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**Implications of the Verizon Wireless &
SpectrumCo/Cox Commercial Agreements
for Backhaul and Wi-Fi Services Competition**

WT Docket No. 12-4

**Mark Israel
August 1, 2012**

I. INTRODUCTION

A. ASSIGNMENT AND SUMMARY OF CONCLUSIONS

1. I have been asked by counsel for the involved parties to review the Commercial Agreements between Verizon Wireless (“VZW”) and a set of Multi System Operators—Comcast Cable, Time Warner Cable, Bright House Networks, and Cox Communications (collectively, the “MSOs”)—and to respond to certain arguments made by parties opposed to these transactions (the “opposing parties”).¹ In particular, I have been asked to comment on the economic implications of the Commercial Agreements for the provision and pricing of both backhaul and Wi-Fi services.

2. By way of background:

- Backhaul is the name for a service in which a service provider transports data and voice traffic from a carrier’s cell sites to its network backbone. It is an important input in the provision of wireless services.
- Wi-Fi services allow consumers using wireless devices to send and receive information wirelessly over local computer networks. Use of Wi-Fi services may provide consumers with faster data speeds (relative to cellular networks) and, by removing traffic from the cellular network, Wi-Fi services may help customers avoid data overage charges.

¹ See Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC for Consent to Assign Licenses, WT Docket No. 12-4, File No. 0004993617 (filed Dec. 16, 2011) (seeking consent to assign 122 Advanced Wireless Services licenses to Verizon Wireless from SpectrumCo); Application of Cellco Partnership d/b/a Verizon Wireless and Cox TMI Wireless, LLC for Consent to Assign Licenses, WT Docket No. 12-4, File No. 0004996680 (filed Dec. 21, 2011) (seeking consent to assign 30 Advanced Wireless Services licenses to Verizon Wireless from Cox Wireless).

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- The use of Wi-Fi services to divert traffic that would otherwise be transmitted over cellular networks—particularly when this helps to reduce cellular network congestion—is sometimes referred to as “Wi-Fi offload.” One might hypothesize that, distinct from the existing usage of Wi-Fi services by end consumers, wireless carriers may at some point contract directly with Wi-Fi providers to purchase Wi-Fi offload services, thus arranging to have data that would otherwise be carried over their cellular networks instead be transmitted over Wi-Fi networks. For clarity, I refer to such potential arrangements between wireless carriers and Wi-Fi providers as “carrier-purchased Wi-Fi offload services.” To my knowledge, no such service contracts exist in the U.S. today.²

3. Based on my review of the Commercial Agreement and other relevant evidence, I find that the opposing parties’ arguments with regard to backhaul and Wi-Fi services are without merit, as they lack both a sound economic basis and sound factual support. In particular, I find no support for a claim that the Commercial Agreements will impede competition in the provision of backhaul or Wi-Fi services. I also find no support for a claim that the Commercial Agreements will cause the MSOs to alter their provision of backhaul or Wi-Fi services in a way that would harm downstream competition among wireless service providers.

² Interview with Tom Nagel, Senior Vice President and General Manager of Wireless Services, Comcast Communications, July 18, 2012.

B. BACKGROUND AND OVERVIEW

1. The Commercial Agreements

4. The Commercial Agreements between VZW and the MSOs include the Agency Agreements, Reseller Agreements, and an Innovation Technology Joint Venture Agreement (“ITJV”).³ The Agency Agreements enable VZW and the MSOs to act as sales agents for one another’s products and services.⁴ The Reseller Agreements give each MSO the option to sell its own branded wireless service using the VZW network starting in 2016.⁵ The ITJV is intended to facilitate the development of intellectual property and technology to integrate wired multichannel video and high speed Internet (“wired”) and wireless services and technologies.⁶

2. Opposing parties’ concerns regarding backhaul services

5. The opposing parties raise two distinct types of concerns regarding the impact of the

³ Cox Communications does not have an ownership interest in the ITJV.

⁴ VZW Agent Agreement between Cellco Partnership d/b/a Verizon Wireless and Comcast Cable Communications, dated 12/2/11; VZW Agent Agreement between Cellco Partnership d/b/a Verizon Wireless and Time Warner Cable Inc., dated 12/2/11; VZW Agent Agreement between Cellco Partnership d/b/a Verizon Wireless and Bright House Networks, LLC, dated 12/2/11; VZW Agent Agreement between Cellco Partnership d/b/a Verizon Wireless and Cox Communications, Inc., dated 12/16/11; Comcast Agent Agreement between Comcast Cable Communications, LLC and Cellco Partnership d/b/a Verizon Wireless, dated 12/2/11; TWC Agent Agreement between Time Warner Cable Inc. and Cellco Partnership d/b/a Verizon Wireless, dated 12/2/11; BHN Agent Agreement between Bright House Networks, LLC and Cellco Partnership d/b/a Verizon Wireless, dated 12/2/11; Cox Agent Agreement between Cox Communications, Inc. and Cellco Partnership d/b/a Verizon Wireless, dated 12/16/11.

⁵ Reseller Agreement for Comcast Cable Communications, LLC between Cellco Partnership d/b/a Verizon Wireless and Comcast Cable Communications, LLC; Reseller Agreement for Time Warner Cable Inc. between Cellco Partnership d/b/a Verizon Wireless and Time Warner Cable Inc.; Reseller Agreement for Bright House Networks, LLC between Cellco Partnership d/b/a Verizon Wireless and Bright House Networks, LLC; Reseller Agreement for Cox Communications, Inc. between Cellco Partnership d/b/a Verizon Wireless and Cox Communications, Inc.

⁶ See Limited Liability Company Agreement of Joint Operating Entity, LLC, dated 12/2/11.

Commercial Agreements on competition in backhaul services.

- First, they raise “horizontal” concerns, including (i) that the Commercial Agreements may soften competition between Verizon and the MSOs in the provision of backhaul services,⁷ or alternatively (ii) that VZW may discriminate in favor of the MSOs’ backhaul services and against independent suppliers of backhaul.⁸
- Second, they raise “vertical” concerns, namely that the Commercial Agreements may give the MSOs an incentive to bolster VZW’s wireless service by providing backhaul services on terms that favor VZW and disadvantage VZW’s rivals, thus harming competition among wireless carriers.⁹

6. As explained in Section II, I conclude that neither the horizontal concerns nor the vertical concerns that have been raised regarding the effects of the Commercial Agreements on competition in backhaul services hold up to scrutiny. This conclusion is supported by the economic analysis presented throughout Section II, but one simple fact may best illustrate the key points: Since Comcast signed the Commercial Agreements with VZW on December 2, 2011, **[BEGIN HIGHLY CONFIDENTIAL]**

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⁷ See Mar. 26, 2012 RCA Reply Comments at 17, 34, 39-40; Feb. 21, 2012 Sprint Comments at 9-13; Feb. 21, 2012 NTCH Petition to Deny at 12-13.

⁸ See Mar. 26, 2012 Level 3 Reply Comments at 7-9. Such concerns are “horizontal” because they involve horizontal competition within the backhaul market.

⁹ See Sprint Reply Comments at 14-15. Such concerns are “vertical” because they reflect ways in which changes in backhaul market conditions may affect downstream competition among wireless services providers.

HIGHLY CONFIDENTIAL] The Commercial Agreements clearly have not stopped the MSOs from doing backhaul business with VZW’s rivals on mutually agreeable terms.¹⁰

3. **Opposing parties’ concerns regarding Wi-Fi services**

7. In addition to the backhaul concerns, the opposing parties have expressed concern that the Commercial Agreements will induce the MSOs to provide Wi-Fi services, particularly carrier-purchased Wi-Fi offload services, in a way that discriminates against VZW’s rivals and in favor of VZW.¹¹ Like the concerns about backhaul—and indeed for many of the same reasons—the Wi-Fi concerns are without basis. But unlike backhaul, which is at least currently an input into wireless service, carrier-purchased Wi-Fi offload services are not currently an input purchased by any U.S. wireless service provider.¹² As a result, my discussion focuses first and primarily on backhaul, and then in Section III I turn to a shorter discussion of the even more speculative and less factually supported theories regarding carrier-purchased Wi-Fi offload services.

II. BACKHAUL ISSUES

8. As an initial matter, it is important to place the MSOs’ limited role in the provision of

¹⁰ Interview with Terrence Connell, Senior Vice President of Sales & Operations, Comcast Business Services, July 17, 2012. **[BEGIN HIGHLY CONFIDENTIAL]**

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¹¹ *See, e.g.*, Mar. 26, 2012 Sprint Reply Comments at 12, 13; Mar. 26, 2012 Computer & Communications Industry Association (CCIA) Reply Comments at 19.

¹² Interview with Tom Nagel, Senior Vice President and General Manager of Wireless Services, Comcast Communications, July 18, 2012.

backhaul services in proper perspective. For example, Comcast, the largest MSO in terms of number of subscribers, entered its first backhaul service contract **[BEGIN HIGHLY CONFIDENTIAL]**

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A. THE HORIZONTAL BACKHAUL CONCERNS RAISED BY OPPOSING PARTIES ARE WITHOUT MERIT

9. The MSOs compete against Verizon Telecom, AT&T, and a host of other wired, wireless, and cable companies in the provision of backhaul services to wireless carriers.¹⁵ Verizon Communications, Inc. (“Verizon”) is the majority owner of VZW and the parent of Verizon Telecom.¹⁶ The opposing parties’ horizontal concern is apparently that, because of the affiliation between Verizon and VZW, the Commercial Agreements may attenuate the intensity of backhaul competition between the MSOs and Verizon Telecom. This claim is without basis.

10. Although the opposing parties argue vaguely that the Commercial Agreements will result in softening of competition between the MSOs and Verizon Telecom, an analysis of the Commercial Agreements does not support this concern. The opposing parties point to no provision of the Commercial Agreements and establish no reasonable mechanism under which the agreements would diminish competition between Verizon Telecom and the MSOs

¹³ Interview with Terrence Connell, Senior Vice President of Sales & Operations, Comcast Business Services, July 17, 2012.

¹⁴ See ¶ 22.

¹⁵ See ¶ 21 for details.

¹⁶ VZW is a joint venture between Verizon and Vodafone Group Plc (Vodafone). Verizon owns a controlling 55 percent interest in Verizon Wireless, and Vodafone owns the remaining 45 percent. (See Verizon 2011 10K).

in the provision of backhaul services. In particular, the agreements do not provide any mechanism (*e.g.*, a direct ownership share in Verizon by an MSO, or a full merger) under which an MSO's loss of a backhaul customer to Verizon Telecom would either directly or indirectly benefit the MSO. Likewise, the agreements do not provide any mechanism under which Verizon Telecom's loss of a backhaul customer to an MSO would either directly or indirectly benefit Verizon Telecom. Similarly, there is no mechanism whereby Verizon will benefit if a user purchases backhaul from the MSOs rather than a third party, or any mechanism whereby the MSOs will benefit if a user purchases backhaul from Verizon rather than a third party.¹⁷

11. Level 3 Communications ("Level 3") raises a separate but related concern about a provision of the Agency Agreements under which **[BEGIN HIGHLY CONFIDENTIAL]**

¹⁷ In its July 12, 2012 and July 25, 2012 *Ex Parte* filings, Sprint provides a vague outline of a theory that seems to claim that the Commercial Agreements may facilitate collusion. For example, it argues that if an MSO refuses to take actions to help Verizon, Verizon may punish the MSO by expanding (or increasing promotions of) FiOS in that MSO's territory. Alternatively, it argues that if Verizon refuses to help the MSOs, the MSOs could punish Verizon by providing other carriers with preferential Wi-Fi access. (Sprint, Notice of *Ex Parte* Communications, WT Docket No. 12-4, July 12, 2012; Sprint, Notice of *Ex Parte* Communications, WT Docket No. 12-4, July 25, 2012.)

Notably, however, Sprint provides no indication of how the Commercial Agreements change Verizon's ability or incentive to use FiOS in this (highly speculative) way, or how the Commercial Agreements change the MSOs' ability or incentive to use Wi-Fi access in this (highly speculative) way.

More generally, one could use similarly vague arguments to speculate that any joint venture or cooperative arrangement *could* lead to collusion. In order to avoid eliminating many pro-competitive ventures such as this one—and generally stifling firms' willingness to seek out pro-competitive joint ventures—such claims must be bolstered by *actual evidence that such theoretical possibilities are, in fact, likely*. I have seen no such evidence.

[END HIGHLY CONFIDENTIAL] Level 3 claims that such a provision “may impede the ability of Level 3 and other independent providers of wireless backhaul to compete with” the MSOs in the provision of the services.¹⁹ Importantly, however, the Commercial Agreements do not impose exclusivity between VZW and the MSOs in purchasing backhaul services. Nor do the agreements compel VZW to purchase backhaul services from the MSOs regardless of the terms offered by the MSOs. Indeed, as a matter of economics, if Level 3’s rates and terms are better than the MSOs’ rates and terms, I would expect Verizon Wireless to choose Level 3, and there is nothing in the Commercial Agreements that prohibits that choice. Thus, the Commercial Agreements do not preclude Level 3 (or any provider) from bidding on and winning backhaul contracts from VZW or any other wireless carrier.

12. At its core, Level 3’s claims conflate the notion of protecting competition—the goal of the U.S. antitrust laws—with that of protecting competitors.²⁰ The provision of the Agency Agreements cited in Level 3’s comments simply states that Level 3 and other independent providers of backhaul services may be competing against additional providers and that, to win VZW’s backhaul business, they must offer terms that are better than those of an MSO that is also competing to offer backhaul services to VZW. Level 3 has provided no meaningful

¹⁸ **[BEGIN HIGHLY CONFIDENTIAL]**

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¹⁹ See Mar. 26, 2012 Level 3 Reply Comments at 8.

²⁰ See *Brown Shoe Co. v. United States*, 370 U.S. 294, 320 (1962).

explanation why such a provision would be expected to lead to higher backhaul prices or otherwise diminished competition. Indeed, if anything, this provision is likely to have the pro-competitive effect of encouraging Level 3 and others to bid more aggressively than they otherwise would have in order to offer terms that the MSOs will not match.

13. In sum, then, I find the horizontal concerns of the opposing parties to be without merit. I do not anticipate that the Commercial Agreements will have any dampening effect on the incentives of the MSOs and Verizon Telecom to compete vigorously against each other for the backhaul business of wireless carriers.

B. THE VERTICAL BACKHAUL CONCERNS RAISED BY OPPOSING PARTIES ARE WITHOUT MERIT

14. The opposing parties also argue that the Commercial Agreements may harm competition among wireless carriers by inducing the MSOs to provide less favorable backhaul service terms to VZW's rivals than to VZW.²¹ Specifically, the opposing parties argue that the Commercial Agreements may create incentives for the MSOs not to bid aggressively (or perhaps not at all) on contracts to provide backhaul services to VZW's rivals,²² in an attempt to harm those rivals based on an economic theory often referred to as "raising rivals' costs."

15. It is important to highlight at the outset that the opposing parties' vertical theory of harm is an unusual raising rivals' costs theory because the MSOs (the firms that purportedly would raise VZW's rivals' input costs) do not currently compete with VZW's rivals (the purported targets of the raising rivals' costs strategy) for wireless service customers. Under

²¹ See, e.g., Mar. 26, 2012 Sprint Reply Comments at 14-15.

²² *Ibid.*

the opposing parties' argument, the MSOs are presumed to benefit from raising costs to VZW's rivals, perhaps because of potentially higher commissions under the Agency Agreements.²³ However as I discuss below, the link between the MSOs' commissions and VZW's rivals' backhaul costs is even more remote and tenuous than the already tenuous link between VZW's own profits and its rivals' backhaul costs, the traditional link in a raising rivals' cost theory.

16. Although the economic literature recognizes that in some settings, an input (*e.g.*, backhaul) provider may have an incentive to raise its rivals' costs for that input, this can only result in harm to competition **if four necessary conditions are all simultaneously satisfied** (and even then there may be no harm to competition—that is, the four conditions are only necessary not sufficient).²⁴ In the following paragraphs, I first describe each of these conditions and then explain why none of the conditions are met.

17. **First**, the MSOs must have the ability to raise backhaul prices significantly above current levels.²⁵ That is, putting aside for the moment whether the MSOs have the *incentive*

²³ The opposing parties do not specify a clear mechanism for how the MSOs' profits would increase by raising costs to VZW's rivals. Given the opposing parties' lack of clarity, I focus on commission payments to the MSOs as the most obvious potential mechanism, and I show that this mechanism is not sufficient to support a raising rival costs theory. Any alternative mechanism that opposing parties may have in mind has even less support, because for any such alternative, the opposing parties have not documented a path through which raising rivals' backhaul costs would increase the MSOs' profits; they have not demonstrated that any such effect would be significant; and they certainly have not shown that any such mechanism would satisfy the four necessary conditions for competitive harm, discussed below.

²⁴ See *e.g.*, Thomas Krattenmaker & Steven Salop (1986), "Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price," *Yale Law Journal* 96(2) at 242-248; and Steven Salop & David Scheffman (1983) "Raising Rivals' Costs," *American Economic Review* 73(2), at 267-271.

²⁵ Alternatively, the MSOs must be in a position to impair wireless carriers' services in a significant way by withholding wireless backhaul services from the wireless carriers.

to raise backhaul prices to VZW’s rivals, the MSOs must have the *ability* to raise backhaul prices by a significant amount for any competitive harm to occur.

18. **Second**, backhaul costs per-subscriber per-month must make up a significant share of the monthly price of wireless service (or, equivalently, backhaul costs must represent a significant share of wireless service revenues). Absent this condition, even a significant increase in the cost of backhaul services will not translate into a significant increase in wireless service prices or significant harm to competition among wireless service providers. For example, **[BEGIN HIGHLY CONFIDENTIAL]**

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19. **Third**, a significant increase in backhaul costs incurred by VZW’s rivals must significantly increase VZW’s sales to wireless customers. And **fourth**, the MSOs must receive financial benefits from this increase in VZW sales that are sufficient to outweigh lost backhaul profits (arising from lost backhaul sales due to higher backhaul prices charged to

²⁶ Sprint, Notice of *Ex Parte* Communications, WT Docket No. 12-4, May 25, 2012, at 2.

²⁷ If the average monthly price (“ARPU”) for wireless service is more than \$50 (See *e.g.*, Bank of America Merrill Lynch, *Global Wireless Matrix 4Q10*, Dec. 23, 2010, at 2) then **[BEGIN HIGHLY CONFIDENTIAL]**

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VZW’s rivals). The third and fourth conditions *together* mean that the MSOs must receive significant economic benefit from the sale of incremental VZW subscriptions, as otherwise the MSOs would not have an incentive to engage in the raising rivals’ costs strategy. In particular, the economic gain to the MSOs from the sale of incremental VZW subscriptions must outweigh the lost backhaul profits they would suffer by engaging in an attempt to raise VZW’s rivals’ backhaul costs.

20. Each of these four conditions is necessary (though even collectively they may not be sufficient) for competitive harm to occur under the “raising rivals’ costs” vertical theory of harm. However, as I explain below, these conditions are unlikely to be satisfied individually, let alone collectively.

1. **Necessary condition one—market power in backhaul—is not met.**

21. Regarding the first condition, the opposing parties do not establish that Comcast or the other MSOs possess significant power in setting backhaul prices. To the contrary, there is compelling evidence that MSOs face significant competition in the provision of backhaul services. Besides ILEC providers of backhaul such as AT&T and Verizon Telecom, MSOs compete with numerous other providers of backhaul services including Level 3,²⁸ DukeNet,²⁹

²⁸ See Press Release, Level 3, “Level 3 Works with 52Eighty to Develop 200 New Wireless Tower Sites Connected to Level 3’s Advanced Fiber Backbone” (Oct. 17, 2011), available at <http://www.pnewsire.com/news-releases/level-3-works-with-52eighty-to-develop-200-new-wireless-tower-sites-connected-to-level-3s-advanced-fiber-backbone-131972618.html>, *site visited* July 28, 2012.

²⁹ See Press Release, Verizon Wireless, “DukeNet Helps Verizon Wireless Build First 4G LTE Network In United States By Providing High-Speed Backhaul Services in the Southeast” (March 24, 2010), available at <http://news.verizonwireless.com/news/2010/03/pr2010-03-24h.html>, *site visited* July 28, 2012.

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Florida Power and Light,³⁰ XO,³¹ Zayo,³² TTMI,³³ DragonWave,³⁴ and many others. Indeed, public statements by both buyers and sellers of backhaul services indicate that there exists significant competition in the provision of such services.³⁵

22. In fact, the MSOs are relatively new entrants in the backhaul business and provide backhaul services to a modest (though rising) share of total cell sites. For example, Comcast, which is the largest MSO in terms of number of subscribers, is contracted to provide backhaul

³⁰ See Press Release, Alcatel-Lucent, “FPL FiberNet Deploys Mobile Backhaul Solution from Alcatel-Lucent to Enhance Broadband Service Delivery and Increase Bandwidth” (June 10, 2009), available at <http://www.bloomberg.com/apps/news?pid=conewsstory&tkr=LU:US&sid=aJqPqqxpb8Z4>, site visited April 30, 2012.

³¹ See Press Release, XO Communications, “XO Communications Announces New Teaming Agreement with Exalt Communications,” (Mar. 23, 2011) available at <http://www.xo.com/about/news/Pages/508.aspx>, site visited July 28, 2012.

³² See Zayo Group’s tower backhaul webpage, <http://www.zayo.com/tower-backhaul-msc-connectivity>, site visited July 28, 2012.

³³ See TTM, Inc.’s website, <http://www.ttmi.info>, site visited July 28, 2012.

³⁴ See Press Release, DragonWave, “DragonWave Strengthens Horizon Portfolio with Expanded Frequency Coverage” (May 1, 2012), available at <http://investor.dragonwaveinc.com/releasedetail.cfm?ReleaseID=668973>, site visited July 28, 2012.

³⁵ A statement in October 2011 by Level 3 indicates that there exists vigorous competition in the provision of wireless backhaul services. Level 3’s VP of Wholesale Market Management, Amanda Terney, stated in an interview with Carol Wilson of Light Reading that: “[Backhaul] is a very competitive space. We’ve seen - we’ve actually seen the competition really, really increase over the last twelve months, pretty dramatically. I think there – The MSO’s seem to have really gotten into that space in earnest, CLECS are becoming very competitive...” (See Light Reading, “Level 3: Mobile Backhaul Brutally Competitive” (October 7, 2011), available at http://www.lightreading.com/video.asp?doc_id=213138, site visited May 22, 2012).

Similarly, a statement in March 2011 by Verizon Wireless CTO and Senior Vice President David Small indicates that there exists vigorous competition in the provision of wireless backhaul services: “I have been very impressed to see the amount of backhaul out there. In one market—which isn’t a very large market—we had more than nine responses to an RFP we put out for backhaul ... In my view, we have a very healthy ecosystem.” (See FierceWireless, “Verizon Wireless’ Ongoing LTE Drive Creates a Lush Wireline-based Backhaul Opportunity” (Mar. 28, 2011), available at <http://www.fiercetelecom.com/story/verizon-wireless-ongoing-lte-drive-creates-lush-wireline-based-backhaul-opp/2011-03-28>, site visited July 28, 2012).

service to [BEGIN HIGHLY CONFIDENTIAL]

[END HIGHLY CONFIDENTIAL] of the more than 283,000 cell sites in the US.³⁷ Based on current market positions, even if one considered the possibility that all of the MSOs will act in concert to coordinate their backhaul pricing so as to raise VZW’s rivals’ costs (and there is no plausible basis for such an assumption), the MSOs are unlikely to have the power to significantly affect overall average backhaul prices. Given that Comcast accounts for about 39% of total MSO subscribers in the US,³⁸ and assuming that other MSOs are roughly as successful as Comcast in obtaining contracts to provide backhaul services to wireless carriers (in terms of the ratio of cell sites served to subscribers served), the MSOs in aggregate would still provide backhaul service to only about [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] of cell sites in the U.S.^{39, 40}

2. **Necessary condition two—backhaul costs make up a large percentage of wireless service revenues—is not met.**

23. As explained in paragraph 18, above, the evidence indicates that the second necessary

³⁶ Interview with Terrence Connell, Senior Vice President of Sales & Operations, Comcast Business Services, July 17, 2012.

³⁷ See <http://www.ctia.org/advocacy/research/index.cfm/aid/10323>, site visited July 28, 2012.

³⁸ See SNL Kagan’s US Cable Subscriber Highlights that indicates that Comcast has a 38.51% share of domestic Basic Subscribers.

³⁹ If [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] cell sites represent 39 percent of all cell sites for which MSOs provide backhaul service, the total number of cell sites for which MSOs provide backhaul service would be approximately [BEGIN HIGHLY CONFIDENTIAL]

[END HIGHLY CONFIDENTIAL] of the 283,000 cell sites in the U.S.

⁴⁰ In theory, opposing parties could try to “zoom in” on specific types of backhaul services where one or more MSOs has a greater share. However, more narrow types of backhaul also contribute less to the cost of wireless service and thus such theories are even less likely to meet necessary condition two, described in more detail below, than are theories about backhaul services as a whole.

condition is also not met: Backhaul costs (and especially backhaul costs paid to the MSOs) represent only a small share of wireless carriers' total revenues, meaning that backhaul costs per-subscriber per-month represent only a small share of the price of wireless service price per-subscriber per-month. For example, **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL] For example, Sprint earned about \$27 billion in annual wireless services revenues in 2011,⁴³ **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL] Thus, even if the MSOs were able to raise their backhaul prices significantly above current levels (and my analysis indicates that this is unlikely to be the case), the increase would not be expected to result in significant changes in prices or service offerings by VZW's rivals.

⁴¹ Interview with Terrence Connell, Senior Vice President of Sales & Operations, Comcast Business Services, July 17, 2012.

⁴² *Ibid.*

⁴³ See Sprint Nextel 2011 10K. T-Mobile's US wireless services revenues are not publicly available, but given T-Mobile's size as a wireless service provider it seems unlikely that Comcast's or the other MSOs' backhaul revenues account for a significant share of T-Mobile's annual revenue.

3. **Necessary conditions three and four—financial incentives for MSOs to engage in raising rivals cost strategy—are not met.**

24. Recall that necessary conditions three and four both must be met for it to be the case that the MSOs have a financial incentive to engage in a raising rivals' costs strategy. In this section, I explain why, in fact, there is no basis to conclude that *either* condition is met and certainly no basis to conclude that they are jointly satisfied.

25. With respect to the third condition (significant increase in VZW subscribers), even if backhaul costs did increase significantly for VZW's rivals (an outcome I do not expect to follow from the Commercial Agreements for the reasons given in this report), such an increase in backhaul costs may not lead to a significant increase in the number of VZW subscribers. For example, even in the face of significantly higher backhaul costs, wireless carriers may choose to absorb (fully or partially) higher backhaul costs rather than increase their wireless service prices. To the extent carriers absorb the backhaul costs rather than increase wireless prices, this reduces or eliminates the possibility of an increase in VZW subscribers.⁴⁴

26. Finally, with regard to the fourth condition (economic benefit accruing to the MSOs in particular), even if one were to assume—in contrast to the evidence—that the MSOs had the ability and incentive to increase backhaul costs to VZW's rivals by an amount sufficient to

⁴⁴ In addition, I note that even if other carriers were to increase their wireless prices, this would not necessarily lead to a significant increase in VZW subscribers. The higher prices charged by other wireless carriers would also tend to raise market prices generally and thus to reduce overall demand for wireless service. Hence, as a matter of economics, it is not clear that a strategy of raising backhaul costs would lead to an increase in VZW subscribers, and thus it is not clear that the MSOs would see any increase in commissions from such a strategy. To the contrary, there is at least some countervailing incentive for Comcast to keep backhaul costs down in order to stimulate demand for wireless services.

drive a significant number of subscribers to VZW, the MSOs generally only profit when they themselves enroll a new VZW subscriber and thus earn a commission through the Agency Agreements.⁴⁵ Such commissions would be expected on only a very small percentage of subscribers switching to VZW. For example, Comcast indicates that it anticipates signing up

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[END HIGHLY CONFIDENTIAL] By comparison, looking at just its retail postpaid business, VZW's gross adds totaled 3.6 million *in the fourth quarter of 2011 alone*, equivalent to an annual rate of over 14 million gross adds,⁴⁷ **[BEGIN HIGHLY CONFIDENTIAL]** **[END**

HIGHLY CONFIDENTIAL] Hence, even if Comcast (or other MSOs) could drive subscribers to VZW by raising its rivals' backhaul costs (a possibility I have refuted above), it would be expected to receive commissions on only a tiny fraction of those subscribers, further

⁴⁵ As I stated above, the opposing parties do not specify a clear mechanism for how the MSOs' profits would increase via a raising rivals' costs strategy. Given the opposing parties' lack of clarity, I focus on commission payments to the MSOs as the most obvious potential mechanism and I show that this mechanism is not sufficient to support a raising rival costs theory.

It is true that, beginning in 2016, any of the MSOs can opt to compete for wireless customers by becoming an MVNO. Although Comcast could potentially earn more per subscriber as an MVNO than as an agent under the Agency Agreements, all of the other reasoning and conclusions discussed above still hold, including that the diversion rate to a Comcast MVNO would be quite low. Therefore, my conclusions remain unchanged. Further, assuming that a Comcast MVNO is highly successful at some point in the future and achieves a high share (and thus has a high diversion rate), this fact itself indicates that the Commercial Agreements have indeed enabled the entry of a successful new competitor in the wireless industry, a fact which would be incongruous with opponents' theory that the Commercial Agreements reduce wireless competition.

⁴⁶ Interview with Eric Schaefer, Senior Vice President of Wireless Product Management at Comcast, July 19, 2012

⁴⁷ See "Verizon Communications Management Discusses Q4 2011 Results - Earnings Call Transcript," available at <http://seekingalpha.com/article/321637-verizon-communications-management-discusses-q4-2011-results-earnings-call-transcript?part=single>, site visited July 28, 2012.

reducing the already *de minimis* incentive to engage in such a strategy.⁴⁸

27. Based on the foregoing discussion, I conclude that the MSOs lack either the ability or the incentive to harm wireless competition by engaging in a strategy of raising VZW’s rivals’ backhaul costs. Marketplace outcomes support this conclusion. As noted above, since Comcast signed the Commercial Agreements with VZW on December 2, 2011, **[BEGIN HIGHLY CONFIDENTIAL]**

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CONFIDENTIAL] Clearly the Commercial Agreements have not stopped the MSOs from doing backhaul business with VZW’s rivals on mutually agreeable terms.

III. WI-FI ISSUES

28. As noted above, the opposing parties have also expressed concerns that the Commercial Agreements will induce the MSOs to provide carrier-purchased Wi-Fi offload services in a way that discriminates against VZW’s rivals in favor of VZW.⁵⁰ As I describe

⁴⁸ Indeed, in its July 25, 2012, *Ex Parte* filing, Sprint acknowledges that the “increase in the Cable Companies’ unilateral incentives flowing from the agreements may be modest...” (Sprint, Notice of *Ex Parte* Communications, WT Docket No. 12-4, July 25, 2012, at 5). It then goes on to advance vague arguments regarding “coordinated incentives,” but for the reasons detailed in n. 17, these arguments are without basis.

⁴⁹ Interview with Terrence Connell, Senior Vice President of Sales & Operations, Comcast Business Services, July 17, 2012. **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL]

⁵⁰ See, e.g., Mar. 26, 2012 Sprint Reply Comments at 12, 13; Mar. 26, 2012 CCIA Reply Comments at 19.

in this section, these concerns are highly speculative and without basis.

A. OPPOSING PARTIES’ WI-FI CONCERNS ARE HIGHLY SPECULATIVE

29. I begin with two initial notes, which taken together demonstrate the speculative nature of the Wi-Fi related claims of the opposing parties. First, although any Wi-Fi use by end consumers may have the effect of offloading some traffic that would otherwise be carried on a cellular network, I assume that the opposing parties’ concerns are focused on carrier-purchased Wi-Fi offload services, as opposed to more general use of Wi-Fi by end consumers. I make this assumption because I am not aware of any claim that a U.S. Wi-Fi provider has attempted to prevent particular end consumers from accessing the providers’ in-home Wi-Fi networks or Wi-Fi hotspots based on the identity of the consumer’s wireless carrier.⁵¹ In particular, I know of no claim that AT&T or Verizon have attempted to prevent customers of Sprint, T-Mobile, or other wireless carriers from using AT&T or Verizon Wi-Fi services in an attempt to favor their affiliated wireless carriers. If AT&T and Verizon—each of which is much more directly linked to a wireless carrier than the MSOs will be even after the Commercial Agreements take hold—are not taking such actions, any claim that Comcast or another MSO would take such steps is entirely without basis.

30. Second, given that the opposing parties’ concerns are about discrimination in the provision of carrier-purchased Wi-Fi offload services, they are concerns about a market that does not presently exist. In particular, to my knowledge, there is no existing contract between

⁵¹ Interview with Tom Nagel, Senior Vice President and General Manager of Wireless Services, Comcast Communications, July 18, 2012.

a wireless carrier and any Wi-Fi service provider for Wi-Fi offload services.⁵² **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY

CONFIDENTIAL] no such agreement has been reached.⁵³ As a matter of economics, imposing regulatory restrictions or conditions on a market that does not yet exist runs a serious risk of imposing unnecessary costs on Wi-Fi providers and wireless carriers, and perhaps even harming the development and function of that market should it come into being.

B. OPPOSING PARTIES HAVE PROVIDED NO RELIABLE EVIDENCE OF COMPETITIVE HARM INVOLVING WI-FI SERVICES

31. Given the discussion above, a minimum standard for imposing any sort of regulation or condition involving Wi-Fi services should be a clear showing of competitive harm due to the Commercial Agreements. The opposing parties have made no such showing. To the contrary, the theories they have advanced amount to nothing more than even more speculative and less developed versions of the baseless backhaul claims.

⁵² *Ibid.*

⁵³ **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL]

1. **No horizontal harms or exclusivity**

32. First, as with backhaul, there is no valid theory of horizontal competitive harm. VZW and the MSOs are clearly not horizontal competitors in a market for carrier-purchased Wi-Fi offload services, as no such market exists today. Even if one speculates that such a market will come into being and that VZW and the MSOs will both be competitors in it, the Commercial Agreements would do nothing to soften horizontal competition between these entities in that potential market. In particular, like with backhaul, the agreements do not provide any mechanism (*e.g.*, a direct MSO ownership share in Verizon, or a full merger) through which an MSO's loss of a Wi-Fi customer to Verizon would either directly or indirectly benefit the MSO, or through which Verizon's loss of a Wi-Fi customers to an MSO would either directly or indirectly benefit Verizon.

33. In addition, I understand that the Commercial Agreements do not include any Wi-Fi exclusivity provisions. Under the Commercial Agreements, the MSOs are not precluded from offering Wi-Fi offload services to any wireless carrier. Likewise, VZW is not precluded from purchasing Wi-Fi offload services from any Wi-Fi service provider.

2. **No valid raising rivals' costs theory**

34. Given the lack of horizontal harm and the lack of exclusivity, any theory of harm involving Wi-Fi services must be another vertical "raising rivals' cost" theory, similar to that advanced for backhaul. However, such a theory represents pure speculation. Considering the four **necessary** conditions that one must establish to support such a theory makes this clear.

35. Most clear is the failure to meet the second necessary condition—that the input cost must represent a significant share of wireless carriers' revenues. As it stands today, Wi-Fi

offload services are not purchased by wireless carriers and thus such service make up *no part* of the carriers' costs of providing wireless service. Therefore, unlike a compelling raising rivals' cost theory, which would generally involve a critical input, a theory involving Wi-Fi offload deals with a product that is presently not an input at all. Although one can speculate on the extent to which carrier-purchased Wi-Fi offload may grow in importance over time, the fact that it is not an input purchased by any carrier today makes such an outcome uncertain and thus any raising rivals' costs theory built on this input highly speculative. For example, **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL]

36. In addition, the first condition—that MSOs have the power to raise prices substantially for carrier-purchased Wi-Fi offload service—also has not been established. In particular, to make their case, opposing parties not only need to speculate that carrier purchased Wi-Fi offload services will become an important input to wireless carriers, but also that the MSOs will have substantial power in the hypothetical market for such services. The opposing parties argue that this power will derive from the MSO's "extensive Wi-Fi networks within their service areas,"⁵⁵ but two points demonstrate the highly speculative nature of this argument:

- First, I understand that the cable companies' Wi-Fi networks are actually not yet particularly extensive. For example, **[BEGIN HIGHLY**

⁵⁴ T-Mobile, Notice of *Ex Parte* Communications, WT Docket No. 12-4, May 29, 2012, at 3.

⁵⁵ Sprint, Notice of *Ex Parte* Communications, WT Docket No. 12-4, June 19, 2012, at 3.

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- Second, even if the MSOs do continue to build out Wi-Fi networks in more cities, I understand that it is not clear that these networks, designed to provide widespread Wi-Fi access to the MSO's customers in a given city, will be a particularly good fit for the needs of cellular carriers, which will likely be focused on targeted areas of congestion.⁵⁷ Moreover, I understand that the key asset required to build a solution for targeted areas of congestion may be the wireless carriers' own data about where such congestion is occurring, and that using such data, wireless carriers may be able to purchase much more targeted Wi-Fi solutions (or develop them in-house).⁵⁸

37. Finally, the third and fourth conditions—which together indicate that the MSOs would need to profit sufficiently from a raising rivals' costs strategy to offset lost profits—fail with regard to Wi-Fi for the same reasons as they failed with regard to backhaul. Opposing parties have simply not laid out any clear mechanism through which the MSOs would gain substantial profits by harming VZW's rivals in this way. Moreover, such a strategy could impose a substantial cost to the MSOs. I understand that MSOs see Wi-Fi networks as an

⁵⁶ Interview with Tom Nagel, Senior Vice President and General Manager of Wireless Services, Comcast Communications, July 18, 2012.

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*

important aspect of the services provided to their core customer base, which help them to compete with other MVPDs.⁵⁹ This core customer base includes the customers of VZW's wireless competitors, who would have to be at least somewhat disadvantaged by an MSO's raising rivals cost strategy in order for the strategy to drive customers to VZW. Opposing parties have provided no evidence from which to conclude that Comcast, for example, would be willing to reduce the ability of any of its customers to use Wi-Fi offload services in order to harm VZW's wireless rivals. Even if such a strategy took the form of discriminatory terms on carrier-purchased Wi-Fi offload services, it still seems likely that many Comcast subscribers would view the strategy as a reduction in the quality of the services offered by Comcast, thus hurting Comcast's core consumer-facing product offerings.

IV. CONCLUSION

38. Based on my review of the available evidence, I find that the horizontal and vertical concerns raised by the opposing parties regarding both backhaul and Wi-Fi services are highly speculative and unfounded. I find no support for the claim that the Commercial Agreements would impede competition in the provision of backhaul or Wi-Fi services.

⁵⁹ *Ibid.*

Comcast provides Wi-Fi service as part of its Xfinity offerings. Comcast's Xfinity Wi-Fi provides a network of access points or hotspots that connect customers to the Internet and access to these hotspots is offered to Xfinity Internet customers. I understand that Xfinity Wi-Fi is included as a feature of Xfinity Internet service (Performance tier and above) at no additional charge to the customer. (See <http://customer.comcast.com/help-and-support/internet/about-xfinity-wifi-internet/>, site visited July 19, 2012).