



January 2015

Data Caps: Creating Artificial Scarcity as a Way Around Network Neutrality

Robert Klein

Follow this and additional works at: <http://digitalcommons.law.scu.edu/chtlj>

Recommended Citation

Robert Klein, *Data Caps: Creating Artificial Scarcity as a Way Around Network Neutrality*, 31 SANTA CLARA HIGH TECH. L.J. 139 (2015).

Available at: <http://digitalcommons.law.scu.edu/chtlj/vol31/iss1/4>

This Comment is brought to you for free and open access by the Journals at Santa Clara Law Digital Commons. It has been accepted for inclusion in Santa Clara High Technology Law Journal by an authorized administrator of Santa Clara Law Digital Commons. For more information, please contact sculawlibrarian@gmail.com.

COMMENT

Data Caps: Creating Artificial Scarcity as a Way Around Network Neutrality

Robert Klein†

Data caps enable Internet service providers (ISPs) use data caps to sell blocks of data to customers, creating an artificial scarcity to monetize an otherwise valueless commodity. ISPs will then further monetize on data caps by selling content providers data-cap-free access to the ISP's customers. This could be seen as a violation of network neutrality principles since network traffic would no longer be treated equally. Conversely, it could be seen as a way to manage ever-increasing Internet traffic. This article first explores the arguments for and against data caps as a means for maintaining the network's traffic flow from the perspective of the consumer, the content provider, and the ISP. This article then recommends several solutions to current and potential problems. These solutions would still allow data cap use but in a more transparent and fair manner to dissuade abuse by ISPs and surprise to consumers.

TABLE OF CONTENTS

INTRODUCTION	140
I. NETWORK CAPACITY AS A SCARCE RESOURCE	141
II. JUSTIFICATIONS FOR IMPOSING DATA CAPS	142
A. Network Congestion and Customer Experience	143
B. Recovering Sunk Costs to Re-Invest Back Into Network.....	145
III. POTENTIAL PROBLEMS CAUSED BY ABUSIVE USE OF DATA CAPS.....	147
A. From Consumers in Adjusting Behavior.....	148
B. From Content Providers in Reduced Traffic	150
C. ISPs Exempt Their Own Traffic.....	152
IV. SOLUTIONS TO THE DATA CAP PROBLEM	156
A. Adjudication, Not Regulation	157

† Robert Klein is a third-year law student at Santa Clara Law.

B. Legislation.....	157
C. Transparency and Education.....	159
CONCLUSION	161

INTRODUCTION

Internet service providers (ISPs) use data caps to create an artificial scarcity to monetize an otherwise valueless commodity by selling blocks of data to consumers and content providers. ISPs justify using data caps by arguing that they must recover the cost of building a network that encompasses millions of people. In 2005, SBC Communications’s CEO Edward Whitacre was asked whether he was worried about the Internet-startups Google, MSN, and Vonage.¹ His answer, that ISPs need “some mechanism for these people who use these pipes to pay for the portion they’re using”² demonstrates that ISPs will do what they can to recoup the costs spent in building out their network, including potentially violating network neutrality by restricting network usage. Network neutrality was coined by Professor Timothy Wu in 2003³ and follows the “end-to-end” argument developed by Saltzer, Reed, and Clark in 1984 that states that networks should be neutral with no restrictions from the network itself because applications know best as to what network resources they require.⁴

This comment explores the possible reasons for data caps and ramifications that data caps have on consumers and content providers. Section I explores network capacity, along with possible reasons for a limitation on its use and possible problems with abuse. Section II discusses solutions to the data cap problem that could allow for data caps to exist, provided that they are coupled with greater transparency and consumer education.

1. Patricia O’Connell, *Online Extra: At SBC, It’s All About “Scale and Scope,”* BLOOMBERG BUSINESSWEEK (Nov. 6, 2005), available at <http://www.businessweek.com/stories/2005-11-06/online-extra-at-sbc-its-all-about-scale-and-scope>.

2. *Id.*

3. Timothy Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141, 142 (2003).

4. J.H. Saltzer et al., *End-to-End Arguments in System Design*, 2 ACM TRANSACTIONS COMPUTER SYS. 277 (1984), available at <http://web.mit.edu/Saltzer/www/publications/endoend/endoend.pdf>.

I. NETWORK CAPACITY AS A SCARCE RESOURCE

Network capacity is limited and can be strained beyond its breaking point.⁵ Put too much data into the stream at the same time and congestion occurs, causing routers to queue packets or drop them, which, in turn, causes an Internet connection to seem unresponsive or slow.⁶ The Internet's designers put substantial thought into dealing with network congestion,⁷ such as providing methods for allowing networks to prioritize and control traffic.⁸ Of course, these schemes depended on the ability of computer users at the edge of the network to conform their behavior to an honor code and act in the best interest of others on the same network.⁹ Consequently, congestion concerns grew, and organizations made recommendations,¹⁰ which were followed at the time.¹¹ However, peer-to-peer (P2P) software, such as BitTorrent, and web browser extensions would quickly change how networks were used by allowing users to push their network connection beyond the limits set forth in those recommendations.¹²

BitTorrent use had the potential to cause severe congestion if it went unnoticed, and this was Comcast's argument in its response to the Federal Communications Commission's (FCC's) suit against Comcast for manipulating P2P traffic.¹³ Because BitTorrent does not obey the

5. See, e.g., Chris Smith, *PlayStation Network Buckling Under Strain of New PS4 Logons Shocker*, TECHRADAR (Nov. 15, 2013), <http://www.techradar.com/us/news/gaming/consoles/playstation-network-in-failing-over-under-strain-of-new-ps4-logons-shocker-1199868>; see also Emily Ateberry, *iOS7 Updates Strain College Wireless Networks*, USA TODAY (Dec. 6, 2013, 12:08 PM EST), <http://www.usatoday.com/story/tech/personal/2013/09/19/wireless-networks-college-ios-strain/2837341/>.

6. Art Reisman, *Network Bottlenecks—When Your Router Drops Packets, Things Can Get Ugly*, NETEQUALIZER NEWS BLOG (Sept. 5, 2012), <http://netequalizernews.com/2012/09/05/network-bottlenecks-when-your-router-drops-packets-things-can-get-ugly/>.

7. Charles L. Jackson, *Wireless Efficiency Versus Net Neutrality*, 63 FED. COMM. L.J. 445, 449 (2011).

8. Christopher S. Yoo, *Network Neutrality and the Need for a Technological Turn in Internet Scholarship*, in ROUTLEDGE HANDBOOK OF MEDIA LAW AND POLICY 539, 540–41 (Monroe E. Price & Stefaan G. Verhulst eds., 2012), available at http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1412&context=faculty_scholarship (Penn Law: Legal Scholarship Repository, Faculty Scholarship, Paper No. 413).

9. Jackson, *supra* note 7, at 449.

10. BOB BRADEN ET AL., THE INTERNET SOC'Y, RFC No. 2309, RECOMMENDATIONS ON QUEUE MANAGEMENT AND CONGESTION AVOIDANCE IN THE INTERNET (1998), available at <http://tools.ietf.org/html/rfc2309>.

11. See Jackson, *supra* note 7, at 450; see also SALLY FLOYD, THE INTERNET SOC'Y, RFC No. 2914, CONGESTION CONTROL PRINCIPLES (2000), available at <http://tools.ietf.org/html/rfc2914> (stating that browsers only open two connections at once).

12. Jackson, *supra* note 7, at 450–51 (discussing a Firefox extension that allowed for up to 16 connections).

13. Comcast Corp. v. F.C.C., 600 F.3d 642, 644–45 (D.C. Cir. 2010).

recommendations set forth in prior years, severe network congestion can be a legitimate worry when Internet usage is ever-expanding and will soon reach the zettabyte threshold by 2016.¹⁴ This kind of increase in network usage requires a significant investment in the network.

In attempting to deal with the increasing network usage, ISPs, including AT&T and Comcast, use data caps to force customers and content providers into being aware of their Internet usage.¹⁵ With a data cap in place, consumers will adjust their behavior. However, in a more stringent data cap environment, a customer will adjust too far to their own detriment.¹⁶ These restrictive data caps that are placed on consumers have a detrimental effect on content providers as well.

The FCC is not standing in the way of ISPs imposing data caps either. In fact, in 2012, FCC chairman Julius Genachowski endorsed the idea of data caps as “healthy and beneficial” for the industry.¹⁷ Michael Powell, a former FCC chairman and current head of the National Cable & Telecommunications Association (NCTA), said that the industry wants to experiment,¹⁸ which the the FCC will allow.¹⁹

II. JUSTIFICATIONS FOR IMPOSING DATA CAPS

ISPs impose data caps for several reasons. First, an ISP has to deal with network congestion. While an ISP has tools for dealing with congestion, such as prioritization of traffic and router message queues, they are inadequate when all network traffic is of the same type or priority and a router has to start dropping packets when there is an

14. A zettabyte is one billion gigabytes. Internet traffic for the busiest hour of the day will increase 3.4 times between 2013 and 2018. CISCO, CISCO VISUAL NETWORKING INDEX: FORECAST AND METHODOLOGY, 2013-2018 (2014), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/ip-ngn-ip-next-generation-network/white_paper_c11-481360.pdf.

15. Working Group on Economic Impacts of Open Internet Frameworks, FCC Open Internet Advisory Comm., *Policy Issues in Data Caps and Usage-Based Pricing*, 2013 OIAC ANN. REP. 16 (2013), <http://transition.fcc.gov/cgb/oiac/oiac-2013-annual-report.pdf> [hereinafter *Data Cap Policy*].

16. Marshini Chetty et al., “*You’re Capped!*” *Understanding the Effects of Bandwidth Caps on Broadband Use in the Home*, MICROSOFT RES. 5 (May 2012), http://research.microsoft.com/pubs/162079/YourCapped_HomeBroadbandUseUnderCaps_CHI2012.pdf.

17. Cecilia Kang, *FCC Chairman Supports Broadband Data Caps Amid Netflix Protests*, WASH. POST (May 22, 2012, 11:16 AM), http://www.washingtonpost.com/blogs/post-tech/post/fcc-chairman-supports-broadband-data-caps-amid-netflix-protests/2012/05/22/gIQAfN9hU_blog.html.

18. *See id.*; *see also* John Eggerton, *NCTA’s Powell: Usage-Based Pricing About Fairness, Not Capacity*, BROADCASTING & CABLE (Jan. 17, 2013, 12:23 PM), <http://www.broadcastingcable.com/news/washington/nctas-powell-usage-based-pricing-about-fairness-not-capacity/61022>.

19. *Data Cap Policy*, *supra* note 15, at 2.

influx of the same packet types. Congestion lowers the quality, and thus the value, of the Internet connection for consumers. If consumers want a satisfying experience with their Internet connection, ISPs argue that data caps help deal with customers who use the Internet much more than ordinary customers, thus degrading performance of the Internet for others. Second, ISPs can exempt their own traffic from the data cap, lowering the competition's value to those consumers who are under such a data cap. ISPs can then charge content providers to exempt their content from those data caps. By doing this, content providers would have their content bypass a customer's data cap, in turn raising the value of that content to consumers. This would also raise the value of the ISP because they would have content that does not count towards a data cap that other ISPs do count towards the cap. Third, ISPs can recoup the cost of building the network by double billing content providers, which they can then reinvest into the network. By expanding their existing network, ISPs can acquire more customers, thereby raising the value of the network to content providers.

A. Network Congestion and Customer Experience

Network congestion can reduce consumer satisfaction with their use of the Internet. ISPs cannot limit the time a user is on the Internet, such as how America Online (AOL) limited how long a user can stay online. AOL would limit how long users could stay connected to the service in an effort to allow others to connect. Although AOL abandoned this approach because of market forces,²⁰ they had a valid argument for limiting such access to their service because a dialup modem uses a circuit-switched network that only provides for a limited number of users at the same time.²¹ Thus, AOL had a reason to establish a network usage limitation: to allow for others to use the service and to discourage those from using the service too much.

However, when broadband Internet allowed for an always-on connection, ISPs needed a way to deal with their customers always being connected to the Internet. Since congestion was the byproduct of network usage, placing limits on this usage seemed like an easy choice for ISPs trying to solve the congestion problem. Comcast stated its caps are “to ensure that all of our customers were treated fairly and had a

20. Andrew Odlyzko et al., *Know Your Limits: Considering the Role of Data Caps and Usage Based Billing in Internet Access Service*, PUBLIC KNOWLEDGE 43 (May 2012), <http://publicknowledge.org/files/UBP%20paper%20FINAL.pdf>.

21. Lee Copeland, *QuickStudy: Packet-Switched vs. Circuit-Switched Networks*, COMPUTERWORLD (Mar. 20, 2000, 12:00 AM), <http://www.computerworld.com/article/2593382/networking/packet-switched-vs--circuit-switched-networks.html>.

consistent and superior experience.”²² Similarly, AT&T stated its caps are “ensuring that all our subscribers have the best Internet experience possible.”²³ CenturyLink followed suit and have also stated that data caps “ensure a positive customer experience.”²⁴ All of these statements rely upon on a broad “reasonable network management” standard as stated in the FCC’s now-failed *Open Internet Order*.²⁵ This reasonableness standard was first used in *Hush-a-Phone* and again in *Carterfone*, where a telephone network attachment could not be prohibited by the telephone company unless it was “publicly detrimental”²⁶ or “adversely affect[ed] the telephone company’s operations or the telephone system’s utility for others.”²⁷ The FCC again used this reasonable network management standard in its 2005 *Internet Policy Statement*,²⁸ giving ISPs considerable leeway in managing their networks.

ISPs contend that data caps will force consumers to be more efficient with their Internet usage, especially in the case of heavy users.²⁹ However, this position does not take into account off-peak hours, where bandwidth usage is “completely free.”³⁰ Peak usage times are in the evening hours when people are at home, and this usage counts toward a data cap.³¹ Off-peak data usage also counts toward a data cap, however, which belies the reason for data caps in the first place. As

22. Cathy Avgiris, *Comcast to Replace Usage Cap with Improved Data Usage Management Approaches*, COMCAST VOICES (May 17, 2012), <http://corporate.comcast.com/comcast-voices/comcast-to-replace-usage-cap-with-improved-data-usage-management-approaches>.

23. AT&T, *OPEN INTERNET POLICY STATEMENT* (2013), <http://publicpolicy.att.com/wp-content/uploads/2012/12/ATT-Net-Neutrality-Policy-Statement.pdf>.

24. *High Speed Internet Service Management*, CENTURYLINK, <http://www.centurylink.com/Pages/AboutUs/Legal/InternetServiceManagement> (last visited Nov. 25, 2013) [hereinafter CENTURYLINK].

25. 47 C.F.R. §§ 8.3, 8.5, 8.7 (2012). Network management is reasonable “if it is appropriate and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband Internet access service.” *Id.* § 8.11(d).

26. *Hush-a-Phone Corp. v. U.S.*, 238 F.2d 266, 269 (D.C. Cir. 1956).

27. *Matter of Use of the Carterfone Device in Message Toll Telephone Service*, 13 F.C.C.2d 420, 424 (1968).

28. FCC Internet Policy Statement, CC Docket Nos. 02-33, 01-337, 95-20, 98-10, GN Docket No. 00-185, CS Docket No. 02-52, 20 FCC Rcd 14986, 14988 n.15 (2005), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf (“The principles we adopt are subject to reasonable network management.”).

29. *Data Cap Policy*, *supra* note 15, at 16.

30. Netflix, Inc., File No. 000-49802, Current Report (Form 8-K), at 7 (Apr. 25, 2011), <http://files.shareholder.com/downloads/NFLX/1872575600x0xS1193125-11-107751/1065280/filing.pdf> [hereinafter Netflix 2011 Report].

31. CenturyLink states peak time is 7 p.m. to 11 p.m. local time. CENTURYLINK, *supra* note 24.

Netflix stated, “data caps are actually a very poor way to manage demand and limit Internet congestion” since an ISP designs their network based on peak usage.³² ISPs wish to limit heavy users during this peak time,³³ and counting usage outside of this time frame seems to favor inefficiency since the network would then go unused in off-peak hours.

Ideally, ISP would prefer heavy end customers to use off-peak time to spread out their data usage, instead of penalizing them for using the Internet no matter when they use it. Australian ISPs are discussing the idea about charging differently for peak and off-peak times.³⁴ This is akin to how the electric companies charge for electricity during peak and off-peak times.³⁵ This usage-sensitive pricing scheme would be a more effective way of managing congestion during peak hours because it would force customers, especially heavy end customers, to re-think using the network when congestion is highest. It would then allow customers to use the Internet more at off-peak times, which cost ISPs very little, while also preserving stability in the network and future application development and innovation.³⁶

B. Recovering Sunk Costs to Re-Invest Back Into Network

Building and expanding networks require immense capital. The NCTA reports that its ISP members have invested \$213.4 billion into their networks since 1996.³⁷ AT&T reported that it invested over \$98B in the past five years and will invest \$21 billion to further build out their network in 2013.³⁸ These investments were because the Internet was unregulated, and this unregulated Internet, as Comcast argued, was “preserving incentives for investment in, and deployment and adoption

32. Netflix 2011 Report, *supra* note 30, at 7.

33. Daniel A. Lyons, *Internet Policy's Next Frontier: Data Caps, Tiered Service Plans, and Usage-Based Broadband Pricing*, 66 FED. COMM. L.J. 1, 16 (2013).

34. Chris Jager, *Could Peak-Time Internet Charging Be On The Cards For Australian ISP Customers?*, GIZMODO AUSTL. (July 25, 2013, 11:40 AM), <http://www.gizmodo.com.au/2013/07/could-peak-time-internet-charging-be-on-the-cards-for-australian-isp-customers/>.

35. Termed “time-of-use billing.” Lyons, *supra* note 33, at 7; *see, e.g., Time-of-Use, PG&E*, <http://www.pge.com/en/mybusiness/rates/typ/toupricing.page> (last visited Nov. 25, 2013).

36. Letter from Tim Wu & Lawrence Lessig to Marlene H. Dortch, Sec’y, Fed. Comm’n Comm’n, CS Docket No. 02-52, at 3 (Aug. 22, 2003), *available at* http://www.freepress.net/sites/default/files/fp-legacy/wu_lessig_fcc.pdf.

37. *Industry Data*, NCTA, <http://www.ncta.com/industry-data> (click on “Tracking Cable’s Investment in Infrastructure”) (last visited July 22, 2014).

38. This takes wired and wireless networks into account. *AT&T Investment Drives Service Improvements*, AT&T, http://www.att.com/Common/about_us/pdf/network_investment_info_graphic.pdf (last visited Nov. 25, 2013).

of, broadband services.”³⁹ Comcast made a very important point that these huge investments, both then and now, were “*without* government subsidy.”⁴⁰ Thus, the billions invested into these networks came from ISPs and their investors entirely.⁴¹ Investors will stop investing if they cannot get back their investment plus a competitive return.⁴² This is why ISPs experiment with ways to “fairly monetize a high fixed cost” and lessen the impact of the “high-end elite” subsidization.⁴³ Because bandwidth costs the same during peak and off-peak hours, ISPs should encourage these “high-end elite” customers to use off-peak bandwidth by making peak bandwidth cost more in the same way some electric companies operate; it would be a more efficient use of the network that still allows for innovation.

One critic, Professor Christopher Yoo, argues against this analogy to the electric company and their billing strategies.⁴⁴ He argues that phone companies never moved to per-minute pricing because “metering costs outweighed what little benefit that would have resulted from a more accurate accounting of the actual traffic flows.”⁴⁵ However, his statement was directed at phone companies years ago and does not account for the fact that ISPs and third-parties already offer many tools to measure data usage.⁴⁶ Thus, there would be no costs, or nominal costs at most, associated with usage-sensitive pricing. Even if there were costs, they would be easily outweighed by the benefits of giving consumers a fairer pricing structure that incorporates their usage of the network. If ISPs want a fair method to monetize their high fixed costs, this would be one way they could do it without using data caps.

However, data caps incentivize ISPs, who can charge content providers for data cap exemption. The more customers an ISP has, the greater the value this data cap exemption would have to content

39. Comcast Corp., WC Docket No. 07-52, Comments on Broadband Industry Practices 5 (Feb. 12, 2008), <http://apps.fcc.gov/ecfs/document/view?id=6519840991>.

40. *Id.* at 7 (emphasis in original).

41. In Japan, Korea, and Sweden, the government subsidized broadband rollout with direct investments, tax breaks, and low-cost loans. Saul Hansell, *The Broadband Gap: Why Do They Have More Fiber*, N.Y. TIMES BITS (Mar. 12, 2009, 4:00 AM), <http://bits.blogs.nytimes.com/2009/03/12/the-broadband-gap-why-do-they-have-more-fiber/>.

42. Lyons, *supra* note 33, at 19.

43. Eggerton, *supra* note 18.

44. See Christopher Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1868 (2006).

45. Lyons, *supra* note 33, at 15; see also Yoo, *supra* note 44, at 1868.

46. Brett M. Frischmann & Barbara van Schewick, *Network Neutrality and the Economics of an Information Superhighway: A Reply to Professor Yoo*, 47 JURIMETRICS J. 383, 396 (2007); see, e.g., *AT&T Data & Internet Usage Tools*, AT&T, <http://www.att.com/internet-usage> (last visited Nov. 25, 2013) (stating that the top 2% accounts for 20% of bandwidth).

providers. AT&T, for instance, as one of the largest cell carriers and ISPs in the market today,⁴⁷ has enough customers to raise its value to content providers. AT&T used this advantage to introduce “Sponsored Data.”⁴⁸ As the name suggests, the plan would allow content providers, such as Amazon, to pay for or sponsor particular data and have it exempted from caps.⁴⁹ This gives a significant advantage to companies who can afford to paying twice: once for their own Internet connection, and once again for the customer’s data. It is easy to see how small startups would not be in any place to compete on this scale without significant venture capital funding.

Further, the more content providers exempted from data caps on a particular ISP, the more valuable it becomes to consumers; even if ISPs are footing the bill. T-Mobile, for instance, introduced a data plan that exempted all music streaming services from its data cap.⁵⁰ This gives T-Mobile a significant differential as compared to its competitors. This would eliminate the concern that bigger, incumbent music services would hold an advantage over startups. However, this kind of innovative solution was necessary only because of, and as a solution to, the use of data caps. As such, if ISPs like AT&T and T-Mobile want to charge for exempted access, they will find their network capacity is more valuable when scarce, which data caps can accomplish this no matter the network's data capacity.

Thus, by creating an artificial scarcity and limiting data, ISPs can sell that data at a higher price than they could if consumers had unlimited access to data. By charging for data exemptions and double-billing content providers, ISPs gain a healthier return on their investments. However, these actions would undermine the argument that ISPs impose data caps to deal with network congestion and force consumers to pay for their fair share of the network.

III. POTENTIAL PROBLEMS CAUSED BY ABUSIVE USE OF DATA CAPS

Consumers and content providers must deal with the effects of data caps, regardless of how they are justified by ISPs. These effects

47. Asif Imtiaz, *AT&T and Verizon Shares Similar Market Share*, U.S. FIN. POST (June 3, 2014), <http://usfinancepost.com/att-and-verizon-shares-similar-market-share-19423.html>.

48. *Sponsored Data for Mobile*, AT&T, <http://www.att.com/att/sponsoreddata/en/index.html> (last visited July 14, 2014).

49. Ina Fried, *Could Amazon Be the First Major Customer for AT&T's "Toll-Free" Data Service?*, RECODE (June 17, 2014, 11:20 AM), <http://recode.net/2014/06/17/could-amazon-be-the-first-major-customer-for-atts-toll-free-data-service/>.

50. See, e.g., *Free Music Streaming & Downloads with Simple Choice Plans*, T-MOBILE, <http://www.t-mobile.com/offer/free-music-streaming.html> (last visited July 14, 2014).

include limited access to the Internet, yet there are some consumers who might. These effects could have a negative effect on their behavior. From the perspective of content providers, data caps place unnecessary limits on consumers, which effect their business. Content providers must re-examine their practices and possibly look to other means to reach consumers without worrying about data caps.

A. From Consumers in Adjusting Behavior

From the perspective of consumers, data caps indicate a limit they are not supposed to exceed. Despite the pushback, data caps reign and continue to spread in use.⁵¹ Currently, data caps are imposed on 60% of Internet subscribers, having grown in just six years to cover millions of Americans.⁵² Unfortunately, most Americans have no idea whether or not they are under a data cap or what a data cap even entails.⁵³ Because of this uncertainty, opponents may be right: data caps are unfair and are used to subsidize an ISP that already paid off its network buildout.⁵⁴ Considering that network bandwidth is cheap and a gigabyte (GB) of data costs the same during peak and off-peak hours, data caps might seem unfair to consumers. For instance, AT&T charges an additional \$10 for 50GB of data if someone goes over their cap.⁵⁵ While this might not seem like much, it still amounts to a significant profit for ISPs, given the actual cost of a GB, and burdens consumers, who cannot adequately plan their budgets for the month. Larger households have a harder time dealing with a data cap, as the available data becomes another consumable good which the head of the household must manage.⁵⁶

In devising the first, and now failed, version of the open Internet rules, the Open Internet Working Group found the data to be lacking concerning how data caps affect consumers' behavior.⁵⁷ Conversely, a

51. See Maura Corbett, *Enough About Data Caps: They're a Terrible Idea*, GIGAOM (Apr. 14, 2013, 10:30 AM), <http://gigaom.com/2013/04/14/enough-about-data-caps-theyre-a-terrible-idea/>.

52. Stacey Higginbotham, *As Broadband Caps Turn 4, It's Time for the FCC to Take Action*, GIGAOM (Oct. 1, 2012, 12:03 PM), <http://gigaom.com/2012/10/01/data-caps-fcc/>.

53. CISCO, *BANDWIDTH CONSUMPTION AND BROADBAND RELIABILITY* (2012), http://www.cisco.com/en/US/prod/collateral/netmgtsw/ps12587/ps12589/white_paper_c11-711195.pdf.

54. Susan Crawford, Blog, *The Facts*, SUSAN CRAWFORD (May 24, 2013), <http://scrawford.net/the-facts/>.

55. *Broadband Usage FAQs*, AT&T, <http://www.att.com/esupport/article.jsp?sid=KB409045&cv=803> (last visited Nov. 25, 2013).

56. Chetty et al., *supra* note 16, at 6.

57. *Data Cap Policy*, *supra* note 15, at 12–13.

Georgia Tech study of data caps and their effects on consumers in South Africa found that consumer behavior would be substantially altered by a data cap “[b]ecause when you have broadband caps, you will use the Internet differently.”⁵⁸ The Working Group also questioned whether consumers would be able to adjust to data caps.⁵⁹ A limited trial of data caps conducted by Time Warner Cable in 2008 of 10,000 customers showed that 14% went over their data caps.⁶⁰ While this number is much higher than the 2% reported by AT&T, Time Warner Cable’s trial only tested data caps as high as 40GB.⁶¹ On one side, it would seem that consumers are able to adapt to a data cap. On the other side, consumers could simply stop using the Internet. For example, the Georgia Tech study found that “many of the households . . . studied chose not to perform regular software updates in order to manage their cap.”⁶² This would have a significant impact on the Internet overall by increasing the threat posed by viruses, trojans, intrusions, and ransomware.⁶³ It should be noted that in the United States, consumers have more opportunities to connect to the Internet, such as free Wi-Fi offered by Starbucks,⁶⁴ McDonald’s,⁶⁵ and public libraries.⁶⁶ Thus, data caps might not have the same impact in this country as the one that the Georgia Tech study found in South Africa. Nonetheless, the study does show that consumers will alter their behavior when placed under a stringent data cap and, often times, increase the risk of infection and intrusion to do so.

58. *Georgia Tech/Microsoft Study Shows Bandwidth Caps Create Uncertainty, Risky Decisions: Home Bandwidth Management Tools Becoming More Important For Users*, GA. TECH (May 7, 2012), <http://www.news.gatech.edu/2012/05/07/georgia-techmicrosoft-study-shows-bandwidth-caps-create-uncertainty-risky-decisions> [hereinafter *GA. Tech Study*].

59. *Data Cap Policy*, *supra* note 15, at 13.

60. Odlyzko et al., *supra* note 20, at 8.

61. *Id.* at 7.

62. *GA Tech Study*, *supra* note 58.

63. This type of virus has been around for some time, but a new threat is circulating, called CryptoLocker, which encrypts a user’s files and demands a ransom to unlock them. There is no known fix at this point in time, but should one become available, people should be encouraged to download the fix immediately. However, this becomes problematic with a stringent data cap as noted by the Georgia Tech study. See Joshua Cannell, *Cryptolocker Ransomware: What You Need To Know*, MALWAREBYTES (Oct. 8, 2013), <http://blog.malwarebytes.org/intelligence/2013/10/cryptolocker-ransomware-what-you-need-to-know/>.

64. See *Wi-Fi (United States)*, STARBUCKS, <http://www.starbucks.com/coffeehouse/wireless-internet> (last visited July 8, 2014).

65. See *Free Wi-Fi @ McDonald’s*, MCDONALD’S, http://www.mcdonalds.com/us/en/services/free_wifi.html (last visited July 8, 2014).

66. See, e.g., *WI-FI*, SACRAMENTO PUB. LIBRARY, <http://www.saclibrary.org/Services/Wi-Fi/> (last visited July 8, 2014).

B. From Content Providers in Reduced Traffic

Content providers face a unique problem with data caps. Content must flow over the ISP's network to reach customers, and this content is worthless without customers. The Internet does not exist merely for itself; customers demand content. ISPs should not limit access to content because more content means greater value for an Internet connection for consumers. This increase in value leads to more customers, higher fees paid for faster Internet access, and possibly, customers keeping their Internet connection longer because they now have reasons to use that connection.

There are many content providers that directly compete with services offered by ISPs, such as video and voice-over Internet protocol (VoIP), both of which travel over the same network. This presents a huge problem for content providers when it comes to data caps. Namely, an ISP has an incentive to prioritize its own traffic over its own network, and thereby, discriminate against competitive services. Michael Powell said this was not the case, citing the explosive growth of online video services as evidence that cable companies have never discriminated against competing services.⁶⁷ The explosive growth that Powell refers to is evident from Netflix's testimony during a House committee hearing in 2012, where it claimed to have 23 million customers, and its third quarter report in 2013, where it reports having over 40 million customers, a figure that accounts for 34.2% of all data usage on the Internet.⁶⁸ The large amount of data used by one company could drive ISPs to impose data caps, not only as a way to deal with congestion, but also as a way to deal with competition because the highest data users are probably those who rely on the Internet for video entertainment.⁶⁹ Michael Powell's comments could still be true because data caps do not penalize, and thus discriminate against, content provider when customers goes over their data cap. However, data caps will force content providers to re-think their own use of the network so as to be more efficient and allow for the greatest number of customers as possible.

67. *The Future of Video: Hearing Before the Subcomm. on Comm'n & Tech. of the H. Comm. on Energy & Commerce*, 112th Cong. 69, 76 (June 27, 2012) (statement of Michael K. Powell, President and CEO, Nat'l Cable & Telecommunications Assoc.) available at <http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/Hearings/CT/20120627/HHRG-112-IF16-WState-PowellM-20120627.pdf>.

68. Todd Spangler, *Netflix Remains King of Bandwidth Usage, While YouTube Declines*, VARIETY (May 14, 2014), <http://variety.com/2014/digital/news/netflix-youtube-bandwidth-usage-1201179643/>.

69. *Id.*

Content providers can minimize their network data usage in several ways. This usually involves offering their content in several qualities. For example, Netflix offers three different video quality settings.⁷⁰ The lowest setting for video quality Netflix offers is the default in Canada, where ISPs have stringent data caps.⁷¹ Content providers must educate their customers to use these settings for these settings to be effective in reducing network usage for both the customer and the content provider. Ordinary consumers would not know of such a setting, and thus, the setting would be the default setting. Spotify, a streaming service providing music content, offers three different qualities as well.⁷² Under Spotify's highest setting for music streaming quality, it is easy for customers to exceed 20GB of data a month from streaming music alone. Thus, some content providers can provide ways for their customers to consume their content with less impact on a data cap, while others have different ways to deal with network usage, such as to provide a physical disc for the content.

Content providers have other options to limit their use of the network, but those options are not optimal and will limit innovation. Microsoft's Xbox One and Sony's PlayStation 4 have the ability to download games over the Internet in lieu of buying a physical Blu-ray disc, some of which exceed 50GB in size.⁷³ Downloading one game of that size would exceed a normal Internet user data limit by more than two and a half times.⁷⁴ Consumption of digital video games account for 40% of video game sales in 2012.⁷⁵ Unlike Netflix and Spotify, who can downgrade the quality of their streaming content to lower its impact on data caps, Microsoft, Sony, and mobile gaming developers would need to develop their content in multiple formats to lessen the quality of their content. They could, nonetheless, offer their content on a physical Blu-Ray disc. However, this would stifle the innovation of

70. *Manage Bandwidth Usage*, NETFLIX, <https://support.netflix.com/en/node/87> (last visited Nov. 25, 2013).

71. Netflix 2011 Report, *supra* note 30, at 7.

72. *What Bitrate Does Spotify Use For Streaming?*, SPOTIFY, <https://support.spotify.com/us/learn-more/faq/#!/article/What-bitrate-does-Spotify-use-for-streaming> (last visited Nov. 25, 2013).

73. Mike Futter, *Customer Receives Xbox One Early, Details Update And Game Installation Sizes*, GAME INFORMER (Nov. 10, 2013, 10:12 AM), <http://www.gameinformer.com/b/news/archive/2013/11/10/customer-receives-early-xbox-one-shipment-details-update-and-game-installation-sizes.aspx>.

74. AT&T reports that the average customer uses 21GB a month. *AT&T Data & Internet Usage Tools*, *supra* note 46.

75. *Games: Improving the Economy*, ENT. SOFTWARE ASS'N, <http://www.theesa.com/games-improving-what-matters/economy.asp> (last visited Nov. 25, 2013).

offering consumers the convenience of shopping online and downloading content directly from the developer. Future game developers would be impacted by this, and might be discouraged from further development.

These examples show that content providers have to be vigilant when it comes to the network usage of their customers. If customers have a stringent data cap or have any fear of approaching even a large one, a content provider must provide ways to alleviate their customers' data usage. On one hand, the New America Foundation criticizes this type of "discipline."⁷⁶ However, on the other, computer programmers must have discipline in the programs they create by only using the capability of a given system. The New America Foundation argues that disciplining content providers in their network usage runs counter to innovation,⁷⁷ yet nothing that is inefficient remains useful. Efficiency creates opportunities to get more out of a system than what inefficiency would bring. Netflix continues to innovate to alleviate bandwidth issues and costs on the Internet.⁷⁸ Other content providers, such as Microsoft and Sony, have opportunities, such as offering a physical disc, but these opportunities exist only because they are large, multinational corporations with enough capital to actually provide a physical disc to millions of consumers worldwide. Smaller developers would not have the capital to provide physical discs whenever a data cap is impacting a customer, and game developers for mobile devices do not have any such opportunity even if they had the capital.

C. ISPs Exempt Their Own Traffic

Comcast offers video programming service, along with Internet and VoIP.⁷⁹ Comcast also had an Xfinity app for the Xbox 360.⁸⁰ This required Comcast to re-format their video programming to send the video over their cable line as IP packets to be read and shown by the Xbox 360, instead of the normal set-top box, and by doing this, Comcast was using the customer's Internet connection to deliver video

76. Hibah Hussain et al., *Capped Internet: No Bargain for the American Public*, NEW AM. FOUND. (Feb. 20, 2013), http://www.newamerica.net/publications/policy/capped_internet_no_bargain_for_the_american_public.

77. *Id.*

78. Netflix's Open Connect is a peering program to allow ISPs to connect to Netflix at common Internet exchanges or to put a Netflix storage appliance in or near the ISPs network. *Netflix Open Connect Content Delivery Network*, NETFLIX, <https://www.netflix.com/openconnect> (last visited July 22, 2014).

79. COMCAST, <http://www.comcast.com/> (last visited Nov. 14, 2014).

80. *Xfinity on Xbox 360*, COMCAST, <http://www.comcast.com/xbox> (last visited Nov. 14, 2014).

programming.⁸¹ That same month, an engineer, Bryan Berg, dissected Comcast's connection to find out if Comcast was prioritizing its video programming over an Internet connection.⁸² He found that Comcast was indeed prioritizing its video programming traffic by separating it into its own service flow, and that the "separation allows them to exempt that traffic from both bandwidth cap accounting and download speed limits."⁸³ Treating this traffic differently goes against Comcast's consent decree with the FCC when Comcast and NBC merged, which specifically prohibits such conduct:

If Comcast offers consumers Internet Access Service under a package that includes caps, tiers, metering, or other usage-based pricing, it shall not measure, count, or otherwise treat Defendants' [Comcast's] affiliated network traffic differently from unaffiliated network traffic. Comcast shall not prioritize Defendants' Video Programming or other content over other Persons' Video Programming or other content.⁸⁴

Comcast readily admits to using a separate service flow but emphatically denies prioritizing.⁸⁵ The decree, however, offers two conditions on the treatment of unaffiliated traffic: one is to not treat that traffic differently, and the second is to not prioritize Comcast's own traffic.⁸⁶ As Berg points out, Comcast is only concerned with the second condition, prioritization.⁸⁷ By separating its own traffic into a different service flow, it is treating its traffic differently from other traffic by exempting it from data caps and download speed limits. Comcast is thus leveraging its monopoly power to put its own traffic and content ahead of competitors, such as Netflix and Hulu, in direct violation of their NBCU merger consent decree.

81. *FAQs: Xbox 360*, COMCAST, <http://xbox.comcast.net/faqs.html> (last visited Nov. 25, 2013).

82. Bryan Berg, *Observing Traffic Prioritization In Comcast's Network*, BERG'D: BRYAN BERG'S TUMBLR (May 13, 2012), <http://ber.gd/post/23025893856/comcast-traffic-prioritization> [hereinafter Berg, *Traffic Prioritization*].

83. *Id.*

84. *See Proposed Final Judgment 21*, <https://www.publicknowledge.org/files/docs/Comcast-NBCU%20Consent%20Decree.pdf> [hereinafter NBCU Consent Decree].

85. Tony Werner, *The Facts About Xfinity TV and Xbox 360: Comcast is Not Prioritizing*, COMCAST (May 15, 2012), <http://corporate.comcast.com/comcast-voices/the-facts-about-xfinity-tv-and-xbox-360-comcast-is-not-prioritizing>.

86. NBCU Consent Decree, *supra* note 84.

87. Bryan Berg, *Comcast Responds To My Previous Post*, BERG'D: BRYAN BERG'S TUMBLR (May 21, 2012), <http://ber.gd/post/23467847470/comcast-responds> [hereinafter Berg, *Comcast Responds*].

As explained above, some stated purposes of data caps were to deal with network congestion and to make data usage more fair.⁸⁸ In this instance, Comcast argued that the traffic was traveling on their own “managed network,”⁸⁹ but Berg, in his tests, found that the traffic did indeed use “the same downstream channels as regular Internet traffic.”⁹⁰ Also, since the traffic went over the same line, Comcast had to bypass a customer’s download speed limit to achieve a high quality video stream, but Comcast did not increase capacity to achieve this.⁹¹ The FCC’s Specialized Services Working Group also acknowledged that this would “use capacity on the provider’s last mile facilities.”⁹² Comcast expressed concern about network capacity, stating that “the fact remains that network capacity is not—and never will be—unlimited.”⁹³ By allocating “bandwidth above and beyond the bandwidth allocated for the customer’s [Internet] service” for their own traffic,⁹⁴ Comcast is running counter to its own argument for data caps.⁹⁵

Following in Comcast’s footsteps, Time Warner Cable released its own Xbox 360 application in August of 2013 and, like the Comcast app, it did not count towards Time Warner Cable’s data cap.⁹⁶ For the sake of accuracy, Time Warner Cable did not actually cap their plans, but they did offer an Internet Essential plan that places a 5GB a month cap on a customer for a \$5 a month savings.⁹⁷ This was Time Warner Cable’s attempt at instituting a data cap on its customers, which failed completely because of the low data caps and customer backlash.⁹⁸ The plan was optional, unlike Comcast’s, but it is telling that Time Warner Cable would specifically mention that its Xbox 360 app is exempt from data caps when its only plan with a data cap was optional and hard to

88. Avgiris, *supra* note 22.

89. Werner, *supra* note 85.

90. Berg, *Traffic Prioritization*, *supra* note 82.

91. Berg, *Comcast Responds*, *supra* note 87.

92. Specialized Services Working Group, FCC Open Internet Advisory Comm., *Summary of Findings and Conclusions*, 2013 OIAC ANN. REP. 76 (Aug. 20, 2013), <http://transition.fcc.gov/cgb/oiac/Specialized-Services.pdf> [hereinafter *Specialized Services*].

93. *Comcast’s Comments on Broadband Industry Practices*, *supra* note 39, at 14.

94. *Specialized Services*, *supra* note 92, at 74.

95. Avgiris, *supra* note 22.

96. Janko Roettgers, *Time Warner Cable’s New Xbox App Won’t Count Against Data Caps*, GIGAOM (Aug. 27, 2013, 8:25 PM), <http://gigaom.com/2013/08/27/time-warner-cables-new-xbox-app-wont-count-against-data-caps/>.

97. *What is Time Warner Cable Essentials Internet*, TIME WARNER CABLE, <http://www.timewarnercable.com/en/residential-home/support/faqs/faqs-internet/essentials-internet/plans/what-is-time-warner-cable-esse.html> (last visited Nov. 25, 2013).

98. Odlyzko et al., *supra* note 20, at 7–8.

find on their website, showing their intent to continue to experiment with data caps. Indeed, Time Warner Cable implemented a data cap experiment in New York in July 2013 with a 30GB limit because, as CEO Glenn Britt states, they “want[] customers to get re-educated to accept a usage component as part of broadband pricing.”⁹⁹ Thus, data cap usage seems to still be expanding, at least for Time Warner Cable.

AT&T made a weaker argument for exempting certain types of data from data caps. AT&T has a device called a MicroCell that extends 3G coverage in areas where 3G service is unavailable or minimal, and the device uses an individual's Internet connection instead of the individual's 3G data connection.¹⁰⁰ Having a MicroCell with AT&T U-verse exempts data from the customer's data cap, but having a MicroCell with another ISP will count towards a data cap.¹⁰¹ Wireless data is counted toward a data cap, which might be AT&T's argument, but this still does not factor in different ISPs who have data caps themselves, such as Comcast.¹⁰² This runs counter to AT&T's concern with heavy end users of data and trying to get these heavy end users to pay for their fair share.¹⁰³ This is more like prioritization and preferential treatment of their own data over that of their competitors.

In the end, the purpose of data caps need to be questioned. If Comcast, Time Warner Cable, and AT&T are worried about congestion, or even with getting consumers to pay for their fair share, then implementing a scheme that creates more congestion or using more data without accountability seems counter-productive. They could be seen as a way to create a barrier for competitors or an attempt to create an artificial scarcity that makes their access to consumers more valuable to content providers. If particular content is exempted from data caps, then that content would be much more valuable to consumers. ISPs can accomplish this only by creating a scarcity of available data, allowing them to sell that data as if it were a valuable resource.

99. Phillip Dampler, *Time Warner Cable Introduces New 30GB Usage-Capped Billing Plan in Rochester, N.Y.*, STOP THE CAP (July 25, 2013), <http://stopthecap.com/2013/07/25/time-warner-cable-introduces-new-30gb-usage-capped-billing-plan-in-rochester-n-y> (internal quotation marks omitted).

100. See *AT&T MicroCell Wireless Network Extender*, AT&T, <http://www.att.com/att/microcell/> (last visited Feb. 5, 2015).

101. *Broadband Usage FAQs*, *supra* note 55.

102. See Phillip Dampler, *AT&T Exempts Its Own MicroCell Product From DSL/U-verse Usage Cap; Everything Else Counts*, STOP THE CAP (Jan. 14, 2013), <http://stopthecap.com/2013/01/14/at-everything-else-counts/>.

103. *Id.*

IV. SOLUTIONS TO THE DATA CAP PROBLEM

Data caps in general have been the scorn of consumers for years. Comcast drew attention to using data caps when their decision to exempt their own traffic from their network resulted in complaints by Netflix¹⁰⁴ and advocacy groups such as Public Knowledge.¹⁰⁵ As a consequence of using data caps, Comcast received unwanted attention from Senator Al Franken.¹⁰⁶ These complaints from Netflix, Public Knowledge, and Al Franken focused on Comcast's consent decree with the DoJ and FCC that specifically prohibited treating their own traffic differently.¹⁰⁷ Additionally, AT&T drew unwanted attention for exempting traffic that flowed through its MicroCell on its own network.¹⁰⁸ These exemptions will continue to exist unless the FCC steps and halts the behavior or at least limits it. However, it took the FCC over a year to issue a working group report on data caps to endorse the behavior of Comcast and all ISPs who choose to implement a data cap, to treat its own traffic differently, and to charge content providers extra for exemption from those data caps.¹⁰⁹ This use of data caps leaves consumers unprotected. Senator Ron Wyden, in an attempt to strengthen consumer protection, sponsored the Data Cap Integrity Act that would have prohibited the use of data caps.¹¹⁰ The bill also required ISPs to be transparent about their use of data caps, data measuring tools, and methods of measuring data usage. ISPs and content providers must also provide reasonable ways for consumers to learn what they can do with their Internet connection.

104. Shalini Ramachandran, Blog, *Netflix CEO's Comcast Complaints Draw in FCC*, WALL ST. J. (Apr. 16, 2012, 8:05 PM), <http://blogs.wsj.com/digits/2012/04/16/netflix-ceos-comcast-complaints-draw-in-fcc/>.

105. See *Petition to Enforce Merger Conditions*, FCC (Aug. 1, 2012), <http://apps.fcc.gov/ecfs/document/view?id=7022002447>.

106. Letter from Al Franken to DOJ and FCC to Enforce NBCU Consent Decree, U.S. SENATE (Aug. 4, 2011), http://www.franken.senate.gov/files/letter/110804_Letter_to_DOJ_and_FCC_Comcast_conditions_and_Bloomberg.pdf.

107. NBCU Consent Decree, *supra* note 90.

108. Michael Weinberg, Blog, *AT&T Exempts Itself From Its Data cap, Violates (at least) the Spirit of Net Neutrality*, PUB. KNOWLEDGE (Jan. 15, 2013), <https://www.publicknowledge.org/news-blog/blogs/att-exempts-itself-its-data-cap-violates-leas>.

109. See *generally Data Cap Policy*, *supra* note 15.

110. Data Cap Integrity Act (DCIA) of 2012, S. 3703, 112th Cong. (2012), *available at* <http://www.gpo.gov/fdsys/pkg/BILLS-112s3703is/pdf/BILLS-112s3703is.pdf> (referring to the Committee on Commerce, Science, and Transportation).

A. Adjudication, Not Regulation

The data cap working group recommended that the FCC continue to monitor the situation of data caps in relation with download speeds and consumer behavior in relation to an imposed data cap.¹¹¹ This would allow the FCC to adjudicate *ex post* to deal with problems of actual harm instead of *ex ante* prohibitions that deal with speculative harm, which could possibly harm the incentive to improve the network.¹¹² In this sense, like the common law, the rules governing the Internet would “grow and change along with the Internet and its role in our society”¹¹³ and offer the FCC “greater flexibility”¹¹⁴ in dealing with violations in a fast-moving industry. Technology moves far too quickly for *ex ante* regulations to be effective and regulations themselves involve substantial time, energy, and debate before being passed; therefore, *ex post* adjudications would operate more efficiently by providing the FCC with the means to adapt and evolve to user demand and technological inventions.¹¹⁵ Furthermore, *ex post* adjudication “grounds the agency’s decision-making in empirical reality and constrains opportunities for interest group politics that otherwise thrive in the far less transparent rulemaking process.”¹¹⁶

B. Legislation

At the end of 2012, Senator Ron Wyden introduced a bill in the Senate, called the Data Cap Integrity Act (DCIA).¹¹⁷ The DCIA attempted to solve several problems in one bill. First, it forced ISPs to become certified by the FCC in order to impose a data cap.¹¹⁸ The FCC would set a standard to accurately measure data usage to prevent abuse of data caps by consulting the National Institute of Standards and Technology and other entities in the private sector.¹¹⁹ To become certified, ISPs would need to meet that standard and show that the data cap “functions to reasonably limit network congestion without unnecessarily restricting Internet use.”¹²⁰ Since data caps do nothing to

111. *Data Cap Policy*, *supra* note 15, at 11.

112. Lyons, *supra* note 33, at 41.

113. Adam Candeub, *Law and the Open Internet*, 64 FED. COMM. L.J. 493, 532 (2012).

114. Philip J. Weiser, *The Future of Internet Regulation*, 43 U.C. DAVIS L. REV. 529, 589 (2009).

115. *Data Cap Policy*, *supra* note 15, at 20.

116. Weiser, *supra* note 114, at 589.

117. Data Cap Integrity Act (DCIA) of 2012, S. 3703, 112th Cong. (2012).

118. *Id.* § 3(b)(1).

119. *Id.* § 3(b)(2)(A).

120. *Id.* § 3(b)(2)(B).

limit network congestion. However, as the Data Cap Working Group found, “there is little public analysis of the correspondence between data consumption and bandwidth usage,”¹²¹ so it would be difficult at this point for the FCC to find that a data cap unnecessarily restricts Internet use. Also, a data cap could alter behavior in extreme cases, but until data caps become so intrusive and restrictive as they are in South Africa,¹²² then a data cap would not restrict Internet use for anyone but the highest-end users.

Second, the DCIA prohibited ISPs from exempting their own data traffic. The Bill provided that an ISP may not, “for purposes of measuring data usage or otherwise, provide preferential treatment of data that is based on the source or the content of the data.”¹²³ This provision appeared to specifically target Comcast, Time Warner Cable, AT&T, and any other ISP that attempted to exempt its own traffic. On one hand, this language is similar to language in the NBCU consent decree that prohibits Comcast from treating its own traffic preferentially, which the FCC has yet to enforce. On the other hand, with Congressional pressure and oversight, the FCC might have more of an incentive to investigate and punish any violations of an act of Congress.

Third, the DCIA addressed one of the biggest problems with data caps: measuring a customer’s Internet usage. The DCIA required ISPs to identify “commercially available tools” that customers can use to monitor their data usage in real time and control the processes that upload and download data.¹²⁴ If a tool was not commercially available, the ISP was required to provide one themselves.¹²⁵ ISPs already had data calculators available to customers on their websites that allowed users to input certain criteria and determine the amount of data they were using.¹²⁶ However, they were nowhere close to being a real-time calculation and did not show the customer their actual usage.¹²⁷ Instead, they provided only estimates of general values and average sizes of movies, songs, and multiplayer online gaming.¹²⁸ ISPs also offered

121. *Data Cap Policy*, *supra* note 15, at 17.

122. Chetty et al., *supra* note 16, at 4.

123. DCIA § 3(c).

124. *Id.* § 3(d)(1).

125. *Id.* § 3(d)(2).

126. See, e.g., *Data Calculator*, AT&T, https://www.att.com/esupport/internet/data_calc/data_calc.html (last visited Nov. 25, 2013).

127. *Id.*

128. *Id.*

ways to show actual data used for a particular month.¹²⁹ Unfortunately, the data produced often lagged a day or two, so if the customer wanted to see how much data was being used today, the customer would have to wait until tomorrow.¹³⁰ It is also not “user-friendly” and often required a login, forming a barrier to quick glances.¹³¹ Of course, the DCIA would not have required that the tool be user-friendly; it only required that it be a real-time measurement of a customer’s data usage.¹³²

C. *Transparency and Education*

Coupling the two solutions above exemplifies two general themes that should be implemented either by the FCC, Congress, or the industry, or even by the content providers themselves. First, transparency is key to alleviating fears, frustrations, and uncertainties by consumers when it comes to data caps. By making data caps and thresholds known and predictable, customers would be more accepting of those caps.¹³³ ISPs can further alleviate these fears by making transparent the underlying justifications for data caps, how those data caps are set, and what goals are achieved by imposing a data cap.¹³⁴ As mentioned, ISPs claim that data caps are aimed at network congestion and fair use of the network.¹³⁵ However, that position is easily debunked.¹³⁶ While data caps do not specifically target congestion or fair use, they do serve a need for efficient use of the network; for customers by “incentiviz[ing] those near the cap to behave differently” and for content providers to “innovate more efficient means of delivering their services.”¹³⁷ Consumers can only be more efficient with their network use if the existence of data caps are made clear and information about them is placed in plain sight rather than being buried on a random webpage.¹³⁸

129. *Id.*

130. *Id.*

131. Chetty et al., *supra* note 16, at 4.

132. DCIA, S. 3703, 112th Cong. § 3(d)(1) (2012).

133. *Data Cap Policy*, *supra* note 15, at 12.

134. Odlyzko et al., *supra* note 20, at 54.

135. John Eggerton, *NCTA’s Powell: Usage-Based Pricing About Fairness, Not Capacity*, BROADCASTING & CABLE (Jan. 1, 2013, 12:23 PM), http://www.broadcastingcable.com/article/491396-NCTA_s_Powell_Usage_Based_Pricing_About_Fairness_Not_Capacity.php.

136. *Data Cap Policy*, *supra* note 15, at 16.

137. *Id.*

138. I tried ordering AT&T U-verse Internet, and no where did it show me a data cap. It was also not stated in the terms of use. I had to go their AT&T U-verse Offer Details page, which was linked to from the bottom of the order page and lists all of their bundles and offers, to see that this

Second, through transparency, consumers can become educated through their use of the Internet, allowing for the full use of their Internet connection while still being within an acceptable limit, possibly allowing ISPs to remove data caps altogether. With almost 70% of consumers either not knowing or having little knowledge of what a GB is in relation with Internet usage,¹³⁹ and customers correlating data used with time taken to download,¹⁴⁰ ISPs have a responsibility to make it clear to users what restrictions actually exist if those ISPs wish to hold their customers to a contract that is obscure and difficult to understand. As stated by the Data Cap Working Group: “user behavior may be impacted substantially by incorrect understanding of contractual obligations or data use.”¹⁴¹ While content providers also have some responsibility in educating their customers about the data used by the providers services, it is the ISPs who are holding customers to contracts that have data caps and charging for overages or for extra GBs when those customers go over the data cap.

ISPs must then educate users as to what can be accomplished with a GB and how much data is used for various activities. This could be more easily accomplished through the use of an application that clearly shows the amount of data used in real time. It could also list each application that is using the network and report how much data that application is using. Further, the application could report back to the ISP and gather reports from others in the household, allowing for global tracking across users in a household. It would be more user-friendly by allowing easy, quick glances at data usage. It would allow for easier budgeting of data. It would also show who in the household is using what. All of this would solve the problems that Chetty found in her South African study, where people had problems with “invisible balances, mysterious processes, and multiple users.”¹⁴² This would also allow users to become educated as to how much data a particular video streaming service or an online gaming site is using and whether they should use it or not. Because in the end, users want content, and without content, there would be no need for an Internet connection.

service has a 250GB data cap. This, of course, was buried in the middle of a very long list. *AT&T U-verse Offer Details*, AT&T, <http://www.att.com/u-verse/explore/offer-details.jsp> (last visited Nov. 25, 2013).

139. CISCO, *supra* note 53, at 11.

140. Chetty talked to one customer who thought that downloading faster consumed less data: “Because I think what I understand is that the less time it takes, the less cap you can take.” Chetty et al., *supra* note 16, at 5.

141. *Data Cap Policy*, *supra* note 15, at 12.

142. Chetty et al., *supra* note 16, at 1.

CONCLUSION

As network usage continues to grow, network capacity is becoming a scarce resource because capacity is limited but data is unlimited. ISPs are seeking new ways to capitalize on their network by creating an artificial scarcity in the amount of data that can flow through their networks to consumers. In doing so, ISPs have positioned themselves in the prime spot to exempt their own data to make their own services more valuable than those of competitors who enter their market. ISPs have also created a new way for content providers to reach consumers where content providers may choose to exempt their own data, thereby subsidizing data usage for consumers. The exemption scheme and data caps in general are not attempts to deal with network congestion or to make consumers pay for their fair share; rather, they are merely ways to control network access and to make use of the network by consumers and content providers more efficient. Admitting this would alleviate some of the concerns of consumers, Congress, and competitors, and would facilitate progression on the issue of data caps.