement is zero, making it more likely that a carrier will, for instance, offer consumers unlimited roaming.⁶⁸

⁶⁷ In the Figure, I show two versions of average prices for the unlimited-usage contracts: the first uses T-Mobile's own internal allocation of roaming revenues between data services and other roaming services, while the second, as an upper bound, allocates all roaming revenues to data services.

⁶⁸ The lower average rates may be due, at least in part, to this difference. To illustrate, suppose that in 2013 carrier A buys ten million MB from carrier B at 10 cents per MB, for a total payment of \$1 million. In 2014, carrier A agrees to pay \$1.5 million for unlimited data roaming, and allows its subscribers unlimited roaming on carrier B's network, causing their usage to expand to 30 million MB. The average price per MB paid by carrier A falls from 10 cents to 5 cents, even as—and in a sense because—the marginal price falls to zero. Notice that carrier A and its subscribers are jointly better

Figure 6. Average domestic wholesale data roaming prices T-Mobile paid, 2013, and T-Mobile's projections for 2014, by type of contract



Note: Actual values through January 2014, forecasts for the rest of the period.

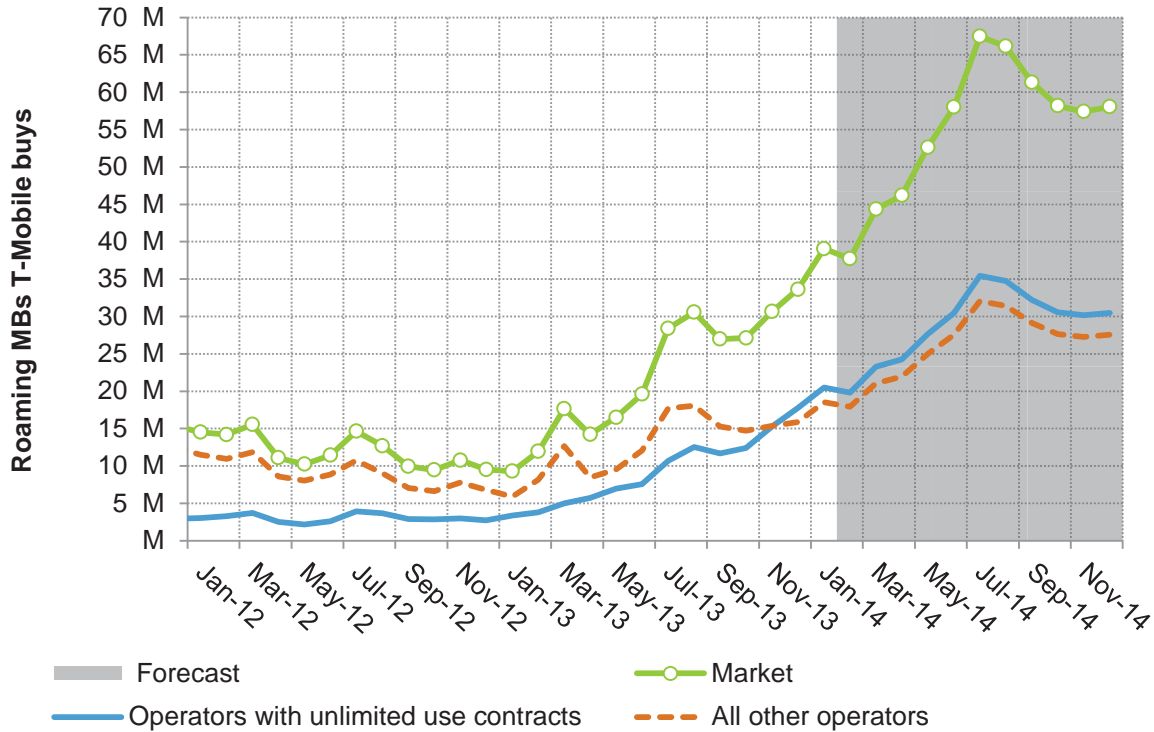
Source: Bates White calculations based on T-Mobile data.

- (88) Figure 7 shows the volumes of data roaming that T-Mobile has purchased since January 2012 and its projections of the volumes it will purchase through October 2014. Like Figure 6, the figure distinguishes between (i) the operators with which T-Mobile had contracts allowing unlimited data usage for a flat monthly fee,⁶⁹ and (ii) all other operators.

off provided that A's subscribers value the incremental 20 million MB at more than \$0.5 million; and carrier B is also better off provided that (a) its incremental costs of 20 million MB are below \$0.5 million and, critically, that (b) it does not prefer to weaken carrier A by denying A and A's subscribers the benefit of the additional roaming.

⁶⁹ I understand that T-Mobile has had such a contract with at least one of these operators since about mid-2012, and with all since about mid-2013. With one of these operators, the contract is not explicitly unlimited, but T-Mobile internally classifies it as unlimited, because the monthly commitment is large enough to cover all anticipated data roaming.

Figure 7. Domestic wholesale data volumes T-mobile buys, 2013 and T-Mobile’s projections for 2014, by type of contract



Note: Actual values through January 2014, forecasts for the rest of the period.

Source: Bates White calculations based on T-Mobile data.

- (89) Table 7 summarizes the volume of T-Mobile’s purchases of wholesale data roaming during the period 2008-2013 and T-Mobile’s projections for 2014, broken down by whether the roaming was provided under an unlimited roaming contract or a traditional contract. The table also summarizes the average prices that T-Mobile paid during the period 2008-2013 and its forecast of the average prices it will pay during 2014. Again, these prices are broken down between “unlimited usage contracts” and other contracts, where the average prices for unlimited usage contracts are computed based on T-Mobile’s allocation of the flat fee to data services.

Table 7. Historical and future purchases from providers of wholesale data roaming to T-Mobile, 2008-2013, and T-Mobile's projection for 2014, by type of contract

MB (millions)	2008	2009	2010	2011	2012	2013	2014
Unlimited use contracts	NA	NA	NA	NA	4.6	100.2	339.6
Other contracts	30.4	54.1	106.0	171.6	139.5	166.3	307.0
Total	30.4	54.1	106.0	171.6	144.0	266.5	646.5

\$ per Mb	2008	2009	2010	2011	2012	2013	2014
Unlimited use contracts	NA	NA	NA	NA	0.285	0.183	0.098
Other contracts	3.060	2.910	1.660	1.197	0.878	0.370	0.273
Total	3.060	2.910	1.660	1.197	0.859	0.300	0.181

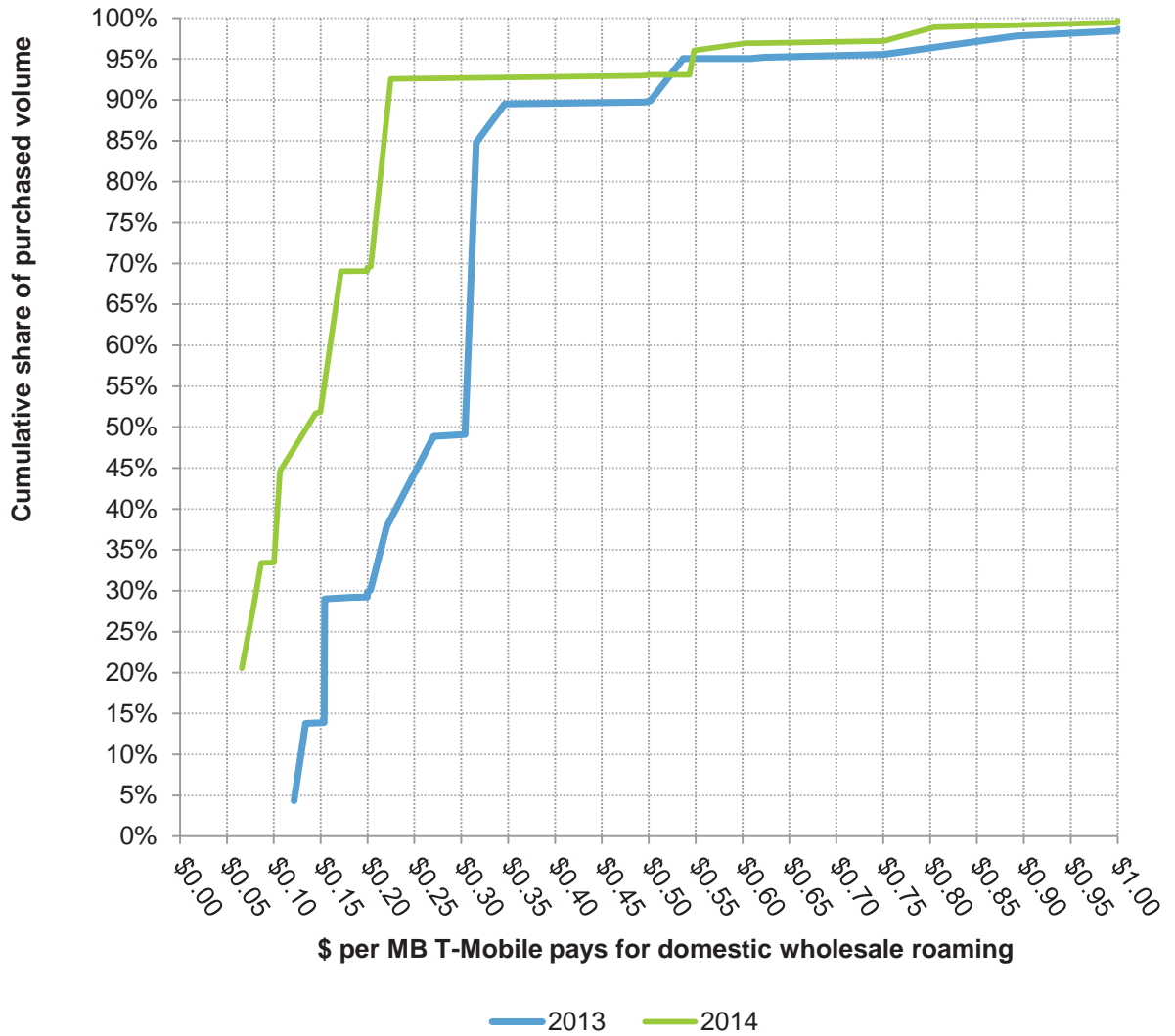
Note: Actual values through January 2014, T-Mobile's internal forecasts for the rest of the period.

Source: Bates White calculations based on T-Mobile data.

- (90) Figure 8 shows the volume weighted distribution of wholesale prices that T-Mobile pays domestic operators for data roaming in the US.⁷⁰ T-Mobile forecasts that the median price it will pay in 2014 is below 15 cents per MB, and that more than 90% of the volume purchased will be bought at an average price below 25 cents per MB.

⁷⁰ That is, for any given price on the horizontal axis, the curve indicates what percentage of data roaming volume is priced below that given price.

Figure 8. Distribution of domestic wholesale prices T-Mobile pays, 2013 and T-Mobile's projections for 2014



Note: Actual values through January 2014, T-Mobile's internal forecasts for the rest of the period.

Source: Bates White calculations based on T-Mobile data.

VII. Recommendations and Conclusion

- (91) As described above, data roaming is an increasingly essential input to the provision of the nationwide mobile data services that consumers increasingly demand. It is especially essential to carriers other than AT&T and Verizon, and the Commission is well aware of the competitive importance of preserving the ability and incentives of other carriers to compete effectively. In part because of technology compatibility issues, there are pockets of monopoly in providing data roaming to a given requesting carrier, and such monopoly can be exploited profitably—not always in transparent ways—to the detriment of retail competition and of consumers.
- (92) Accordingly, I recommend that as the Commission applies its Data Roaming Order and develops guidance for the industry (prospectively and/or in the context of specific disputes), it should first examine relevant competitive conditions, both (a) as to the supply of data roaming that would serve the requesting carrier's needs, and (b) as to downstream retail competition between the potentially contracting carriers, notably whether there is a substantial risk either that the parties would find it jointly profitable to raise one another's marginal costs, or that one party would find it very profitable to raise the other's.
- (93) In conjunction with such an examination of competitive conditions, I recommend that the Commission compare proposed terms to a variety of benchmarks. Like the Commission, I do not offer a single theory of the appropriate price for data roaming, nor do I propose a single focus on one benchmark. Accordingly, I described above a number of benchmarks that the Commission may find illuminating.



May 19, 2014