CAN YOU HEAR ME NOW? GOOD: ROAMING, VOLTE, AND WHY WE NEEDED TO UPDATE WIRELESS DATA REGULATIONS

BILL GILLESPIE*

* J.D. Candidate, 2016, University of Colorado Law School and Managing Editor, Colorado Technology Law Journal. This note would not be possible without the help of Dean Philip J. Weiser, my Student Note Editor, Neal Vickery, my fellow CTLJ members, Cheriene S. Nowick—who helped me find my writing style, my father Robert M. Gillespie, and the love and support of my wife Jessica. Thank you all very much.

INTRODUCTION

Imagine a world where mobile phone networks do not connect with each other, where mobile service providers charge some people more than others for the same service, and even deny service to others. In such a world, mobile devices may receive service on one block but not on the next, or a customer who lives in Chicago may not receive service while visiting Los Angeles. Alternatively, carriers may raise rates to buy access to a competitor's service in prime locations, or a provider may raise wholesale rates in some markets to drive competitors out of business. Common carriage regulations rooted in the Communications Act of 1934 seek to prevent these harms. Under Title II of the Communications Act, telecommunications services are treated as common carriage services, where a provider holds its services out as available to the public under standardized terms, and transmits communications without change in form or content.[1] Title II requires that telecommunications networks interconnect,[2] that charges for telecommunications services be reasonable,[3] and that telecommunications service providers provide service upon a reasonable request.[4]

The common carriage regulations in the Communications Act are generally tied to the public switched network.[5] The public switched network is "any common carrier switched network . . . that uses the North American Numbering Plan . . . in connection with the provision of switched services."[6] There is a common misconception that the public switched network means the old circuit switched telephone network.[7] However, the public switched network is not a single-use network. "Modern network infrastructure can provide access not only to voice services, but also to data, graphics, video, and other services."[8]

Plain old telephone service ("POTS") is one such service. POTS is telephone service over the circuit switched network,[9] the network

1. James H. Lister, *The Rights of Common Carriers and the Decision Whether to Be a Common Carrier or a Non-Regulated Communications Provider*, 53 FED. COMM. L.J. 91, 93 (2000).

2. 47 U.S.C. § 201 (2013).

3. *Id.*

4. *Id.*

5. *See, e.g.*, 47 C.F.R. § 20.3 (2014); 47 U.S.C. § 332(d) (2013).

6. 47 C.F.R. § 20.3 (2014).

7. Bruce Kushnick, *What Are the Public Switched Telephone Networks, 'PSTN' and Why You Should Care?*, HUFFINGTON POST (Mar. 9, 2013, 5:12 AM), http://www.huffingtonpost.com/bruce-kushnick/public-switched-telephone-networks_b_2377773.html.

8. *Federal-State Joint Bd. on Universal Service,* CC Dkt. Nos. 96-45, 00-256, Report & Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 16 FCC Rcd. 11,244, 11,322, para. 200 (2001).

9. Margaret Rouse, *PSTN (Public Switched Telephone Network) Definition*, TECHTARGET (Sept. 2005), http://searchnetworking.techtarget.com/definition/PSTN.

connected to the phone jacks in homes. POTS is a telecommunications service, which means it "offer[s] . . . telecommunications for a fee directly to the public."[10] As a telecommunications service, POTS is subject to common carriage regulations,[11] and it is part of the public switched network.[12] The network used by POTS is often referred to as the public switched telephone network.[13]

The commercialization of Voice over Internet Protocol ("VoIP") has led consumers to receive telephone service through their broadband Internet providers. Customers can receive service either through independent providers like Vonage or through their Internet service provider directly; for example, Time Warner Cable's Triple Play package bundles Internet, cable, and home phone service, all over the customer's home cable connection.[14] Initially telephone providers resisted this change, but now VoIP is the more common standard.[15]

Until recently, VoIP services were not part of the public switched network, because VoIP communications travel over private broadband Internet service provider networks (Internet backbone providers and last mile providers). However, the exclusion of broadband Internet service provider networks from the public switched network depended on the exemption of these services from common carrier regulation.[16] In fact, the Federal Communications Commission ("FCC") recently classified Internet service as a telecommunications service.[17] Internet service was previously classified as an information service,[18] excluding it from common carriage regulation.[19]

VoIP has surpassed POTS to such an extent that the circuit-switched

10. 47 U.S.C. § 153 (2013).

11. *Appropriate Reg. Treatment for Broadband Access to the Internet over Wireless Networks*, WT Dkt. No. 07-53, Declaratory Ruling, 22 FCC Rcd. 5901, 5903 (2007) [hereinafter *Mobile Broadband Order*].

12. 47 C.F.R. § 20.3 (2014).

13. *See, e.g.* Kushnick, *supra* note 7.

14. *TV, Internet & Phone Plans*, TIME WARNER CABLE, https://www.timewarnercable.com/en/plans-packages/cable-internet.html (last visited Oct. 28, 2015).

15. *See Madison River Comm., LLC and Affiliated Companies*, File No. EB-06-IH-0110, Order, 20 FCC Rcd. 4295, 4297 (2005).

16. *See* 47 C.F.R. § 20.3 (2014).

17. *Protecting and Promoting the Open Internet,* GN Dkt. No. 14-28, Report & Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd. 5601, 5778, para. 388 (2015) [hereinafter *Open Internet Order*]. This order also states that the FCC intends to include publicly available IP addresses, in addition to the North American Numbering Plan, in a revised definition of public switched network. *Id.* at 5779, para. 391.

18. *Mobile Broadband Order*, *supra* note 11, at 5910; Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 1003 (2005) (confirming the FCC's authority to decide what is an information service, and what is a telecommunication service).

19. *Id.*

network will soon be retired as part of the TDM-to-IP transition.[20] By reclassifying Internet service to acknowledge that it includes a telecommunications service, the FCC took an important step to ensure that voice communications do not migrate away from the concept of the public switched network with its component common carriage requirements.

Wireless communications are undergoing a similar transition. Traditionally, mobile telephone service providers have used two different networks for voice and data.[21] But the current standard for wireless data services—long term evolution, or LTE—is also able to effectively transmit voice communications.[22] LTE will allow mobile service providers to discontinue their old voice-only networks and operate entirely over data services.[23] Just as with wired Internet service, wireless Internet services had been considered information services and could not be regulated as common carriers,[24] until the FCC recognized the telecommunications service element of their product as a whole.[25] As with wired Internet service, the FCC recently recognized wireless Internet service as a telecommunications service.[26]

The *Open Internet Order*—or at least the section on mobile broadband services—should not be overturned. When reviewing regulatory decisions, courts must ask two questions.[27] First, did Congress address the issue clearly in the text of the statute?[28] Then, if not, did the agency base its regulation on a "permissible construction of the statute[?]"[29] Such regulations are permissible if "Congress has explicitly left a gap for the agency to fill" and the regulation is not "arbitrary, capricious, or manifestly contrary to the statute."[30] In the Communications Act, Congress did not address what the public switched network is, instead expressly delegating authority to define the term to

20. *See generally Tech. Transitions*, GN Dkt. No. 13-5, Order, Report & Order, and Further Notice of Proposed Rulemaking, 29 FCC Rcd. 1433 (2014). TDM refers to time division multiplexing, which is a means of increasing call capacity on circuit switched networks. The TDM-to-IP transition refers to the shift from circuit switched to packet switched networks. *Id.* at 1435.

21. RYSAVY RESEARCH, BEYOND LTE: ENABLING THE MOBILE BROADBAND EXPLOSION 112 (2014), http://www.4gamericas.org/files/7514/1021/4070/Beyond_LTE_Enabling_Mobile_Broadband_Explosion_August_2014x.pdf.

22. *Id.*

23. *Id.*

24. *Mobile Broadband Order*, *supra* note 11, at 5913.

25. Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 1007 (2005) (Scalia, J., dissenting).

26. *Open Internet Order*, *supra* note 17, at para. 388.

27. Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842 (1984).

28. *Id.* at 842–43.

29. *Id.* at 843.

30. *Id.* at 843–44.

the FCC.[31] The FCC's reclassification is not only rational;[32] it is necessary to protect consumers.

To ensure that consumers continue to receive the voice service protections on which they currently rely, the *Open Internet Order* must stand. With the ongoing deployment of Voice over LTE ("VoLTE") networks, voice calls are transitioning from the voice-only circuit switched network to the voice-enabled LTE data network.[33]

Per FCC regulations, for-profit, publicly available data networks—such as those deployed by mobile telephone service providers—are commercial mobile data services.[34] Commercial mobile data services cannot be commercial mobile radio services ("CMRS").[35] Commercial mobile data services are not CMRSs, but the FCC has not classified them as private mobile radio services ("PMRS") either.[36] CMRSs are common carriers but PMRSs are statutorily precluded from common carriage regulation.[37]

If the *Open Internet Order* is overturned, regulation of mobile services will revert to the old regulations. Under the prior regulations, VoLTE service would initially be a CMRS, but VoLTE service would necessarily become a commercial mobile data service[38] as it continues to deploy and its interconnection with the public switched network phases out.[39] Once the TDM-to-IP transition is completed, the public switched telephone network would cease to exist.[40] Once the information-service-only VoLTE network stopped interconnecting with the public switched network, it would become a commercial mobile data service.[41] Therefore, if VoLTE services are no longer interconnected with the

31. 47 U.S.C. § 332(d)(2) (2013); *Open Internet Order*, *supra* note 17, at para. 396.

32. *See Open Internet Order*, *supra* note 17, at paras. 398–99, 401–03, 404, 407.

33. *See generally* RYSAVY RESEARCH, *supra* note 21.

34. *See Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WC Dkt. No. 05-265, Second Report & Order, 26 FCC Rcd. 5411, 5412 (2011) [hereinafter *Mobile Data Order*].

35. *See* 47 C.F.R. § 20.3 (2014) (A commercial mobile data service is defined as "[a]ny mobile data service that is not interconnected with the public switched network . . . .," whereas a commercial radio service is defined as "[a]n interconnected service . . . ."); *see* 47 U.S.C. § 332 (2013).

36. *Mobile Data Order*, *supra* note 34, at 5447.

37. *Id.* at 5439.

38. *See* RYSAVY RESEARCH, *supra* note 21, at 112. An interconnected service is a service "[t]hat is interconnected with the public switched network, or interconnected with the public switched network through an interconnected service provider, that gives subscribers the capability to communicate to or receive communication from other users on the public switched network . . . ."; 47 C.F.R. § 20.3 (2014).

39. RYSAVY RESEARCH, *supra* note 21, at 112.

40. *See generally Tech. Transitions*, *supra* note 20, at 1433 (authorizing the abandonment of the PSTN in experimental markets).

41. A commercial mobile data service is "[a]ny mobile data service that is not interconnected with the public switched network . . . ." 47 C.F.R. § 20.3 (2014).

public switched network, and if the *Open Internet Order* is struck down, voice calls will all travel through networks that cannot be regulated as common carriers.

This note focuses on the need to maintain common carriage regulations for mobile voice applications on packet switched networks. Although many of the same issues discussed below apply to wireline VoIP, this note does not discuss them in that context, for brevity's sake.

Part I provides the relevant background information on how mobile voice services may migrate out of their current regulatory system. It first describes how voice calls are currently carried on wireless networks using mobile switching centers and how they interconnect with the wired circuit switched network. Next, it explains how LTE networks handle voice calls currently, and how LTE networks will handle voice calls in the future. It continues with a definition of commercial mobile radio services and provides an example of a CMRS regulation. It then moves on to define private mobile radio services, and explain the limits on regulating them. Finally, Part I ends with a definition of commercial mobile data services, and a discussion of how they are currently regulated.

Part II discusses the options for regulating VoLTE. It first explains why the mobile data service market needs external regulation and why antitrust law cannot adequately protect mobile data service consumers. Next it discusses current mobile data service regulations and why they do not provide adequate consumer protection. Finally, it explains what the FCC can do to ensure that VoLTE users continue to receive the same protections that users of the public switched telephone network receive and why the *Open Internet* order should survive a court challenge.

I. BACKGROUND

To understand the nature of the problem, one must understand how the FCC classifies mobile telephone calls today and how they are evolving out of the scope of those regulations. To understand how they are evolving out of those regulations, one must also know how those regulations are structured. Currently, most mobile telephone calls pass through interconnected services, so they are regulated as CMRSs and are treated as common carriage services. However, mobile telephone calls are starting to pass through networks that are regulated as commercial mobile data services because the FCC has not extended CMRS roaming rules to mobile broadband Internet services.[42] Commercial mobile data services are arguably private mobile radio services and statutorily barred from common carriage regulation.

42. *Open Internet Order*, *supra* note 17, at para. 526.

A. Telephone calls will evolve out of the scope of current regulations.

The FCC's telephone regulations have been stretched to the limit. The current regulations are largely based on early twentieth-century technology.[43] Although Congress last significantly updated the Communications Act in 1996,[44] and the FCC has periodically revised its rules to reflect changes in telecommunications technology,[45] telecommunications regulation is consistently chasing technology rather than anticipating it.[46] Today's public switched telephone network is essential to the current common carriage regulations even though it is largely operated on Internet protocol ("IP") and has relatively little in common with the public switched telephone network of the 1930s.[47] The public switched network is "*any common carrier switched network* . . . that uses the North American Numbering Plan . . . in connection with the provision of switched services."[48] It does not matter if the network is circuit switched like POTS or packet switched like VoIP.[49]

If the *Open Internet Order* is struck down, telecommunications technology will soon leave the public switched network completely behind, and Title II with it. Currently, mobile phone service is circuit switched, and is part of the public switched telephone network.[50] But the days of the circuit switched network are numbered now that VoLTE phones are entering the market.[51] Once all telephone calls are placed over VoLTE or wired VoIP networks, there will no longer be a public switched network—unless the *Open Internet Order* is upheld.[52]

43. Larry Downes, *Telegram for the FCC: Time to Retire the Telephone Network*, FORBES (Mar. 18, 2013, 3:00 AM), http://onforb.es/146cYA6.

44. Telecommunications Act of 1996, Pub L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 15, 18, and 47 U.S.C.).

45. *See, e.g.*, *Mobile Data Order*, *supra* note 34, at 5412; *Mobile Broadband Order*, *supra* note 11, at 5903–4.

46. Jessica Finley, *Anticipating Regulation of New Telecommunications Technologies: An Argument for the European Model*, 26 NW. J. INT'L L. & BUS. 447, 467 (2006).

47. *See, e.g.,* 47 C.F.R. §§ 4.3, 4.9; 9.3; 12.3; 63.60; 64.601, 64.608 (2014).

48. *Id.* § 20.3 (emphasis added).

49. *See id.*

50. RYSAVY RESEARCH, *supra* note 21, at 47.

51. *See id.* at 112.

52. *See generally Tech. Transitions*, *supra* note 20, at 1433 (authorizing the abandonment of the PSTN in experimental markets); Downes, *supra* note 43.

1. Today, telephone calls are placed over circuit switched networks, which are regulated as common carriers.

At a high level, calls placed on circuit switched networks travel over a single circuit, which is dedicated to each call during its duration.[53] The call travels from a telephone, over the local loop (wire to the premises), to a local switch, to a transport line, to the tandem switch at the central office.[54] From the central office, the call is routed to the recipient's phone, either over transport lines to another central office, or directly to the recipient's local switch box and local loop if the same central office serves the recipient.[55] There is a switch at each junction in the network (end offices, central offices) that connects the network elements while the line is engaged.[56] For wireless calls, the wireless portion of the call replaces the local loop, the base station replaces the local switch, and the mobile switching center replaces the central office, but the concept is the same.[57]

As mentioned above, most mobile phone calls are placed on the public switched telephone network and regulated as common carriage.[58] Transmissions from the handset to the tower are digital,[59] but once the call reaches the tower it is passed to a switching center and handled like a wireline call.[60] The wireless leg of a call is transmitted over radio spectrum and regulated as common carriage under Title III of the Communications Act.[61] The whole transmission path—wired and wireless—is part of the public switched telephone network and is regulated under Title II of the Communications Act.[62] The wireless networks that carry these calls are regulated as CMRSs. As noted above, a defining factor of a CMRS is that it is interconnected with the public switched telephone network.

Accordingly, as long as wireless calls pass through circuit switched networks, the FCC will have common carriage regulatory authority over them. However, the basic architecture of voice calls is changing. For

53. JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS: TELECOMMUNICATIONS LAW AND POLICY IN THE INTERNET AGE 28 (2d ed. 2013).

54. *Id.* at 29.

55. *Id.*

56. *Id.*

57. RYSAVY RESEARCH, *supra* note 21, at 155.

58. Kevin Werbach, *No Dialtone: The End of the Public Switched Telephone Network*, 66 FED. COMM. L.J. 203, 206 (2014).

59. RYSAVY RESEARCH, *supra* note 21, at 101.

60. *Id.* at 155.

61. *Mobile Data Order*, *supra* note 34, at 5412.

62. 47 C.F.R. § 20.3 (2014); Harold Feld, *What Do You Mean The "End of the Phone System?" I Gotta Call Home for Father's Day!*, PUBLIC KNOWLEDGE (June 4, 2012), https://www.publicknowledge.org/news-blog/blogs/what-do-you-mean-end-phone-system-i-gotta-cal.

decades now, telecommunications have been evolving out of the old circuit switched networks.[63] Circuit switched networks offer very high call quality, but are not very efficient.[64] The circuit is engaged by the user throughout the call, even when neither party is talking.[65] If more users than the number of available circuits try to place calls at the same time, the network will not have capacity to carry every call.[66] Circuit switched networks are also not very resilient.[67] The circuit switched network is centralized.[68] Among other things, this means that when a central office goes offline, all local loops served by that office lose service.[69]

Voice over Internet Protocol (VoIP) networks have lower call quality,[70] but they are very efficient and resilient.[71] VoIP networks are all-digital; calls are broken into packets and the packets are transmitted across the network.[72] The packets travel over a packet switched network, and can travel over any route once they reach the network.[73] The transmission path is only engaged as long as it takes to transmit each packet; several conversations can travel along the same transmission path virtually simultaneously.[74] In fact, packets of the same conversation do not need to travel over one set path; each packet can take whatever route is fastest at that moment.[75] VoIP is also more efficient because the transmissions are digital, which means the packets can be repeated over long distances without amplifying background noise.[76] Moreover, because packets can travel over any route once they reach the packet switched network, a call can still reach its destination, even if multiple network connections are damaged along the way.[77]

Telephone service providers are transitioning to VoIP because it is so much more efficient and resilient than the circuit switched network. The TDM-to-IP transition began on wired networks, but wireless networks are now beginning the transition as well. In the future, all calls, wired and wireless, will be made over packet switched networks.

63. NUECHTERLEIN & WEISER, *supra* note 53, at 176.
64. *Id.* at 29.
65. *Id.* at 28. TDM mitigates this inefficiency, but is not as efficient as VoIP. *See id.*
66. *Id.* at 29.
67. *Id.* at 175–76.
68. *Id.* at 176.
69. *Id.*
70. *Id.* at 31.
71. *Id.*
72. *Id.* at 30.
73. *Id.* at 31.
74. *Id.*
75. *Id.* at 162.
76. *Id.* at 161.
77. *Id.* at 175–76.

2. Mobile phone calls are moving to VoLTE, which will initially be regulated as a common carrier, but cannot be regulated as a common carrier if the public switched network disappears.

VoLTE is a new application. The first VoLTE commercial applications went live in late 2014.[78] Wireless VoIP has lagged behind wired VoIP because it is more difficult to ensure adequate transmission quality over wireless networks than wired ones due to the fact that wireless networks interact with moving targets.[79] VoIP is susceptible to problems with latency and jitter.[80] When the packets do not arrive at their destination in the right order, or are lost along the way, the quality of the call is noticeably degraded.[81] This problem is amplified in wireless transmissions, because mobile devices are often moving targets as they move between cells.[82] Wireless transmission technology and data packet encoding technology have only recently reached the point where wireless VoIP is practicable.[83]

a. Currently, LTE networks will be interconnected with the public switched telephone network.

Currently, VoLTE calls pass from LTE networks to the public switched telephone network, or vice versa. As long as VoLTE users are able to call users on the public switched telephone network, VoLTE is an interconnected service.[84] Although VoLTE service travels over mobile broadband networks—which are not interconnected services[85]—VoLTE is considered a separate application, and can be interconnected.[86]

Any for-profit mobile service that is interconnected to the public switched telephone network is further classified as a CMRS.[87] CMRSs

78. Debi Lewis, *HD Voice and Video Calling Coming Soon to Verizon Wireless 4G LTE Network*, VERIZON NEWS CENTER (Sept. 15, 2014), http://www.verizonwireless.com/news/article/2014/08/hd-voice-and-video-calling-coming-soon-to-verizon-wireless4g-lte-network.html.

79. *See* RYSAVY RESEARCH, *supra* note 21, at 125.

80. NUECHTERLEIN & WEISER, *supra* note 53, at 31.

81. *Id.*

82. *See* RYSAVY RESEARCH, *supra* note 21, at 125.

83. *Id.* at 47.

84. 47 C.F.R. § 20.3 (2014); 47 U.S.C. § 332(d)(2) (2013).

85. *Mobile Broadband Order*, *supra* note 11, at 5918.

86. *Id.*

87. 47 C.F.R. § 20.3 (2014); 47 U.S.C. § 153(33) (2013).

The term "mobile service" means a radio communication service carried on between mobile stations or receivers and land stations, and by mobile stations communicating among themselves, and includes (A) both one-way and two-way radio communication services, (B) a mobile service which provides a regularly interacting group of base, mobile, portable, and associated control and relay stations (whether licensed on an individual, cooperative, or multiple basis) for private one-way or two-way land mobile radio communications by eligible

are subject to common carriage regulations. Thus, the FCC can mandate network interconnection, demand that carriers only charge reasonable fees for service, and compel service upon reasonable requests for service.[88] If a service is a CMRS, it cannot be a commercial mobile data service; commercial mobile data services are not interconnected with the public switched telephone network.[89] But, CMRSs that are mobile broadband providers will be regulated as a commercial mobile data services while the FCC forbears CMRS roaming obligations.[90]

b. LTE networks cannot interconnect with the public switched telephone network if it is not there.

As VoIP technology becomes ever more pervasive, more calls will connect without ever touching the public switched telephone network. Eventually, the states and the FCC will retire the circuit switched telephone network,[91] just as the FCC retired the analog broadcast television network in 2009.[92] Once the states and the FCC retire the circuit switched telephone network and all mobile networks transition to LTE, all voice calls will necessarily be delivered over packet switched networks (via Internet service providers). If the *Open Internet Order* does not stand, the public switched network will cease to exist.[93] Then no telephone services will be interconnected.[94] A non-interconnected mobile service is arguably a PMRS.[95] PMRSs may not be regulated under common carriage regulations.[96] Whether or not VoLTE becomes a PMRS, it is subject to commercial mobile data service regulations.[97]

users over designated areas of operation, and (C) any service for which a license is required in a personal communications service established pursuant to the proceeding entitled "Amendment to the Commission's Rules to Establish New Personal Communications Services" (GEN Docket No. 90-314; ET Docket No. 92-100), or any successor proceeding. *Id.*

88. 47 C.F.R. § 20.15(a) (2014).

89. *See id.* § 20.3 (a commercial mobile data service is defined as "[a]ny mobile data service that is not interconnected with the public switched network . . . ," whereas a commercial radio service is defined as "[a]n interconnected service . . . ."); *see* 47 U.S.C. § 332 (2013).

90. *Open Internet Order*, *supra* note 17, at para. 526.

91. *See generally Tech. Transitions*, *supra* note 20, at 1433 (authorizing the abandonment of the PSTN in experimental markets).

92. 47 U.S.C. § 309(j)(14) (2013).

93. 47 C.F.R. § 20.3 (2014).

94. *See* 47 U.S.C. § 332(d)(2) (2013).

95. *Id.* §§ 332(d)(1), (3).

96. *Mobile Data Order*, *supra* note 34, at 5443.

97. 47 C.F.R. § 20.3 (2014); *Open Internet Order*, *supra* note 17, at para. 526.

B. There are three classes of mobile service: common carrier, not a common carrier, and something in the middle.

FCC regulations divide mobile services into several classes.[98] This note will focus on three: CMRS, PMRS, and commercial data service. CMRSs are regulated as common carriage services.[99] PMRSs cannot be regulated as common carriage services.[100] Commercial mobile data services are somewhere between CMRS and PMRS.[101]

A commercial mobile radio service ("CMRS") is a mobile service that is interconnected, provided for profit, and available to the public; or the functional equivalent of such a service.[102] The voice-only network for mobile phones is a CMRS.[103] Accordingly, mobile phone systems currently must abide by common carrier regulations, such as providing service to anyone upon reasonable request, interconnecting with other networks, and charging only reasonable rates for service.[104]

The Automatic Roaming Rule is a good example of CMRS regulation. The Automatic Roaming Rule allows mobile telephone providers' customers to roam onto another mobile telephone provider's network without requiring the user to accept roaming service or incur additional roaming charges.[105] CMRS providers must provide roaming access on reasonable terms to requesting CMRS providers if the requesting provider has its own CMRS network, the requesting provider's devices are compatible with the host provider's network, and the request for access is reasonable.[106] If the requesting provider's technology is technologically compatible, the request is presumed to be reasonable.[107] Automatic roaming keeps transaction costs low and lowers consumer costs.

Conversely, a private mobile radio service ("PMRS") is "[a] mobile service that is neither a commercial mobile radio service nor the functional equivalent of a service that meets the definition of commercial mobile radio service."[108] PMRSs are not subject to common carriage regulations; in fact, they are statutorily exempt from them.[109] This means that the FCC cannot mandate a PMRS provider to provide service to

98. 47 C.F.R. § 20.3 (2014).
99. 47 U.S.C. § 332(c)(1) (2013).
100. *Id.* § 332(c)(2).
101. *See Mobile Data Order*, *supra* note 34, at 5447.
102. 47 C.F.R. § 20.3 (2014).
103. *Id.* § 20.9.
104. *Id.* § 20.15(a).
105. Brian Osborne, *FCC Requires Automatic Roaming*, GEEK (Aug. 9, 2007, 11:40 AM), http://www.geek.com/mobile/fcc-requires-automatic-roaming-567507/.
106. 47 C.F.R. § 20.12(d) (2014).
107. *Id.*
108. *Id*. § 20.3.
109. 47 U.S.C. § 332(c)(2) (2013).

anyone, cannot regulate reasonable rates, and cannot mandate interconnection,[110] at least not without finding other authority on which to base its regulations.[111] There are no roaming requirements for PMRSs.[112] Accordingly, contract law governs any roaming agreements for PMRSs.

A commercial mobile data service is a non-interconnected mobile data service that is (1) "[p]rovided for profit" and (2) "[a]vailable to the public or to such classes of eligible users as to be effectively available to the public."[113] Mobile Internet service providers, including the data-only networks for mobile phones, were initially classified as PMRSs;[114] however they now qualify as CMRSs and are regulated as commercial mobile data services.[115] LTE is a standard for transmitting mobile data,[116] and thus information sent over an LTE network is information sent over a mobile data service. Accordingly, under the pre-*Open Internet Order* rules, a VoLTE service that is provided for profit, is available to the general public, and is not interconnected to the public switched telephone network is provided via a commercial mobile data service. Commercial mobile data services are not classified as PMRSs or CMRSs;[117] they seem to occupy a middle ground between PMRS and CMRS regulation.[118]

Both commercial mobile data services and CMRSs that are mobile broadband providers (hereinafter collectively referred to as "commercial mobile data services") are subject to the Data-Roaming Rule.[119] The Data-Roaming Rule allows mobile data providers' customers to roam onto another mobile data provider's network without requiring the user to accept roaming service, or incur additional roaming charges. Commercial mobile data service providers must offer roaming arrangements to other commercial mobile data service providers on commercially reasonable terms and conditions, if the requesting provider has its own network.[120] The Data-Roaming Rule differs from the Automatic Roaming Rule in that providers may negotiate the terms of each agreement individually,[121] and signed agreements are presumed to

110. *See* 47 C.F.R. § 20.15(b) (2014).
111. *See Mobile Data Order*, *supra* note 34, at 5443.
112. *See generally* 47 C.F.R. (2014).
113. *Id.* § 20.3.
114. *Mobile Broadband Order*, *supra* note 11, at 5917.
115. 47 C.F.R. § 20.3 (2014); *Open Internet Order*, *supra* note 17, at para. 526.
116. RYSAVY RESEARCH, *supra* note 21, at 5.
117. *See Mobile Data Order*, *supra* note 34, at 5443.
118. *Id.*
119. 47 C.F.R. § 20.12(e) (2014); *Open Internet Order*, *supra* note 17, at para. 526.
120. 47 C.F.R. § 20.12(e) (2014).
121. *Id.*

be commercially reasonable.[122] The Data-Roaming Rule does not keep transaction costs low, and may not lower consumer prices.

II. ANALYSIS

Several core values, such as accessibility and consumer protection, are currently upheld through common carriage regulations.[123] Because mobile telephony will operate on a system that does not yet have a clear regulatory regime, the FCC should set clear rules for VoLTE services before the TDM-to-IP transition is complete.

The FCC should act to regulate VoLTE services because other means of consumer protection are inadequate. Consumers have come to rely on their mobile devices[124] and the mobile telephone system shaped by Title II regulations. Market competition is not strong enough to protect consumers. Furthermore, antitrust law offers insufficient protection for mobile service consumers, and commercial mobile service providers may be immune to antitrust suits.

The Telecommunications Act of 1996 provides for two types of mobile service: (1) commercial mobile services, and (2) private mobile services.[125] As explained above, CMRSs are subject to common carriage regulations,[126] but PMRSs may not be regulated as common carriers.[127] Striking down the *Open Internet Order* would once again expose VoLTE to this ambiguity.[128] Classifying commercial mobile data services as PMRSs would accordingly mean that VoLTE services would be outside the scope of common carriage regulations.[129] Classification as a PMRS would allow VoLTE service providers greater discretion in managing their services, but would not afford consumers the same protections they would receive under common carriage regulations.[130] Accordingly, in the interest of consumer protection and accessibility, the *Open Internet Order* should stand.

122. *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WT Dkt. No. 05-265, Declaratory Ruling, 9, para. 25 (adopted Dec. 18, 2014), https://apps.fcc.gov/edocs_public/attachmatch/DA-14-1865A1.pdf.

123. *See, e.g.*, 47 U.S.C. § 201 (2013) (duty to offer service upon a reasonable request, and interconnection); *Id.* § 225 (protections for the hearing impaired); *Id.* § 202 (no unreasonable price discrimination); *Id.* §§ 206, 207, 209 (the ability to compel common carriers to pay money damages); *Id.* § 227 (providing for a do not call registry).

124. *Mobile Data Order*, *supra* note 34, at 5416.

125. 47 U.S.C. § 332 (2013).

126. 47 C.F.R. § 20.15 (2014).

127. 47 U.S.C. § 332(c)(2) (2013).

128. *See Open Internet Order*, *supra* note 17.

129. 47 U.S.C. § 332(c)(2) (2013).

130. *See id.*

A. The mobile phone service market will not remain competitive without external regulation.

In consumer mobile telephony, there are two interrelated markets: the local market and the national market.[131] The national market is comprised of all of the local markets in aggregate.[132]

The national mobile telephone market is not very competitive. Markets that are reasonably competitive have a Herfindahl–Hirschman Index ("HHI") between 1,500 and 2,500.[133] The HHI for the national wireless market is determined by averaging the HHI scores of each of its constituent economic areas.[134] Each economic area represents a local market.[135] At the end of 2013, the HHI for the national mobile phone market was 3,027.[136] The lowest HHI for an economic area was 2,237, the highest was 6,689.[137]

Mobile services are driven by economies of scale, like wireline services.[138] In consumer wireless, there are local markets and a national market.[139] In order to be competitive in either, a company must be competitive in both.[140] To compete in a local market, a company must be able to provide service nationally.[141] To compete nationally, a company must be able to provide service in as many local markets as possible.[142]

Companies with market power can use two-level entry to hinder competition. Larger mobile telephone providers have market power nationally, and in some markets mobile telephone service providers have

131. Complaint at paras. 14-15, United States v. AT&T Inc., No. 1:11-cv-01560 (D.D.C. 2011), 2011 WL 3823252 [hereinafter DOJ Complaint]; *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Dkt. No. 13-135, Seventeenth Report, 29 FCC Rcd. 15,311, para. 30 (2014) [hereinafter *Mobile Wireless Competition Report*].

132. DOJ Complaint, *supra* note 131, at para. 14; *Mobile Wireless Competition Report*, *supra* note 131, at para. 30.

133. *Mobile Wireless Competition Report*, *supra* note 131, at para. 32, n. 46. An HHI above 2,500 indicates that a market is highly concentrated. This means that small increases in the HHI (200 points) are enough to enhance the market power of the companies that retain or gain market share. The HHI increases as companies acquire a greater percentage of the market, either through superior performance, acquisitions, or because some companies leave the market. For example, a market split four ways, where companies have market shares of 40%, 35%, 15% and 10% has an HHI of 3,150. If the company with 40% of the market share gains just over 3% of the total market share from the company with 10% of the market share, the HHI would increase by 200, indicating an increase in market power for three of the four companies. *Id.*

134. *Mobile Wireless Competition Report*, *supra* note 131, at para. 32.

135. *Id.*

136. *Id.* at para. 33.

137. *Id.*

138. RYSAVY RESEARCH, *supra* note 21, at 75.

139. *Mobile Wireless Competition Report*, *supra* note 131, at para. 30.

140. DOJ Complaint, *supra* note 131, at paras. 14–15.

141. *Id.* at para. 14.

142. *Id.* at para. 15.

near monopoly power.[143]

A local provider that has market power in a local market has some bargaining power with national carriers for roaming agreements. In those cases, each party gains something from the other.[144] The national carrier gains service in the local market without having to build out more infrastructure (or buy the local carrier outright), and the local carrier gains roaming access nationally. Such agreements are more typical when the local provider and the national provider are not competitors in the national market.[145]

When the incumbent local provider and the provider requesting a roaming agreement are direct competitors in the national market, there is a temptation to leverage the need for local roaming access to harm competition on the national level. Consumers expect to receive service everywhere.[146] For example, AT&T Inc. ("AT&T") and T-Mobile USA, Inc. ("T-Mobile") have been locked in disputes over data roaming agreements, where T-Mobile alleges that AT&T is charging unreasonable rates for data roaming on AT&T's network.[147]

T-Mobile states that AT&T is able to charge unreasonable rates because AT&T is often the only provider in a market with whom T-Mobile can enter a roaming agreement.[148] AT&T uses the same data standard as T-Mobile (GSM), whereas Sprint and Verizon use another (CDMA).[149] Service providers can only operate on networks that use the same data standard.[150] In many cases where there is a "must have carrier" the smaller provider is faced with a Hobson's choice.[151] Nominally, they can enter a roaming agreement, build out their own infrastructure, or not offer service in that area.[152] Not offering service in an area is not economically feasible because, as mentioned above, a provider must be competitive in both the national and local markets to be competitive in

143. *See Mobile Wireless Competition Report*, *supra* note 131, at para. 30.

144. Joan Engebretson, *Sprint Adds Rural LTE Roaming and SMART Partners*, TELECOMPETITOR (Sept. 8, 2014, 8:47 AM), http://www.telecompetitor.com/sprint-adds-rural-lte-roaming-and-smart-partners/.

145. *See id.*

146. Petition for Expedited Declaratory Ruling of T-Mobile USA, Inc., *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WT Docket No. 05-265, 2 (filed May 27, 2014), http://apps.fcc.gov/ecfs/document/view?id=7521151798 [hereinafter T-Mobile Petition].

147. Marguerite Reardon, *FCC Sides with T-Mobile on Data Roaming,* CNET (Dec. 19, 2014, 12:29 PM), http://www.cnet.com/news/fcc-sides-with-t-mobile-on-data-roaming/.

148. T-Mobile Petition, *supra* note 146, at 12.

149. *Id.* at 14.

150. *Id.*

151. *Id.* at 19.

152. Opposition of AT&T, *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WT Docket No. 05-265, 5 (filed July 10, 2014), http://apps.fcc.gov/ecfs/document/view?id=7521374908 [hereinafter AT&T Opposition].

either.[153] Building out its own infrastructure is not economically feasible because mobile telephone service relies on economies of scope and scale.[154]

The incremental costs of deploying infrastructure diminish with each additional customer. In order to justify building out infrastructure in new areas a provider must know that they can acquire enough customers to operate profitably in that area.[155] It is economically wasteful to build out in areas that are covered by a competitor if the competitor's network has the capacity to serve all users in an area. As an example, in January 2014, 70% of the United States was covered by one or more mobile wireless broadband providers, but only 15.7% was covered by four or more providers.[156]

Regulation is necessary to ensure that data roaming agreements are based on reasonable terms and conditions. The market cannot self-regulate under these conditions.

Nobel laureate Ronald Coase theorized that bargaining between rational actors will lead to an efficient allocation of resources if property rights are adequately defined and transaction costs are sufficiently low. In theory, bargaining between an incumbent and a requesting provider should result in efficient use of the incumbent's infrastructure.[157] The incumbent will suffer negative externalities by allowing the requesting provider to roam in their network (e.g. the roamer will use some of the incumbent's network capacity, and may cause the incumbent's quality of service to drop).[158] However, the effects of any negative externalities will factor into the bargain.[159]

The market cannot guarantee consumer protection in this context, because the transaction costs are high, and efficient use of the infrastructure is not the same as the most efficient use of the infrastructure. For the requesting provider, using the incumbent's network for less than the cost of building a duplicative network is an efficient use of the resource. Leasing out unused capacity is certainly an

153. *See* DOJ Complaint, *supra* note 131, at paras. 14–15.

154. Reply Comments of T-Mobile USA, Inc., *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WT Docket No. 05-265, Exhibit 2, para. 32 (filed Aug. 20, 2014) [hereinafter T-Mobile Reply Comments]; Ex Parte of Sprint Corp., *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, WT Docket No. 05-265, 2 (filed Aug. 4, 2015) [hereinafter Sprint Ex Parte].

155. T-Mobile Reply Comments, *supra* note 154, at Exhibit 2, para. 40. In some cases, the Universal Service Fund ("USF") is the only incentive, but the USF is typically only available to one wireless carrier per area. Sprint Ex Parte, *supra* note 154, at 3.

156. *Mobile Wireless Competition Report*, *supra* note 131, at para. 51.

157. R. H. Coase, *The Federal Communications Commission*, 56 J.L. & ECON. 879, 903 (1959).

158. *Mobile Data Order*, *supra* note 34, at 5436.

159. Coase, *supra* note 157, at 904.

efficient use of the resource for the incumbent. However, a rational actor will charge the highest price it can get for the lease.[160] The lack of choice between incumbent providers ensures that the incumbent can charge well above cost for data roaming.[161] In some cases, large providers are charging competing wholesale customers more for data than their own retail customers.[162]

Larger providers point out that the GSM/CDMA division will disappear once LTE networks have been ubiquitously deployed.[163] In theory, this should eliminate the "must have" carrier problem.[164] For example, T-Mobile would be able to bargain with Sprint and Verizon, in addition to AT&T.[165] However, the full transition to LTE is likely many years away and the GSM/CDMA division exacerbates the problems of scope and scale, though it did not cause them.[166]

Until the transition to LTE-only networks is complete, providers must offer service over LTE networks and GSM/CDMA networks.[167] Seventy percent of the United States—by area—is covered by one or more mobile wireless broadband providers.[168] Currently, only 54.4% of the United States is covered by LTE networks.[169] The rest of the area is covered only by GSM/CDMA. GSM/CDMA support must continue in areas that receive voice service, but are not covered by LTE. Wireless service covers 74.9% of the U.S.[170] Furthermore, wireless providers will not be able to shut down GSM/CDMA networks until enough consumers have switched to LTE-compatible devices.[171]

Once the transition to LTE is complete, roaming agreements should become more competitive *if* all carriers decide to upgrade all of their facilities to LTE.[172] It is expensive to deploy LTE networks, and just as with any network, economies of scope and scale are essential.[173]

The use of incompatible standards is likely one reason Verizon and AT&T have deployed infrastructure in the same area. To provide service

160. *See* T-Mobile Petition, *supra* note 146, at 3–4.

161. *Id.*

162. *See, e.g.*, Complaint of Flat Wireless, LLC, *Flat Wireless, LLC v. Cellco P'ship*, EB Dkt. No. 15-147 at para. 42 (filed June 12, 2015), http://apps.fcc.gov/ecfs/document/view?id=60001079546.

163. AT&T Opposition, *supra* note 152, at 5.

164. *Id.*

165. *Id.*

166. *Reexamination of Roaming Obligations*, *supra* note 122, at para. 20.

167. *Id.*

168. *Mobile Wireless Competition Report*, *supra* note 131 at para. 51, chart III.A.2.

169. *Id.* at para. 59, tbl. III.A.2.

170. *Id.* at para. 48, chart III.A.1.

171. T-Mobile Petition, *supra* note 146, Exhibit 1 at para. 22.

172. AT&T Opposition, *supra* note 152, at 5.

173. T-Mobile Reply Comments, *supra* note 154, Exhibit 2 at para. 32.

in an area, a provider must have access to infrastructure that it can use.[174] That means that if a GSM provider wants to provide service to an area, but there is only a CDMA network deployed in that area, the GSM provider must deploy a GSM network.[175] In this case, the GSM network is not duplicative.

As providers consolidate on LTE, they will only deploy their own networks if doing so would be more cost effective than roaming. It is likely that providers will deploy their own networks in densely populated areas. In such areas, providers can likely acquire enough customers to justify the expense of deploying an LTE network. It is less likely that providers can justify the expense of deploying their own networks in rural areas, where there might not even be enough customers to support the existing network (the existing network may have only been deployed because of Universal Service Fund Support).[176]

For the foregoing reasons, external protections are necessary to prevent consumer harm.

B. Antitrust laws cannot adequately protect mobile data service consumers.

Antitrust law could conceivably protect mobile data service consumers, but regulation is preferable for several reasons. As competition decreases, the risk of consumer harm (poorer service, higher rates, smaller coverage areas, etc.) increases. Regulations offer consumer protection *ex ante* and seek to prevent consumer harm. Antitrust offers consumer protection *ex post*; by the time an antitrust action has been brought, the consumer has already been harmed. Further, it is not clear that mobile data providers are subject to antitrust actions.

Where competition in a market is already weak, antitrust law only addresses consumer harm after the harm has occurred. The Clayton Act prevents the acquisition of interest in a competitor or the competitor's assets, if the acquisition would harm competition.[177] Section 7 of the Clayton Act seeks to preserve competition, but it does not address consumer harm caused by competition that is already weak.[178] The Sherman Act addresses consumer harm caused by impermissible uses of market power.[179] But, antitrust actions under the Sherman Act can only

174. T-Mobile Petition, *supra* note 146, Exhibit 1 at para. 14.

175. *See id.* at 3.

176. *See* 47 C.F.R. §§ 54.1001–54.1010 (2014); *Connect America Fund*, WC Dkt. No. 10-90, Report & Order, and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17,663, 17,674 (2011).

177. 15 U.S.C. § 18 (2014).

178. *See id.*

179. Olympia Equip. Leasing Co. v. W. Union Tel. Co., 797 F.2d 370, 373 (7th Cir. 1986).

be filed *ex post*; by the time an antitrust action has been brought, the consumer has already been harmed.[180] Additionally, exercising market power without the intent to "maintain or enhance that power improperly" is permissible under the Sherman Act.[181]

Competition in the mobile wireless provider market is weak. The Clayton Act allowed the Department of Justice to bring an action to block a merger between AT&T and T-Mobile in 2011.[182] Nevertheless, competition is weaker in the mobile service provider market today than it was in 2011. The HHI at the end of 2010 was 2,866; at the end of 2013 it was 3,027.[183]

Under an antitrust regime, mobile service consumers would suffer harms caused by an abuse of market power until a court finds a violation of the Sherman Act. Harm to consumers could continue unchecked during the pendency of the litigation. Litigation can last for many years.[184] Furthermore, technology changes rapidly. The technology and methods at issue in an antitrust action may be obsolete by the time a court reaches a decision. Finally, the anticompetitive effects of a company's actions may continue if the company did not act for anticompetitive reasons.[185]

Conversely, regulations can seek to prevent consumer harms from happening at all. A good example of this is the FCC's anti-slamming regulations. "Slamming" is "the unauthorized switching of a customer's long–distance telephone service carrier by a long–distance service provider or by a . . . representative of such provider."[186] Slamming first became common after the AT&T divestiture in the mid-1980s as

180. *See* Richter Concrete Corp. v. Hilltop Basic Res., Inc., 547 F. Supp. 893, 917 (S.D. Ohio 1981) *aff'd sub nom.* Richter Concrete Corp. v. Hilltop Concrete Corp., 691 F.2d 818 (6th Cir. 1982) ("To establish a violation of Section 1, . . . three elements must be shown: (1) a contract, combination or conspiracy; (2) affecting interstate commerce; and (3) an unreasonable restraint of trade."); *see* Olympia, 797 F.2d at 373 (Section 2 of the Sherman Act "requires proof of monopoly power (the power to raise prices without losing so much business that the price increase is unprofitable) plus conduct designed to maintain or enhance that power improperly.") (internal citations omitted).

181. *Olympia*, 797 F.2d at 373.

182. DOJ Complaint, *supra* note 131. The merger was abandoned before the case went to trial, in part because the FCC decided "that the merger did not meet the Commission's standard for approval." Edward Wyatt & Jenna Wortham, *AT&T Merger With T-Mobile Faces Setbacks*, N.Y. TIMES (Nov. 24, 2011), http://nyti.ms/1HkWG5S.

183. *Mobile Wireless Competition Report*, *supra* note 131, at para. 33.

184. *See, e.g.*, United States v. AT & T Corp., 552 F. Supp. 131, 135–39 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983) and *amended sub nom.* United States v. W. Elec. Co., 714 F. Supp. 1 (D.D.C. 1988), *aff'd in part, rev'd in part,* 900 F.2d 283 (D.C. Cir. 1990) and *modified* 890 F. Supp. 1 (D.D.C. 1995), *vacated*, 84 F.3d 1452 (D.C. Cir. 1996). This case was originally filed in 1949, re-filed in 1974, and judgment was not issued until 1982.

185. *Olympia*, 797 F.2d at 373.

186. Marjorie Shields, Annotation, *Federal Regulation of Telephone "Slamming"*, 174 A.L.R. Fed. 439 (2001).

competition in the long-distance telephone service market heated up.[187] Consumers may not know that their long distance carrier has been switched until receiving a bill from the slamming company.[188] In response, the FCC promulgated "strong prophylactic measures . . . to ensure that consumers' choices of telecommunications service providers are respected."[189] Specifically, telecommunications carriers cannot "change [a] subscriber's selection of a provider of telecommunications service" without taking appropriate steps to verify that the subscriber authorized the switch.[190]

Finally, two Supreme Court cases, *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP* and *Credit Suisse Securities (USA) LLC v. Billing*, make it clear that where an industry is regulated for anticompetitive harms, antitrust remedies are inappropriate.[191] This is true even if practices likely to cause consumer harm are themselves unregulated.[192] In *Trinko*, the Supreme Court held that Verizon's alleged anticompetitive practice should be addressed by regulators, rather than in the courts under antitrust law.[193] The Court reasoned that the purpose of the FCC's regulations opening the local telephone market was to promote competition, and that the potential remedies under those regulations were sufficient to protect competition.[194] Further, the FCC and state agencies are better suited to comprehend and address the intricacies of telecommunications policy.[195] In such cases, courts could cause more harm than good.[196]

In *Credit Suisse*, the Court applied this concept to a situation where a regulator had not acted to curtail anticompetitive practices.[197] The Court reasoned that the issue should be left to securities regulators (in this case the Securities and Exchange Commission), who are in a better position to distinguish between permissible and impermissible practices.[198] "[T]he threat of antitrust lawsuits, through error and

187. *Implementation of the Subscriber Carrier Selection Changes Provisions of the Telecommunications Act of 1996*, CC Dkt. No. 94-129, Second Report & Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd. 1508, 1515 (1998).

188. *Id.* at 1521.

189. *Id.* at 1520.

190. 47 C.F.R. § 64.1120 (2014).

191. Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 412 (2004).

192. Credit Suisse Sec. (USA) LLC v. Billing, 551 U.S. 264, 283 (2007).

193. *Trinko*, 540 U.S. at 411.

194. *Id.* at 412-14.

195. *Id.* at 414.

196. *Id.*

197. *Credit Suisse*, 551 U.S. at 279 ("[O]nly a fine, complex, detailed line separates activity that the SEC permits or encourages . . . from activity that the SEC must . . . forbid . . . .").

198. *Id.* at 280.

disincentive, could seriously alter underwriter conduct in undesirable ways, to allow an antitrust lawsuit would threaten serious harm to the efficient functioning of the securities markets."[199]

With regards to the Data-Roaming Rule, *Trinko* and *Credit Suisse* will likely preclude antitrust actions. The purpose of the Data-Roaming Rule is to protect competition. The Data-Roaming Rule provides remedies to address anticompetitive practices. Per the holding in *Credit Suisse*, it is unlikely that courts will intervene to address consumer harms that the Data-Roaming Rule does not address.

Accordingly, antitrust law cannot adequately protect mobile data service customers.

C. Current commercial mobile data service regulations are insufficient to ensure consumer protection.

Under the FCC's current Data-Roaming Rule, incumbent providers must provide roaming access to facilities-based providers, on commercially reasonable terms.[200] The current rule is not a common carriage regulation because it allows providers to negotiate terms on a case-by-case basis.[201] Under the current rule such negotiations can hinder competition, although the FCC has issued guidance to help clarify how the rule will be applied, and to help competition.

Bargaining power between large national carriers and smaller national carriers is unequal. If the largest providers have the most extensively deployed infrastructure, they may enter reciprocal roaming agreements. For example, Company A's network may be the only network in 30% of the country, with the same true for company B. Company C and Company D might each control the infrastructure in 5% of the country. Company A and Company B might offer each other better terms because neither would have to build out on the other's 30%. There is not such an incentive for reciprocity between large providers and small providers. Company C and Company D can only each offer the larger companies access to 5% more of the country. In such cases the larger provider might charge the smaller carriers to compensate for the disparity in coverage areas. This inequity has become common among Internet backbone providers.[202] Although mobile data service providers and Internet backbone providers are not completely analogous, peering is an efficient way to manage network resources.[203] Where the cost of roaming is less than the cost of building out, it makes economic sense to enter a

199. *Id.* at 283.
200. 47 C.F.R. § 20.12(e) (2014).
201. *Mobile Data Order*, *supra* note 34, at 5444–45.
202. NUECHTERLEIN & WEISER, *supra* note 53, at 181.
203. *See id.* at 180–81.

roaming agreement.

From a property rights point of view, the current Data-Roaming Rule seems reasonably fair: a network's owner should decide how to use its own network. However, the FCC imposed the Data-Roaming Rule as a means of protecting competition.[204] The FCC recognizes that there is a public interest in protecting competition in the mobile data market, but the rule is limited because mobile broadband was classified as an information service, and not a telecommunications service, when the rule was promulgated. Mobile broadband was not classified as common carriage. Section 332 forbids the FCC from regulating non-common carriage as common carriage.[205] The FCC had to leave a great deal of room for providers to negotiate, or risk impermissibly imposing de facto common carriage regulations on mobile data service providers.[206]

One result of the rule's open-ended structure is that providers are uncertain how the rule will be applied to them.[207] This uncertainty is bad for competition, because it raises transaction costs and favors incumbents. As mentioned above, the Coase Theorem requires low transaction costs to achieve efficient outcomes.[208] Further, the incumbent is better suited to bear the attrition of long, drawn out negotiations.[209]

The incumbent presumably has no pressing incentive to enter an agreement, other than the chance for arbitrage. The incumbent does not lose anything by holding out for more favorable terms.[210] The requesting provider, on the other hand, presumably has an incentive to enter an agreement as quickly as possible to begin serving, or continue serving, an area where they cannot afford to deploy their own network.[211]

The FCC recognized these concerns in December 2014, and issued guidance on how it would decide cases of alleged commercially unreasonable terms.[212] When viewed through the lens of the FCC's guidance, the Data-Roaming Rule begins to look more like the Automatic Roaming Rule for voice communications. The FCC stated that it would "consider as potentially relevant whether proffered data roaming rates are substantially in excess of retail rates, international rates, and mobile virtual network operator . . . resale rates, as well as how proffered data roaming rates compare to domestic data roaming rates charged by other providers."[213] But wireless providers are still arguing

204. *Mobile Data Order*, *supra* note 34, at 5415.
205. 47 U.S.C. § 332(c)(2) (2013).
206. Cellco P'ship v. FCC, 700 F.3d 534, 549 (D.C. Cir. 2012).
207. T-Mobile Petition, *supra* note 146, at 1.
208. Coase, *supra* note 157, at 903.
209. T-Mobile Petition, *supra* note 146, at 3–4.
210. *Id.* at Exhibit 1 at para. 12.
211. *See id.*
212. *Reexamination of Roaming Obligations*, *supra* note 122, at 1000.
213. *Id.* at para. 1.

over what this standard means.[214]

Moreover, by comparing the proffered rate to other types of rates, the FCC might appear to be considering the cost of providing service. The FCC may appear to be deciding what is commercially reasonable, by deciding what a reasonable rate of return would be in that service area, or it may appear to be setting a price cap.[215] In such a light, a court may decide that the FCC has ignored the D.C. Circuit's warning in *Cellco* and impermissibly imposed common carriage regulations on an information service.[216] Nonetheless, the FCC chose to except commercial data services from CMRS roaming requirements and left the Data-Roaming Rule in place.[217]

Regardless, the Data-Roaming Rule does not go far enough to protect competition. The Data-Roaming Rule still allows providers to "negotiate the terms of their roaming arrangements on an individualized basis."[218] An incumbent may keep transaction costs high by negotiating individual roaming agreements for each service area.[219] On a national scale, this would make it very difficult for a requesting provider to secure favorable terms.[220] Furthermore, if a requesting provider seeks to challenge the incumbent's terms nationwide, the requesting provider—who must rebut a presumption of reasonableness after signing a roaming agreement—would have to spend a great deal of time and money to have the contract declared unreasonable.[221] In each instance it would likely cost less to simply pay the higher rate than to contest the agreement's reasonableness before the FCC.

Conversely, under the CMRS standard, the requesting provider's transaction costs are substantially reduced. The Automatic Roaming Rule for facilities-based CMRS providers presumes "that a request by a technologically compatible CMRS carrier for automatic roaming is reasonable."[222] The transaction costs associated with rebutting the presumption of reasonableness on a case-by-case basis shifts to the incumbent provider, but the incumbent provider is in a better position to prove that the request is unreasonable because it can produce evidence from its own network.

214. *See, e.g.*, Sprint Ex Parte, *supra* note 154, at 1.
215. *See id.* at 17.
216. Cellco P'ship v. FCC, 700 F.3d 534, 549 (D.C. Cir. 2012).
217. *Open Internet Order*, *supra* note 17, at para. 526.
218. *Mobile Data Order*, *supra* note 34, at 5432.
219. T-Mobile Petition, *supra* note 146, at 6.
220. *Id*. at 10.
221. *Mobile Data Order*, *supra* note 34, at para. 25.
222. 47 C.F.R. § 20.12(d) (2014).

D. To protect the public interest, mobile broadband providers should be treated as true CMRSs.

These protections will be more important after the TDM-to-IP transition is complete. Under current regulations, voice calls will be delivered over commercial mobile data services after the TDM-to-IP transition. This means that voice calls will no longer be regulated as CMRSs. Instead, they will be regulated as commercial mobile data services; hobbled and ad hoc in the same vein as the Data-Roaming Rule. To protect the public interest, the *Open Internet Order* must stand, and the FCC should not forbear from applying the Automatic Roaming Rule to commercial mobile data services.

As it stands now, mobile data consumers are not adequately protected because the FCC has forborne CMRS regulations for commercial data services. This means the Data-Roaming Rule applies to VoLTE, and the attendant consumer and market harms discussed above persist. However, the FCC will "commence . . . a separate proceeding to revisit the data roaming obligations of [mobile broadband] providers."[223] In light of the transition from circuit switched voice networks to VoLTE, the FCC should find that such forbearance is not in the public interest, for the reasons discussed above.

Without the *Open Internet Order,* commercial mobile data services would probably be classified as a type of PMRS, and the FCC would have to promulgate several new regulations to preserve core values that are protected by current regulations. By definition a PMRS is a mobile radio service that is neither a CMRS, nor the functional equivalent of one.[224] As discussed above, commercial mobile data service as defined in the Code of Federal Regulations does not seem to be a CMRS or the functional equivalent of one.[225]

To ensure consumer protection, the *Open Internet Order* must stand, and VoLTE must be treated as a CMRS. The purpose of CMRS regulations is to ensure that CMRS users are able to contact any telephone subscriber from any location served by a CMRS, at least in the United States.[226] Further, CMRS regulations contain emergency service requirements.[227] If the *Open Internet Order* were struck down, the FCC would need to promulgate new regulations to the extent that its Part 90 rules do not adequately address the needs of mobile telephony.[228] Even so, the Telecommunications Act of 1996 precludes regulations from

223. *Open Internet Order*, *supra* note 17, at para. 526.

224. 47 C.F.R. § 20.3 (2014).

225. *See id.*

226. *See id.* §§ 20.11-20.12, 20.15, 20.19.

227. *Id.* § 20.18.

228. *See id.* § 20.12 (the FCC promulgated roaming obligations for commercial mobile data services that did not exist in 47 C.F.R. § 90 to address a present need.).

requiring PMRSs to carry for all people indifferently.[229] The Data-Roaming Rule is an example of a PMRS-type regulation that attempts to protect competition and consumers. As discussed above, classifying VoLTE as a PMRS, subject to self-regulation, antitrust protection, or limited FCC regulation would not adequately protect consumers.

The *Open Internet Order* should stand because the FCC has the authority to reclassify services and define terms if Congress has not already spoken on the matter, and the FCC's decision is rational.[230] The FCC *can* reclassify mobile Internet services as telecommunications services under *Chevron*.[231] A court applying *Chevron* deference would rightly leave such a decision in the hands of the regulator.[232] Using the same authority by which it classified mobile broadband services as information services, the FCC may find that mobile broadband services offer both telecommunications services and information services.[233]

The classification of mobile broadband service as an information service turns on the definition of "telecommunications service." A telecommunications service is a service that offers telecommunications for a fee directly to the public.[234] In the *Mobile Broadband Order,* the FCC interpreted "offers telecommunications" to mean as a standalone service.[235] Further, the FCC determined that under this interpretation, Internet service providers do not offer telecommunications.[236] In *Brand X*, the Supreme Court held that the term "offering telecommunications" is ambiguous.[237] The Court further held that the FCC *had the authority to interpret* "offering telecommunications" to mean offer telecommunications as a standalone service,[238] and that the FCC did so on a rational basis.[239]

229. Verizon v. FCC, 740 F.3d 623, 628 (D.C. Cir. 2014); *Mobile Data Order*, *supra* note 34, at 5445.

230. Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842–44 (1984).

231. Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 1002–03 (2005).

232. *Id.*

233. Vonage Holdings Corp. v. FCC, 489 F.3d 1232, 1240–41 (D.C. Cir. 2007).

234. 47 U.S.C. § 153 (2013).

235. *Mobile Broadband Order*, *supra* note 11, at 5902.

236. *Id.*

237. *Brand X*, 545 U.S. at 967, 989.

238. *Id.* at 997.

239. *Id.* at 1002.

However, in light of the changes in Internet use, and the need for a public switched network, the FCC reasonably concluded that Internet service providers also offer telecommunications.[240] As Justice Scalia illustrated in his dissent, it would be reasonable to conclude that a pizzeria that delivers pizza offers pizza and delivery, rather than simply offering pizza, which it will subsequently bring to the customer.[241]

CONCLUSION

In conclusion, the *Open Internet Order* enables the FCC to continue regulating mobile telephone calls as common carriage, and to adequately protect competition and consumers. Mobile telephone services are currently covered by common carriage regulations. However, telephone service is migrating away from common carrier circuit switched networks to IP-based networks. Without the *Open Internet Order*, IP networks are classified as information only services, and cannot be regulated as common carriers.

Mobile telephone service is currently classified as a CMRS, which is subject to common carrier regulations. However, CMRSs must be interconnected with the public switched network. Without the *Open Internet Order*, there will not be a public switched network after the TDM-to-IP transition. Without the public switched network, VoLTE cannot be a CMRS. Thus, without the *Open Internet Order*, the FCC cannot regulate VoLTE as a common carriage service.

The FCC can continue to regulate mobile voice services as common carriage services because it reclassified mobile broadband services as telecommunications services. Acknowledging the telecommunications service element made mobile broadband services part of the public switched network, because telecommunications services are common carriers. Now that mobile broadband services are part of the public switched network, common carrier regulations, such as the Automatic Roaming Rule, can apply to them.

Common carrier regulations are necessary because competition and antitrust laws cannot adequately protect mobile telephone service consumers. Competition in the mobile service market is not robust enough to ensure that large players do not abuse their market power. Antitrust law cannot adequately protect consumers because consumers cannot bring antitrust actions until after they have been harmed. Furthermore, it is not clear that antitrust laws can apply to regulated industries. Finally, the ad hoc regulations currently in place for mobile broadband services—which arose to try to bridge the gap between

240. *Open Internet Order*, *supra* note 17, at para. 363.
241. *Brand X*, 545 U.S at 1007 (Scalia, J., dissenting).

commercial mobile radio service and private mobile radio service—do not do enough to protect competition.

Accordingly, in the interest of consumer protection, the *Open Internet Order* should stand, and the FCC should apply pro-consumer rules, such as the Automatic Roaming Rule to commercial mobile broadband services. Otherwise, mobile telephone service will abandon consumer protection as if it were an outdated technology.