

their mistakes. We estimate that each year 42.5 million consumers make mistakes that cost them at least 20% of their total yearly wireless bill, or \$146 per consumer annually. Moreover, the distribution of mistakes implies a potentially troubling form of regressive redistribution, since revenues from consumers who make mistakes keep prices low for consumers who do not make mistakes.

Lock-in prevents efficient switching and thus hurts consumers. One survey found that 47% of subscribers would like to switch plans, but only 3% do so — the rest are deterred by the ETF. Switching is efficient when a different carrier or plan provides a better fit for the consumer. Lock-in can also slow down the beneficial effects of consumer learning and prolong the costs of consumer mistakes, since even consumers who learn from experience cannot benefit from their new-found knowledge and switch to another carrier's plan or to a pre-paid plan. (Insofar as carriers allow consumers to switch among their own monthly plans, consumers can benefit from learning.) In addition to these direct costs, lock-in may inhibit competition, adding a potentially large indirect welfare cost. Since lock-in may prevent a more efficient carrier from attracting consumers who are locked into a contract with a less efficient carrier, it can deter new carriers from entering the market.³

The high level of complexity of cell phone contracts can reduce welfare in two ways. First, consumers will tend to make more mistakes in plan choice when the menus are complex, and these mistakes will reduce consumer welfare. Second, complexity inhibits competition by discouraging comparison shopping. By raising the cost of comparison shopping, complex contracts reduce the likelihood that a consumer will find it beneficial to carefully consider all his options. Without the discipline that comparison shopping provides, cellular service providers can behave like quasi-monopolists — raising prices and reducing consumer surplus.

D. Market Solutions and their Limits

Do these behavioral market failures result from imperfect competition in the cell phone market? The simple answer is 'no.' In fact, enhanced competition would likely make the identified design features more pervasive and the resulting welfare costs greater. If consumers are overconfident about their future use levels, then competition will force carriers to offer three-part tariffs. If consumers are myopic, then competition will force carriers to offer free phones

3. A carrier's relative efficiency depends on its costs of providing service and the quality of service that it offers. Thus, a carrier that provides the same quality of service at lower cost than another or a higher quality service at the same cost as another is a more efficient carrier.

and cover the cost of the subsidy with lock-in contracts. Finally, if consumers, faced with complex, multidimensional contracts, ignore less salient price dimensions, then competition will force carriers to shift costs to the less salient price dimensions. When demand for cellular service is driven by imperfect rationality, competitors must respond to this biased demand; otherwise they will lose business and be forced out of the market. Accordingly, ensuring robust competition in the cellular service market would not solve the problem.⁴

But it is a mistake to take the level of imperfect rationality as given. Competition coupled with consumer learning can reduce levels of bias and misperception and thus trigger a shift to more efficient forms of contractual design. In fact, the cellular service market has exhibited numerous examples of such market correction in recent years and now boasts a large set of products and contracts that can be seen as catering to more sophisticated consumers. At the same time, the evolution of the market demonstrates limits on the power of consumer learning to correct behavioral market failures.

We consider two key examples. First, the market has responded to greater awareness of the costs of underestimated use among consumers who have experienced the sting of large overage charges. Since 2008, the major carriers have been offering unlimited calling plans that arguably respond to demand generated by this heightened consumer awareness of misperceptions. Similarly, AT&T's roll-over feature, which predates the unlimited calling plans, can also be seen as a response to consumer learning about the costs of underestimated use in the presence of overage charges. Yet, while overage fees make it easy to learn the cost of underestimated use, the costs of overestimated use are more difficult to learn since it is not so obviously penalized. The result of this uneven learning is unlimited plans rather than the optimal two-part tariff pricing scheme comprised of a fixed monthly fee and a constant per-minute charge.

Second, the shift from a time-invariant ETF to a time-variant, graduated ETF structure responds to consumers' increased awareness and sensitivity to ETFs. This shift is not a pure market solution. Ra-

4. Cf. Oren Bar-Gill, *The Behavioral Economics of Consumer Contracts*, 92 MINN. L. REV. 749 (2008) (arguing that welfare losses result from sellers responding strategically to consumer misperceptions, even in competitive markets); Oren Bar-Gill, *Bundling and Consumer Misperception*, 73 U. CHI. L. REV. 33 (2006) (arguing that the bundling of products can be a response to consumer misperception even in competitive markets); Oren Bar-Gill, *The Law, Economics and Psychology of Subprime Mortgage Contracts*, 94 CORNELL L. REV. 1073 (2009) (arguing that certain elements of subprime mortgage contracts are a response to consumers' imperfect rationality and not the result of a lack of market competition); Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1 (2008) (arguing that intense competition in the credit market does not protect consumers because of a lack of perfect information and rationality); Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U.L. REV. 1373 (2004) (examining exploitation of consumers' behavioral biases in the credit card market and arguing that biased contracting is not the product of imperfect competition).

ther, it is an example of how consumer learning and legal intervention can work in tandem to change business practices. The change in ETF structure likely began with a small number of consumers who learned to appreciate the cost of ETFs and initiated litigation against the carriers. The threat of liability and greater consumer awareness of ETFs then pushed carriers to adjust their ETF structures. Innovations like these suggest that the market has an impressive capacity to correct for consumer misperceptions. Yet, market solutions are imperfect. Not all biases are easily purged by learning. Not all consumers learn equally fast, as evidenced by the limited take-up of many design innovations. The speed of consumer learning and the market's response matter, since welfare costs will be incurred in the interim period. Moreover, when consumers learn to overcome one mistake, or when a previously hidden term becomes salient, carriers have an incentive to add a new non-salient term and to trigger a new kind of mistake. Even if consumers always catch-up eventually, this cat-and-mouse game imposes welfare costs on consumers.

E. Policy Implications

While market solutions are imperfect and welfare costs remain, the potential for self-correction in the cellular service market leads us to support a regulatory stance that does not impede market forces, but rather facilitates their operation. We focus on disclosure regulation. Our proposal deviates from existing disclosure rules and from other proposals for heightened disclosure regulation. While existing rules and proposals focus on the disclosure of product attribute information, i.e., information on the different features and price dimensions of cellular service, we also emphasize the disclosure of use-pattern information, i.e., information on how the consumer will use the product. To fully appreciate the benefits and costs of a cellular service contract, consumers must combine product attribute information with use-pattern information. For example, to assess the costs of overage fees, it is not enough to know the per minute charges for minutes not included in the plan, as proposed in the Cell Phone User Bill of Rights. Consumers must also know the probability that they will exceed the plan limit and by how much. The essence of our proposal lies in the recognition that use-pattern information can be as important as product-attribute information. The disclosure regime should be redesigned to ensure that consumers have access to both.

Use-pattern disclosures can be divided into average-use disclosures and individual-use disclosures. One potentially beneficial average-use disclosure would target the misperception of use levels that underlies the three-part tariff pricing structure. Carriers could be required to disclose the average overage charges that consumers pay.

Carriers could also be required to disclose the percentage of consumers who use, say, 50% or less of the allotted minutes, or the percentage of consumers who would save money if they switched to a lower fixed-fee, lower limit plan. But the efficacy of average-use disclosures is likely limited by consumer heterogeneity and by consumer optimism. Fortunately, use-pattern disclosure in the cellular service market need not be limited to average-use information. The long-term relationship between carriers and consumers allows for the provision of individualized use-pattern information.

Individual-use disclosures can also reduce consumers' misperceptions of their future use. Carriers already provide consumers with information on overage charges. This disclosure targets consumers' underestimation of use. We propose a parallel disclosure that would target consumers' overestimation of use. Carriers should be required to disclose the number of minutes used. While some carriers already provide this information voluntarily, others do not. More importantly, carriers should be required to disclose the actual monthly per-minute price, calculated as the monthly fixed fee (plus any overage charges incurred in a given month) divided by the number of minutes used that month. This disclosure could be further supplemented by information on alternative service plans that would reduce the total price paid by the consumer given his current use patterns. The proposed individual-use disclosures, including the comparison with other plans, should be provided not only on the monthly bill but also in aggregate form as part of a year-end summary to account for month-to-month variations in use.

Individual-use disclosures can also effectively be provided in real time. There are consumers who inadvertently exceed the plan limit because they cannot easily keep track of the number of minutes that they are using. To reduce the incidence of inadvertently exceeding the plan limit, carriers could be required to notify consumers when they are about to exceed the plan limit. A consumer receiving such notification may well decide to cut the conversation short, switch to a land line, or postpone the conversation until off-peak hours.

This Article contributes to a budding literature that views consumer contracts as the combined product of consumer psychology and market forces.⁵ By providing evidence of consumer biases and pro-

5. See sources cited *supra* note 4; see also Stefano DellaVigna & Ulrike Malmendier, *Contract Design and Self-Control: Theory and Evidence*, 119 Q.J. ECON. 353 (2004) (considering the interaction "between profit-maximizing firms and consumers with time-inconsistent preferences and naïve beliefs"); Stefano DellaVigna & Ulrike Malmendier, *Paying Not to Go to the Gym*, 96 AM. ECON. REV. 694 (2006) (examining contract data from health clubs and suggesting that consumer overconfidence may contribute to consumer behavior); Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q.J. ECON. 505 (2006) (showing that "shrouding" of hidden fees occurs in competitive markets when some consumers are naïve and don't anticipate shrouding).

viders' contractual design responses to these biases in an important market — the cellular service market — we challenge the still dominant rational choice approach to consumer markets.⁶ In addition to extending the reach of behavioral analysis and confirming the broad role that psychology plays in consumer markets, this Article underscores the importance of in-depth market-specific analysis. The policy implications of consumer mistakes are context-dependent. The efficacy of learning and market correction varies from market to market. In some markets learning is slower and the welfare costs of consumer mistakes higher. In these markets, heavy-handed legal intervention may be warranted. In other markets, like the cellular service market, market solutions are relatively effective, and legal intervention would facilitate rather than inhibit market forces. Finally, the range of policy tools in the regulator's arsenal varies from market to market. While disclosure mandates may have limited effect in markets where sellers have only average-use information, disclosure can have a more substantial effect in markets, like the cellular service market, where providers possess large amounts of individual-use information.

The remainder of this Article is organized as follows: Part II provides background information on the cell phone and the cellular service market; Part III describes the key features of common cellular service contracts; Part IV develops the behavioral economics theory that explains these contractual design features; Part V discusses welfare implications; Part VI considers the efficacy of market solutions; and Part VII describes our policy proposals.

II. THE CELL PHONE AND THE CELLULAR SERVICE MARKET

A. The Rise of the Cell Phone

1. Technology

The key technological innovation that underpins cellular communications is the cellular concept itself. A cellular system divides each geographic market into numerous small cells, each of which is served by a single low-powered transmitter. This allows the system to reuse the same channel or frequency many times, albeit in non-adjacent cells in order to avoid interference.⁷ Thus, multiple users can simulta-

6. See Richard A. Epstein, *The Neoclassical Economics of Consumer Contracts*, 92 MINN. L. REV. 803 (2008) (defending the traditional rational choice approach).

7. See SRI INTERNATIONAL, THE ROLE OF NSF'S SUPPORT OF ENGINEERING IN ENABLING TECHNOLOGICAL INNOVATION, FINAL REPORT PHASE II 94-97 (1998), <http://www.sri.com/policy/csted/reports/sandt/techin2/contents.html> [hereinafter SRI-NSF REPORT]. For a more technical treatment, see THEODORE RAPPAPORT, WIRELESS COMMUNICATIONS 26-30 (Camille Trentacoste ed., 1996), and MISCHA SCHWARTZ, MOBILE WIRELESS COMMUNICATIONS 62-64 (2005).

neously make use of the same frequency. Sophisticated technology locates subscribers and sends incoming calls to the appropriate cell sites, while complex handoff technologies allow mobile consumers to move seamlessly between cells.⁸

High demand for cellular service has prompted the development of digital technology, which generates enhanced capacity without degrading service quality. Two kinds of capacity-increasing technological solutions have emerged. The first employs time-slicing technology: signals associated with several different calls are aggregated within the same frequency by assigning to each user a cyclically repeating time slot in which only that user is allowed to transmit or receive. Time-slicing techniques include Bell Labs' time division multiple access ("TDMA") and Global System for Mobile ("GSM"), which are used by AT&T and T-Mobile, and Integrated Digital Enhanced Network ("iDEN"), which is used by Nextel.⁹ Spread spectrum techniques, by contrast, spread many calls over many different frequencies while using highly sophisticated devices to identify which signals belong to which calls and decode them for end users.¹⁰ The family of digital standards employing spread spectrum technology is known as Code Division Multiple Access ("CDMA").¹¹ CDMA standards are used by Verizon and Sprint.¹² The introduction of these digital cellular technologies, starting in the early 1990s, marked the advance from first generation ("1G") systems to second generation ("2G") systems. Third generation ("3G") systems, which began to operate in the U.S. in 2002, incorporate more advanced technologies that provide the increased speed and capacity necessary for multimedia, data, and video transmission, in addition to voice communications.¹³

2. History

Although the key concepts essential to modern cellular systems were conceived in 1947,¹⁴ the Federal Communications Commis-

8. JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 265-66 (2005); SRI-NSF REPORT, *supra* note 7, at 97. For a more detailed discussion of handoff operations, see RAPPAPORT, *supra* note 7, at 31-36, and SCHWARTZ, *supra* note 7, at 235-38.

9. NUECHTERLEIN & WEISER, *supra* note 8, at 277-78; RAPPAPORT, *supra* note 7, at 400-02; SRI-NSF REPORT, *supra* note 7, at 106; *see also* SCHWARTZ, *supra* note 7, at 138-42.

10. NUECHTERLEIN & WEISER, *supra* note 8, at 277-78; RAPPAPORT, *supra* note 7, at 405-07; *see also* SCHWARTZ, *supra* note 7, at 142-58.

11. RAPPAPORT, *supra* note 7, at 405-07.

12. NUECHTERLEIN & WEISER, *supra* note 8, at 278.

13. WILLIAM STALLINGS, WIRELESS COMMUNICATIONS AND NETWORKING 329 (Vince O'Brien ed., 2002).

14. SRI-NSF REPORT, *supra* note 7, at 88. Non-cellular mobile radio systems were already in existence at that time.

sion's ("FCC") refusal to allocate substantial frequencies to mobile radio service meant that significant development of cellular telephone services was delayed for several decades.¹⁵ It was not until the early 1980s that the FCC allocated 50MHz of spectrum in the 800MHz band to cellular telephone service.¹⁶ The FCC rules created a duopoly of two competing cellular systems in each of 734 "cellular market areas" — one owned by a non-wireline company and one owned by the local wireline monopolist in the area.¹⁷ Each carrier received 25MHz of spectrum.¹⁸ The first set of cellular licenses, which pertained to the thirty largest urban markets (the "Metropolitan Service Areas," or "MSAs") were allocated by comparative hearings.¹⁹ However, the FCC was so overwhelmed by the number of applicants that in 1984 Congress authorized the use of a lottery system to allocate spectrum in the remaining markets.²⁰ By 1986, all the MSA licenses had been allocated, and by 1991 licenses had been allocated in all markets.²¹ As demand for cellular service rapidly increased over subsequent years, the FCC allocated more spectrum to wireless communications. New spectrum has been allocated by auction rather than lottery ever since Congress gave the FCC authority to issue licenses through auctions in the 1993 Budget Act, a move designed to raise revenues and cut down on delays associated with the lottery system.²²

The more recent history of the cellular service market in the U.S. is one of consolidation.²³ As noted above, the cellular service industry began with the local structural duopolies that were created by the FCC's lottery mechanism.²⁴ With different firms operating in different geographical markets, the national market initially included a large number of players.²⁵ The number of firms increased further as the FCC auctioned off more and more radio spectrum for cell phone use. But this high level of market dispersion did not last long. The FCC placed few restrictions on the ability of firms to merge across markets, and a long history of voluntary merger and acquisition activity fol-

15. *See id.* at 88–90.

16. NÜECHTERLEIN & WEISER, *supra* note 8, at 268.

17. FCC, FCC 06-142, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, ELEVENTH REPORT, 21 F.C.C.R. 10947, 10974 ¶ 62 (2006) [hereinafter FCC ELEVENTH REPORT].

18. *Id.*

19. *Id.*

20. NÜECHTERLEIN & WEISER, *supra* note 8, at 236–37.

21. FCC ELEVENTH REPORT, *supra* note 17.

22. NÜECHTERLEIN & WEISER, *supra* note 8, at 237; *see* Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(a), 6002(b)(2), 197 Stat. 312, 387–93 (codified as 47 U.S.C. § 309(j) (2006)); *see also* Kevin Werbach, *Supercommons: Toward a Unified Theory of Wireless Communication*, 82 TEX. L. REV. 863, 877–78 (2004).

23. *See infra* Part II.B.

24. *See* FCC ELEVENTH REPORT, *supra* note 17, at 10974 ¶ 62.

25. Jeremy T. Fox, *Consolidation in the Wireless Phone Industry 7* (Net Inst. Working Paper No. 05-13, 2005), available at <http://www.netinst.org/Fox2005.pdf>.

lowed.²⁶ Soon a handful of firms — AT&T Wireless, Cingular, Nextel, Sprint, T-Mobile, and Verizon Wireless — gained a dominant position as nationwide carriers.²⁷ Consolidation activity intensified in 1999, as carriers sought to expand their coverage areas and increase the capacity of their networks,²⁸ and was further facilitated by the FCC's 2003 decision to abolish the regulatory spectrum cap that had limited the amount of spectrum that a company could own in any one geographical market, since this increased opportunities for mergers by companies with overlapping coverage areas.²⁹ Most significantly, in October 2004, Cingular and AT&T Wireless merged to become AT&T Wireless,³⁰ while in December 2004 Sprint and Nextel merged to become Sprint-Nextel.³¹

3. Economic Significance

The FCC estimates that at the end of 2007, there were 263 million cellular service subscribers in the U.S., which corresponds to a nationwide penetration rate of 86%.³² The market has been growing rapidly. Cellular service providers added 21.2 million new subscribers in 2007, 28.8 million in 2006, 28.3 million in 2005, 24.1 million in 2004, and 18.8 million in 2003.³³ Taking a longer-term view, 258 million subscribers were added between June 1990 and the end of 2007.³⁴

26. *Id.* at 3, 7.

27. *Id.* at 6.

28. FCC ELEVENTH REPORT, *supra* note 17, at 10970 ¶¶ 53, 55.

29. Fox, *supra* note 25, at 9.

30. FCC, FCC 05-173, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, TENTH REPORT, 20 F.C.C.R. 15908, 15930 ¶ 58 (2005).

31. FCC ELEVENTH REPORT, *supra* note 17, at 10971 ¶ 56.

32. FCC, DA 09-54, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, THIRTEENTH REPORT, 24 F.C.C.R. 6185, at 6279-80 ¶ 197 (2009) [hereinafter FCC THIRTEENTH REPORT].

33. *Id.*; FCC ELEVENTH REPORT, *supra* note 17, at 11017 ¶ 158.

34. See FCC THIRTEENTH REPORT, *supra* note 32, at 6279-80 ¶ 197; SRI-NSF REPORT, *supra* note 7, at 94. From a comparative perspective, penetration rates in Western European and developed Asian-Pacific countries have been, and still are, higher than in the U.S., although the U.S. is quickly catching up. For a historic comparison, see FCC, FCC 00-289, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, FIFTH REPORT, 15 F.C.C.R. 17660, at 17685 (2000); FCC, FCC 02-179; ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, SEVENTH REPORT, 17 F.C.C.R. 12985, 13033-34 (2002); FCC ELEVENTH REPORT, *supra* note 17, at 11029 ¶¶ 158, 191. For an account of the recent convergence, see FCC, FCC 08-28, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES, TWELFTH REPORT, 23 F.C.C.R. 2241, 2341-43 ¶¶ 229-31 (2008) [hereinafter FCC TWELFTH REPORT]. Moreover, average minutes of use per subscriber have tended to be higher in the U.S. See FCC TWELFTH REPORT, *supra*, at 2343 ¶ 233 (noting that in the fourth quarter of 2006, average minutes of use ("MOUs") in the U.S. was approximately 838 per month; Hong Kong came in second with 460 MOUs per month; while Europe was far behind with an average of 150 MOUs per month).

While cell phones complement landline phones for most users, a significant and increasing number of users view the cell phone as a partial or even complete substitute for the traditional, landline phone. At the end of 2005, nearly a third of American households made at least half of their long-distance calls at home from their cell phones rather than from their landlines.³⁵ In the last half of 2007, an estimated 15.8% of households used only wireless phones, up from 12.8% at the end of 2006, 8.4% at the end of 2005, and 4.2% at the end of 2003.³⁶

The high revenues enjoyed by carriers provide an indication of the magnitude of the cellular service market. In the third quarter of 2008, Verizon posted wireless revenues of \$12.7 billion,³⁷ AT&T \$12.6 billion,³⁸ Sprint an estimated \$7.5 billion,³⁹ and T-Mobile \$5.5 billion.⁴⁰ Quarterly wireless revenues for the four national carriers summed to \$38.3 billion, which potentially translates into total annual wireless revenues of \$153.2 billion, ignoring seasonal variations. Wireless telecommunications have become the largest source of profit for nearly all major telecommunication providers. For example, Verizon's wireless services are about two times more profitable than its wireline offerings.⁴¹ Looking at revenues from spectrum auctions is also instructive. In 2006, the FCC's Auction No. 66 raised a total of \$13.7 billion in net bids from wireless providers for 1,087 spectrum licenses in the 1710–1755MHz and 2110–2155MHz bands.⁴² In 2008, the FCC's Auction No. 73 raised a total of \$19.0 billion in net bids from wireless providers for 1,099 licenses in the 698–806MHz band (known as the “700MHz Band”).⁴³

Investment in telecommunications infrastructure in general — and one could argue cellular technology in particular — promotes

35. FCC ELEVENTH REPORT, *supra* note 17, at 11036 ¶ 206.

36. FCC THIRTEENTH REPORT, *supra* note 32, at 6301 ¶ 230.

37. Press Release, Verizon, 3rd Quarter 2008 Earnings Conference Call (Oct. 27, 2008), http://news.vzw.com/investor/20081027_bw.pdf.

38. AT&T, INVESTOR BRIEFING 3RD QUARTER 2008 (Oct. 22, 2008), http://www.att.com/Investor/Financial/Earning_Info/docs/3Q_08_IB_FINAL.pdf.

39. See Roger Cheng & Amol Sharma, *Sprint Squeezed as Customers Flee*, WALL ST. J., Nov. 8, 2008, at B5 (noting that total revenues, for 2008:3Q, were \$8.82 billion); *Sprint Nextel Corp.*, HOOVER'S CO. IN-DEPTH RECS., Dec. 11, 2008, 2008 WLNR 23757630 (noting that in 2007, 85% of Sprint's revenue came from wireless services; the \$7.5 billion figure assumes that the 85% figure carries over to 2008:3Q).

40. Press Release, T-Mobile USA, T-Mobile USA Reports Third Quarter 2008 Results (Nov. 6, 2008), http://www.t-mobile.com/company/InvestorRelations.aspx?tp=Abt_Tab_InvestorRelations&ViewArchive=Yes (follow “T-MOBILE USA REPORTS THIRD QUARTER 2008 RESULTS” hyperlink).

41. George Gilder, *The Wireless Wars*, WALL ST. J., Apr. 13, 2007, at A13 (stating that Verizon's mobile phones generated \$804 million in profits, whereas its wired phones generated \$393 million in profits).

42. Auction of Advanced Wireless Services Licenses Closes: Winning Bidders Announced for Auction No. 66, 21 F.C.C.R. 10521 (2006).

43. Auction of 700 MHz Band Licenses Closes: Winning Bidders Announced for Auction 73, 23 F.C.C.R. 4572 (2008).

economic growth by reducing the costs of interaction, expanding market boundaries, and enhancing information flows.⁴⁴ Specifically, cellular technology can create value by facilitating communication between individuals who are on the move, thus helping individuals to better coordinate their activities and respond to unforeseen contingencies.⁴⁵ Wireless services also boost growth by expanding telephone networks to include previously disenfranchised consumers through prepaid service that is unavailable for fixed lines.⁴⁶ Analysts estimate that the decades-long delay in the development of cellular networks after the discovery of the cellular concept⁴⁷ cost the US economy around \$86 billion (measured in 1990 dollars).⁴⁸

B. The Cellular Service Market

1. Structure

The U.S. cellular service industry is dominated by four "nation-wide"⁴⁹ facilities-based carriers: AT&T Wireless, Verizon Wireless, Sprint Nextel, and T-Mobile.⁵⁰ At the end of 2007, each had networks covering at least 235 million people.⁵¹ AT&T had 70.1 million subscribers, Verizon 65.7 million, Sprint Nextel 45.3 million, and T-Mobile 28.7 million.⁵²

In addition to the national carriers, there are a number of regional carriers, including Leap, U.S. Cellular, and MetroPCS.⁵³ There is also a growing resale sector, consisting of providers who purchase airtime

44. Leonard Waverman, Meloria Meschi & Melvyn Fuss, *The Impact of Telecoms on Economic Growth in Developing Countries*, in THE VODAFONE POLICY PAPER SERIES NO. 3, AFRICA: THE IMPACT OF MOBILE PHONES 10, 10 (March 2005), http://www.vodafone.com/etc/medialib/attachments/cr_downloads.Par.78351.File.tmp/GPP_SIM_paper_3.pdf.

45. See, e.g., Robert Jensen, *The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector*, 122 Q.J. ECON. 879, 881-83 (2007) (describing how the introduction of cell phones revolutionized the fishing industry in Kerala, leading to dramatic reductions in price dispersion, the complete elimination of waste (previously 5-8% of the daily catch), an 8% average increase in fishermen's profits, a 4% decline in consumer prices, and a 6% increase in consumer surplus).

46. See, e.g., Waverman et al., *supra* note 44, at 12.

47. See *supra* text accompanying notes 14-16.

48. NUCHESTERLEIN & WEISER, *supra* note 8, at 268. Developing countries that lack a well-developed wireline network stand to gain even more from the development of wireless networks. See, e.g., Waverman et al., *supra* note 44, at 11 ("We find that mobile telephony has a positive and significant impact on economic growth, and this impact may be twice as large in developing countries as compared to developed countries.")

49. This means that all operate networks in at least some portion of the Western, Midwestern, and Eastern United States. FCC THIRTEENTH REPORT, *supra* note 32, at 6199 ¶ 14.

50. *Id.*

51. *Id.*

52. *Id.*

53. *Id.*

from facilities-based carriers and resell service to the public, typically in the form of prepaid plans rather than standard monthly tariffs.⁵⁴

2. Competition

The overlapping geographic coverage of the national and regional providers gives rise to competition between cellular service providers. The FCC estimates that 95.5% of people have three or more different operators offering cell phone services in the census blocks where they live, 90.5% live in census blocks with four or more operators, 64.9% live in census blocks with five or more operators, and 24.6% live in census blocks with six or more operators.⁵⁵ The FCC measures market concentration by computing the average Herfindahl-Hirschman Index (“HHI”) across 172 “Economic Areas” (“EA”s)—aggregations of counties that have been designed to capture the “area in which the average person shops for and purchases a mobile phone, most of the time.”⁵⁶ The HHI is a measure of market concentration that ranges from a value of 10,000 in a monopolistic market to zero in a perfectly competitive market.⁵⁷ In December 2006, the average HHI, weighted by EA population, was equal to 2674, while the median was given by 2730.⁵⁸ The FCC found virtually no change in average concentration in 2007.⁵⁹ These figures, however, might well underestimate market concentration, since the FCC’s methodology gives equal weight to a mobile carrier assigning cell phone numbers in one county as it does to a carrier that assigns numbers in multiple counties in a given EA.⁶⁰ Indeed, one analyst calculated an average HHI value exceeding 6000 with 2005 data, using the amount of spectrum controlled by a carrier in a market as a proxy for market share.⁶¹

The relatively high level of concentration in the cell phone market is the product of an ongoing consolidation process.⁶² This consolida-

54. The resale sector accounted for 7% of the market at end of year 2007. *Id.* at 6200–01 ¶ 17.

55. *Id.* at 6210 ¶ 41 tbl.1.

56. *Id.* at 6212 ¶ 45.

57. Formally, the HHI is given by $HHI = \sum_{i=1}^I (100s_i)^2$, where s_i is the fractional mar-

ket share of firm i , and I is the number of firms in the market. Thus a monopolistic market has an HHI of 10,000, a market that is equally divided between two firms has an HHI of 5000, a market that is equally divided between three firms has an HHI of 3333.33, a market that is equally divided between four firms has an HHI of 2500, etc.

58. FCC TWELFTH REPORT, *supra* note 34, at 2268 ¶ 52.

59. FCC THIRTEENTH REPORT, *supra* note 32, at 6212 ¶ 46.

60. *Id.* at 6212 ¶ 45 n.87.

61. Fox, *supra* note 25, at 15–17. Moreover, this figure excludes data on Nextel, and so the Sprint Nextel merger does not contribute to the high HHI, suggesting that this figure may underestimate the true concentration. *Id.* at 16 n.11.

62. See *supra* Part II.A.2.

tion activity is at least partly motivated by a desire to realize economies of scale and enlarge geographic scope. Broad coverage can be provided at lower cost by a single nationwide carrier than by regional carriers through roaming agreements with carriers operating in different geographic areas.⁶³ In addition, extending the national network spreads fixed costs, such as marketing expenditures and investments in developing new technology over a wider base of customers.⁶⁴ Finally, economies of geographic scope arising from complementarities between markets may provide an efficiency reason for consolidation.⁶⁵ However, even if consolidation reduces certain costs, it may increase other costs. Consolidation tends to reduce competition and facilitate collusion as the number of multi-market contacts between the dominant national carriers increases.⁶⁶

The magnitude of entry barriers provides another important measure of competitiveness. If barriers to entry are low, even a market with a small number of firms will behave competitively. Government control of spectrum — limiting the amount of spectrum allocated to wireless communications and requiring that carriers obtain government-issued licenses — has the potential to create significant barriers to entry.⁶⁷ However, recently the FCC has alleviated many of these concerns by increasing the amount of spectrum available for cellular communication services and allowing market forces to determine market structure through elimination of the old structural duopolies and abolition of the spectrum cap.⁶⁸ Moreover, the Telecommunications Act and FCC regulations reduce entry barriers by imposing interconnection and roaming obligations.⁶⁹ The ability to purchase

63. See Patrick Bajari, Jeremy T. Fox & Stephen Ryan, *Evaluating Wireless Carrier Consolidation Using Semiparametric Demand Estimation* 5 (Nat'l Bureau of Econ. Research, Working Paper No. 12425, 2006), available at <http://www.nber.org/papers/w12425>; see also Fox, *supra* note 25, at 10.

64. Fox, *supra* note 25, at 10.

65. *Id.*

66. *Id.* at 12. Multi-market contact was an important factor in explaining supra-competitive prices in the early mobile telecommunications industry. See Philip M. Parker & Lars-Hendrik Röller, *Collusive Conduct in Duopolies: Multi-Market Contact and Cross-Ownership in the Mobile Telephone Industry*, 28 RAND J. ECON. 304, 320 (1997). There were also significant cross-ownership effects, i.e., if operators co-own an operating license elsewhere, they tend to collude more. *Id.*

67. FCC THIRTEENTH REPORT, *supra* note 32, at 6220 ¶ 65.

68. *Id.* at 6220 ¶¶ 65–66. Moreover, build-out requirements prevent providers from deterring entry by “warehousing” spectrum that they do not need. Licensees that do not build a network and use the spectrum within a specified period of time might lose their license. See 47 C.F.R. §§ 22.946–22.951; see also 47 U.S.C. § 309(j) (2006); *In re* Implementation of Section 309(j) of the Communications Act — Competitive Bidding, 9 F.C.C.R. 2348, 2386 (1994) [hereinafter Implementation of Section 309(j)].

69. 47 U.S.C. § 251(a)(1) (2006) (noting that “[e]ach telecommunications carrier has the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers”); Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, Final Rule, 72 Fed. Reg. 50064, 50064–65 (2007) [hereinafter Reexamination of Roaming Obligations]; see also *In re* Interconnection and Resale Obliga-

spectrum on the secondary market further reduces entry barriers.⁷⁰ Yet, advertising expenditures — amounting to billions of dollars annually⁷¹ — and the economies of scale and scope described above⁷² continue to impose substantial entry barriers.

Switching costs also affect the level of competition. Switching costs in the cellular service market are substantial, although recent developments are reducing these costs. Until recently, most consumers signed long-term contracts with fixed ETFs of approximately \$200.⁷³ Now major carriers are offering contracts with graduated ETFs that decline over the life of the contract. Likewise, historically carriers allowed only certain approved phones to be used by their subscribers on their network and “locked” the phones they sold to render them incapable of being used on other networks.⁷⁴ The recent trend, however, is toward open access, which allows more phones onto the network, and recent regulatory action by the Copyright Office clarified that phones can be unlocked.⁷⁵ Being forced to change phone numbers was also a potentially significant switching cost until it was

tions Pertaining to Commercial Mobile Radio Services, Second Report and Order and Third Notice of Proposed Rulemaking, 11 F.C.C.R. 9462, 9463 (1996) [hereinafter *Interconnection and Resale Second Report and Order*]; *In re Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services*, Third Report and Order, 15 F.C.C.R. 15975, 15977 (2000). The FCC has chosen not to regulate rates charged by carriers for the provision of roaming services. Thus, carriers may freely negotiate terms subject to the statutory requirement that rates charged be reasonable and non-discriminatory. Reexamination of Roaming Obligations, *supra*, at 50065.

70. FCC THIRTEENTH REPORT, *supra* note 32, at 6220 ¶ 67. It appears to be contrary to a major facility provider’s interest to sell wholesale capacity to resellers since the resellers may compete with the provider for retail sales, reducing its profits. However, the major facility provider will be motivated to sell if it fears that one of its rivals will make the sale if it doesn’t. Marius Schwartz & Federico Mini, *Hanging Up on Carterfone: The Economic Case Against Access Regulation in Mobile Wireless* 10 (May 2, 2007) (unpublished manuscript), available at <http://ssrn.com/abstract=984240> (pointing to the growth of the resale market as evidence that the cellular service market is genuinely competitive).

71. FCC THIRTEENTH REPORT, *supra* note 32, at 6261 ¶ 158 (advertising spending for wireless telephone services totaled \$4.1 billion in 2007 according to one estimate and approximately \$5.1 billion according to another).

72. See *supra* notes 63–66 and accompanying text.

73. See *infra* Part III.B.

74. Tim Wu, *Wireless Net Neutrality: Cellular Carterfone and Consumer Choice in Mobile Broadband* 1 (New Am. Found. Wireless Future Program, Working Paper No. 17, 2007), available at http://www.newamerica.net/files/WorkingPaper17_WirelessNetNeutrality_Wu.pdf; see also Spencer E. Ante, *Verizon Embraces Google’s Android*, BUS. WK., Dec. 3, 2007, http://www.businessweek.com/technology/content/dec2007/tc2007123_429930.htm?campaign_id=yhoo (“Verizon Wireless has created the most profitable U.S. cellular business by tightly restricting the devices and applications allowed to run on its network.”).

75. See 37 C.F.R. § 201.40(b)(5) (2008). Carriers are embracing the new open-access business model. See Ante, *supra* note 74. (“But over the past year, [Verizon’s] leadership came to conclude that it was time for a radical shift. Such a move, they reckoned, might help Verizon Wireless keep growing while holding down costs.”) Sprint Nextel and T-Mobile also support the shift to an open-handset environment, as members of the Google-led “Open Handset Alliance.” *Id.*; see also Amol Sharma & Dionne Searcey, *Verizon to Open Cell Network to Others’ Phones*, WALL ST. J., Nov. 28, 2007, at B1.

eliminated by the regulatory requirement that carriers provide local number portability.⁷⁶ Wireless carriers must now ensure that users can keep their current telephone numbers when they switch providers “without impairment of quality, reliability, or convenience.”⁷⁷ The high churn rates in the cell phone market — between 13% and 31% a year in 2007⁷⁸ — suggest that switching costs, while potentially substantial, are not prohibitive for many consumers.

To sum up, while there is reason to believe that the cellular service market is less than perfectly competitive, providers are actively competing to attract consumers. Declining prices are evidence of such active competition. While average minutes of use have been rising since 1994, until recently average monthly bills have been falling.⁷⁹ This downward trend is also observed in average revenues per minute, which some analysts believe is a good proxy for mobile pricing.⁸⁰

76. FCC ELEVENTH REPORT, *supra* note 17, at 11012 ¶ 146. Wireless local number portability began on November 24, 2003. *In re* Telephone Number Portability, 19 F.C.C.R. 875, 876 (2004) (order). The underlying aim of wireless number portability was to ensure “customers flexibility in the quality, price, and variety of telecommunications services they can choose to purchase.” *In re* Telephone Number Portability, 11 F.C.C.R. 8352, 8368 (1996) (first report and order and further notice of proposed rulemaking). The FCC reports that from December 2003 to December 2007, 49.93 million consumers took advantage of the right to retain their phone number while switching from one wireless carrier to another. FCC THIRTEENTH REPORT, *supra* note 32, at 6272 ¶ 183.

77. 47 U.S.C. § 153(30) (2006).

78. A “churn rate” is the rate at which users cancel their cellular service in a given period of time. In first quarter 2007, the major carriers reported the following monthly churn rates: AT&T 1.7%, T-Mobile 1.9%, Verizon 1.08%. See AT&T, CONNECT AT&T INC. 2007 ANNUAL REPORT 33 (2007), http://www.att.com/Investor/ATT_Annual/downloads/07_ATTar_FullFinalAR.pdf; Press Release, T-Mobile, T-Mobile USA Adds Almost 1 Million Net New Customers and Reports First Quarter Results (May 10, 2007), http://www.t-mobile.com/Company/InvestorRelations.aspx?tp=Abt_Tab_InvestorRelations&ViewArchive=Yes (follow hyperlink listed next to date “05/10/2007”); Press Release, Verizon, Verizon Reports Strong 1Q 2007 Results, Driven by Top-Line Growth Across Key Markets (Apr. 30, 2007), <http://investor.verizon.com/news/view.aspx?NewsID=831>. Sprint does not report total churn rates. Rather, it reports post-paid and pre-paid (Boost Mobile) rates separately. In first quarter 2007, Sprint’s post-paid churn rate was 2.3% and its pre-paid churn rate was 7%. See Press Release, Sprint Nextel, Sprint Nextel Reports First Quarter 2007 Results (May 2, 2007), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=994142&highlight=. The FCC recently reported churn rates of 1.5% to 3% per month. FCC THIRTEENTH REPORT, *supra* note 32, at 6271 ¶ 181.

79. FCC THIRTEENTH REPORT, *supra* note 32, at 6275–78 ¶ 192, tbl.12.

80. *Id.* Other measures of prices also suggest that prices have been steadily declining over this period. *Id.* at 6274–75 ¶¶ 188–91. On the other hand, there is substantial similarity between the pricing schemes offered by the major carriers. See *infra* Part III. This price matching may reflect tacit collusion among the major carriers. Cf. Meghan R. Busse, *Multi-market Contact and Price Coordination in the Cellular Telephone Industry*, 9 J. ECON. & MGMT. STRATEGY 287, 313–16 (2000). From a comparative perspective, prices — as measured by average revenue per minute — have tended to be lower in the U.S., as compared to other countries. See FCC TWELFTH REPORT, *supra* note 34, at 2343 ¶ 234. Part of the explanation may lie in the fact that Western European countries and Japan employ Calling Party Pays (“CPP”) systems in which only the calling party pays for calls — while the U.S. employs Receiving Party Pays (“RPP”) systems where both receiving and calling parties pay — giving service providers an incentive to set higher mobile termination charges. See

Competition is also observed on non-price dimensions. Competition to attract and retain customers appears to be driving carriers to improve service quality. Carriers pursue a variety of strategies to improve service quality, including network investment to improve coverage and quality and acquisition of additional spectrum.⁸¹ Indeed, analysts report a decline in the number of dropped or disconnected calls — thought to be an important determinant of customer churn.⁸² While an economic conclusion reached by politically appointed regulators should be taken with a grain of salt, it is noteworthy that the FCC described the cellular service market as one characterized by healthy competition with carriers engaging in “independent pricing behavior, in the form of continued experimentation with varying pricing levels and structures, for varying service packages, with various handsets and policies on handset pricing.”⁸³

3. Related Markets

The cellular service market interacts with other markets, specifically with the market for phones/handsets and with the market for cell phone applications.

a. The Handset Market

The market for handsets is controlled by four firms: Motorola, Nokia, Samsung, and LG Electronics. In the U.S., Motorola enjoys the largest market share, controlling 33% of the handset market in the fourth quarter of 2006.⁸⁴ Nokia, Samsung, and LG Electronics lag behind considerably with 15% of the market each.⁸⁵ In total, 143 mil-

id. at 2344 ¶ 235; see also Mark Armstrong, *The Theory of Access Pricing and Interconnection*, in 295 HANDBOOK OF TELECOMMUNICATIONS ECONOMICS 337–40 (M. E. Cave et al. eds., 2002) (explaining why prices could be higher under CPP).

81. FCC THIRTEENTH REPORT, *supra* note 32, at 6262–63 ¶¶ 159–61.

82. See FCC ELEVENTH REPORT, *supra* note 17, at 11005 ¶ 130. Carriers’ marketing campaigns emphasize their “superior network coverage, reliability, and voice quality.” FCC THIRTEENTH REPORT, *supra* note 32, at 6263 ¶¶ 162–63.

83. FCC ELEVENTH REPORT, *supra* note 17, at 10987 ¶ 90. Yet, since this is an industry characterized by high network costs, this phase of apparently intense competition may be nothing more than a price war designed to squeeze out smaller carriers that will ultimately result in an increase in the market power of the remaining large carriers and an attendant rise in prices.

84. Dawn Kawamoto, *Mobile Phone Sales Ring in Strong*, CNET NEWS, Mar. 27, 2007, http://news.cnet.com/Mobile-phone-sales-ring-in-strong/2100-1039_3-6170801.html.

85. *Id.* The relative shares of these four firms are quite different outside the United States. Nokia is the global market leader, with 33.3% of the global market in 2006, followed by Motorola with 20.3%, Samsung with 12.8%, and LG Electronics with 6.9%. Candace Lombardi, *Mobile Phone Market Stays Strong*, CNET NEWS, Apr. 20, 2006, http://news.cnet.com/Mobile-phone-market-stays-strong/2100-1039_3-6063177.html.

lion units were sold in 2006, accounting for an estimated \$8.8 billion in sales after rebates and promotions.⁸⁶

In the U.S., the major cellular service providers exert significant control over the handset market. Internationally, about half of handsets are purchased through carriers and about half are sold directly to consumers through other channels.⁸⁷ In the U.S., by contrast, nine out of every ten cell phones are sold through a service provider.⁸⁸ The practice of subsidizing handset prices for consumers who sign long-term service contracts is at least partially responsible for the competitive disadvantage suffered by handset makers looking to sell directly to consumers.⁸⁹

Carriers in the U.S. determine which devices consumers can operate on their networks.⁹⁰ The result of this control is that only a fraction of any given manufacturer's total line of products is offered. For example, in 2006, of the fifty new products Nokia introduced into the market, U.S. cellular service providers offered a scant few.⁹¹ By allowing only certain approved phones on their networks, carriers influence the design of handsets.⁹² And as a condition of network access, carriers require that developers disable certain services or features that might be useful to consumers, such as call-timers, photo sharing, Bluetooth capabilities, and Wi-Fi capabilities.⁹³

86. Kawamoto, *supra* note 84. Worldwide sales of mobile handsets have been growing consistently since the market first developed in the 1990s. For example, 833.2 million handsets were shipped in 2005 compared to 714 million in 2004. Marguerite Reardon, *Cell Phone Shipments Hit Highs, but Profits Sag*, CNET NEWS, Oct. 19, 2006, http://news.cnet.com/Cell-phone-shipments-hit-highs,-but-profits-sage/2100-1039_3-6127736.html.

87. Marguerite Reardon, *Will Unlocked Cell Phones Free Consumers?*, CNET NEWS, Jan. 24, 2007, http://news.cnet.com/Will-unlocked-cell-phones-free-consumers/2100-1039_3-6152735.html.

88. *Id.* Unlocked phones that can be used on multiple carrier networks have only recently become available in the U.S. from manufacturers through their websites and through certain retail channels. By contrast, in Europe, unlocked cell phones comprise about 70% of sales. *Id.* Technological differences provide part of the explanation. Unlocked phones are available only for GSM networks. While all operators in Europe and Asia use GSM technology, in the U.S. two of the four major carriers, Sprint Nextel and Verizon, use CDMA instead. See Margaret Reardon, *Unlocking the Unlocked Cell Phone Market*, CNET NEWS, July 2, 2009, http://news.cnet.com/8301-1035_3-10277723-94.html?tag=mncol.

89. See *infra* Part III.B.

90. See Ante, *supra* note 74 (“Verizon Wireless has created the most profitable U.S. cellular business by tightly restricting the devices and applications allowed to run on its network.”); Reardon, *supra* note 87; Wu, *supra* note 74, at 11–12.

91. Reardon, *supra* note 87.

92. Wu, *supra* note 74, at 11–12.

93. *Id.* at 10–13. Some of these practices may be explained as attempts by the carriers to protect revenue sources. For instance, a phone with Wi-Fi capabilities would enable the user to make calls using the services of VoIP providers when in range of a Wi-Fi network. See *id.* at 11–13. Other practices may be designed to preserve service quality. Since spectrum is a shared resource, a “carrier must exercise some control over the handset and its features to prevent degradation of service to other users arising from those who excessively consume [network] resources.” Schwartz & Mini, *supra* note 70, at 19. There are also issues of com-

But the balance of power is shifting.⁹⁴ Handset brands and models are an increasingly important determinant of a consumer's choice of service provider.⁹⁵ Apple's launch of the iPhone represents a rare but significant example of a handset manufacturer successfully overcoming carrier pressure.⁹⁶ In addition, the open-access trend is starting to limit carriers' control over the handset market.⁹⁷ Regulation is playing an important role: one third of the recently auctioned spectrum comes with a requirement that "cellular networks allow customers to use any phone they want on whatever network they prefer, and be able to run on it any software they want."⁹⁸ And, perhaps sensing the inevitable, carriers are beginning to embrace the new open-access business model, reasoning that they can cut costs by eliminating handset subsidies and letting handset manufacturers bear most of the development and customer service costs.⁹⁹

patibility between devices and networks, and networks must be able to communicate with handsets for a variety of service related purposes. *Id.* at 19–20.

94. On power struggles between carriers and handset manufacturers, as well as with application developers, see generally Jessica E. Vascellaro, *Air War: A Fight Over What You Can Do on a Cellphone*, WALL ST. J., June 14, 2007, at A1; see also Miguel Helft & Stephen Labaton, *Google Pushes for Rules to Aid Wireless Plans*, N.Y. TIMES, July 21, 2007, at A1.

95. See Rita Chang, *Proof that Handset Brands Help Sell Wireless Plans*, RCR WIRELESS, Oct. 28, 2008, <http://www.rcrwireless.com/article/20081028/WIRELESS/810289995/1081/proof-that-handset-brands-help-sell-wireless-plans#>.

96. See John Markoff, *Apple Tops Expectations as iPhone Use Spreads*, N.Y. TIMES, Oct. 22, 2008, at B3 ("Apple has already surpassed its goal of selling 10 million iPhones during 2008").

97. See George S. Ford, Thomas M. Koutsky & Lawrence J. Spiwak, *Wireless Net Neutrality: From Carterfone to Cable Boxes*, PHOENIX CTR. POL'Y BULL. No. 17, Apr. 2, 2007, at 2, <http://phoenix-center.org/PolicyBulletin/PCPB21Final.pdf>.

98. Editorial, *A Half-Win for Cellphone Users*, N.Y. TIMES, Aug. 6, 2007, at A18; see also *In re Service Rules for the 698–746, 747–762, and 777–792 MHz Bands*, 22 F.C.C.R. 15289, 15367, 15370–71 (2007) (second report and order) [hereinafter *Service Rules Second Report and Order*]. More generally, in 2005, the FCC released a policy statement indicating that it was committed to promoting network neutrality. *In re Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 F.C.C.R. 14986 (2005) (policy statement); see Richard E. Wiley, "A New Telecom Act" — *Remarks*, 31 S. ILL. U. L.J. 17, 28 (2006) (noting that "various versions of net neutrality language have been included in draft telecom reform bills"); see also *In re Petition to Confirm a Consumer's Right to Use Internet Communications Software and Attach Devices to Wireless Networks*, 22 F.C.C.R. 5042 (2007) (recognizing a petition to the FCC for a declaratory ruling that the Commission's *Carterphone* rules, which give consumers freedom to attach devices of their choosing to their phone lines applies to wireless networks).

99. See Ante, *supra* note 74; see also Sharma & Searcy, *supra* note 75. Nevertheless, it is likely that at least the involuntary imposition of open-access requirements will reduce the profitability of spectrum to service providers. Analysts have estimated that the open access requirements imposed in the recent auction resulted in \$3.1 billion in lost auction revenues from sales of encumbered spectrum and a 32% reduction in profitability of the purchasing wireless provider. George S. Ford, Thomas M. Koutsky & Lawrence J. Spiwak, *Using Auction Results to Forecast the Impact of Wireless Caterfone Regulation on Wireless Networks*, PHOENIX CTR. POL'Y BULL. No. 20, May 2008, at 3, <http://www.phoenix-center.org/PolicyBulletin/PCPB20Final2ndEdition.pdf>.

b. The Applications Market

The major cellular service providers and other mobile data providers have progressively introduced a wide variety of mobile data services and applications including text and multimedia messaging services, entertainment applications, ringtones, and games.¹⁰⁰ More recent innovations include GPS navigation services¹⁰¹ and TV-watching and music-playing applications.¹⁰² In latter part of 2007, 17.9% of total wireless service revenues were from data revenues, an increase of 30% over the previous year.¹⁰³

The major carriers also exert substantial control over the applications market. Many applications are sold by the carriers, often as part of the service package,¹⁰⁴ although some application developers sell their applications directly to consumers.¹⁰⁵ Moreover, carriers influence the design, content, and pricing of cell phone applications. For example, carriers impose limits on “unlimited use” pricing plans for 3G broadband data services by restricting bandwidth and designating certain applications as “forbidden” in consumer contracts.¹⁰⁶ Carriers also create difficulties for application developers by restricting access to many phone capabilities, by imposing extensive qualification and approval requirements before allowing them to develop applications for their cell phone platforms, and by failing to develop uniform standards.¹⁰⁷

Echoing the trends in the handset market, the carriers’ control over the application market may also be weakening. As sophisticated new applications for cell phones have begun to proliferate and the

100. FCC ELEVENTH REPORT, *supra* note 17, at 11007 ¶ 136–37.

101. See Marguerite Reardon, *Sprint to Include Free GPS with Data Services*, CNET NEWS, Mar. 26, 2007, http://news.cnet.com/Sprint-to-include-free-GPS-with-data-services/2100-1039_3-6169263.html (noting that Sprint customers with certain handsets are to get GPS navigation services for free, while others can add the service for \$2.99 per day; Verizon Wireless and AT&T can buy such services for significantly more).

102. Marguerite Reardon, *AT&T Touts Mobile Video, Music Capabilities*, CNET NEWS, Mar. 27, 2007, http://news.cnet.com/AT38T-touts-mobile-video,-music-capabilities/2100-1039_3-6170812.html (commenting on the then-imminent launch of Apple’s application-packed iPhone on the AT&T network).

103. FCC THIRTEENTH REPORT, *supra* note 32, at 6278 ¶ 195.

104. See *infra* Part III.C.3.

105. For example, Telenav has developed a GPS application, which it sells directly from its website and also to Sprint customers via the Sprint website. Telenav, Telenav Products, <http://www.telenav.com/products/> (last visited on Dec. 20, 2009); see also Sprint, Sprint GPS Services and Navigation Applications, <http://www.nextel.com/en/services/gps/gps.shtml> (last visited Dec. 20, 2009).

106. Wu, *supra* note 74, at 13–14.

107. *Id.* at 22–25. As with carriers’ intervention in the handset market, some practices are economically justified by the need to protect the shared resource-spectrum. Other practices such as limiting access to the Internet may also be necessary to protect consumers, if unlimited access to the Internet creates security problems. See Schwartz & Mini, *supra* note 70, at 19. However, it is doubtful that all attempts by cellular service providers to control the applications market are benign.

open-access movement has gained momentum, handset manufacturers have started to put pressure on carriers to loosen their grip on the applications market. For example, the immense popularity of iPod music player allowed Apple to persuade AT&T to sell the iPhone to its customers without also offering AT&T's own line of applications.¹⁰⁸

III. THE CELLULAR SERVICE CONTRACT

Cellular service contracts are complex multidimensional contracts. We do not attempt a comprehensive analysis of these contracts.¹⁰⁹ Rather, we focus on three important design features: (1) the three-part tariff structure, (2) the lock-in clause, and (3) complexity. We describe these three contractual design features in turn.¹¹⁰

A. Three-Part Tariffs

As noted above, cellular service contracts are complex and multidimensional. Nevertheless, most postpaid plans, which constitute the majority of plans, price their basic voice calling service using a three-part tariff structure. The common three-part tariff is a three-dimensional pricing scheme that includes: (1) a monthly charge, (2) a number of included voice minutes, and (3) a per-minute price for minutes beyond the plan limit (the "overage"). Higher-priced plans, i.e., plans with a higher monthly charge, come with more allotted minutes and lower overages for minutes exceeding the plan limit. For example, AT&T, Sprint, and Verizon offer a \$39.99 plan with 450 minutes and \$0.45 per-minute overage, a \$59.99 plan with 900 minutes and \$0.40 per-minute overage, and a \$79.99 plan with 1350 minutes and \$0.35 per-minute overage.

108. Vascellaro, *supra* note 94.

109. One feature that we do not study is the definition of call types for which the subscriber is charged (or that count toward the plan limit). Specifically, while in most countries subscribers are charged only for outgoing calls, in the U.S. subscribers are also charged for incoming calls. This feature of the U.S. cellular service market seems to fit nicely within the general behavioral theory, as subscribers probably find it even more difficult to accurately estimate the number/length of incoming calls along with outgoing calls than outgoing calls alone.

110. The description of products and prices provided in Part III is largely based on information available through carriers' websites focusing on services available in the New York area. See AT&T, Cell Phones and Cell Phone Plans, <http://www.wireless.att.com/cell-phone-service/welcome/> (last visited Dec. 20, 2009); Sprint, Cell Phones, Mobile Phones, and Wireless Calling Plans from Sprint, <http://www.sprint.com> (last visited Dec. 20, 2009); T-Mobile, Cell Phone and Cell Phone Plans, Prepaid Cell Phones, Free Cell Phones, http://www.t-mobile.com/shop.aspx?WT.z_unav=mst_shop (last visited Dec. 20, 2009); Verizon Wireless, Cell Phones, Smartphones, Mobile Cell Phone Plans — Verizon Wireless, <http://www.verizonwireless.com/b2c/index.html> (last visited Dec. 20, 2009). It should be noted that some variation exists between online and offline (retail store) offerings and between different geographical markets across the U.S. This variation is mentioned explicitly only when it is relevant to the analysis.

The three-part tariff was introduced in the U.S. in 1998. Before then, all wireless plans involved roaming and long-distance charges.¹¹¹ In 1998, AT&T revolutionized the landscape by offering a plan that allowed customers to pay a fixed monthly fee for a set number of minutes that could be used for both local and long distance calls.¹¹² As a result, AT&T gained 850,000 customers in its first year, perhaps more customers than it could serve.¹¹³ AT&T's competitors soon followed with similar pricing plans.¹¹⁴ Much of the rising popularity of cellular service was attributed to this pricing structure.¹¹⁵

Industry accounts of the reason for the switch to bundle pricing vary. Some argue that bundle pricing responds to consumer demand for simplicity.¹¹⁶ Others, including AT&T's CEO at the time, suggest that the move to bundle pricing was motivated by a desire to attract heavy users.¹¹⁷ This account is consistent with two key facts: (1) the smallest fixed fee offered was \$90 per month,¹¹⁸ and (2) after the introduction of its One Rate plan, the average AT&T subscriber bill increased, raising the company's profitability.¹¹⁹

111. See Elizabeth Douglass, *The Cutting Edge Special Report: Wireless Communications; 'Prepaid' Idea is Catching On in U.S. Market*, L.A. TIMES, Mar. 15, 1999, at C1 (discussing trend away from long-distance and roaming charges).

112. Roger O. Crockett, *The Last Monopolist*, BUS. WK., Apr. 12, 1999, at 55.

113. *Id.*; Dan Meyer, *Coverage Problems Trigger Headaches for Carriers*, RCR WIRELESS NEWS, July 9, 2001, at 16.

114. Andrew M. Odlyzko, *The Many Paradoxes of Broadband*, FIRST MONDAY 8, Sept. 1, 2003, <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1072/992>. The other carriers still charged extra fees for roaming or long-distance calls. AT&T did not differentiate between calls based on these factors. See Peter Elstrom, *Wireless With All the Trimmings*, BUS. WK., Nov. 16, 1998, at 164 ("Sprint offers a similar plan that starts at \$50 a month for 500 minutes, but if you roam beyond the company's network, you pay a pricey 69 cents a minute.").

115. Odlyzko, *supra* note 114.

116. See Rebecca Blumenstein, *The Business — Package Plan: AT&T Sees Wireless as the Key to its Broader Strategy of Bundling Its Services*, WALL ST. J., Sept. 20, 1999 at R26; see also Elstrom, *supra* note 114.

117. Peter Elstrom, *Mike Armstrong's Strong Showing*, BUS. WK., Jan. 25, 1999, at 94.

A year ago, [Armstrong] promised to improve profitability by attracting high-revenue customers — even if the effort cost him revenue growth. With its innovative Digital One Rate, which carries no long-distance or roaming charges for cellular customers, the average subscriber bill rose to \$58 a month in the third quarter from \$50 six months earlier.

Id.; see also Elstrom, *Wireless With All the Trimmings*, *supra* note 114 ("While simplicity is flat-rate calling's biggest appeal, there is fine print you need to consider . . . The only catch is that the cheapest plan you can get is a steep \$90 per month — so you have to be a heavy user to make it pay.").

118. Elstrom, *Wireless With All the Trimmings*, *supra* note 114.

119. Elstrom, *Mike Armstrong's Strong Showing*, *supra* note 117.

B. Lock-In Clauses

In addition to the three-part tariff pricing structure, most postpaid calling plans share the two features. First, they come with a free or substantially discounted phone. Second, they lock the consumer in for substantial periods of time with long-term contracts and ETFs. At the time of writing, T-Mobile gave away a Samsung t649 phone with a suggested retail price of \$199.99 for free. Consumers who want a fancier phone could get a Samsung Behold with a suggested retail price of \$399.99 for \$64.99. Similarly, AT&T and Apple heavily subsidized the iPhone, sacrificing short-term revenues,¹²⁰ and Sprint sold Samsung's music phones for only \$149, which is far below cost.¹²¹ The free or heavily subsidized phone strategy pervades the U.S. cell phone market. A recent survey by J.D. Power found that 36% of customers receive a free cell phone when subscribing to a wireless service.¹²²

Of course, the free phones are not really free. Carriers recoup the costs of the phones through subscription fees.¹²³ To make sure that they collect enough subscription fees to cover the cost of the phone, they lock consumers into long-term contracts.¹²⁴ Such lock-in is secured by substantial ETFs. For example, in June 2007, T-Mobile charged a fixed \$200 termination fee, AT&T charged a fixed termination fee of \$175, and Sprint charged a termination fee of up to \$200 depending on the service selected.¹²⁵ Historically, the same termination fees were charged regardless of when the agreement was broken

120. See Amol Sharma & Roger Cheng, *iPhone Costs Prove a Drag for AT&T*, WALL ST. J., Oct. 23, 2008, at B4 ("The company said \$900 million in customer-acquisition costs related to the iPhone shaved 10 cents off its earnings," but "AT&T executives said the investment will pay off because iPhone users are lucrative in the long-term, spending about \$95 a month on average, or about 1.6 times the amount other customers do."). The German company Deutsche Telekom, the largest telecommunications company in the European Union, has gone further, selling the iPhone for only one euro with a two year contract. *T-Mobile Will Sell New iPhone in Germany*, WALL ST. J., June 17, 2008, at B5.

121. Cliff Edwards & Roger O. Crockett, *New Music Phones — Without the i*, BUS. WK., Apr. 16, 2007, at 39.

122. Press Release, J.D. Power and Associates, *Wireless Customers are Keeping Their Mobile Phones Longer as Term Contracts Impact the Replacement Cycle 1* (May 30, 2007), <http://www.jdpower.com/corporate/news/releases/pdf/2007079.pdf>. In 2007, customers paid \$93 on average for their cell phones (after discounts), which was a decrease from \$103 in 2002. *Id.* The J.D. Power survey also provides information about average ownership tenure. Specifically, in May 2007 customers were keeping their mobile handsets for an average of 17.5 months, which represents an increase from 16.6 months in November 2006, and the first increase in average ownership tenure since 2002, when the average was 18.4 months. *Id.*

123. Wu, *supra* note 74, at 7–8.

124. When no-contract plans are offered, phone subsidies disappear. For example, a customer with no contract would be required to pay an *additional* \$400 beyond the contract price for the same iPhone. *AT&T Plans to Offer No-Contract iPhone*, WALL ST. J., July 2, 2008, at B5.

125. Carriers allow locked-in consumers to switch from one plan to another within the carrier's menu of plans without incurring an ETF.

meaning that a consumer would have paid the entire termination fee for ending a two year contract one month early.¹²⁶ In the wake of a number of class action lawsuits challenging the legality of these fees,¹²⁷ providers have begun to offer contracts with termination fees that decline over the life of the contract. Verizon led this transition when, in June 2007, it started charging customers a termination fee of \$175 minus \$5 for each full month that the customer remains on the initial contract.¹²⁸ By the end of 2008, all the major carriers were offering similar graduated ETFs.¹²⁹

C. Complexity

Cellular service contracts are complex and multidimensional. This complexity can be viewed as a contractual design feature. In this subsection, we attempt to provide a sense of the high level of complexity that characterizes cellular service contracts. Most cellular service contracts are highly complex even when considered in isolation. This high level of complexity increases substantially when we shift from the single-contract perspective to the perspective of a consumer facing many different multidimensional contracts. According to one industry estimate, the cellular service market boasts “millions of various plan/add-on combinations.”¹³⁰

1. Postpaid Plans — The Basics

Even the basic components of the common postpaid calling plan are complex. As described above, the basic pricing scheme is three-dimensional. Moreover, each provider offers a long menu of different three-part tariffs. To make things even more complicated, the menus

126. See generally Andrew Lavallec, *Ex-Customers Sue Qwest Over Cancellation Fees*, WALL ST. J., Oct. 17, 2008, B5 (explaining that two former Qwest customers filed a lawsuit against the provider challenging Qwest's \$200 ETF for broadband service); cases cited *infra* note 233 (listing cases where class action lawsuits were brought against the major cellular service providers for the ETF policy described)

127. See *infra* notes 233–37 and accompanying text.

128. See Verizon Wireless, Customer Agreement, <http://www.verizonwireless.com/b2c/index.html> (last visited Dec. 20, 2009) (follow “Customer Agreement” hyperlink at the bottom of the page); see also Jeffrey Bartash, *AT&T to Cut Plan-Exit Fees*, WALL ST. J., Oct. 17, 2007, at D8.

129. See AT&T, Plan Terms, <http://www.wireless.att.com/cell-phone-service/legal/plan-terms.jsp#gsm> (last visited Dec. 20, 2009); Press Release, Sprint Nextel Corp., Sprint Launches One of the Industry's Most Customer-Friendly Policies on Pro-Rated Early Termination Fees (Oct. 31, 2008), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1220442; T-Mobile, T-Mobile Terms & Conditions, http://www.tmobile.com/templates/popup.aspx?passet=fr_fr_termsandconditions&print=true (last visited Dec. 20, 2009).

130. See BillShrink.com, Frequently Asked Questions, <http://www.billshrink.com/how-it-works/> (last visited Dec. 20, 2009).

of three-part tariffs vary among providers.¹³¹ Further complexity is introduced by the diversity of additional service features covered by the fixed monthly fee. Some of these features are offered by all carriers in the exact same way. Others are offered by some carriers but not others or are offered in varying formats by the different carriers.

For example, all four major carriers offer unlimited calls during off-peak times, i.e., nights and weekends. There is, however, some potentially significant variation. Nights are defined differently across carriers. For AT&T and Verizon the night begins at 9 pm and ends at 6 am. For T-Mobile the night begins at 9 pm and ends at 7 am. For Sprint the night begins at 7 pm and ends at 7 am (except for the \$29.99 plans, where the night begins at 9 pm and ends at 7 am). By varying the definition of "night," providers can offer up to three extra hours of unlimited calling. These extra three hours represent an additional 33.3% of unlimited calling time. But since most consumers probably talk more during the three hours between 7 pm and 9 pm and between 6 am and 7 am than they do during the three hours between 1 am and 4 am, say, these extra three hours of unlimited calling probably represent much more than a 33.3% increase in value.

To take another example, consumers might also consider whether to select Verizon's Friends and Family program, offering unlimited calls to five phone numbers selected by the user, or Sprint Nextel's Direct Connect plans, offering customers the ability to instantly and simultaneously connect with up to 20 other Direct Connect capable users on the network.

2. Family Plans

We have thus far focused on individual calling plans. The four major carriers also offer family plans, adding another layer of complexity. The identifying feature of a family plan is the ability to share the allotted minutes between up to five users, each operating on a different line. For example, Verizon offers family plans with monthly charges ranging from \$69.99 to \$269.98, allotted minutes ranging from 700 to unlimited, and overages ranging from \$0.45 to \$0.20. These monthly prices include two phone lines, and families can add up to three more lines for an additional \$9.99 per month per line.

131. We briefly mention two additional dimensions: (1) The directionality of the calls that consume allotted minutes, and (2) the one-time activation charge. Along dimension (1), allotted minutes are typically used up on both outgoing calls and incoming calls, although at one time Sprint offered a plan with free incoming minutes. As for (2), AT&T and Sprint charge a \$36 activation fee while Verizon and T-Mobile charge \$35.

3. Add-Ons

Cell phones can be used for much more than voice communication. Carriers offer advanced communication services, including text messaging, multimedia messaging, and internet and email data services.¹³² They also offer applications such as ring-tones and games, as well as monthly mobile Internet access packages.¹³³ These services and applications are marketed to consumers primarily as add-ons to their voice services.

Pricing of these services adds additional complexity. Providers offer advanced communication services to consumers in one of three modes: (1) pay-as-you-go, applied mainly to text and multimedia messaging, where the consumer pays per message sent or received,¹³⁴ (2) fixed-quantity monthly packages, where the consumer pays a monthly fee for a fixed number of allotted messages or megabytes of data,¹³⁵ and (3) unlimited-quantity monthly packages, where the consumer pays a monthly fee for unlimited messaging or data transmission.¹³⁶ Entertainment applications, specifically ring-tones and games, can be purchased for a one-time download rate. Advanced applications, such as GPS location services and music and TV applications, are now also available from some providers, typically for an additional monthly or daily fee.

4. Phones and Lock-In Clauses

Free or discounted phones that come with most postpaid plans add additional dimensions of complexity to the cellular product. Different carriers offer different phones with varying discounts. The carrier's choice between an outright discount and a rebate adds another twist. The flipside of the free or discounted phones is the lock-in clause that ties the consumer to the specific carrier. The lock-in

132. *Id.*

133. *Id.*

134. For example, as of December 20, 2009, Verizon charged \$0.20 per text message and \$0.25 per multimedia message. See Verizon Wireless, Cell Phones, Prepaid Cell Phones, Cell Phone Plans, *supra* note 110.

135. For example, as of December 20, 2009, AT&T charged \$5.00 per month for 200 text or multimedia messages and \$15.00 for 1500 messages. See AT&T, Cell Phones and Cell Phone Plans, *supra* note 110. Customers of Verizon's basic plan, which includes no messaging services, could add bundles containing unlimited incoming text or multimedia messages with 250, 500, 1500, or 5000 outgoing messages to non-Verizon customers and unlimited messages to Verizon customers for, respectively, an additional monthly charge of \$5.00, \$10.00, \$15.00, or \$20.00. See Verizon Wireless, Cell Phones, Prepaid Cell Phones, Cell Phone Plans, *supra* note 110.

136. For example, AT&T charged \$20.00 per month for unlimited messaging and \$15.00 per month for unlimited data transmission as of December 20, 2009. See AT&T, Cell Phones and Cell Phone Plans, *supra* note 110. Unlimited messaging and even data are covered by the monthly fee component of the basic three-part tariff in some premium plans. *Id.*

clauses vary in duration and in the magnitude of the ETF. The common lock-in period is two years, but one and three year periods are also offered. The termination fees vary between \$175 and \$200. The recent move to graduated ETFs introduced additional variation, as different carriers adopted different formulas to govern the gradual reduction in ETFs over the life of the contract.¹³⁷

5. Prepaid Plans

We have thus far focused on postpaid plans, but the cellular service market offers another, substantially different contractual design — the prepaid plan. Not only is it difficult to choose among the many different postpaid plans, the consumer must make a preliminary choice between postpaid and prepaid. Moreover, prepaid plans themselves come in many shapes and sizes. Prepaid offerings fall into two categories: the monthly prepaid category, in which customers pay a monthly fee for a fixed number of minutes, and the pay-as-you-go category, in which customers buy credit to pay for minutes on a minute-by-minute basis.

The monthly prepaid category more closely resembles the postpaid calling plans. The main differences are that under the prepaid plans: (1) the fixed monthly fee is paid in advance, (2) there is no commitment (the subscriber can leave the carrier at any time without incurring an ETF), and (3) the allotted number of minutes cannot be exceeded in the prepaid version, not even for a high overage charge. Moreover, per-minute prices, that is, the monthly charge divided by the allotted number of minutes, are higher in prepaid plans, perhaps reflecting the loss of revenue from overage charges. For example, for a \$39.99 monthly charge, AT&T's prepaid GoPhone plan offers 300 minutes, as compared to the 450 minutes offered under AT&T's postpaid plan. Prepaid plans also offer fewer additional features. For example, night and weekend minutes are not always unlimited, and roaming charges are levied.¹³⁸

The second category of prepaid plans offers pay-as-you-go service. Consumers purchase calling cards that hold varying numbers of minutes. For example, AT&T's pay-as-you-go service offers a \$15 card, a \$25 card, a \$50 card, a \$75 card, and a \$100 card. These card values translate into calling minutes at a \$0.25 per minute rate. Pay-as-you-go calling cards come with expiration dates: AT&T's \$15 card expires in 30 days, the \$25 and \$75 cards expire in 90 days, and the \$100 card expires in 365 days. AT&T's pay-as-you-go consumers can also pay a fixed fee of \$3 to use the phone for an unlimited number of minutes in a particular day, or \$1 to use the phone for a day at a rate

137. See *supra* notes 128–29 and surrounding text.

138. None of the four major operators charges for roaming in its postpaid pricing plans.

of \$0.10 per minute. Like the monthly prepaid plans, pay-as-you-go services typically offer higher per-minute prices and fewer additional features, as compared to the postpaid plans.

IV. EXPLAINING THE CELLULAR SERVICE CONTRACT

The contractual design features described in Part III can be explained as a market response to consumer mistakes.

A. Three-Part Tariffs

1. A Behavioral Economics Theory

a. Theory

Basic voice services are commonly priced using three-part tariffs. To choose the right three-part tariff from the menu of available tariffs, the consumer must accurately anticipate her future cell phone usage. But many consumers, when asked to choose a calling plan, are not armed with accurate estimates of how they will use their cell phones. The three-part tariff responds to consumers' misperceptions about their future use.¹³⁹

Consumers both overestimate and underestimate their use levels. A carrier who is aware that consumers suffer from such misperceptions can make its service plan appear more attractive to consumers than it really is by using a three-part tariff, charging a low per-minute price for minutes up to the plan limit and a high per-minute price thereafter. Consumers who overestimate their usage overestimate the value of the low prices because they overestimate the probability that they will consume most of these free minutes. Conversely, consumers who underestimate their usage pay insufficient attention to the high overage fees because they underestimate the probability of exceeding the plan limit. For a monopolist carrier, the three-part tariff creates opportunities for increased profits, while carriers operating in a competitive market will adopt the three-part tariff because it maximizes perceived consumer surplus.¹⁴⁰

139. Other behavioral explanations are less convincing. For example, the "flat-rate bias" can explain the prevalence of two-part tariffs involving a high monthly fee and a low per-unit charge, but it cannot explain observed three-part tariffs, where high overage charges cause the marginal price to sharply increase after the consumer has used his allotted minutes. On the flat-rate bias as an explanation for tariff choice, see generally Anja Lambrecht & Bernd Skiera, *Paying Too Much and Being Happy About It: Existence, Causes, and Consequences of Tariff-Choice Biases*, 43 J. MKTG. RES. 212 (2006). On the difficulties in using the flat-rate bias to explain tariff choice in the cell phone market, see generally Grubb, *supra* note 1.

140. Grubb shows that three-part tariffs can arise when consumers are overconfident about their ability to predict their future use. This means that the same consumers exhibit a

We demonstrate these ideas using a simple numeric example. Assume that several carriers are operating in a highly competitive market. All carriers face the same cost structure: a \$10 per-consumer fixed cost and a \$0.10 per-minute variable cost. Consumers have the following preferences: they value each minute of airtime at \$0.40 per minute up to a certain saturation point, s , while minutes beyond the saturation point are worth zero to the consumer. There are two types of consumers: heavy users and light users. Fifty percent are heavy users with a saturation point of 300 minutes, and fifty percent are light users with a saturation point of 100 minutes. If consumers are rational and accurately perceive their saturation points, then the carriers will set a two-part tariff with a fixed monthly fee of \$10 and a constant, per-minute marginal price of \$0.10. Heavy users will pay $10 + 300 \cdot 0.1 = 40$, light users will pay $10 + 100 \cdot 0.1 = 20$, the carriers will just cover their costs, as expected in a perfectly competitive market. Under this two-part tariff, heavy users enjoy a surplus of $300 \cdot (0.4 - 0.1) - 10 = 80$, and light users enjoy a surplus of $100 \cdot (0.4 - 0.1) - 10 = 20$.¹⁴¹

We now introduce consumer misperceptions. We assume that light users overestimate their saturation point, mistakenly perceiving a saturation point of 200 minutes instead of the actual 100 minutes. And heavy users underestimate their saturation point, mistakenly perceiving a saturation point of 200 minutes instead of the actual 300 minutes. With such misperceptions, a three-part tariff becomes more appealing than the two-part tariff.

Consider the following three-part tariff: a fixed \$10 monthly fee, 200 allotted minutes (at a marginal price of zero), and an overage charge of \$0.40 per minute beyond the 200 minute allocation. The 200 minute allocation tracks the common perceived saturation point, the \$0.40 overage is the maximal marginal price that would not deter usage beyond the plan limit, and the \$10 fixed fee is calculated to exactly cover the carrier's expected costs: $10 + (\frac{1}{2} \cdot 100 + \frac{1}{2} \cdot 300) \cdot 0.1 - \frac{1}{2} \cdot (300 - 200) \cdot 0.4 = 10$.¹⁴² Under this tariff, heavy users will

tendency to both over- and underestimate future use. But, as this Article argues, three-part tariffs also should arise when some consumers overestimate and others underestimate their use. Moreover, empirical evidence suggests that most consumers either underestimate or overestimate their future use, but do not exhibit underestimation in certain months and overestimation in others. See Oren Bar-Gill & Rebecca Stone, *Pricing Misperception: Explaining Pricing Structure in the Cellular Service Market* (June 24, 2009) (unpublished manuscript) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1425046.

141. Price calculations add the fixed monthly fee to the number of minutes multiplied by the per-minute price. Surplus calculations take the number of minutes multiplied by the difference between the per-minute benefit and the per-minute price and subtract the fixed monthly fee.

142. The carrier's costs include a fixed cost of \$10 and an expected variable cost of \$0.1 per-minute multiplied by the expected number of minutes — 100 minutes for light users (50% of users) and 300 minutes for heavy users (50% of users). The total cost is \$30. The

pay $10 + (300 - 200) \cdot 0.4 = 50$. They will enjoy a surplus of $300 \cdot 0.4 - (300 - 200) \cdot 0.4 - 10 = 70$, less than the surplus of 80 under the two-part tariff. But their misperceptions mean that they misperceive the surplus. The perceived surplus under the three-part tariff is $200 \cdot 0.4 - 10 = 70$, greater than the perceived surplus of $200 \cdot (0.4 - 0.1) - 10 = 50$ under the two-part tariff. Light users will pay \$10 under the three-part tariff. They will enjoy a surplus of $100 \cdot 0.4 - 10 = 30$, more than the surplus of 20 under the two-part tariff. More importantly, the perceived surplus under the three-part tariff is $200 \cdot 0.4 - 10 = 70$, greater than the perceived surplus of $200 \cdot (0.4 - 0.1) - 10 = 50$ under the two-part tariff.

Intuitively, the three-part tariff extracts payments in the form of overage fees that are invisible to consumers,¹⁴³ while reducing or eliminating payments that are visible to consumers, specifically fixed fees and charges for minutes within the plan limit. Notice that the heavy users, who underestimate their usage levels and end up paying overage fees, are subsidizing the light users. But since the heavy users do not anticipate paying the overage fees, a competitor cannot lure them away *ex ante* by, for example, offering a different tariff with lower overage fees. The three-part tariff maximizes the perceived consumer surplus for both types of consumers, and thus will be selected as the equilibrium tariff in a competitive market.¹⁴⁴

b. Data

We test the misperception theory using a unique dataset of subscriber-level, monthly billing and usage information for 3730 subscribers at a single wireless provider. These data provide information on which of four calling plans a subscriber has chosen and his monthly consumption of peak minutes for the period of September 2001 to May 2003. Each of the four calling plans offer a standard three-part tariff with a fixed allocation of peak minutes and steep overages for additional peak minutes consumed, as described in Table 1 below.¹⁴⁵

carrier gets \$20 from overage charges that the heavy users pay on their last 100 minutes. The remaining \$10 is collected as a fixed monthly fee.

143. In a more general model, overage charges would be underestimated, but not completely invisible.

144. We generalize this example in a companion piece. See Bar-Gill & Stone, *supra* note 140.

145. The database was provided by the Center for Customer Relationship Management at Duke University. The description of the data in the text is based on the description provided by the Center. See The Center for Customer Relationship Management, Telecom Dataset, available at <http://www.fuqua-europe.duke.edu/centers/ccrm/index.html#data>; see also Raghuram Iyengar, Asim Ansari & Sunil Gupta, *A Model of Consumer Learning of Consumer Service Quality and Usage*, 44 J. MKTG. RES. 529, 535-37 (2007). The four plans are offered with many different optional features that consumers can choose from, including messaging, long-distance, and roaming. Iyengar et al. determined that actual use of these

Table 1: Menu of Three-Part Tariffs

	Plan 1	Plan 2	Plan 3	Plan 4
Market share (%)	47.36	9.92	32.1	10.62
Monthly fixed charge (\$)	30	35	40	50
Number of included minutes	200	300	400	500
Overage rate (\$)	0.40	0.40	0.40	0.40

The data reveal substantial variance in usage. Summary statistics are provided in Tables 2a–2d. For plans 1, 3, and 4,¹⁴⁶ Tables 2a–2c present the overall mean and standard deviation of minutes used. To gain an initial sense of underestimation versus overestimation of usage, we also present, for each plan, average figures for underusage — unused minutes per month — and overusage — minutes beyond the plan allocation. We then aggregate this information across all plans in Table 2d.

Table 2a: Summary Statistics — Plan 1

	Share	Plan 1 Usage/Allowance	
		Mean	Std. Dev.
Under Allowance	0.815	0.45	0.294
Over Allowance	0.178	1.46	0.624
All Consumers	1	0.633	0.538

features was negligible in the data set and thus ignored the added variation in contractual design. Iyengar et al., *supra*, at 536. We do the same. Furthermore, it is not entirely clear from the data that all four plans were offered at all dates in all markets. We acknowledge this limitation of the data and qualify our results accordingly. Our empirical strategy builds on Grubb, *supra* note 1, who tested a related behavioral explanation, the overconfidence theory, using a different dataset.

¹⁴⁶ We omit information on Plan 2, since no Plan 2 subscriber remained with the plan for more than ten months.

Table 2b: Summary Statistics — Plan 3

	Share	Plan 3 Usage/Allowance	
		Mean	Std. Dev.
Under Allowance	0.836	0.466	0.297
Over Allowance	0.16	1.284	0.343
All Consumers	1	0.599	0.428

Table 2c: Summary Statistics — Plan 4

	Share	Plan 4 Usage/Allowance	
		Mean	Std. Dev.
Under Allowance	0.717	0.573	0.296
Over Allowance	0.278	1.259	0.29
All Consumers	1	0.766	0.424

Table 2d: Summary Statistics — Aggregate

	Share	All Plans Usage/Allowance	
		Mean	Std. Dev.
Under Allowance	0.813	0.466	0.297
Over Allowance	0.165	1.326	0.433
All Consumers	1	0.612	0.456

In aggregate, subscribers exceed their minute allowance 16.5% of the time, by an average of 32.6%. In the 81.3% of the time when the allowance is not exceeded, subscribers use on average only 46.6% of their minute allowance.¹⁴⁷

We next estimate both the percentage of consumers who arguably chose the wrong plan, and the costs of their mistakes. We consider a plan choice to be a mistake when, given the consumer's usage, a different plan would have cost the consumer less. We limit our analysis

147. Cf. TELETRUTH, NEW NETWORKS INSTITUTE & LTC CONSULTING, PHONE BILL SURVEY OF UCAN CUSTOMERS: SAN DIEGO, CALIFORNIA MARKET FOR LOCAL, LONG DISTANCE, DSL/BROADBAND, CABLE SERVICES, WIRELESS SERVICES, WITH INTERVIEWS 45 (March 2009), <http://www.teletruth.org/docs/UCANteletruth.pdf> (finding, based on evidence from 134 wireless customers in the San Diego area, that, on average, customers used only 33% of their minute allowance each month).

to the 3456 consumers who stayed with a plan for at least ten months, and take as our unit of analysis the consumer's tenure with a plan. Given the variance in usage from month to month, we believe that identifying mistakes over shorter time horizons is less reliable. For each of the 3456 consumers, we calculate the total cost of wireless service under the consumer's chosen plan and compare it to the total amount that this consumer would have paid had she chosen each of the other three plans. We measure the magnitude of the mistakes by the difference, in both percentage and dollar terms, between the consumer's actual wireless costs and the lowest possible cost — the cost that the consumer would have paid if she could have predicted her usage with certainty.¹⁴⁸

The results are collected in Tables 3a and 3b. In these Tables, each row represents the group of subscribers who chose a certain plan. This group is then divided into four sub-groups according to the plan that these subscribers *should* have chosen. For instance, the cell located at the intersection of the Plan 3 row and the Plan 1 column represents the sub-group of subscribers who chose Plan 3 but should have chosen Plan 1. Table 3a presents the size, in percentage terms, of these sub-groups. Table 3b presents the magnitude of the mistakes or cost-savings, both in percentage terms and in annual dollar terms, for each sub-group.

Table 3a: The likelihood of mistakes

		Optimal Plan			
		Plan 1	Plan 2	Plan 3	Plan 4
Chosen Plan	Plan 1	74.09%	21.79%	1.49%	2.49%
	Plan 3	27.20%	35.61%	21.19%	16%
	Plan 4	9.00%	10.66%	8.00%	73.33%

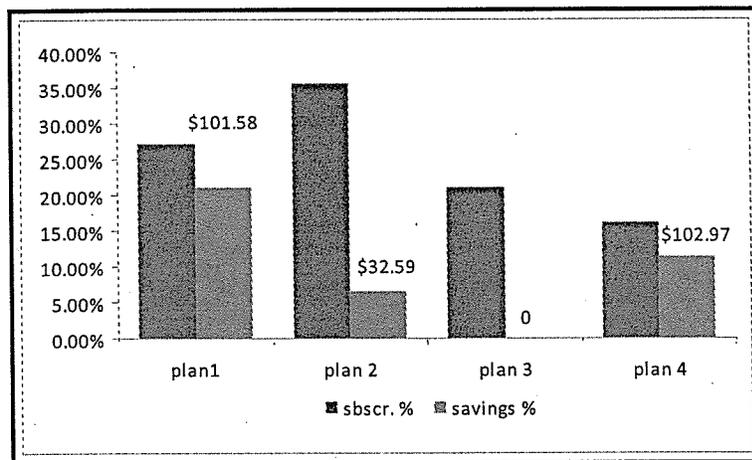
Table 3b: The magnitude of mistakes

		Optimal Plan			
		Plan 1	Plan 2	Plan 3	Plan 4
Chosen Plan	Plan 1	0%	9.56%	26.97%	28.22%
	Plan 3	\$0	\$54.16	\$203.58	\$341.71
	Plan 4	21.09%	6.55%	0%	11.34%
		\$101.58	\$32.59	\$0	\$102.98
		36.71%	12.38%	7.00%	0%
		\$220.27	\$75.31	\$39.90	\$0

148. This analysis assumes risk neutrality.

We present the results for one group of subscribers, those who chose Plan 3, in Figure 1. We focus on this group of subscribers, since it includes significant numbers of both underestimators, who should have chosen Plan 4, and overestimators, who should have chosen either Plan 2 or Plan 1. Figure 1 displays the share of Plan 3 consumers who should have chosen each of the four plans (the dark gray bars). For those who should not have chosen Plan 3, Figure 1 shows the amount of money they would have saved, both in percentage terms (the light gray bars) and in dollar figures.

Figure 1: Plan 3 Subscribers —Likelihood and Magnitude of Mistakes



These figures underestimate the number and cost of mistakes, especially for plans with a lower allocation of minutes. For example, for subscribers who chose Plan 1, our data only reveal mistakes arising from underestimation of use, that is selection of Plan 1 when the subscriber should have chosen Plan 2, Plan 3, or Plan 4. But, it is likely that many Plan 1 subscribers who overestimated their use could have done better by choosing a prepaid plan that is not included in the dataset. We offer a conservative estimate of the number and magnitude of the cost of such overestimation by adding a hypothetical prepaid plan with a high per-minute charge of \$0.40 (equal to the overage charges in our data). An estimated 24.4% of Plan 1 subscribers would have saved \$149 annually on average had they chosen the prepaid plan.¹⁴⁹

149. These conclusions are tentative, since prepaid plans may differ from postpaid plans on other dimensions. In particular, while the service quality offered by prepaid plans is improving, in the period when the data were collected there was still a non-negligible difference in quality between prepaid and postpaid plans.

To sum up, many consumers fail to accurately anticipate their use patterns, and the three-part tariff design can be explained as a market response to such misperceptions. Consistent with this story, providers do not seem to be troubled by consumers' use-pattern mistakes. On the contrary, they actively foster these mistakes by requiring, as a condition for network access, that handset manufacturers disable the call-timer feature that would make it easier for consumers to monitor their usage.¹⁵⁰ However, consumers are becoming more aware of their use-pattern mistakes and more frustrated with carriers who take advantage of them. As elaborated in Part VII below, the market is responding to the demand generated by these more sophisticated consumers.

2. Rational Choice Theories and Their Limits

The leading rational choice explanation for three-part tariffs views these pricing schemes as a mechanism for price discrimination or market screening between rational consumers with different ex ante demand characteristics. For expositional purposes, we focus on two dimensions of demand heterogeneity: average (or mean) monthly minutes of use and variance of minutes used. To begin with, suppose that consumers vary only on the first dimension. Under these conditions, the rational model cannot explain three-part tariffs: to discriminate between heavy users with high average usage and light users with low average usage, carriers would use a menu of two-part tariffs, not three-part tariffs. A two-part tariff includes a fixed monthly fee and a constant per-minute charge. Carriers can discriminate between heavy users and light users by offering an "H" tariff with a higher monthly fee and a lower per-minute charge and an "L" tariff with a lower monthly fee and a higher per-minute charge. The heavy users care more about the per-minute charge, and will thus prefer the H tariff. The light users care more about the monthly fee, and will thus prefer the L tariff.

While two-part tariffs provide a mechanism for discriminating between consumers based on their mean usage, three-part tariffs can provide a mechanism for discriminating between consumers based on variance of use. Assume that there are two types of consumers: one type with highly variable, High-Variation ("HV") demand, and another type with more predictable Low-Variation ("LV") demand.¹⁵¹ In

150. Wu, *supra* note 74, at 9. For an example of the carrier-imposed difficulty customers face in determining their unused plan-minute allowances, see Sherrie Nachman, *Cranky Consumer: How to Check Up on Your Cell Phone Minutes*, WALL ST. J., June 18, 2002, at D2.

151. Formally, the cumulative distribution function ("c.d.f.") describing the priors over the demand parameter of the predictable type must cross that of the variable type once from below. Grubb, *supra* note 1, at 25-26 fig.6. For an analogous condition when there is a continuum of types, see *id.*

other words, the HV type often uses a very high number of minutes and often uses a very small number of minutes while the LV type usually consumes a more moderate number of minutes. A carrier can discriminate between the HV types and the LV types using a menu of three-part tariffs. Designing this menu, however, is quite tricky. The problem lies in the tradeoff that the HV type faces. On the one hand, the HV type is more concerned than the LV type about using a very large number of minutes and will thus prefer a tariff with a larger allocation of minutes to reduce the risk of paying substantial overage fees. On the other hand, the HV type is more concerned than the LV type about using only a very small number of minutes and will thus be more reluctant to pay the higher monthly fee that comes with the larger allocation of minutes.

Therefore, in designing the HV tariff, the carrier will have to strike a delicate balance. The HV tariff will offer a larger allocation of minutes, M , than the LV tariff, $M^{HV} > M^{LV}$, to accommodate the likelihood that the HV type will use a large number of minutes. The HV tariff will also include a larger monthly fee, F , than the LV tariff: $F^{HV} > F^{LV}$. But the effective per-minute charge, F/M , within the plan limit will be smaller under the HV tariff: $F^{HV}/M^{HV} < F^{LV}/M^{LV}$. This is attractive to the HV type, who is likely to use only a very small number of minutes. The LV type will not pay a higher monthly fee for extra minutes that she will most likely never use. The LV type is less concerned about paying a higher effective per-minute charge, because she will generally use most of her allocated minutes. Therefore, the LV type will choose the LV tariff.

While a three-part tariff pricing structure can facilitate price discrimination, the assumptions required for this rational choice explanation are often unrealistic. In the price discrimination model, the HV type chooses a plan with a high number of allotted minutes and the LV type chooses a plan with a low number of allotted minutes. Moreover, the highly variable use levels of the HV type imply that this type is more likely than the LV type to end up using a very low number of minutes. Our dataset suggests that this is unrealistic, as it shows that consumers who choose plans with a higher number of allotted minutes are *less* likely to end up using a very low number of minutes.

Using the subscriber-level billing and usage data described above, we plot in Figure 2 the cumulative distribution functions of usage for consumers choosing different three-part tariff plans.¹⁵²

152. Figure 2 omits Plan 2 subscribers, since no Plan 2 subscriber remained with the Plan for more than ten months.

Figure 2: Cumulative Distribution Functions of Cell Phone Usage

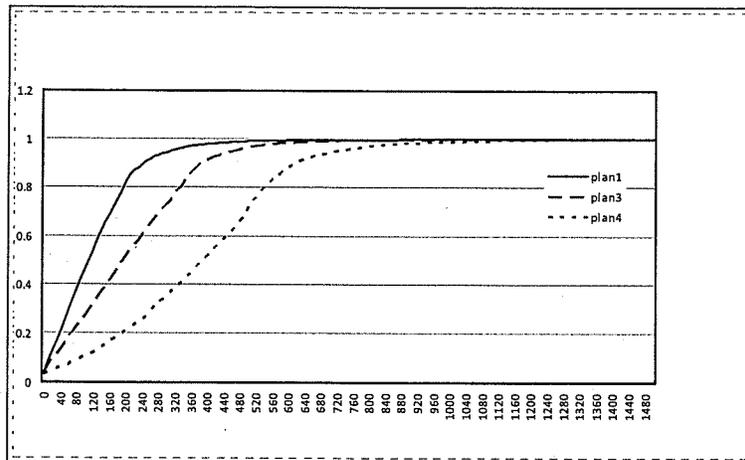


Figure 2 confirms that the cumulative distribution function corresponding to a plan with a higher number of allocated minutes first-order stochastically dominates the cumulative distribution function corresponding to a plan with a lower number of allocated minutes. In other words, consumers who choose plans with a higher number of allotted minutes are less likely to end up using a very low number of minutes. These findings are inconsistent with the price discrimination theory that we sketched above.¹⁵³

An alternative rational choice explanation views the three-part tariff, and specifically the steep overage fees, as offering consumers a pre-commitment device that helps them avoid excessive usage.¹⁵⁴ Rational consumers who anticipate a temptation to talk too much may want to bind their future selves by choosing a plan with a high overage fee. However, this theory does not fit the data very well. The data reveal substantial overages, but if consumers are using the three-part tariff as a commitment device we should expect to see a clustering of minutes used just below the plan limits. Moreover, the pre-commitment theory cannot explain the large number of subscribers who consistently use a number of minutes that is well below the plan limit.

Finally, in theory, the use patterns revealed in our data are consistent with the behavior of perfectly rational but risk-averse subscribers.

153. Grubb's analysis of a different dataset yields the same conclusion. Grubb, *supra* note 1, at 34 fig.1.

154. It is not even clear that this is a rational choice theory. Arguably, preferences that lead to temporal inconsistency and self-control problems, which generate a demand for pre-commitment devices, are in some sense irrational.

Such subscribers would choose plans with more allotted minutes than they expect to use to reduce the risk of paying substantial overage fees. As a result, most of these subscribers will end up using much less than their allotted minutes. This explanation fails for two reasons. First, given the sums of money involved, the observed plan choices are not consistent with risk aversion under the rational-choice Expected Utility Theory.¹⁵⁵ Second, while risk aversion may explain the patterns of overusage and underusage given the three-part tariff structure, it cannot explain the emergence of the three-part tariff as the equilibrium pricing structure. With rational, risk-averse subscribers, we should expect to see two-part tariffs.

B. Lock-In Clauses

1. A Behavioral Economics Theory

The lock-in clauses that are common in postpaid plans and the termination fees that enforce them can also be explained as a market response to the imperfect rationality of consumers. Consumers often underestimate the likelihood that switching providers will be beneficial down the road; service may not be as good as promised, monthly charges may be higher than expected, or another carrier may offer a better deal.¹⁵⁶ As a result, consumers underestimate the long-term cost of the lock-in clause. When consumers underestimate the likelihood that they will want to switch providers before their contract expires, they will be relatively insensitive to the ETF. Increasing the size of the ETF thus becomes an appealing pricing strategy.¹⁵⁷ Moreover, the ETF-enforced lock-in facilitates the common bundling of phones and service. Termination fees guarantee providers a long-term revenue stream, as subscribers must either refrain from switching carriers and pay for service for the duration of their contracts or switch and pay the termination fee.¹⁵⁸ This guaranteed revenue helps enable carriers to offer free or subsidized phones to attract consumers.

155. See Matthew Rabin, Note, *Risk Aversion and Expected-Utility Theory: A Calibration Theorem*, 68 *ECONOMETRICA* 1281, 1281 (2000). However, they may be consistent with certain behavioral accounts of risk aversion. See *id.* at 1282 n.3.

156. See Lauren Tara Lacapra, *Breaking Free of a Cellular Contract — New Web Sites Help Customers Swap or Resell Phone Service; Avoiding \$175 Termination Fee*, WALL ST. J., Nov. 30, 2006, at D1 (“[Consumers] often want out because service is poor or because the monthly costs turn out to be more than they expected.”).

157. Oren Bar-Gill, *Informing Consumers About Themselves* 10 (NYU Law Sch. Law & Econ. Res. Paper Series, Working Paper No. 07-44, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1056381.

158. The ETF effectively deters switching. See Lacapra, *supra* note 156 (stating that according to a July 2005 survey by the U.S. PIRG Education Fund, “[f]roughly 47% of cell customers would switch or consider switching cellphone companies if early-termination fees were abolished,” but “because of the fee, only 3% of customers go ahead with terminating the contract”).

But the story is more complicated. To subsidize the cost of phones, carriers must charge an above-cost price for service. This pricing strategy is attractive only if the price of service is underestimated. As we have seen in Part V.A, such underestimation does exist. Consumers underestimate the price that they will pay in the form of overage fees when they underestimate usage. When they overestimate usage, consumers underestimate the per-minute price that they will pay under the plan. Of course, a single month's worth of underestimated service prices cannot cover the large phone subsidies. Carriers cannot increase service charges to such a level that they would cover the price of a phone (or a phone subsidy) after one month. Consequently, lock-in is crucial. Lock-in ensures that the carrier will benefit from (typically) two years' worth of above-cost and underestimated service charges or, if lock-in fails, from the underestimated termination fee. These compounded above-cost service charges can then pay for the free or subsidized phones. Lock-in also facilitates the workings of consumers' myopia, further compounding the problem. The immediate cost of the phone looms larger in the decision calculus than the costs of the service contract, which are spread over time.

Carriers are quite explicit about their strategy of offering free or subsidized phones and recouping their costs through long-term contracts with ETFs. According to the vice president of marketing for Cingular Wireless (now AT&T), the penalties are the price that consumers must pay for the inexpensive or free phones customers get when they sign up for service: "We subsidize the handset; in exchange we want a commitment from the customer."¹⁵⁹ Similarly, at the FCC hearing on ETFs, an Executive Vice President of Verizon argued:

Term contracts allow the consumer to take advantage of bundled services at competitive prices and the latest devices they choose in exchange for a commitment to keep the service for usually one or two years. In return, service providers have some measure of assurance over a fixed period of time that they may recover their investment, including equipment subsidies, costs of acquiring and retaining customers,

159. Caroline E. Mayer, *Gripping About Cellular Bills; Differences From 'Regular' Phones Take New Users by Surprise*, WASH. POST, Feb. 28, 2001, at G17; see also Fawn Johnson, *FCC Head Seeks Rules on Cell-Termination Fees*, WALL ST. J., June 13, 2008, at B7 ("Wireless carriers argue that the termination fees are used to subsidize the cost of cell-phones to customers. People who sign up for one- or two-year contracts receive discounts on phones and their monthly wireless rates."); CTIA, *Early Termination Fees Equal Lower Consumer Rates* 1, CITA, Apr. 2006, http://files.ctia.org/pdf/PositionPaper_CTIA ETF_04_06.pdf (arguing that prohibiting carriers from charging ETFs will cause prices for wireless services to increase).

and anticipated revenue for providing wireless services.¹⁶⁰

Consider, for example, the pricing of the new iPhone. In June 2008, Apple made a big splash when it announced that the new iPhone model would sell for \$200 less than its predecessor (\$199 instead of \$399).¹⁶¹ However, at the same time Apple and its partner AT&T raised the iPhone's minimum monthly service subscription from \$60 to \$70, adding \$240 to the total cost of the two-year contract.¹⁶² AT&T and Apple executives were very clear about the short-term versus long-term trade-off. They were willing to lose money on the front end, but only because they were counting on making even more money off the back-end, due to the two year lock-in contract.¹⁶³ Not surprisingly, when the same iPhone was later offered in unbundled form, without a two year service plan, it was priced at \$599, which is \$400 above the subsidized price (with a service plan).¹⁶⁴

The practice of offering free or subsidized phones with lock-in contracts provides strong evidence of consumer bias. Moreover, carriers seem to understand that consumers are attracted by the short-term benefit (the free phone) even when this benefit is completely offset or even outweighed by increased long-term costs.¹⁶⁵ While bundling of phones and service is still the norm in the U.S. cellular service market, this practice seems to be in decline. Consumers are more aware of ETFs, an awareness that could partially be attributed to the ETF litigation, and carriers are reducing ETFs in response.¹⁶⁶ With lower ETFs and thus weaker lock-in, phone subsidies become more difficult to sustain. The drive towards open access also threatens the future of the bundling strategy.¹⁶⁷ After initially resisting open access, carriers are beginning to realize the benefits of shifting development and customer service costs to handset manufacturers.¹⁶⁸ Finally, it is interesting to

160. Thomas J. Tauke, Executive Vice President, Verizon, Testimony at FCC Early Termination Hearing 1 (June, 12, 2008) [hereinafter Verizon Testimony], available at <http://www.fcc.gov/realaudio/presentations/2008/061208/tauke.pdf>.

161. See Paul Wagenseil, *That 'Cheaper' iPhone Will Cost You More*, FOXNEWS.COM, June 11, 2008, <http://www.foxnews.com/story/0,2933,365347,00.html>.

162. *Id.*

163. See *supra* note 120.

164. *AT&T Plans to Offer No-Contract iPhone*, *supra* note 124.

165. The importance of handset subsidies is not limited to the U.S. market. Based on econometric analysis of data from Chinese markets, researchers found handset subsidies were most effective in increasing the subject firm's market share over a given period. Chong-Jian Liu et al., *The Public Incumbent's Defeat in Mobile Competition: Implications for the Sequencing of Telecommunications Reform 12-17* (unpublished manuscript) available at <http://ssrn.com/abstract=978707>.

166. See Part III.B.

167. See *Ante*, *supra* note 74.

168. *Id.*

note that the practice of bundling phones and service has always been less common outside the U.S. and especially uncommon in Europe.¹⁶⁹

2. Rational Choice Theories and Their Limits

Lock-in clauses can arise in a rational choice framework. When the seller incurs substantial per-consumer fixed costs and the liquidity-constrained consumer cannot afford to pay an upfront fee equal to these fixed costs, the optimal solution may be a lock-in contract. In the cell phone market, fixed costs are high but, more importantly, they are endogenous. Carriers invest up to \$400 in acquiring each new customer.¹⁷⁰ Many of these customer acquisition costs, however, are attributed to the free or subsidized phones that carriers offer.¹⁷¹ This raises a series of questions. Why do carriers offer free phones and lock-in contracts? Why not charge customers the full price of the phone and avoid lock-in? Many cell phone consumers can afford to purchase the phone up-front. Moreover, it is unlikely that the carrier is the most efficient source of credit available to all of those consumers who are in fact liquidity-constrained. Thus, the rational choice model can explain the presence of these design features in only a subset of contracts.¹⁷²

An alternative argument views lock-in clauses as instrumental in stabilizing demand and helping providers match capacity to demand (especially in peak hours), thus reducing costs and benefiting consumers. While lock-in clauses may reduce churn and thus reduce variation in demand, there are still substantial variations in the use-patterns of the locked-in consumers, as shown above.¹⁷³ More importantly, it is not clear whether or not providers need lock-in clauses to match capacity to demand. Providers have good information about their customers' use patterns, including how long they will stay with the specific provider. A related argument is that ETF-enforced lock-in generates a more predictable stream of revenues, which is necessary

169. *Id.*

170. Lacapra, *supra* note 156 ("It costs a cell phone company approximately \$350 to \$400 to acquire a new customer, according to Phil Doriot, a partner in the consulting firm CFI Group, who has studied company performance and customer satisfaction for major cellular service providers."); Jane Spencer, *What Part of 'Cancel' Don't You Understand? — Regulators Crack Down on Internet Providers, Phone Companies That Make It Hard to Quit*, WALL ST. J., Nov. 12, 2003, at D1 (noting that customer acquisition costs are approximately "\$339 per new customer, according to Yankee Group, a technology research firm").

171. Jared Sandberg, *A Piece of the Business*, WALL ST. J., Sept. 11, 1997, at R22.

172. The practice of imposing *time invariant* termination fees raises doubts about the argument that ETFs were necessary to cover the cost of the free or subsidized phones, either by inducing consumers to stay on and pay the monthly subscription fees or by replacing the subscription fees of consumers who leave.

173. See *supra* Part IV.A.1.b.

for carriers to recoup their large capital investments.¹⁷⁴ Again, while lock-in reduces uncertainty, carriers could generate reasonably accurate revenue estimates without it. Though reduced risk is desirable, the presence of manageable risk should not prevent investment.

C. Complexity

1. A Behavioral Economics Theory

The complexity and multidimensionality of the cell phone contract can also be explained as a market response to the imperfect rationality of consumers. Consider four basic plans offered by the four major carriers:

- (1) AT&T's \$39.99 plan with 450 minutes, \$0.45 per minute overage, unlimited night (9:00pm–6:00am) and weekend minutes, unlimited calling to AT&T customers, rollover minutes.
- (2) Verizon's \$39.99 plan with 450 minutes, \$0.45 overage, unlimited night (9:01pm–5:59am) and weekend minutes, unlimited calling to Verizon customers.
- (3) Sprint's \$39.99 plan with 450 minutes, \$0.45 overage, unlimited nights (7:00pm–7:00am) and weekends, unlimited calls to customers on the Sprint network.
- (4) T-Mobile's \$29.99 plan with 500 minutes, \$0.45 overage, unlimited calls to customers on the T-Mobile network, unlimited nights (9:00pm–6:59am) and weekends.¹⁷⁵

To choose among these products, the consumer must answer a series of nontrivial questions. How important is unlimited calling within the network? If unlimited calling within the network is important, on which network are most of the consumer's friends located? How valuable is unlimited calling during weekends? How valuable is unlimited calling at night? How large is the difference between unlimited calling at night when "night" is between 7:00pm and 7:00am as compared to a shorter "night" between 9:00pm and 6:00am? How valuable is the rollover feature? There is considerable complexity even when the comparison is between plans (1) to (3), which offer consumers the same monthly charge, number of allotted minutes, and overage charge. But, of course, the different dimensions of the three-part tariff also change from one carrier to the next and from one plan to the next in a single carrier's menu of offerings. Consumers must choose the combination of monthly charge, allotted minutes, and

174. See Verizon Testimony, *supra* note 160, at 2; see also CTIA, *supra* note 159, at 1.

175. Information as to basic plans acquired from sources cited *supra* note 110.

overages they prefer. As explained above, this choice requires accurate estimates of the distribution of their future usage.

A perfectly informed and perfectly rational consumer would easily navigate this maze and find the best plan for him. But the amount of information required is substantial, since it includes information about both available plans and the consumer's own use patterns. It is unlikely that he will have all this information. Moreover, as shown above, consumers are often mistaken about their future use. Even if the consumer had the necessary information, translating this information into a metric that would allow him to rank the different plans is a daunting challenge that most consumers cannot be expected to overcome.

Complexity allows providers to hide the true cost of the contract. Imperfectly rational consumers cannot effectively aggregate the costs associated with the different options and prices in a single cell phone contract. Inevitably, consumers will focus on a subset of salient features and prices, and ignore or underestimate the importance of the remaining, non-salient features and prices. In response, providers will increase prices or reduce the quality of the non-salient features, which in turn will generate or free up resources for intensified competition on the salient features. Competition forces providers to make the salient features attractive and the salient prices low. This can be achieved by adding revenue-generating, non-salient features and prices. The result is an endogenously derived high level of complexity and multidimensionality.

This account of complexity as a response to imperfect rationality is a dynamic one. It recognizes that consumers learn and that a feature or a price that was not salient last month may become salient next month. ETFs provide such an example.¹⁷⁶ When one price dimension becomes salient, competition focuses on this dimension and carriers shift to a new, less salient price dimension. According to some accounts, carriers facing increased competition on fixed monthly fees and allocations of included minutes are now relying more heavily on revenues from charges for new data services.¹⁷⁷ The proposed account of complexity not only allows for consumer learning, but also uses consumer learning to explain the increasing level of complexity of the cellular service contract: when consumers learn the importance of a previously non-salient price dimension, carriers have a strong incentive to create a new price dimension.

176. See *infra* Part V.B.

177. Andrea Petersen & Nicole Harris, *Hard Cell: Chaos, Confusion and Perks Bedevil Wireless Users*, WALL ST. J., Apr. 17, 2002, at A1.

2. Rational Choice Theories and Their Limits

The rational choice explanation for complexity is straightforward. Consumers have heterogeneous preferences. Different consumers want different kinds of cellular services, so the complexity and multidimensionality of the cellular service offerings cater to the heterogeneous preferences of cell phone users. This surely explains some of the observed complexity in the cell phone market. But it is unlikely that it fully explains the staggering level of complexity exhibited by the long menus of cell phone contracts. Even for the rational consumer, acquiring information on the range of complex products is costly. Even for the rational consumer, comparing different plans with different multidimensional features is costly. At some point, these costs exceed the benefits of finding the perfect plan. When complexity deters comparison shopping, the benefits of the variety and multidimensionality are left unrealized. The rational choice account must balance the costs and benefits of complexity. It seems that in the cell phone market the level of complexity has reached a point beyond what we should expect if it was simply a response to rational consumer demand.¹⁷⁸

V. WELFARE COSTS

We have argued that the design of cell phone contracts can be explained as a response to the imperfect rationality of consumers. In this Part, we assess the extent to which the mistakes that consumers make and providers' responses to these mistakes harm consumers and generate welfare costs.

A. Three-Part Tariffs

We have shown that misperceptions of use levels lead many consumers to choose the wrong plan — the wrong three-part tariff.¹⁷⁹ The average consumer in our data made a mistake that cost him 8% of his total wireless bill, or \$47.68 annually. Extrapolating from our data

178. A market for "comparison shopping services" is emerging, with vendors such as BillShrink.com and Validas offering to find the best product/plan for any consumer who would be willing to pay a fee. See *infra* notes 248–49 and accompanying text. The availability of comparison shopping services reduces the cost of comparison shopping and increases the optimal level of complexity in a rational choice model. However, it seems that most cell phone users do not avail themselves of the services offered by BillShrink.com and Validas. The emergence of a market for "comparison shopping services" suggests that complexity makes it difficult for consumers to comparison shop by themselves. But since the majority of consumers do not seek help from professional comparison shoppers and thus do not benefit from the high level of complexity, the rational choice explanation for complexity is less convincing.

179. See *supra* Part IV.A.1.b.

onto the entire U.S. population of cell phone users, numbering 250 million, we obtain a \$11.92 billion annual reduction in consumer surplus.

While the \$11.92 billion figure is substantial, the average per-consumer harm, \$47.68, is small. But these averages hide potentially important distributional implications. The \$11.92 billion is not evenly divided among the 250 million U.S. subscribers. In our data, 35% of subscribers chose the right plan. Even among subscribers who chose the wrong plan, the magnitude of the mistake, that is, the extra payment as compared to the right plan, varies substantially. In our data, 34% of consumers made mistakes that cost them at least 10% of their total wireless bill, or \$113 annually, and 17% of consumers made mistakes that cost them at least 20% of their total wireless bill, or \$146 annually. Ten percent of consumers made mistakes that cost them at least 25% of their total wireless bill, or \$60 annually. This implies that the really large mistakes, in percentage terms, had smaller stakes in dollar terms.

While harm to consumers is important, it should be emphasized that a reduction in the consumer surplus is not a welfare cost in and of itself. Yet the identified consumer mistakes do generate welfare costs. First, consumer mistakes imply allocative inefficiency, since consumers are not buying the right products. Second, social welfare is reduced by regressive redistribution. Such redistribution occurs when carriers profit from consumer mistakes. But regressive redistribution occurs even if these excess profits are competed away if wealthier consumers are less prone to make mistakes. The distribution of mistakes implies that revenues from consumers who make mistakes keep prices low for consumers who do not make mistakes.

B. Lock-In Clauses

Lock-in prevents efficient switching and thus hurts consumers. A 2005 survey found that 47% of subscribers would like to switch plans, but only 3% do so — the rest are deterred by the early termination fee.¹⁸⁰ Switching is efficient when a different carrier or plan provides a better fit for the consumer. Moreover, in light of the rapid technological advances in handset technology, a two year lock-in is relatively long.¹⁸¹ Beyond these efficiency costs, consumers lose from lock-in when it prevents them from accepting a better deal offered by a competing carrier. Lock-in can slow down the beneficial effects of

180. Lacapra, *supra* note 156.

181. See Abe Burhanuddin, *Smartphone, a Modern Lifestyle Convergence*, JAKARTA POST, Aug. 21, 2007, <http://www.thejakartapost.com/news/2007/08/21/smartphone-modern-lifestyle-convergence.html> (discussing recent worldwide developments in handset technology).

consumer learning. Consumers gradually learn to avoid misperception and form more accurate estimates of their future use. If lock-in prevents these consumers from switching to a plan that better fits their actual use patterns, it prolongs the welfare costs identified in Part V.A. Similarly, consumers will gradually learn the implications of their complex cell phone contract. For example, they may learn that they do not use their phone very often between 6am and 7am, and thus conclude that they are not benefitting from the longer definition of “night” in Sprint’s unlimited night calling. If lock-in prevents these consumers from switching to a different carrier, it prolongs the welfare costs of complexity.¹⁸²

In addition to these direct costs, lock-in may inhibit competition, adding a potentially large indirect welfare cost. We have already mentioned that lock-in may prevent a more efficient carrier from attracting consumers who are locked into a contract with a less efficient carrier. Since lock-in makes large-scale entry into the market more difficult, incumbents may have a greater incentive to seek monopolization through predation or merger than in markets where easy entry limits incumbents’ market power.¹⁸³

C. Complexity

The high level of complexity of cellular service contracts can reduce welfare in two ways. First, consumers will tend to make more mistakes in plan choice when the choices are complex. Second, complexity inhibits competition by discouraging comparison shopping. By raising the cost of comparison shopping, complex contracts reduce the likelihood that a consumer will find it beneficial to comparison shop. Without the discipline that comparison shopping provides, cell phone service providers can behave like quasi-monopolists — raising prices and reducing consumer surplus.

D. Countervailing Benefits?

Three-part tariffs, lock-in clauses, and complexity harm consumers and increase carriers’ profits. Competition among carriers, even if imperfect, forces carriers to give back to consumers some of these profits. Carriers will compete away excess profits by reducing prices that are salient to consumers. Handset subsidies are the primary way in which benefits flow back to consumers. However, these counter-

182. See *infra* Part V.C.

183. Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUS. ORG. 1967, 2005 (Mark Armstrong & Robert Porter eds., 2007), available at http://www.nuff.ox.ac.uk/users/klemperer/Farrell_KlempererWP.pdf.

vailing benefits do not eliminate the identified welfare costs. Even if all excess profits are returned to consumers, there will still be an efficiency cost. Consumer mistakes and the contractual design features that respond to these mistakes lead consumers to misperceive the relative costs and benefits of different products. As a result, consumers choose the wrong products and use these products sub-optimally. Moreover, even if all excess profits are returned to consumers as a group, there is no reason to believe that the benefit received by a consumer will precisely offset the harm to that same consumer. In fact, it is likely that consumers who are more prone to mistakes will be cross-subsidizing consumers who are less prone to mistakes. The resulting redistribution can reduce social welfare. Finally, one important effect of lock-in and complexity is to reduce the level of competition in the cellular services market. Reduced competition means that less of the excess profits will find their way back into the hands of consumers.

VI. MARKET SOLUTIONS

Consumers make mistakes and carriers respond to these mistakes. However, consumers also learn from their mistakes,¹⁸⁴ and carriers respond to demand generated by the growing number of increasingly sophisticated consumers. Moreover, in a competitive market, carriers may have an incentive to correct consumer mistakes, at least when these mistakes prevent consumers from fully appreciating the benefits of the carrier's product. We begin in Section A by describing a number of products and contracts that arguably respond to demand by more sophisticated consumers. In Section B, we examine whether these market solutions in fact solve the behavioral market failures identified in this Article.

A. Catering to Sophisticated Consumers

The cellular service market boasts a large set of products and contracts that arguably cater to more sophisticated consumers.

184. See Martin Gaynor et al., *Cell Phone Demand and Consumer Learning — An Empirical Analysis* 25 (NET Inst., Working Paper No. 05-28, 2005), available at <http://www.netinst.org/Shi.pdf> (examining consumer behavior in Asia; finding “shrinking posterior variances” of demand parameters to be evident of learning behavior). During the first three months of their study, they also found a decline in the average number of minutes used, a diversification of plan choices over time, a rapid decline in the deviation of actual payment from the optimal payment, and a rapid increase in the proportion of consumers choosing the optimal plan. *Id.* at 6–7. But this relatively quick learning and adjustment behavior is a function of Thai calling plans, which have no lock-in feature. With lock-in, learning is slower, since consumers cannot experiment with multiple plans over a short period of time.

1. Unlimited Calling Plans

In February 2008, Verizon broke with industry pricing norms by offering a \$99 unlimited calling plan.¹⁸⁵ Soon after AT&T followed suit, and T-Mobile went even further by including unlimited text messaging along with unlimited voice in its unlimited plan.¹⁸⁶ Sprint then unveiled a \$99 plan that featured “unlimited voice, text messages, email, web surfing, video, and other premium services.”¹⁸⁷ Unlimited calling plans arguably respond to consumer complaints about overage fees. Most likely, a sufficiently large subset of consumers, experiencing the sting of large overage charges, generated demand for plans without overage fees.¹⁸⁸

The rise of unlimited plans demonstrates both the power and possible unevenness of consumer learning. We have presented the three-part tariff as a response to consumer misperceptions about future use. Of the different components of the three-part tariff, the overage fee, is likely to be the one which consumers learn to appreciate most quickly. When consumers exceed the plan limit, they receive a very direct and painful feedback which helps them learn. But, as argued above, the underestimation of use that triggers overage charges is just one-half of the problem. The other half — overestimation of use — is more difficult to learn. For a consumer using 50% of the allotted minutes, implying a much higher per-minute rate than initially expected, there is no direct feedback because the consumer still pays the same monthly fixed fee. We doubt that many consumers divide this fee by the number of minutes actually used to derive the real per-minute price. The

185. Roger Cheng, *Business Technology: Virgin Mobile to Join Flat Rate Phones Frenzy*, WALL ST. J., June 24, 2008, at B4.

186. *Id.*

187. *Id.* While these plans still entail a contract, smaller companies, like Virgin Mobile, offer similar plans even without a lock-in contract. *Id.* The innovation was the introduction of unlimited voice service. Data plans were always advertised as unlimited, but the fine print included actual limits. Specifically, in the terms and conditions of their subscriber contracts AT&T, Sprint, and Verizon reserve rights to impose additional charges or terminate service if users use more than five gigabytes in a month, *see, e.g.*, AT&T, Plan Terms, *supra* note 129, while T-Mobile reserves such rights if users exceed ten gigabytes of usage in a month, *see* T-Mobile, T-Mobile Terms & Conditions, *supra* note 129. Moreover, carriers typically reserve rights to impose restrictions on consumers' usage of other carriers' wireless networks (“offnet usage”). Similarly, unlimited voice plans are not always truly unlimited. For example, AT&T imposes limits on its unlimited voice services, specifying that voice services are provided primarily for live dialog between two individuals. If a consumer's use of the service for conference calling or call forwarding exceeds 750 minutes in a given month, the carrier may terminate the service or, after providing the user with notice and an option to terminate, change the plan to one with no unlimited usage components. *See* AT&T, Plan Terms, *supra* note 129.

188. *See* Amol Sharma & Dionne Searcey, *For Big Talkers, Wireless Firms Offer Flat Rates*, WALL ST. J., Feb. 20, 2008, at D1 (explaining that carriers are eliminating overage penalties because consumers “detest” these penalties).

result of this uneven learning is unlimited plans, rather than the optimal two-part tariff pricing scheme.¹⁸⁹

Moreover, the currently available unlimited plans are attractive only to a relatively small fraction of heavy users. With their high monthly fees, the unlimited plans are less attractive than the standard three-part tariff plans for most users.¹⁹⁰ Therefore, the unlimited plans are, at best, a limited market solution, targeted at a small segment of cell phone users. These heavy users may learn more quickly and more readily demand products that cater to their needs. A more general market solution to consumer learning about underestimation and overage costs, such as a two-part tariff, is still absent and, as mentioned above, so is a market solution to the overestimation problem.

The move by Sprint and other carriers to bundle voice, messaging, and data services in a single “unlimited” plan with a single monthly fixed-fee¹⁹¹ may be responding to learning of a different kind. Consumers are “confused” by complex, multidimensional contracts and are demanding greater “simplicity.”¹⁹² While a single-price “unlimited everything” plan is simpler, its simplicity can be overstated. In measuring simplicity, it is not enough to consider the price and other product attributes of only a single plan. The level of complexity is a result of the interaction between product attributes and consumer usage patterns across a carrier’s entire menu of plans. So, for example, in order to choose between a \$99 unlimited plan and a limited plan with a lower monthly fee (plus possibly separate charges for text messaging and data services), consumers must still form accurate estimates of their future use and calculate the expected total price of both plans — a potentially difficult task.

2. AT&T’s Rollover Minutes

Consumer use varies from month to month. For example, a consumer may talk 350 minutes one month and 550 minutes the next month. With a standard 450 minute plan, this consumer will waste 100 minutes in the first month and pay overage charges for 100 minutes. With AT&T’s 450 minute plan, which includes the rollover minutes feature, the 100 spare minutes in the first month are not wasted. Rather they are “rolled over” to, that is, added to the available

189. Many consumers probably still overestimate their usage and could benefit from moving from an unlimited plan to a limited plan with a lower monthly fee. See *supra* Part IV.A.1.b.

190. See Jeff Blyskal, *Mostly Talk: New Unlimited Cell Plans Won’t Pay for Most*, CONSUMERREPORTS.ORG, Feb. 26, 2008, <http://blogs.consumerreports.org/electronics/2008/02/mostly-talk-new.html>.

191. See Cheng, *supra* note 185.

192. Blumenstein, *supra* note 116.

minutes for, the second month.¹⁹³ This means that in the second month the consumer has 550 minutes instead of 450 minutes and thus will not pay any overage.¹⁹⁴ The rollover feature, which predates the unlimited calling plans described above, can also be seen as a response to consumer learning about the costs of underestimated use and overage charges. But, unlike unlimited plans that directly respond to underestimation of use, the rollover feature seems to respond to a different bias — overconfidence about use levels, which implies underestimation of use in some months and overestimation of use in others. By enabling the consumer to smooth his uneven use over time, the rollover feature mitigates the costs of overconfidence.

3. Prepaid Plans

Prepaid, no-contract plans are the natural choice for a sophisticated consumer who has learned the costs of lock-in and demands flexibility. This flexibility, however, comes at a cost. Not only do prepaid, no-contract subscribers forgo the phone subsidies offered to postpaid, locked-in subscribers, they also pay higher per-minute charges (at least as compared to postpaid subscribers who use all the allotted minutes under their plans). As a result, even a sophisticated consumer would be reluctant to choose a prepaid plan. In fact, prepaid, no-contract plans were designed for distinct segments of consumers, specifically younger and poorer consumers who have low credit scores and do not qualify for a postpaid plan.¹⁹⁵ In other words, prepaid plans are not a market response to consumer learning. Nonetheless, these plans are attractive to sophisticated consumers with relatively low use levels.

Despite their potential benefits, prepaid plans have a rather limited market share. In the U.S., only 16% of cell phone users have prepaid plans, and among households with incomes above \$75,000, only

193. Unused minutes do not roll over forever. They expire after a year.

194. In this example, the rational non-AT&T customer will switch to a 900 minute plan and pay an additional \$20 per month because this charge is smaller than the average overage paid in the seemingly cheaper plan: $\$45 / 2 \text{ months} = \22.50 per month.

195. FCC TWELFTH REPORT, *supra* note 34, at 2297–98 ¶¶ 116–18; see also Gerry Khermouch & Catherine Yang, *Richard Branson: Winning Virgin Territory*, BUS. WK., Dec. 22, 2003, at 45 (noting that Virgin is attracting young customers by offering no-contract prepaid cellular service). No-contract plans are less profitable for carriers, even though the rates per minute of use are higher. For example, T-Mobile generates about \$24 in revenue per prepaid customer, as opposed to about \$52 per postpaid contract user. Marin Perez, *T-Mobile's Data Revenues Increase From Android-Powered G1*, INFORMATIONWEEK, Nov. 6, 2008, <http://www.informationweek.com/news/telecom/business/showArticle.jhtml?articleID=212001129>; see also FCC TWELFTH REPORT, *supra* note 34, at 2297 ¶ 116 (noting that prepaid plans were not heavily promoted by the industry in the past because average revenues per unit tend to be lower and churn rates higher relative to postpaid calling plans). It can thus be inferred that prepaid plans are targeted at consumer groups that would not use cell phones absent the prepaid option, or that would pose too great a credit risk to qualify for a postpaid plan.

6% of cell phone users have prepaid plans.¹⁹⁶ These figures lend support to the proposition that many prepaid users likely did not choose prepaid plans but rather were denied the postpaid option. This reinforces the claim that prepaid plans target weaker segments of the market and, for the most part, do not compete directly with postpaid plans. Importantly, the low take-up of prepaid plans is not attributed to a lack of familiarity with the prepaid option, as 86% of Americans report that they are familiar with prepaid cell phones.¹⁹⁷ Arguably, consumers are aware of the prepaid option but unaware of the cognitive biases that render this option less attractive or, more accurately, render the postpaid alternative more attractive. But this is starting to change. Prepaid plans are now attracting consumers from segments of the market previously controlled by postpaid plans. In 2008, sales of prepaid plans grew 13% in North America, nearly three times faster than traditional postpaid plans.¹⁹⁸

It should also be noted that prepaid plans, while solving the lock-in problem, do not eliminate consumer mistakes. Misperceptions about future use may still lead consumers to choose the wrong monthly prepaid plan. Expiration dates on minutes purchased under pay-as-you-go plans may be a response to consumers' overestimation of use.

4. Graduated ETFs

As described in Part III.B, carriers have been moving from a time-invariant ETF to a time-variant, graduated ETF structure. This shift responds to consumers' increased awareness and sensitivity to ETFs. The change in the design of ETF provisions is not a pure market solution. Rather, it is an example of how consumer learning and legal intervention can work in tandem to change business practices. The ETF story likely began with a small number of consumers who learned to appreciate the cost of ETFs and initiated litigation against the carriers. The threat of liability probably pushed carriers to adjust their ETF structure. But the litigation also facilitated greater awareness and sensitivity to ETFs among consumers. This adjusted demand was something that carriers could not ignore.

196. OPINION RESEARCH CORPORATION, PREPAID PHONES IN THE U.S.: MYTHS, LACK OF CONSUMER KNOWLEDGE BLOCKING WIDER USE 4, 10 (Dec. 4, 2008), http://www.newmillenniumresearch.org/archive/120408_prepaid_myths_survey_report.pdf.

197. *Id.* at 3.

198. Jenna Wortham, *Cellphones Without Strings*, N.Y. TIMES, Feb. 20, 2009, at B1 (describing the growing attraction of prepaid plans and citing Pali Research, an investment advisory firm, regarding the growth rate of prepaid plans); see also FCC THIRTEENTH REPORT, *supra* note 32, at 6246 ¶ 117 (noting that according to one analyst's figures, the percentage of major operators' customers who subscribe to prepaid plans increased from 15% at the end of 2006 to 17% at the end of 2007).

5. Open Access

Finally, the open-access movement in wireless telecommunications is a market-driven development that could reduce the costs of lock-in and handset-service bundling. While carriers are still the leading handset retailers, recent developments are diminishing their power such that it is likely that handset manufacturers will increasingly sell their products directly to consumers, who can use the phone on any network. Open access is not a response to consumer learning about biases and the cost of lock-in. Nevertheless, it is an important development that can reduce the costs of consumer biases.

B. Market Solutions and Consumer Welfare

Cell phone users learn from their mistakes, and the cellular service market seems quite responsive to demand generated by these increasingly sophisticated consumers. From a policy perspective, the question is to what extent market solutions mitigate the welfare costs identified in Part V. First, we have shown that the market promptly responds when consumers quickly learn about the implications of their mistakes, as they do when underestimated use leads to overage charges. But we have also shown that the market responds more sluggishly when learning is slower because the feedback mechanisms are weaker, as is the case with overestimated use. Second, while the market solutions described above have the potential to minimize the welfare costs of the identified behavioral market failure, in practice their effects are more limited. The reason is that many consumers do not take advantage of these market solutions. For example, unlimited plans with their high monthly fees are attractive only to a small fraction of heavy users. Prepaid plans are chosen by a small minority of consumers. If consumers are not aware of their mistakes, then they will not search for products that reduce the likelihood and consequences of mistakes.

Finally, it is evident that consumers learn and that the market responds to the demand generated by these more sophisticated consumers. But this does not mean that welfare costs are not incurred during the interim period. We need to ascertain the speed of consumer learning and of the market response to changing demand in order to assess the magnitude of welfare costs. Moreover, when consumers learn to overcome one mistake, or when one hidden term becomes salient, carriers have an incentive to add a new non-salient term and to trigger a new kind of mistake.¹⁹⁹ Even if consumers always catch up eventually, this cat-and-mouse game imposes welfare costs. Wireless opera-

199. See Gabaix & Laibson, *supra* note 5, at 1-2.

tors are among the leading generators of consumer complaints.²⁰⁰ Market solutions, while important, are clearly imperfect.

VII. POLICY IMPLICATIONS

The identified behavioral market failure imposes substantial welfare costs. Consumer learning coupled with market forces works to reduce these welfare costs, but do not eliminate them. Can legal intervention help, perhaps only by reinforcing consumer learning and market correction? In this Part, we initially survey existing rules and regulations affecting the cellular service contract. We then tentatively propose several reforms, focusing on the disclosure regime. Focusing on disclosure targets the behavioral market failure by reducing consumer misperceptions. More intrusive regulations, such as forcible unbundling of equipment and service contracts, would eliminate costs associated with consumer misperceptions, but at the cost of eliminating efficiency benefits that can arise through bundling in competitive markets.

A. Existing Regulations Affecting the Cellular Service Contract

1. Who Can Regulate?

The FCC has plenary jurisdiction to license radio spectrum for wireless communication under the Communications Act of 1934.²⁰¹ Accordingly, states lack the authority to license radio spectrum for intrastate uses.²⁰² Moreover, the Omnibus Budget Reconciliation Act of 1993 amended the Communications Act to preempt states from regulating the entry of, or rates charged by, any wireless provider; states, however, retain the right to regulate other terms and conditions.²⁰³ Consumers can sue wireless carriers under state tort, contract, and consumer protection laws for false advertising, misleading billing practices, and poor service.²⁰⁴ States can petition the FCC for author-

200. See Spencer E. Ante, *The Call for a Wireless Bill of Rights*, BUS. WK., Mar. 20, 2008, at 80, available at http://www.businessweek.com/magazine/content/08_13/b4077080431634.htm?campaign_id=rss_tech (noting that, according to the Better Business Bureau, for each of the past three years, the wireless sector has received more complaints than any other industry). In the second quarter of 2008, the FCC received 13,560 complaints about wireless telecommunications. FCC, QUARTERLY REPORT ON INFORMAL CONSUMER INQUIRIES AND COMPLAINTS RELEASED 1 (Jan. 8, 2009), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-287780A1.pdf.

201. William R. Drexel, *Telecom Public Policy Schizophrenia: Schumpeterian Destruction Versus Managed Competition*, 9 VA. J.L. & TECH. 5, 7-8 (2004), http://www.vjolt.net/vol9/issue2/v9i2_a05-Drexel.pdf; see also 47 U.S.C. § 301 (2006).

202. Drexel, *supra* note 201, at 8.

203. *Id.*; see also 47 U.S.C. § 332(c)(3)(A) (2006).

204. NUCHESTERLEIN & WEISER, *supra* note 8, at 273. Carriers, however, argue that such regulation is preempted as it amounts to entry or rate regulation. See *infra* note 232.

ity to regulate rates for any commercial mobile service, which will be granted upon a demonstration that market conditions fail to adequately protect consumers against "unjust and unreasonable rates or rates that are unjustly or unreasonably discriminatory."²⁰⁵ In addition, states retain the authority to impose requirements on telecommunications services that are "necessary to ensure the universal availability of telecommunications service at affordable rates."²⁰⁶ State and local governments also retain zoning authority that gives them control over the placement of wireless service facilities, so long as the regulations do not have the effect of unreasonably discriminating among providers or prohibiting the provision of wireless services.²⁰⁷

2. Indirect Effects

Under the 1996 Telecommunications Act, wireless carriers are subject to certain provisions designed to promote competition.²⁰⁸ For instance, all telecommunications carriers have "the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers."²⁰⁹ The FCC invoked its authority to enact competition-enhancing regulations when it extended manual roaming obligations — previously imposed only on cellular providers — to broadband PCS (personal communications service)²¹⁰ and certain SMR (specialized mobile radio)²¹¹ carriers.²¹²

205. 47 U.S.C. § 332(c)(3)(A)(i) (2006).

206. *Id.* § 332(c)(3)(A).

207. *Id.* § 332(c)(7).

208. A stated purpose of the Act is "[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." Telecommunications Act of 1996, Pub. L. No. 104-104, purpose statement, 110 Stat. 56, 56 (1996) (codified as amended at 47 U.S.C. §§ 251-76 (2006)).

209. 47 U.S.C. § 251(a)(1) (2006).

210. The FCC has set aside the spectrum between 1850 MHz and 1990 MHz for broadband PCS. PCS licenses have been assigned through auction since 1995 with some blocks assigned on the basis of 51 Major Trading Areas and others on the basis of 493 Basic Trading Areas. FCC ELEVENTH REPORT, *supra* note 17, at 10974-75 ¶ 63. Broadband PCS systems are similar to cellular systems, except that they operate in different spectrum bands and have been designed from the beginning to use a digital format. *Id.*

211. Specialized Mobile Radio (SMR) services were created by the FCC in 1974 to provide land mobile communications on a commercial basis to businesses, government agencies, and individuals. U.S. CONG. OFFICE OF TECH. ASSESSMENT, THE 1992 WORLD ADMINISTRATIVE RADIO CONFERENCE: ISSUES FOR THE U.S. INTERNATIONAL SPECTRUM POLICY 39 (1991). In 1979, the FCC allocated 19 MHz of spectrum in the 800 and 900 MHz bands exclusively for SMR services. FCC ELEVENTH REPORT, *supra* note 17, at 10975-76 ¶ 64. Nextel (and now Sprint-Nextel) is an SMR provider.

212. *See In re Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services*, Second Report and Order and Third Notice of Proposed Rulemaking, FCC CC Docket No. 94-54, 11 F.C.C.R. 9462, 9463 (1996) (invoking its general authority under the Telecommunications Act to extend number portability requirements, explicitly imposed only on local exchange carriers, to wireless providers). In other areas, the FCC has taken a deregulatory approach on the grounds that the market is sufficiently competitive. Thus, in

However, as we have seen, enhanced competition is not a general solution to the identified behavioral market failure. If consumers suffer from a systematic bias, competition may force carriers to design their contracts in response to this bias. Nevertheless, regulations designed to enhance competition have an indirect effect on the carrier-consumer relationship and the cell phone contract — an effect that is often beneficial to consumers, including imperfectly rational consumers. First, competition can help reduce consumer bias as competing carriers develop market solutions and advertise them to consumers. Second, regulation designed to increase competition by reducing switching costs²¹³ can help imperfectly rational consumers by preventing, or at least increasing the costs to carriers of, bundling strategies.

While regulation affecting consumer switching costs limits providers' ability to employ bundling strategies, the FCC does not directly regulate the practice of bundling of equipment and service. The FCC held that the Communications Act's general prohibition on offering more favorable terms on services and equipment that are purchased together rather than separately does not apply to wireless carriers.²¹⁴ The FCC judged that the markets were sufficiently competitive to ensure that the risks of carriers leveraging market power from the services market to the equipment market were sufficiently low and outweighed by the benefits of permitting bundling. In particular, the FCC determined that permitting bundling allows carriers to provide service and equipment more economically.²¹⁵

If consumers are rational, it makes sense to permit bundling when both markets are competitive. But the conclusion no longer necessarily follows when, for example, consumers systematically underestimate the cost of service so that carriers have an incentive to backload the pricing by reducing the cost of the handset and increasing the

1996, the FCC determined that its rules prohibiting wireless carriers from imposing restrictions on resellers would "sunset" by 2001. NUCHTERLEIN & WEISER, *supra* note 8, at 272.

213. *E.g.*, *In re Telephone Number Portability*, FCC CC Docket No. 95-116, 19 F.C.C.R. 875, 875-76 (2004) (mandating number portability between networks); *see also* 37 C.F.R. § 201.40(b)(5) (2008) (exempting software that "unlocks" wireless handsets from the Digital Millennium Copyright Act). On this dimension, the U.S. is converging to the European model. *See Ante*, *supra* note 74 ("European and Asian mobile carriers [have] backed technologies that allow subscribers to switch to rivals with ease."). In Europe, regulations mandating uniform technological standards have facilitated switching and competition by making it easier for consumers to take their phone from one carrier to another. FCC THIRTEENTH REPORT, *supra* note 32, at 6250-51 ¶ 126. And cell phone providers "use unlocked GSM-type phones, which contain SIM cards" and allow users to switch their phones between networks. Reinhardt Krause, *Sales of SIM Cards Might Shuffle Deck in Wireless Services*, INVESTOR'S BUSINESS DAILY, Sept. 18, 2008.

214. NUCHTERLEIN & WEISER, *supra* note 8, at 270.

215. *In re Bundling of Cellular Customer Premises Equipment and Cellular Service*, Report and Order, FCC CC Docket No. 91-34, 7 F.C.C.R. 4028, 4030 (1992).

price of service. Consumers end up purchasing too many cell phone contracts because they underestimate the overall cost of the bundle.

3. Direct Regulations of the Consumer-Carrier Relationship

Regulation of the consumer-carrier relationship is largely limited to regulation of the information that the provider must disclose to its consumers. We begin by describing affirmative disclosure mandates. We then proceed to discuss the flip-side of disclosure mandates, namely, the prohibition on misleading disclosures, usually in advertising. We conclude with a description of the legal challenge to early termination fees — the most prominent non-disclosure regulation.²¹⁶

a. Disclosure

Exercising its powers under the Communications Act, the FCC promulgated rules intended to prevent fraudulent behavior by telecommunications providers and to increase the transparency of providers' billing practices. Providers must clearly identify the name of the service provider associated with each billed charge and prominently display a toll-free telephone number that customers can call to inquire about or dispute any charges.²¹⁷ Most importantly, since 2005 charges must "be accompanied by a brief, clear, non-misleading, plain language description of the service or services rendered" that is "sufficiently clear in presentation and specific enough in content so that customers can accurately assess that the services for which they are billed correspond to those that they have requested and received, and that the costs assessed for those services conform to their understanding of the price charged."²¹⁸ The underlying rationale is "to allow

216. One form of regulation that is conspicuously missing is rate regulation. The states are preempted from influencing rates except in very limited circumstances described above. See *supra* note 203 and accompanying text. Under the Communications Act, wireless providers have an obligation to charge rates that are just, reasonable, and not discriminatory, and the FCC is authorized to prescribe what is reasonable and just if a carrier is found to be in violation of its duties under the Act. See 47 U.S.C. §§ 201(b), 202(a), 205(a) (2006). However, the FCC has generally chosen to forbear from regulating rates for wireless communications services. Using its authority under the Communications Act § 332, the FCC has exempted wireless carriers from common carriers' tariff obligations and market entry and exit regulations on the grounds that competition renders such forms of regulation unnecessary. See NUCHESTERLEIN & WEISER, *supra* note 8, at 270.

217. 47 C.F.R. § 64.2401(a)(1), (d) (2008).

218. 47 C.F.R. § 64.2401(b) (2008). In 1999, the FCC set out general truth-in-billing principles that required that bills (1) "be clearly organized, clearly identify the service provider, and highlight any new providers;" (2) "contain full and non-misleading descriptions of charges;" and (3) "contain clear and conspicuous disclosure of any information that the consumer may need to make inquiries about, or contest charges." *In re Truth-in-Billing and Billing Format, First Report and Order and Further Notice of Proposed Rulemaking*, FCC CC Docket No. 98-170, 14 F.C.C.R. 7492, 7496 (1999) [hereinafter Truth-in-Billing 1999]. Although the FCC intended that these principles should apply to both wireline and wireless

consumers to better understand their telephone bills, compare service offerings, and thereby promote a more efficient competitive marketplace.”²¹⁹ Further disclosure requirements are imposed at the state level. In particular, state laws regulate wireless line item charges — discrete charges that are separately identified on a consumer’s bill.²²⁰

There have been calls for more stringent disclosure requirements. For instance, in 2003, Senator Schumer introduced a bill — The Cell Phone User Bill of Rights — designed to improve disclosure and make it easier for consumers to choose among providers and plans. The bill sought to ensure that marketing materials and contracts clearly spell out the terms and conditions of service plans by requiring that all wireless contracts and marketing materials display a box containing standardized information on a number of key issues. Providers would have to disclose rate information, including the monthly fixed charge, per minute charges for minutes not included in the plan, and the method for calculating minutes charged. Information on included weekday and daytime minutes and nights and weekend minutes, long-distance charges, roaming charges, incoming call charges, and charges for directory assistance would also have to be displayed. Termination and start-up fees and trial periods would have to be outlined as would any taxes and surcharges. In addition, the Bill would authorize the FCC to monitor service quality industry-wide and make the resulting data publicly available to enable consumers to make informed choices among providers.²²¹ The Bill has not been enacted into law.

carriers, wireless carriers were initially exempted from the rule implementing (2) that required charges on bills to be accompanied by a brief, clear, non-misleading, plain language description of the service or services rendered. *See In re Truth-in-Billing and Billing Format, Second Report and Order, Declaratory Ruling, and Second Further Notice of Proposed Rulemaking*, FCC CC Docket No. 98-170, 20 F.C.C.R. 6448, 6450-52 (2005) [hereinafter *Truth-in-Billing 2005*]. However, the exemption was lifted in 2005. *Id.* at 6456.

219. *Truth-in-Billing 2005*, *supra* note 218, at 6450. The FCC rejected the argument that competitive market conditions eliminate the need for the requirement concluding, on the contrary, that “the provision of clear and truthful bills is paramount to efficient operation of the marketplace” even under otherwise competitive conditions. *Id.* at 6456.

220. *Id.* at 6462. The FCC argued that these laws constitute rate regulation and are therefore preempted under § 332(c)(3)(A) of the Communications Act. *Id.* at 6462-63. However, the 11th Circuit previously held that the Communications Act does not give the FCC the authority to preempt states’ ability to regulate the use of line items in wireless customer bills, arguing that such regulation affects the presentation of charges but not the amount charged and that line item charges are not rates but rather are part of the “other terms and conditions” that are subject to state regulations under § 332(c)(3)(A). *See Nat’l Ass’n of State Util. Consumer Advocates v. FCC*, 457 F.3d 1238, 1254 (1996).

221. Cell Phone User Bill of Rights, S. 1216, 108th Cong. (2003). A similar bill, the Wireless Consumer Protection and Community Broadband Empowerment Act, was proposed more recently by Representative Edward Markey. *See* Press Release, Office of Rep. Edward Markey, Markey Holds Hearings on Draft Bill to Address Wireless Customer Protections, Feb. 27, 2008, http://markey.house.gov/index.php?option=com_content&task=view&id=3281&Itemid=241.

In 2004, the California Public Utility Commission ("CPUC") promulgated a similar set of rules.²²² These regulations required wireless providers and other telecommunications operators to (1) ensure that subscribers receive clear and complete information about rates, terms, and conditions when customers sign up for the service; (2) produce clearly organized bills that only contain charges that the subscriber has authorized; and (3) list all federal, state, and local taxes, surcharges, and fees separately.²²³ The regulations were suspended by the CPUC less than a year after their adoption, after the term expirations of two commissioners who supported the rules.²²⁴ The drive for improved disclosure, however, is continuing. Twenty-two states have introduced some form of a Cell Phone User Bill of Rights.²²⁵

b. False Advertising

In addition to affirmative disclosure regulation, providers are subject to negative disclosure regulation, i.e., restrictions on what providers can tell consumers, mainly through advertising. Unfair or deceptive advertising is generally policed by the FTC under the Federal Trade Commission Act.²²⁶ However, the FTC Act explicitly excludes "common carriers subject to the Acts to regulate commerce," including the 1934 Communications Act,²²⁷ to avoid interfering with the FCC's regulation of common carriers.²²⁸

The FCC has interpreted section 201(b) of the Communications Act, which prohibits "unjust and unreasonable" practices,²²⁹ as giving it the authority to police unfair or deceptive advertising by common carriers.²³⁰ However, it appears that the FCC rarely invokes its authority under section 201(b).²³¹ Instead, advertising by cellular service

222. See Press Release, California Public Utilities Commission, PUC Sets Protection Rules for Consumers Through Telecommunications Bill of Rights, May 27, 2004, http://docs.cpuc.ca.gov/published/NEWS_RELEASE/36910.htm.

223. *Id.*; Robert W. Hahn et al., *The Economics of "Wireless Net Neutrality,"* 3 J. COMPETITION L. & ECON. 399, 413 (2007).

224. *California Suspends Wireless Bill of Rights*, CONSUMERAFFAIRS.COM, Jan. 28, 2005, http://www.consumeraffairs.com/news04/2005/cpuc_wireless.html.

225. See *Ante*, *supra* note 74.

226. See 15 U.S.C. § 45(a)(2) (2006) (giving the FTC authority to prevent "unfair methods of competition in or affecting commerce and unfair or deceptive acts or practices in or affecting commerce.").

227. *Id.*

228. See *FTC v. Verity Int'l, Ltd.*, 194 F. Supp. 2d 270, 275 (S.D.N.Y. 2002). Thus, a wireless carrier is beyond the reach of the FTC at least insofar as it engaged in providing telecommunications services. See *id.* at 274.

229. 47 U.S.C. § 201(b) (2006).

230. See *In re Bus. Disc. Plan, Inc., Order of Forfeiture*, 15 F.C.C.R. 14461 (2000), *aff'd in relevant part*, *In re Bus. Disc. Plan, Inc., Order on Reconsideration*, 15 F.C.C.R. 24396, 24398 (2000).

231. In arguing that 47 U.S.C. § 201(b) gave it the authority to assess a forfeiture against Business Discount Plan for using unjust and unreasonable telemarketing practices in con-

providers is mainly regulated at the state level. Consumers have been using state tort law, specifically fraud and misrepresentation, contract law, and deceptive advertising laws to hold providers accountable for service that fell short of what the provider's advertisements promised.²³²

c. Challenging ETFs

On one important dimension, early termination fees, the law has moved beyond the regulation of information provided by carriers. Class action lawsuits against cellular service providers have been initiated across the United States by customers alleging that ETFs are not proper liquidated damages provisions and violate various state laws as a result.²³³ In one such lawsuit, the Alameda County Superior Court found that Sprint's ETF was an unlawful penalty under California Civil Code 1671(d) and ordered Sprint to pay \$18.25 million to class members who paid their ETFs and credit \$54.75 million to those who

nection with its "slamming" violations, the FCC cited only two instances in which it had invoked § 201(b) for a similar purpose in the past, suggesting that the FCC does not frequently invoke this authority. *See In re Bus. Disc. Plan, Inc., Order of Forfeiture*, 15 F.C.C.R. at 14469.

232. *See, e.g., Pac. Bell Wireless, LLC v. Pub. Utils. Comm'n*, 44 Cal. Rptr. 3d 733, 753-54 (Cal. Ct. App. 2006) (upholding multimillion dollar fine against wireless service provider for, inter alia, failing to disclose to customers known network problems and misleading customers regarding network's coverage and service in violation of state law); *Union Ink Co. v. AT&T Corp.*, 801 A.2d 361, 365-67, 378 (N.J. Super. App. Div. 2002) (holding that plaintiff's state law fraud and negligent misrepresentation claims arising from AT&T's alleged misrepresentations of the quality and reliability of its cellular phone service were not preempted by federal law). Providers have been pushing for broad preemption of such regulation on grounds that it constitutes regulation of "entry or rates charged" which is prohibited under § 332(c)(3)(A). Specifically, they have argued that "any determination of monetary liability [under state consumer protection, tort, or contract claims] is equivalent to a finding that the service was inadequate for the price charged and therefore necessarily constitutes a finding that the rates originally charged were unreasonable." *In re Wireless Consumers Alliance, Inc., FCC Memorandum Opinion and Order*, 15 F.C.C.R. 17021, 17035 (2000). However, the FCC rejected this argument, holding that state law claims must generally proceed, unless the particular facts and circumstances of the case indicate that they amount to rate or entry regulation. In particular, the FCC reasoned that in calculating damages arising from breach of contract or false advertising claims, a court need not rule on the reasonableness of the carrier's charges in order to calculate compensation though it may take price into account; rather, it is assessing the difference between promise and performance. *Id.* at 17035-36, 17040-41; *see also Fedor v. Cingular Wireless Corp.*, 355 F.3d 1069, 1074 (7th Cir. 2004) (holding that breach of contract claim based on allegation that carrier deferred billing for calls to later period was not preempted); *DeCastro v. AWACS, Inc.*, 935 F. Supp. 541, 550 (D.N.J. 1996) (holding that claim about failure to disclose a particular billing practice was not preempted); *Tenore v. AT&T Wireless Servs.*, 962 P.2d 104, 115 (Wash. 1998) (holding that deceptive advertising claim that carriers failed to disclose practice of rounding up to nearest minute was not preempted).

233. *See, e.g., Greene v. T-Mobile USA, Inc.*, No. C07-1563RSM, 2008 WL 351017 (W.D. Wash. Feb. 7, 2008); *Waudby v. Verizon Wireless Servs., LLC*, No. 07-470(FLW), 2007 WL 1560295 (D.N.J. May 25, 2007); *In re Cell Phone Termination Fee Cases*, No. A115457, 2008 WL 2332971 (Cal. Ct. App. June 9, 2008).

were charged but did not pay their ETFs.²³⁴ Verizon Wireless recently settled a set of early-termination lawsuits for \$21 million.²³⁵ Other state actions have been stayed pending the outcome of FCC proceedings,²³⁶ which have been initiated to determine whether these state law claims are preempted by federal law on the grounds that ETFs constitute "rates charged" within the meaning of § 332(c)(3)(A) of the Communications Act.²³⁷ The FCC public hearings on ETFs began on June 12, 2008.²³⁸

In the wake of this litigation, carriers have moved to prorate their termination fees over the life of the contract and now some form of time-sensitive ETF applies to new postpaid contracts initiated with any of the major carriers.²³⁹

B. New Proposals: Rethinking Disclosure

1. From Product Attributes to Use Patterns

As we have seen, consumers in the cellular service market learn, often quite effectively, to appreciate the implications of their biases and mistakes. Competition then pushes carriers to respond with products that reduce the resulting costs to consumers. While these market solutions are imperfect, the market's responsiveness suggests that the regulation best suited for the cellular service market would facilitate rather than inhibit market forces. It is, therefore, not surprising that many of the existing and proposed laws and regulations have focused on the provision of information. We too focus on rules governing information provision, specifically, on disclosure regulation.

Our proposals, however, deviate from existing disclosure regulation and from other proposals for heightened disclosure regulation in an important way. Current disclosure regulation focuses on the disclosure of product attribute information, i.e., information on the different

234. *Ayyad v. Sprint Spectrum LP*, No. RG03-121510, 2008 WL 2937047 (Cal. App. Dep't Super. Ct. July 28, 2008).

235. Lavalley, *supra* note 126.

236. See, e.g., *Greene*, 2008 WL 351017; *Waudby*, 2007 WL 1560295.

237. *Waudby*, 2007 WL 1560295, at *1.

238. Materials from the public hearing are available at FCC, Public Hearing on Early Termination Fees (ETF), <http://www.fcc.gov/realaudio/presentations/2008/061208/>; see also Amy Schatz, *FCC May Set Cell-Termination Fees*, WALL ST. J., May 24, 2008, at A2. Schatz discusses the possible preemption effect of FCC regulation.

Wireless-phone companies could erase hundreds of millions of dollars in potential liability under a plan being weighed by federal regulators, who are considering overseeing fees charged to consumers who cancel cell phone contracts early. The plan could deal a fatal blow for lawsuits, pending in several states, brought by consumers angry about fees of as much as \$175 that wireless companies charge to break contracts.

Id.

239. See *supra* notes 128–29 and accompanying text.

features and price dimensions of cellular service.²⁴⁰ Our proposal, on the other hand, emphasizes the disclosure of use-pattern information, i.e., information on how the consumer will use the product.

The proposed Cell Phone User Bill of Rights illustrates the current exclusive focus on product attribute information. It requires comprehensive disclosure of fees and charges.²⁴¹ However, a truly informed choice cannot be based on product attributes alone. To fully appreciate the benefits and costs of a cellular service contract, consumers must combine product attribute information with use-pattern information. To assess the costs of overage fees, it is not enough to know the per-minute charges for minutes not included in the plan, as proposed in the Bill; consumers must also know the probability that they will exceed the plan limit and by how much. Likewise, to assess the benefit of unlimited night and weekend calling, consumers must also know how many "night" and "weekend" minutes they will use as well as the precise contractual definition of "night" and "weekend." The essence of our proposal lies in the recognition that use-pattern information can be as important as product attribute information. The disclosure regime should be redesigned to ensure that consumers have both categories of information.

2. Disclosing Use-Pattern Information

Conventional wisdom assumes that sellers have better information about product attributes while buyers have better information about use patterns. If a buyer has better information about how she will use the product, then it makes no sense to require sellers to disclose use-pattern information. The best that sellers can do is to provide general statistical information on product use. The buyer, on the other hand, has specific information on how *she*, not the average consumer, will use the product, or so the conventional account goes.

While in many markets the conventional wisdom is correct, it is not true of the cellular service market. Carriers have valuable statistical use-pattern information that is not available to subscribers. More importantly, they have individualized use-pattern data, collected over the course of their relationships with their subscribers. As suggested below, disclosing this information can empower consumers and facilitate the efficient functioning of the cellular service market.

a. Average-Use Disclosures

Carriers collect and analyze enormous amounts of use-pattern information. They know how the average subscriber will use her cell

240. See *supra* Part III.A.

241. See *supra* note 221 and accompanying text.

phone. More importantly, the heterogeneity of the subscriber base allows carriers to provide average-use information for subgroups of consumers who are similar — in terms of demographic characteristics, product choices made, etc. — to the consumer receiving the use-pattern disclosure. As the subgroup over which the averaging takes place becomes smaller, the consumer heterogeneity problem decreases, and the value of the average-use information to the individual consumer increases. However, excessively small subgroups may also be undesirable. Averaging over large numbers has the benefit of reducing randomness. Reducing the size of the subgroup reduces this benefit. The optimal size of a subgroup is the product of a tradeoff between the benefit of reducing heterogeneity and the benefit of reducing randomness.

One potentially beneficial average-use disclosure would target the misperception of use levels that underlies three-part tariffs by requiring carriers to disclose the average overage charges that consumers pay. Carriers could also be required to disclose the percentage of consumers who use, for example, 50% or less of their allotted minutes or the percentage of consumers who would save money if they switched to a lower fixed-fee, lower limit plan. Consumers' underestimation of the cost of lock-in could be targeted by requiring carriers to provide information about the percentage of consumers who stop using their phones but continue paying for them before the end of the lock-in period. Carriers could also be required to disclose the percentage of consumers who broke the contract and paid the exit penalty.²⁴²

b. Individual-Use Disclosures

Despite their potential benefits, average-use disclosures suffer from important shortcomings. Even when averaging across smaller subgroups of consumers, substantial heterogeneity remains. Heterogeneity limits the value of average-use information to any individual consumer. Moreover, heterogeneity allows optimistic consumers to further discount the value of average-use information. Most people think that their driving skills are above average (but of course, most people cannot be better than others given a symmetrical distribution of ability about the mean).²⁴³ Similarly, optimistic consumers might all think that they will never exceed the plan limit, even when provided with information that the average consumer pays \$50 a month

242. Both of these disclosures are incomplete measures of the cost of lock-in since they do not capture consumers who continue using their phones only because they are locked in.

243. See David A. Armor & Shelley E. Taylor, *When Predictions Fail: The Dilemma of Unrealistic Optimism*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 334, 334 (Thomas Gilovich et al. eds., 2002); Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 818-19 (1980).

in overage fees. Fortunately, use-pattern disclosure in the cellular service market need not be limited to average-use information. The long-term relationship between carriers and consumers allows for the provision of individualized use-pattern information.²⁴⁴

Individual-use disclosure can reduce consumers' misperceptions of their use levels. Carriers already provide consumers with individualized information on overage charges. Arguably, this disclosure reduced consumers' underestimation of use and contributed to the demand to eliminate overage fees — a demand that is now met by unlimited calling plans. We propose a parallel disclosure requirement that would help reduce the costs consumers incur due to overestimation of use. Carriers should be required to disclose the number of minutes used. (Some carriers already do so voluntarily.) Moreover, they should be required to disclose the actual per-minute price, calculated as the monthly fixed-fee divided by the number of minutes used.²⁴⁵

Individual-use disclosure can also help consumers evaluate the costs and benefits of other plan features. Carriers could be required to disclose the number of night and weekend minutes used and the costs saved by the unlimited nights and weekends feature. They could also be required to disclose the number of minutes used in in-network calling and the associated savings. Likewise, Verizon, which offers unlimited calls to five numbers, could be required to disclose the number of minutes used calling these five numbers, and the costs saved by this feature.

The existing and proposed disclosures could be further supplemented by information on alternative service plans and add-on features that would reduce the total price paid by the consumer given her current use patterns.²⁴⁶ The proposed individual-use disclosures, including the comparison with other plan and add-on combinations, should be provided on the monthly bill, but also in aggregate form on a year-end summary to account for month-to-month variations in use. Thus, by highlighting the importance of individual-use disclosures, we urge lawmakers to revisit another key feature of the proposed Cell

244. Of course, consumers have access to the same use-pattern information. But while providers save the information and analyze it, consumers tend not to notice it and even if they do notice it, they tend to forget it.

245. A related disclosure is now voluntarily implemented by T-Mobile which offers "overage alerts" when subscribers get close to their monthly limit.

246. Utility companies in Germany have voluntarily adopted an even more pro-consumer policy. At the end of the year they retroactively match each consumer to the service plan under which the consumer pays the lowest total price given her use over the past year. See Ian Ayres & Barry Nalebuff, *In Praise of Honest Pricing*, 45 M.I.T. SLOAN MGMT. REV. 24, 27 (2003). A similar idea is already being applied by cell phone companies in other countries. See, e.g., Orange.fr, Forfait Ajustable Pro, http://sites.orange.fr/boutique/files/html/pe_packpro_forfait_ajustable.html (last visited Dec. 20, 2009) (Orange in France offers to charge the subscriber at the end of the month according to the plan that best fits the subscriber's usage during that month).

Phone User Bill of Rights. This Bill focuses on disclosures provided at the time of contracting, which makes perfect sense when carriers are disclosing product attribute information. Individual-use information, on the other hand, is not available to carriers when a new subscriber signs up for service. Continuous disclosures throughout the life of the contract are equally important.

c. Individual-Use Disclosures in Real Time

In addition to after-the-fact disclosure of individual-use information in the monthly bill or in a year-end summary, individual-use information can sometimes be provided in real time. The challenge of keeping track of cumulative use has increased with the invention of multiple-limit plans. For example, plans with different limits for peak and off-peak minutes, have increased the chance that consumers inadvertently exceed their plan limits. To help consumers avoid this, carriers could be required to notify their subscribers when they are about to exceed the plan limit.²⁴⁷ A consumer receiving such notification may well decide to cut the conversation short, switch to a land line, or postpone the conversation until off-peak hours.

3. Combining Use-Pattern Information with Product Attribute Information

In describing our proposals, we have focused on the disclosure of use-pattern information as opposed to product-attribute disclosures. But, in fact, the more appealing proposals argue for total cost disclosures, which combine both. For example, the disclosure of actual per-minute prices combines product attribute information, i.e. the monthly fixed-fee, and use-pattern information, i.e. the number of minutes used. Taking total cost disclosure one step further, carriers could be required to disclose a comprehensive total cost of ownership ("TCO") figure for their calling plans — the total amount paid, or to be paid, by a consumer, including overage charges and ETFs, over the duration of a plan, or on a yearly basis. For new subscribers, this TCO figure can be based on average-use information. For existing subscribers, who are considering whether to renew their plan, switch plans, or even switch carriers, the TCO figure can be based on individual-use information.

TCO information for a single plan, specifically for the subscriber's current plan, may be insufficient. To effectively compare different plans, the subscriber needs TCO information on all plans. Carriers could be required to provide TCO information for their entire

247. Such a disclosure is now voluntarily implemented by T-Mobile. See *supra* note 245.

menu of plans or, at least, for several main offerings. Perhaps a better solution would be to require carriers to disclose only the plan with the lowest TCO for the prospective subscriber and for the existing subscriber whose use patterns have changed. For example, the monthly bill or yearly summary can include a notice if an alternative plan would have a lower TCO than the subscriber's current plan. An even better solution would utilize the emerging market for comparison-shopping services. Companies like BillShrink.com²⁴⁸ and Validas²⁴⁹ promise to find the right plan for each consumer. But they currently do this based on minimal, usually self-reported, use-pattern information.²⁵⁰ If carriers were required to provide comprehensive use-pattern information in electronic form, websites such as Bill-Shrink.com or Validas would be better able to provide useful recommendations.

Consumer choice should be guided by information about the total cost of the product. Conventional wisdom assumes that consumers have better information about their own use patterns and thus need only product attribute disclosures to calculate total cost. We have shown that carriers may well have better use-pattern information, as well as better product attribute information. They can more easily combine the two categories of information into a total cost disclosure. Therefore, there is a *prima facie* case for mandating total cost disclosures.²⁵¹

4. Mobile Disclosure

Traditional disclosure mandates require sellers to provide information printed on a piece of paper. Mobile technology opens the door to a variety of innovative disclosure methods. In particular, carriers can provide information via voice messages, via text messages, and even via multimedia messages. These modes of disclosure may be more effective than the traditional paper disclosure because of their immediacy.

248. BillShrink.com, We Empower and Inspire People to Save Money, <http://billshrink.com/about/> (last visited Dec. 20, 2009).

249. Validas, Personal Report: How It Works, <http://fixmycellbill.com/personal.aspx?section=how> (last visited Dec. 20, 2009).

250. *See id.*

251. We concede that our arguments only establish a *prima facie* case for total cost disclosures, since our analysis did not consider all the costs and benefits of revamping the current disclosure regime. At the very least, however, our analysis suggests that the current debates, e.g., over the Cell Phone User Bill of Rights, should consider total cost disclosures.

5. From Description to Prescription

A final clarification is in order: we developed a behavioral economics theory of contractual design in the cellular service market. We then proposed an enhanced disclosure regime to improve the operation of the cellular service market. It is important to note that our policy prescription does not depend on our behavioral description. Even if all consumers were perfectly rational but imperfectly informed about their use patterns, our disclosure regime would still be beneficial. But imperfect information coupled with systemic biases generates greater costs than imperfect information alone. Hence, the benefits of our proposed disclosure regime are likely to be greater in light of our behavioral story.

VIII. CONCLUSION

The cellular service market, boasting annual revenues exceeding \$150 billion, is one of the largest and most important consumer markets in the United States. While cell phones provide obvious benefits to consumers, cellular service contracts are designed to exploit the cognitive biases of many consumers. Using a unique dataset of subscriber-level, monthly billing and usage information for 3,730 cell phone users, we show that 65% of consumers choose the wrong service plan — mistakes triggered by a key contractual design feature, the three-part tariff, that preys on consumers' misperception of use levels. These mistakes, we show, cost consumers almost \$12 billion annually. Consumer welfare and market efficiency are further reduced by the ETF-enforced lock-in feature and by the sheer complexity of the cell phone contract, which also respond to the imperfect rationality of consumers. Since consumer mistakes often result from consumers' misperceptions about their own future use patterns, disclosure mandates that would require carriers to provide consumers with use-pattern information could greatly reduce these costs.

Online and time-shifted viewing rises significantly among American consumers

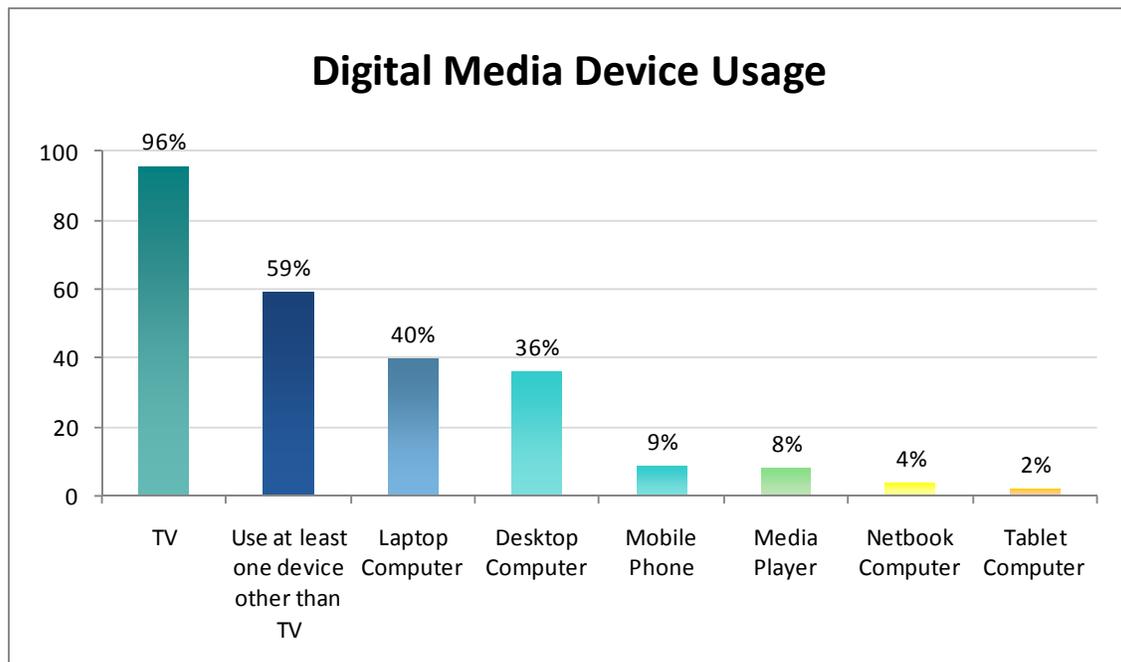
American consumers increasingly are viewing digital media content on devices other than a television. In addition they are accessing programming sources other than live television more than ever before.

The explosion of online content and increased use of mobile devices and time shifting devices like DVRs is rapidly changing viewing habits. The July Morpace Omnibus study finds that 59 percent of all consumers watch at least some video on devices other than a TV and only 52 percent of all viewing is of live TV.

Both technological innovation and the increasing availability of online content are driving consumers toward alternative media consumption habits.

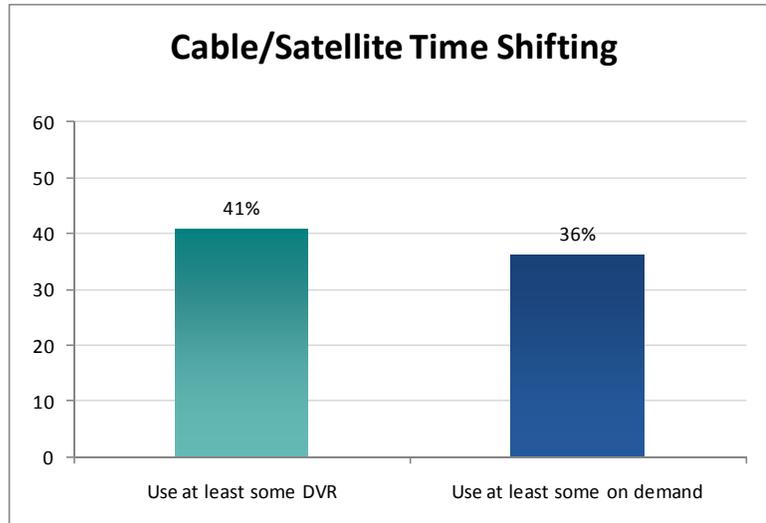
One-half of American consumers watch at least some Internet/online programming. Desktop and laptop computers are the most commonly used devices to view online media but more mobile devices are also used with 9 percent viewing video on a mobile phone.

This data tells us that content providers need to find alternative ways to offer digital video to consumers and that some of the “new media” forms are increasingly going to have greater influence on viewing and entertainment trends.



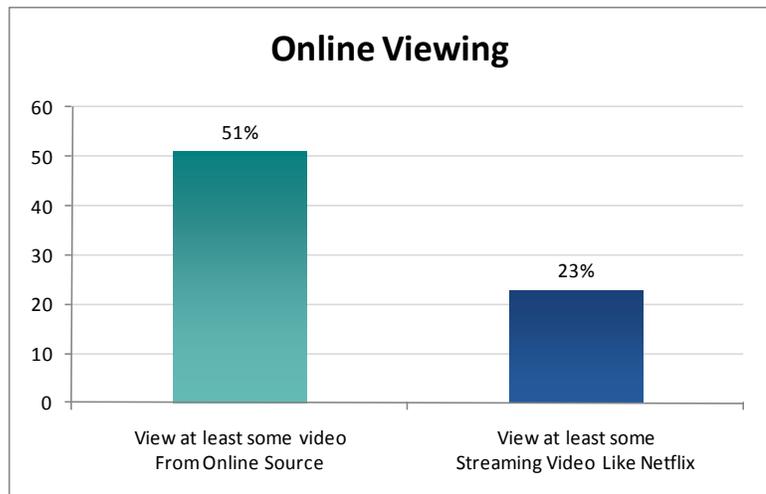
Time Shifting Behavior

The July Omnibus shows that 36 percent of consumers view at least some programming using a Video On Demand service from a cable/satellite provider. Also, 41 percent are using a DVR to record scheduled programming of their choice and time shift this content at their convenience.

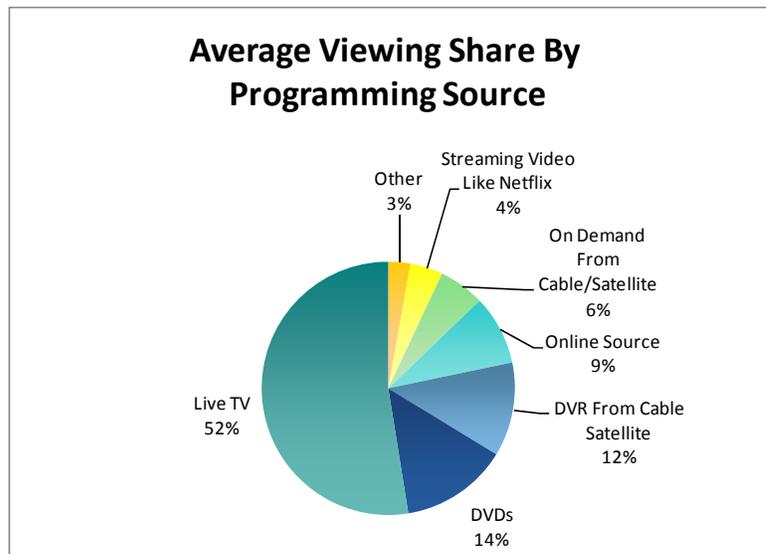


Online and Streaming Video

More than one-half (51 percent) of consumers view at least some video programming online; while 23 percent use a streaming video source such as Netflix. This doesn't include the percentage of consumers who use Netflix just for the mailed DVDs. This wave of the survey did not associate the programming source with the particular device used but, presumably, most of the online viewing is presently using a computer. However 16 percent of respondents state their television is connected to the Internet to allow viewing online content.



The survey also reveals what share of total viewing comes from which programming sources. Only 52 percent of total viewing is of live TV programming. Nearly one-half of all viewing uses alternative and time shifted sources. Viewing DVDs is the largest share at 14 percent, followed by DVR at 12 percent and "on demand" at 6 percent. Online programming makes up 9 percent of total content viewed.

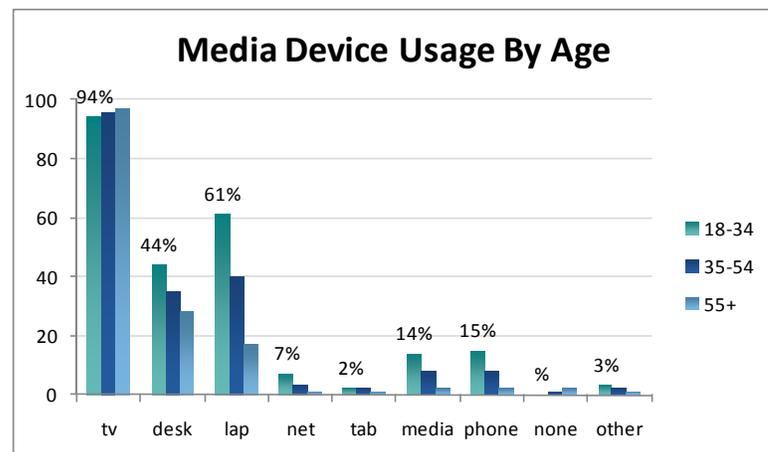
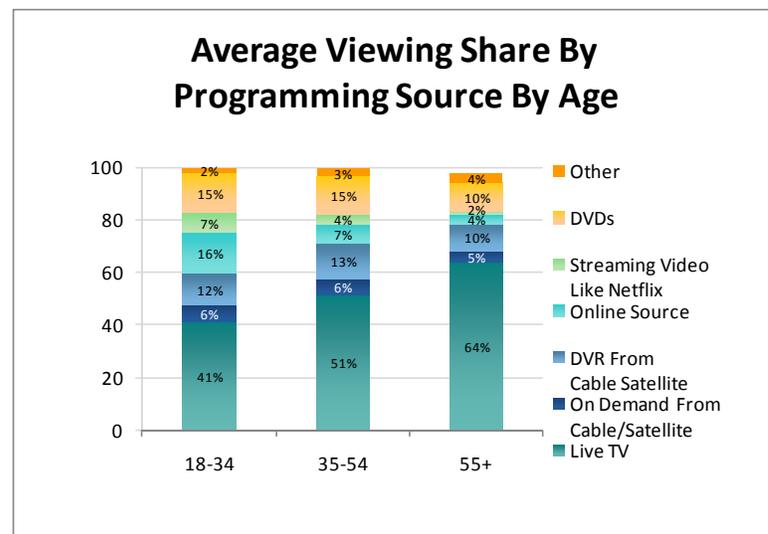
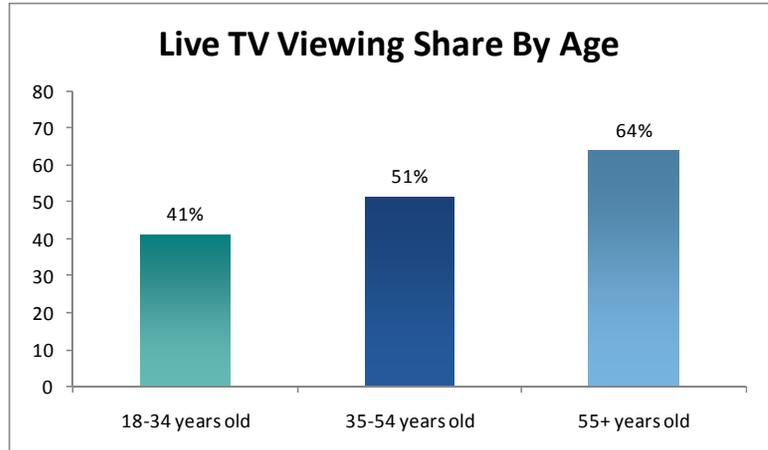


Some demographics

As expected, younger consumers are leading this trend towards viewing digital content on additional devices and the move towards less TV being viewed live. Younger consumers, defined in our Omnibus study as 18-34 year olds, watch less live TV and are significantly more likely to be using computing and mobile devices to access video content.

While their time shifting of cable and satellite programming does not stand out, these 18-34 year old consumers are more likely to view online video and streaming video like Netflix.

Also telling is the profile of consumers making the most of alternative digital media. Consumers who view the least amount of live programming, or those who more commonly view content on time-shifted cable or satellite programming, are more likely than others to view such content with online and mobile devices.



Percentages shown above represent 18-34 year old consumers

Conclusions and Implications

Television viewing and media consumption habits are changing rapidly. Time-shifting of live TV programming is becoming the norm. The desire for entertainment of choice anytime and anywhere is also driving consumers, especially savvy younger viewers, to online programming sources. And both technological innovation and the increasing availability of online content are driving this change.

Amidst all these changes and technological advancements with digital media, we still haven't seen what devices and applications that deliver this content will gain widespread acceptance with consumers. There is no "killer app" taking the industry by storm. More importantly, the business model to make television and movie content available online is still evolving.

Other implications:

There is a growing momentum of consumers accessing online programming sources.

Just what content are consumers hungry for the most and how will providers monetize potential solutions? Will consumers who have grown used to free online content be willing to pay for it? How do consumers want to watch online programming? Do they want to view it on a PC, or possibly have it delivered to a mobile device; or do they want it delivered to their living room television set?

Pay TV operators are scrambling to deliver online content that consumers want to their subscribers.

Consumers are also seeking ways to bring online content to their high-definition, big-screen living room TV. Is this a cord cutting scenario or will over-the-top solutions co-exist with traditional pay TV? Will the pay TV distributors leverage their content rights and control of the set-top box to keep control? The successful solution will make this work seamlessly headed in both directions and develop a content model that works for both programmers and consumers.

Google TV or Apple TV could be a game-changer.

These heavyweights might enter the market but are still working out their content rights and business model. What happens there will drive what services and pricing they are able to offer the consumer? Will either of these be what consumers are looking for?

The integration of TV and the Internet is likely to have a significant impact on future product developments and enhancements.

Are consumers looking for just entertainment on the big screen or will they want email access and a browser? What about interactive applications, social networking, and gaming?

There's a lot in play right now. The opportunities and impact will be large, and all the players are making moves. Over the next several months it is possible that some devices will develop compelling benefits that will particularly stick with consumers. If and when that happens, it is likely that the way consumers view digital content will be forever altered.

For further insights or to explore research opportunities to fill additional needs in the marketplace with innovative products, contact Jay Heyboer, Morpace Vice President, Technology at 248.737.3222 or jheyboer@morpace.com.

Total of 1,000 consumers were surveyed July 15-20 as part of the Morpace Omnibus.



a project of the
PewResearchCenter

The State of Online Video

69% of internet users watch or download video online; 14% have posted videos.

June 3, 2010

by Kristen Purcell, Associate Director for Research

<http://pewinternet.org/Reports/2010/State-of-Online-Video.aspx>

Pew Internet & American Life Project

An initiative of the [Pew Research Center](#)

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Overview

Seven in ten adult internet users (69%)—or roughly half (52%) of all U.S. adults—have used the internet to watch or download video. Young adult internet users, 18-29 year-olds, continue to be the heaviest consumers of online video.

Since 2007, there have been dramatic increases in the numbers of Americans who watch the following kinds of videos online:

- Comedy or humorous videos, which have risen in viewership from 31% to 50% of adult internet users
- Educational videos, which have risen in viewership from 22% to 38% of adult internet users
- Movies or TV show videos, which have risen in viewership from 16% to 32% of adult internet users
- Political videos, which have risen in viewership from 15% to 30% of adult internet users

Viewership of other types of online video has also risen in the same timeframe. The spread of broadband, the increased use of social networking and status update sites like Facebook and Twitter, the popularity of video-sharing sites like YouTube, and the embrace of video features by untold numbers of websites, have all contributed to the surge in online video watching.

Among online video watchers, 8% have connected their computer to their television so they can watch online video on a television screen. This represents 5% of all internet users, which is slightly lower than the 8% of internet users who were watching online video on their television screens in an April 2009 Pew Internet survey. One in ten video watchers (10%), or 7% of all internet users, have paid to watch or download a video. In 2007, 4% of internet users had paid to access or download video online.

On the other side of the camera, 14% of internet users have uploaded a video to the internet so others can watch or download it. That figure is almost double the 8% of internet users who were uploading video in 2007. Women are now just as likely as men to upload and share videos, and social networking sites like Facebook are as popular as video-sharing sites like YouTube as locations for video uploading.

Among video uploaders, there is considerable variation in terms of who they share their videos with, who they believe is watching, and concerns about how their video may be used. One in three uploaders (31%) say they “always” place restrictions on who can access their videos, while 50% say they “never” do this. The remaining 19% fall somewhere in the middle.

Asked about their experiences in sharing videos online, uploaders have these views:

- 41% agree they have been surprised by the number of people who watch their videos
- 39% agree that no one other than their family or friends will watch the videos they post
- 35% agree they sometimes feel they should be more careful about the videos they post
- 28% agree that sharing videos online has helped them meet new people

These figures were gathered in a survey of 763 internet-using adults between June 18 and June 21, 2009. The margin of error is +/- 4.5 percentage points for results based on adult internet users.

Online video watching and downloading

Seven in ten adult internet users (69%), or roughly half of all U.S. adults (52%) have used the internet to watch or download video.¹ That figure includes internet users who say they do at least one of the following:

- Watch videos online, including short video clips, television shows, or movies (61% of adult internet users)
- Watch a video on a video-sharing site like YouTube or Google Video (61% of adult internet users)
- Download video files onto their computer so they can play them at any time they want (23% of adult internet users)

Of these three activities, the most notable change involves the exploding popularity of video-sharing sites like YouTube or Google Video. The percent of adult internet users who watch video on these sites has grown from 33% in December 2006 to 61% in the current survey.²

Which internet users are most likely to be watching or downloading video? Overall, men, young adults, the more affluent and the more educated are most likely to engage in the three activities that define our group of video watchers (see table below). Broadband users are also particularly likely to watch or download online video; 75% of adults with home broadband access are online video watchers. Among the entire population of video watchers, nine in ten (89%) have broadband at home.

Among these online video consumers, 8% have connected their computer to their television so they can watch online video on a television screen. This represents 5% of all adult internet users, which is slightly lower than the 8% of adult internet users who were watching online video on their television screens in an April 2009 Pew Internet survey.

One in ten video watchers (10%), or 7% of adults internet users, have paid to watch or download a video online. In 2007, 4% of internet users had paid to access or download video online.

1 In a 2007 survey, Pew Internet found that 57% of online adults reported watching one of 11 different types of video online. See "Online Video" by Mary Madden, July 25, 2007. Available at: <http://pewinternet.org/Reports/2007/Online-Video.aspx>.

2 See also "The Audience for Online Video-Sharing Sites Shoots Up" by Mary Madden, July 29, 2009. Available at: <http://pewinternet.org/Reports/2009/13--The-Audience-for-Online-Video-Sharing-Sites-Shoots-Up.aspx>.

Some internet users are more likely to watch video than others

Men, young adults, the more affluent and more educated have higher rates of viewership

	Watch video online	Watch video on a video-sharing site	Download video files to watch when they want to	Total watch or download video
All adult internet users	61 %	61 %	23 %	69 %
Sex				
Men	65	67	28	74
Women	57	55	17	63
Age group				
18-29	78	81	27	84
30-49	66	68	29	74
50+	45	40	13	53
Education				
HS Grad or lower	47	49	19	57
Some College	70	67	21	75
College Grad+	68	67	28	75
Household income				
Less than \$50,000	53	56	23	46
\$50,000-\$74,999	65	63	23	64
\$75,000+	71	69	25	78

Source: PRC-Internet & American Life Project/Princeton Survey Research Associates International Omnibus Survey, June 18-21, 2009. N=763.



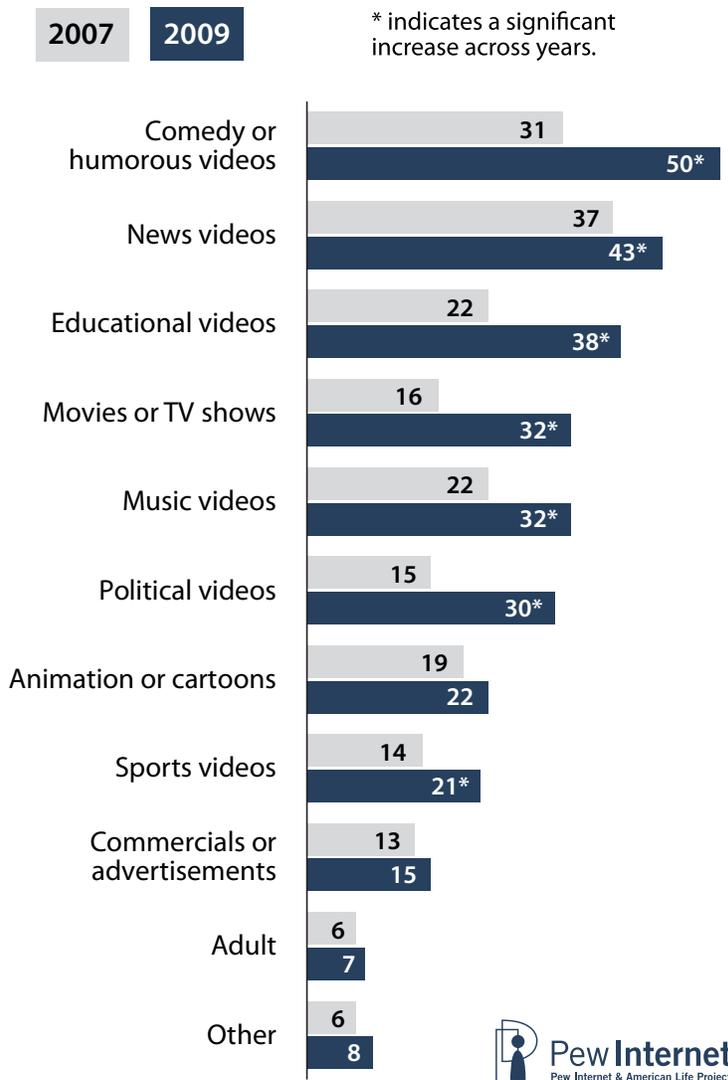
What kinds of video are online adults watching?

Almost every type of video asked about in the survey has grown in popularity over the past two years, and online video watchers are consuming a mix of entertaining and informational content. The most popular online videos today are comedy or humorous videos, a change from 2007 when the most popular online videos were news videos. Over the past two years, comedy video viewership has grown more than any other type of video asked about in the survey, and today half of all online adults (50%) have watched a comedy video online.

Since 2007, educational videos have also experienced considerable growth, from 22% of online adults watching this type of video in 2007 to 38% watching in 2009. Over the same time period, online viewership of both television shows/movies and political videos has doubled, while online news videos have experienced relatively small growth in popularity (see table below).

Entertaining and informational videos are both popular

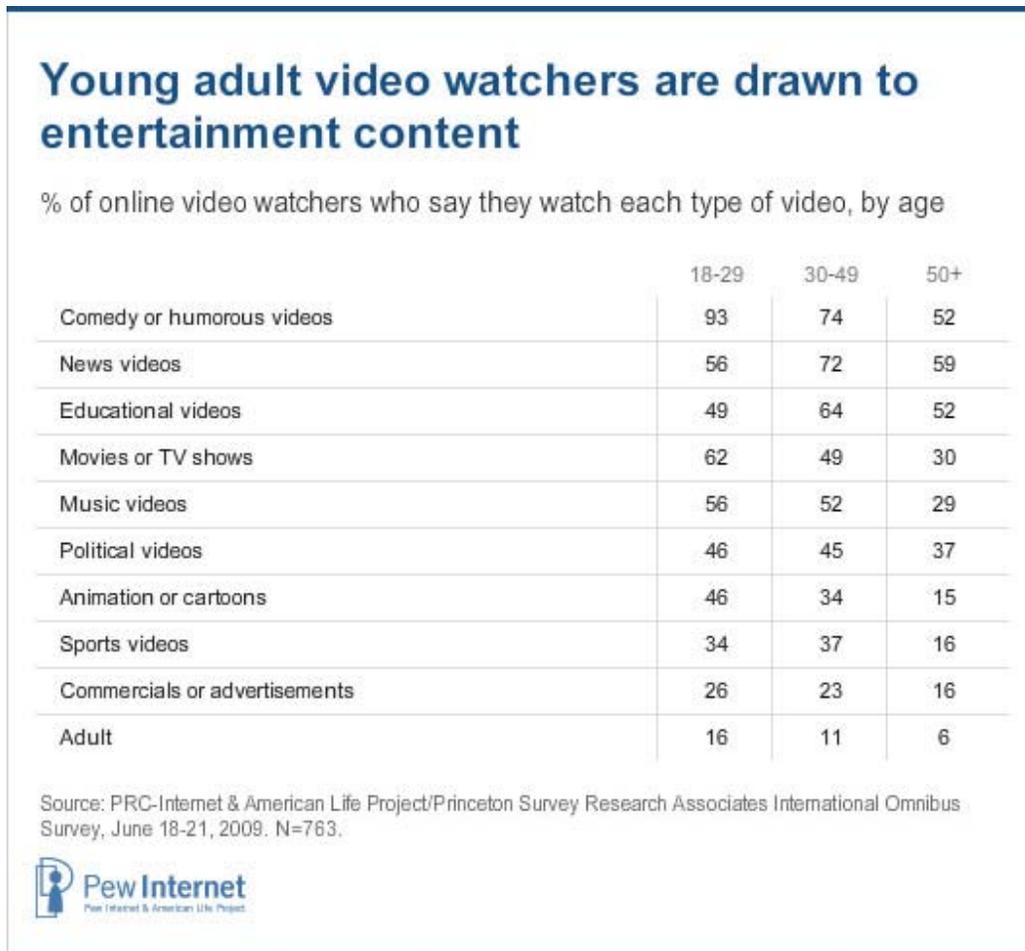
% of online adults who say they watch each type of video, by year



Note: In 2007, all internet users were asked if they watched each of these 11 types of video. In the current survey, only those internet users who met the definition of online video watchers/downloaders were asked the types of video they watch, and those figures were then repercentaged based on all internet users.

As was the case in 2007, younger adults are clearly drawn more than older adults to entertainment content, such as funny videos, music videos, movies or TV shows, sports video and adult content. For instance, among online video watchers, almost all 18-29 year-olds (93%) have watched a comedy video

online, while the same is true of just 74% of 30-49 year-old video watchers and 52% of video watchers age 50 and older. Older video watchers, in contrast, are more likely than 18-29 year-olds to spend their time watching news videos and educational videos. Surprisingly, political videos have fairly consistent appeal across online video watchers of all ages.



As was the case in previous Pew Internet surveys, male online video watchers consume sports videos (47% v. 12%), adult videos (18% v. 2%), and animation/cartoons (38% v. 25%) at higher rates than female video watchers. News video is watched more often by college graduates than by video watchers with lower educational attainment (73% v. 57%).

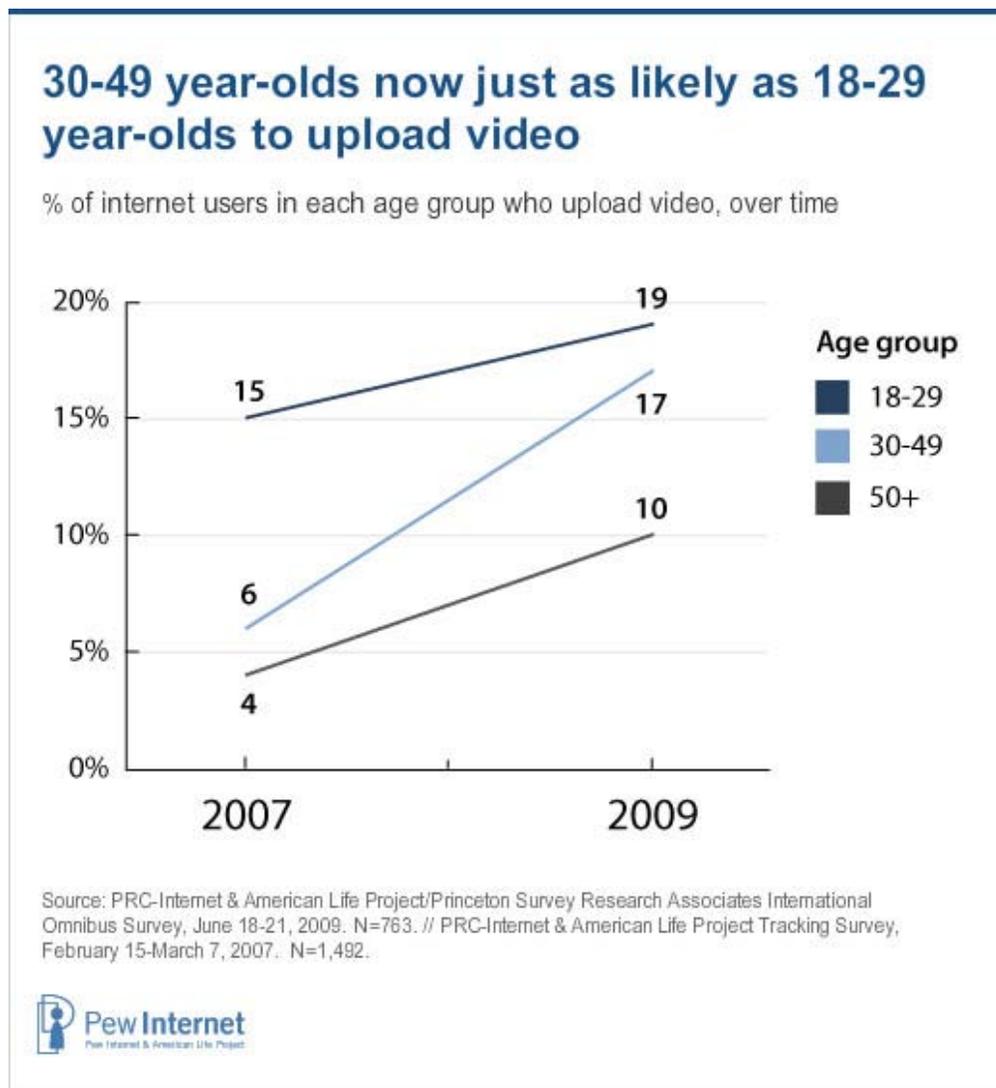
While non-white internet users are no more or less likely than white internet users to watch video online, they are more likely than white adults to be drawn to entertainment content. Among online video watchers, nonwhites are more likely than whites to watch movies or TV shows online (56% of non-white video watchers v. 44% of white video watchers), music videos (60% v. 42%), and animation/cartoons (41% v. 29%).

Among the lowest income respondents, those earning less than \$30,000 a year, music videos and animation/cartoons are particularly popular.

Video uploading

One in seven adult internet users (14%) has uploaded a video to the internet so others can watch it or download it. That is almost double the 8% of adult internet users who were uploading video in 2007. One in five adults who watch video online (21%) also post video online.

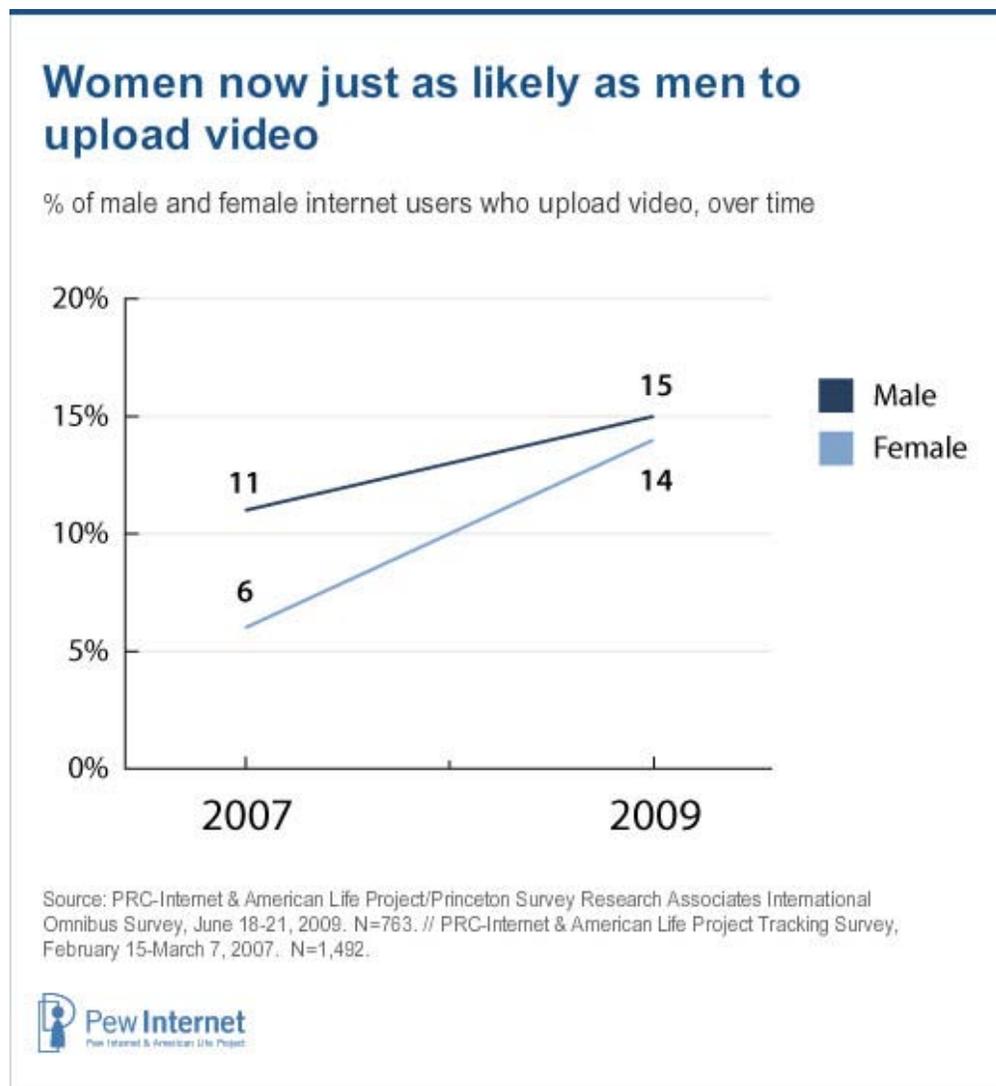
Video uploading is more common among internet users under age 50 than it is among older internet users. Roughly one in five internet users age 18-49 (18%) have uploaded a video online, while the same is true of just 10% of internet users age 50 and older. While 2007 data also showed that young internet users were most likely to upload video, the activity was concentrated among 18-29 year-olds. Today, 30-49 year-olds are just as likely as the youngest adults to upload video.



As is the case with video watching, home broadband access is a key driver of video uploading. Overall, 16% of broadband users upload video. Among internet users who upload video, 91% have broadband at home. Education also has a notable impact on an internet user's tendency to upload video; internet users with at least some college education are more likely to upload video than are those with less educa-

tion (17% v. 11%).

In 2007 Pew Internet found that men were twice as likely as women to post video online. Today, that disparity no longer exists; male and female internet users are equally likely to upload video.

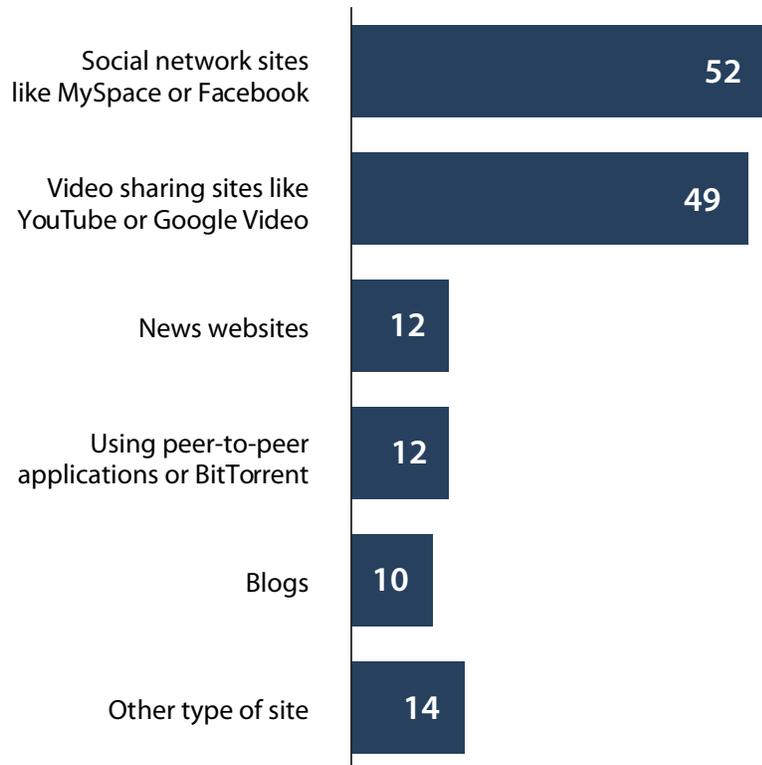


Where and what are people uploading?

We asked uploaders if they post video to six different types of sites. By far, among the choices presented, the most popular sites for video uploading are social networking sites like MySpace or Facebook (52% of uploaders post video on these sites) and video-sharing sites like YouTube or Google Video (49% of uploaders post on this kind of site).

Where adult internet users upload video

% of video uploaders who post to each type of site



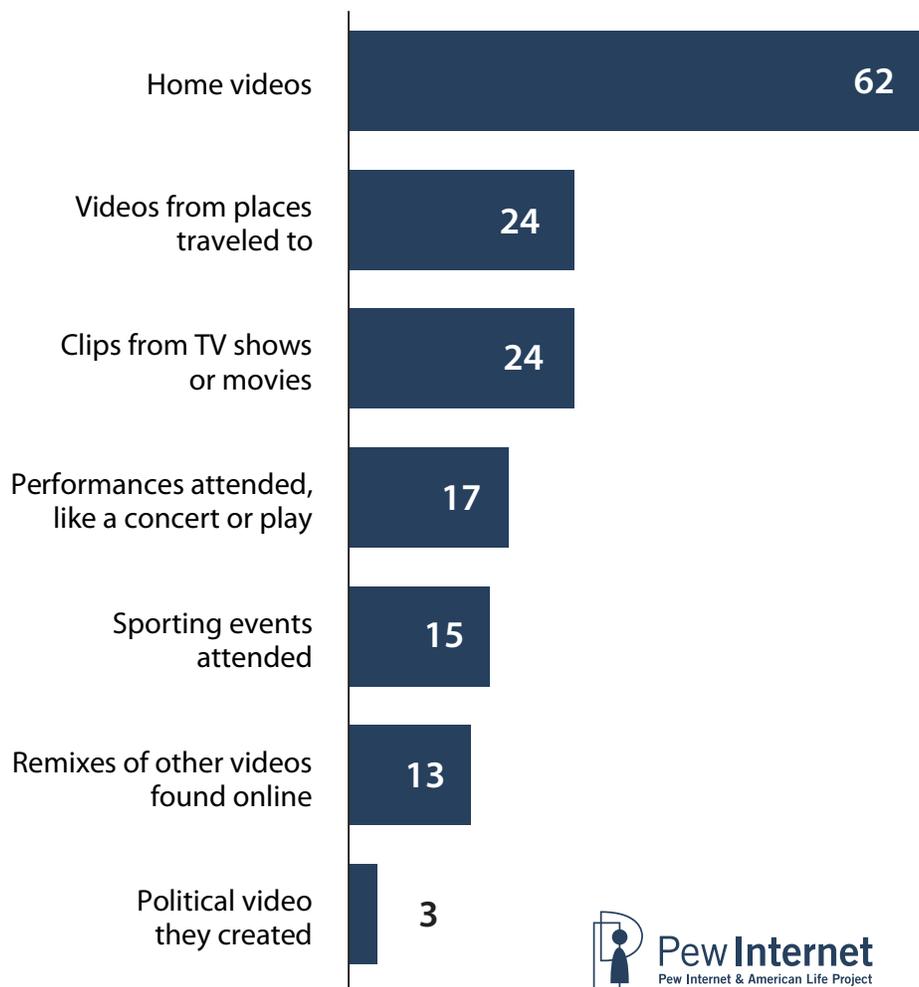
Source: PRC-Internet & American Life Project/Princeton Survey Research Associates International Omnibus Survey, June 18-21, 2009. N=763, based on video uploaders.



We also asked video uploaders which, if any, of eight different types of video they have posted online. By a wide margin, the most popular content to post online is home video, uploaded by six in ten video uploaders (62%). About a quarter of video uploaders post travel videos (24%) or television/movie clips (24%) online. The small number of video uploaders in our sample prevents us from being able to look at subgroup differences where uploading behavior is concerned.

Types of video adult internet users post online

% of video uploaders who have posted each type of video online



Source: PRC-Internet & American Life Project/Princeton Survey Research Associates International Omnibus Survey, June 18-21, 2009. N=763, based on video uploaders.

The video-sharing environment

Among video uploaders, there appears to be considerable variation in terms of who they share their videos with, who they believe is watching, and concerns about how the video they post may be used.

When uploaders are asked if they place restrictions on who can access the videos they post, two clear camps emerge. One in three uploaders (31%) say they “always” place restrictions on who can access their videos, while 50% say they “never” do this. The remaining 19% fall somewhere in the middle. At the same time, the majority of video uploaders are not concerned that someone might copy or use their video without permission; 37% say they are not concerned at all about this, and another 31% say they

are not too concerned. Just 15% of uploaders say they are very concerned about potential copy or use of their video.

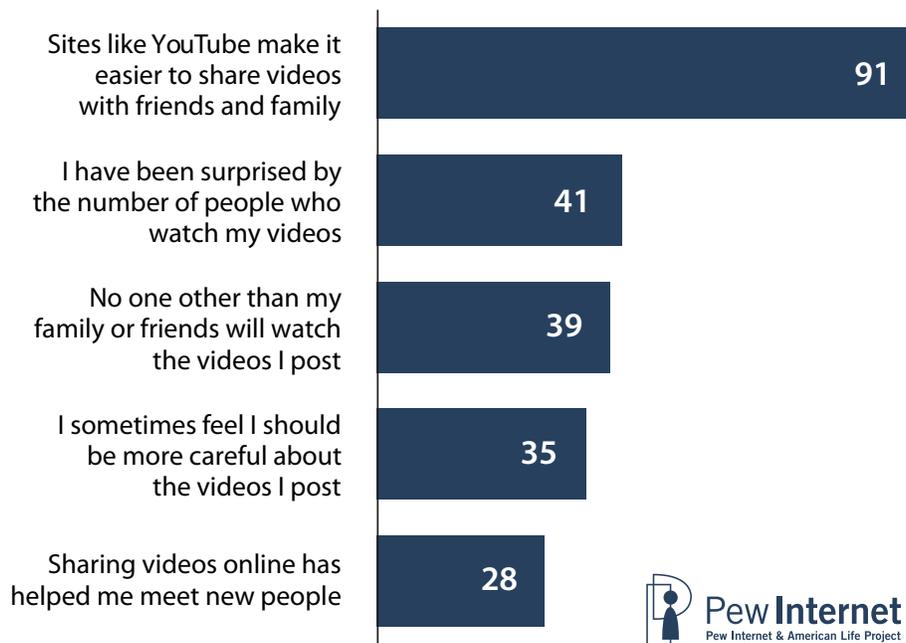
It appears that most video uploaders are not abusing copyright in a way that draws attention from copyright owners. Just 4% of video uploaders have received notice that a video they uploaded included copyrighted material.

The current survey also reveals that most internet users believe that others are not uploading videos of them without permission. More than nine in ten internet users (96%) say that as far as they know, no one has uploaded video that was taken of them without their permission.

To measure uploaders' perceptions of the impact of the video-sharing boom and the fairly new video-sharing environment, we asked if they agree or disagree with a series of statements. The results reveal that uploaders almost universally appreciate the ease with which video sharing sites allow them to share videos with family and friends, but a considerable number also feel they should be more careful about what they post. And while many express the belief that only people they know will see the videos they post, an equal number of uploaders say they are surprised by the number of people who watch their videos.

Video uploaders have mixed perceptions of the video-sharing environment

% of video uploaders who agree with each statement



Source: PRC-Internet & American Life Project/Princeton Survey Research Associates International Omnibus Survey, June 18-21, 2009. N=763, based on video uploaders.

Methodology

2009 June Omnibus

Prepared by Princeton Survey Research Associates International

June 2009

SUMMARY

The 2009 June Omnibus Survey obtained telephone interviews with a nationally representative sample of 1,005 adults living in the continental United States. The survey was conducted by Princeton Survey Research International. The interviews were conducted in English by Princeton Data Source, LLC from June 18 to June 21, 2009. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is $\pm 3.6\%$. Details on the design, execution and analysis of the survey are discussed below.

This report compares data from the June 2009 Omnibus Survey to prior Pew Internet Tracking Surveys. Both types of surveys collect data from nationally representative dual-frame (landline and cell phone) samples, employ the same respondent selection process, and identify internet users using identical questions. They are conducted by the same survey research firm, Princeton Survey Research Associates International, at the same field house. However, there are differences between the two types of surveys that should be noted when trending data across them. First, tracking surveys consist of roughly 2,250 interviews completed over the course of three to four weeks. These surveys maintain a very close 2-to-5 ratio of weekend-to-weekday interviews, to minimize the impact of day-of-the-week effects. Omnibus surveys, in contrast, consist of roughly 1,000 interviews completed over the course of four days, usually a Thursday-to-Sunday timeframe. There is no specific control in omnibus surveys for weekend-to-weekday interview ratio. To the extent that day of the week impacts technology use and online behavior, this may introduce variance in the data across the two types of surveys.

Moreover, tracking surveys follow a 7-call design in which sample that has not reached a final disposition at the end of seven days is retired, unless there is an outstanding appointment or callback for that telephone number. The omnibus surveys use a 4-call design over the course of the 4-day field period. One result of these different approaches is that tracking surveys generally achieve higher response rates than omnibus surveys. Again, this difference could introduce variance in the data across the two types of surveys.

DESIGN AND DATA COLLECTION PROCEDURES

Sample Design

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the continental United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to PSRAI specifications.

Numbers for the landline sample were selected with probabilities in proportion to their share of listed telephone households from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

Contact Procedures

Interviews were conducted from June 18 to June 21, 2009. As many as 5 attempts were made to contact every sampled telephone number. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each household received at least one daytime call in an attempt to find someone at home.

For the landline sample, interviewers asked to speak with the youngest adult male or youngest female currently at home based on a random rotation. If the target adult was not available, interviewers asked to speak with the youngest adult of the other gender.³ For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey.

Weighting and analysis

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. A two-stage weighting procedure was used to weight this dual-frame sample. A first-stage weight was applied to account for the overlapping sample frames. The first stage weight balanced the phone use distribution of the entire sample to match population parameters. The phone use parameter was derived from an analysis of the most recently available National Health Interview Survey (NHIS) data along with data from recent dual-frame surveys.⁴ This adjustment ensures that the dual-users are appropriately divided between the landline and cell sample frames.

The second stage of weighting balanced sample demographics to population parameters. The sample was balanced to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The basic weighting parameters came from a special analysis of the Census Bureau's 2008 Annual Social and Economic Supplement (ASEC) that included all households in the continental United States. The population density parameter was derived from Census 2000 data. The telephone usage parameter came from the analysis of NHIS data.

Weighting was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

Table 1: Sample Demographics

	Parameter	Unweighted	Weighted
Gender			
Male	48.4%	44.5%	48.8%
Female	51.6%	55.5%	51.2%

3 This is part of a continuing experiment to see what effect, if any, asking for the youngest female first has on sample demographics.

4 Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2008. National Center for Health Statistics. May 2009.

Age				
	18-24	12.6%	9.2%	12.0%
	25-34	17.9%	10.7%	14.9%
	35-44	18.8%	14.2%	18.4%
	45-54	19.5%	20.8%	19.7%
	55-64	14.8%	16.0%	15.0%
	65+	16.4%	25.7%	16.8%
Education				
	Less than HS Graduate	14.3%	8.9%	11.8%
	HS Graduate	34.9%	31.3%	35.3%
	Some College	23.9%	23.0%	23.5%
	College Graduate	26.9%	35.7%	28.4%
Race/Ethnicity				
	White/not Hispanic	69.0%	77.6%	69.3%
	Black/not Hispanic	11.4%	9.7%	11.1%
	Hispanic	13.5%	6.5%	12.1%
	Other/not Hispanic	6.1%	4.8%	6.0%
Region				
	Northeast	18.6%	19.2%	19.1%
	Midwest	22.1%	21.4%	21.7%
	South	36.7%	42.6%	37.0%
	West	22.6%	16.8%	22.2%
County Pop. Density				
	1 - Lowest	20.1%	20.7%	20.2%
	2	20.0%	25.3%	20.6%
	3	20.1%	22.8%	20.0%
	4	20.2%	16.9%	19.8%
	5 - Highest	19.6%	14.2%	19.2%
Phone Use				
	LLO	13.6%	13.8%	13.0%
	Dual - few, some cell	49.7%	58.1%	49.3%
	Dual - most cell	15.9%	15.0%	15.2%
	CPO	20.8%	11.7%	21.1%
Phone Use by Frame				
	LLO	13.6%	13.8%	13.0%
	Dual from LL sample	43.2%	56.3%	43.4%
	Dual from cell sample	22.4%	18.1%	22.4%
	CPO	20.8%	11.7%	21.1%

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from

simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called “design effect” or *deff* represents the loss in statistical efficiency that results from systematic non-response. The total sample design effect for this survey is 1.38.

PSRAI calculates the composite design effect for a sample of size n , with each case having a weight w_i as:

$$deff = \frac{n \sum_{i=1}^n w_i^2}{\left(\sum_{i=1}^n w_i \right)^2}$$

formula 1

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (*vdeff*). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}} \right)$$

formula 2

where \hat{p} is the sample estimate and n is the unweighted number of sample cases in the group being considered.

The survey’s *margin of error* is the largest 95% confidence interval for any estimated proportion based on the total sample— the one around 50%. For example, the margin of error for the entire sample is $\pm 3.6\%$. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than four percentage from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

RESPONSE RATE

Table 2 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:⁵

- Contact rate – the proportion of working numbers where a request for interview was made⁶
- Cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
- Completion rate – the proportion of initially cooperating and eligible interviews that were completed

Thus the response rate for the landline sample was 15 percent. The response rate for the cellular sample was 18 percent.

5 PSRAI’s disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

6 PSRAI assumes that 75 percent of cases that result in a constant disposition of “No answer” or “Busy” are actually not working numbers.

Table 2: Sample Dispositions

Landline	Cell	
13,994	5,400	Total Numbers Dialed
635	79	Non-residential
589	6	Computer/Fax
3	--	Cell phone
5,841	2,072	Other not working
1,489	318	Additional projected not working
5,437	2,925	Working numbers
38.9%	54.2%	Working Rate
496	106	No Answer / Busy
1,042	690	Voice Mail
21	5	Other Non-Contact
3,878	2,124	Contacted numbers
71.3%	72.6%	Contact Rate
467	414	Callback
2,586	1,157	Refusal
825	553	Cooperating numbers
21.3%	26.0%	Cooperation Rate
101	74	Language Barrier
--	166	Child's cell phone
724	313	Eligible numbers
87.8%	56.6%	Eligibility Rate
19	13	Break-off
705	300	Completes
97.4%	95.8%	Completion Rate
14.8%	18.1%	Response Rate



VERTICAL INTEGRATION IN CABLE TELEVISION

David Waterman
and
Andrew A. Weiss



AEI STUDIES IN TELECOMMUNICATIONS DEREGULATION

8

Summary and Policy Conclusions

VERTICAL INTEGRATION between cable networks and cable systems is extensive, and the prevalence of those relationships has grown since the mid-1980s. According to the criteria we set out in chapter 2—economic efficiency, access to the public by program creators, and program diversity—those vertical relationships, unrestrained until the 1992 Cable Act, benefit the social welfare in some respects and detract from it in others.

First, our statistical analysis in chapter 6 confirms that at least to some extent, integrated cable systems do behave as many critics of integration have contended: They tend to favor their vertically affiliated networks through carriage or marketing behavior, and in at least some cases, that conduct appears to be at the expense of unaffiliated, rival networks. Moreover, we observe a tendency for integrated systems to offer somewhat fewer cable networks than do nonintegrated systems.

On the basis of those results, one could argue that vertical integration, given the limited competition from other MVPDs that most cable systems face, reduces the diversity of programming available to the public and limits the access that non-MSO-affiliated program creators have to those media users. One could further argue that any favoritism by a cable system—even of an affiliated network whose programming content is very similar to that of a disadvantaged unaffiliated network—implicitly violates the spirit of the First Amendment. Those arguments may seem especially compelling when applied, for example, to news rather than to entertainment channels. And finally, our comparisons of vertical integration's effects in systems of different capacities suggest that as system bandwidths expand, and near or true video-on-demand systems are developed, such effects of integration, though diminished, will remain significant.

Economic theory and the historical experience of the cable industry also suggest that at least to some degree, vertical integration increases barriers to entry into cable networking by unaffiliated program suppliers, regardless of whether those barriers arise from anticompetitive or more innocent motives. It is reasonable to suppose that integration into cable networking by MSOs—at least by those with large national market shares—enhances any ability that established cable operators might have to prevent or retard the entry of alternative multichannel video providers.

Particularly on economic grounds, however, other findings of this study provide counterpoint to those arguments. Under reasonable assumptions, relatively unfavorable marketing of unaffiliated networks, or the exclusion of those networks from a menu altogether, can simply reflect transactions efficiencies that integrated firms realize by carrying and promoting their affiliated networks. The tendency for integrated cable systems to offer fewer networks of certain types than do nonintegrated systems can be attributed to the same efficiency effects. In economic terms it is reasonable to presume that subscribers are better off for those changes. Even if vertical integration provides the strategic advantage that allows one network rather than another to survive, the incentives of cable operators and other natural economic forces are likely to ensure that the array of programming content eventually made available to consumers is substantially the same as if no ownership ties had been involved.

Vertical integration also appears to facilitate entry of new networks by reducing the high risks inherent in their launches. In our view, the main case for vertical integration should be made in terms of the financial resources and other risk-reducing advantages, as well as the creative resources, that cable operators can contribute to the programming industry. In themselves, those advantages of integration undoubtedly promote economic efficiency and the diversity of programming content. By facilitating the entry process, they also promote the access of program suppliers to cable subscribers in an important sense.

Ambiguities in evaluating benefits and costs of vertical integration in cable thus remain. Our findings have more definite implications, however, for the key policy issues involving vertical integration in cable. We begin with the three central issues set out in chapter 2.

RESTRICTIONS AGAINST DISADVANTAGING UNAFFILIATED PROGRAM SUPPLIERS

Should there be regulations intended to prevent or restrict integrated cable system operators from disadvantaging unaffiliated program suppliers? As-



CONNECTING HOMETOWN AMERICA

For Immediate Release

Contact: Ted Hearn

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***American Cable Association President & CEO
Matthew M. Polka Commenting On Chairman
Genachowski's Remarks On Preserving
Internet Freedom and Openness***

PITTSBURGH, December 1, 2010 — "Based on Federal Communications Commission Chairman Genachowski's statement today, the ACA appreciates the Chairman's effort to adopt regulations designed to protect and preserve an open Internet under a set of consumer-centric principles that would not involve reclassification of broadband access as a common carrier service. A Title II framework would have imposed large and burdensome costs on small cable operators that offer broadband service, as ACA documented in filings with the agency this year. It's also important that Chairman Genachowski's statement recognized the importance of business innovation that promotes network investment and efficient use of networks, including measures that match price to cost, such as usage-based pricing.

"Chairman Genachowski's statement reflects a desire to reach a balanced compromise -- one that rests on a desire to protect broadband consumers while at the same time recognizing the important network management concerns of broadband providers. As the process moves forward, ACA is committed to playing a constructive role without abandoning its view that disproportionately burdensome regulation will fail to spur robust economic growth generated by broadband investment, innovation and infrastructure deployment made by ACA members serving some of the most economically challenging markets in the country."

About the American Cable Association

Based in Pittsburgh, the American Cable Association is a trade organization representing nearly 900 smaller and medium-sized, independent cable companies who provide broadband services for more than 7.6 million cable subscribers primarily located in rural and smaller suburban markets across America. Through active participation in the regulatory and legislative process in Washington, D.C., ACA's members work together to advance the interests of their customers and ensure the future competitiveness and viability of their business. For more information, visit <http://www.americancable.org/>



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Press Releases

Statement on Behalf of ITIF by ITIF Senior Research Fellow Richard Bennett on FCC Chairman Genachowski's Framework for an Open Internet

DECEMBER 1, 2010

"FCC Chairman Julius Genachowki unveiled the main elements of a very sensible Open Internet framework in his speech at the FCC today. We believe the Chairman's plan will be broadly supported, and for good reasons. We also believe the plan will help tamp down the often acrimonious controversy over how to best oversee the development of the Internet, establish regulatory clarity, and promote investment in faster and more pervasive broadband networks.

In general terms, the framework strikes all the right notes:

1. The framework recognizes that transparency is the single most important regulatory principle that can be applied to Internet service agreements today, as it goes much farther than any other single tool to ensure that customers are getting the experience that they reasonably expect.
2. The framework enshrines the Four Freedoms articulated by Chairman Powell and long accepted as policy by the FCC.
3. The framework emphasizes a sensible "level playing field" approach over the rather strident "anti-discrimination rule" that some advocates have urged on the Commission. A level playing field approach ensures that applications which require either premium service or discount service can get what they need from network operators to be successful.
4. The framework recognizes that mobile broadband is less mature and less resilient than fixed, wireline broadband, and seeks to make allowances for the state of its development through greater flexibility on the part of network operators.

The framework avoids the unnecessary and unproductive use of the Title II "nuclear option" which would not have been helpful in any case regarding the alleged violations of Open Internet principles we've seen in the past.

We applaud the Chairman's tenacity and his commitment to a consultative process, and we eagerly await the text of the framework."

###

Through its research, policies proposals, and commentary, the Information Technology and Innovation Foundation is working to advance and support public policies that boost innovation, e-transformation and productivity. For additional information, visit ITIF at www.itif.org or contact Steve Norton at (202) 626-5758 or snorton@itif.org.

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For Immediate Release:
December 1, 2010

Contact:
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CALINNOVATES.ORG APPLAUDS FCC APPROACH TOWARDS MIDDLE GROUND ON NET NEUTRALITY

San Francisco, CA -- CALinnovates.org, a California technology coalition, announced its support of FCC Chairman Julius Genachowski's new approach towards the divisive issue of net neutrality.

"The issue of net neutrality had turned into an argument of extremes, this made our membership very nervous. Any regulation of the Internet is 'make it or break it' and during these tough economic times, we needed any proposed regulation to definitely not break it" stated Erin Lehane, Executive Director of CALinnovates.org.

"Innovation requires an environment that is supportive and not restrictive in order to grow as it has" said Lehane. "Extremist reactionary politics are not good for this growth-not in California nor around the country. We are happy to see that the Chairman appears to have chosen the high road, which also happens to be the middle of the road, and strike a balance between supporting growth in the tech sector and consumer protection. On behalf of our membership of hundreds of California innovators, we are happy to support the Chairman and his now proven ability to move past the extreme politics which have dogged this issue."

For more information on CALinnovates.org please go to www.calinnovates.org;
<http://www.facebook.com/#!/CALinnovates?ref=ts> and <http://twitter.com/CALinnovates>.

###

CALinnovates.org is a statewide coalition focused on championing the conversation about the future of California's critical technology sector. CALinnovates.org brings together industry experts, thought leaders, tech innovators, policy makers and consumers in a nonpartisan mission to promote innovation, create new jobs, spur investment and support tech-friendly policies.



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President Obama's Strong Commitment to Net Neutrality and an Open Internet

Posted by [Aneesh Chopra](#) on December 01, 2010 at 11:48 AM EST

President Obama is strongly committed to net neutrality in order to keep an open Internet that fosters investment, innovation, consumer choice, and free speech. [The announced action by FCC Chairman Genachowski](#), building on the work of Chairman Waxman's collaborative effort to craft legislation in this area, advances this important policy priority.

We recognize that this announcement reflects a significant amount of effort on the part of numerous broadband providers, Internet applications developers, content providers, consumer groups, and others to finding a thoughtful and effective approach to this issue. Today's announcement is an important step in preventing abuses and continuing to advance the Internet as an engine of productivity growth and innovation.

Aneesh Chopra is the United States' Chief Technology Officer

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AT&T Statement on Proposed FCC Rules to Preserve an Open Internet

Posted by: [AT&T Blog Team](#) on December 1, 2010 at 11:18 am

Background – The FCC has [announced](#) that it will address proposed rules to preserve the open Internet at its December 21st Open Meeting. The following statement may be attributed to [Jim Cicconi](#), AT&T Senior Executive Vice President of External & Legislative Affairs:

“The prospect of net neutrality regulation has lingered as a very real threat to industry investment and jobs for several years. Obviously, AT&T’s strong preference would be for the FCC to refrain from any regulation in the Internet space. We feel the industry’s track record, the utter absence of any specific ongoing problem, and the state of the economy all argue for regulatory restraint. We also believe, based on jurisdictional concerns, that the issue should rightly be deferred to the Congress, a view also expressed by a bipartisan majority of that body. Nonetheless, we recognize that the FCC has decided to move ahead.

“We understand that the FCC Chairman has prepared a compromise proposal aimed at bridging the differences that have long polarized this debate. Based on our understandings, this measure would avoid onerous Title II regulation; would be narrowly drawn along the lines of a compromise we have endorsed previously; would reject limits on our ability to properly manage our network and efficiently utilize our wireless spectrum; would recognize the capabilities and limitations of different broadband technologies; would ensure specialized services are protected against intrusive regulation; and would provide for a case-by-case resolution of complaints that also encourages non-governmental dispute settlement.

“While any final statement of position by AT&T must await a careful reading of the actual order and rules when issued, we are pleased that the FCC appears to be embracing a compromise solution that is sensitive to the dynamics of investment in a difficult economy and appears to avoid over-regulation. We are also mindful of, and grateful for, the impact Congressional views have had in this process. Such an approach would reduce regulatory uncertainty, and should encourage investment and innovation in next generation broadband services and technologies. In that regard, we remain committed to working with the FCC to bring the benefits of broadband to all Americans.”

TOPICS: [Broadband Classification](#), [Broadband Policy](#), [Government Policy](#), [Wireless](#)



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But as the @FCC has decided to move ahead, we remain committed to working with the FCC to bring the benefits of broadband to all Americans.

12/01/2010 from web

More from our statement: We believe, based on jurisdictional concerns, that the issue should rightly be deferred to the Congress.

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FCC Chairman's Initiative on Open Internet Will Jumpstart Broadband Buildout

Dec 1, 2010

Contact Candice Johnson or Chuck Porcari, CWA Communications, 202-434-1168, cjohnson@cwa-union.org and cporcari@cwa-union.org

Statement by CWA President Larry Cohen on the framework announced by Federal Communications Commission Chairman Julius Genachowski to ensure an open Internet:

Washington, D.C. – The Communications Workers of America supports Chairman Genachowski's initiative to sustain open Internet principles and create the stable conditions necessary for critical investment and quality job creation in broadband networks.

Building on the legislative framework proposed by Rep. Henry Waxman (D-Calif.), this proposal fully incorporates the FCC's open Internet principles that have won broad support.

The United States lags behind the rest of the world in development and expansion of this vital infrastructure. The Chairman's initiative will jumpstart the investment America needs.

CWA and other organizations in the progressive community, including national civil rights, environmental and labor groups, have called for action to implement the FCC's principles of net neutrality: free speech, no blocking, no unjust or unreasonable discrimination and transparency.

Chairman Genachowski's plan does that, and we urge the Commission to approve this framework.

The buildout of true 21st century broadband networks has been stalled over the net neutrality debate; it's critical that we end the gridlock and shift our focus to the investment that will allow the United States to catch up with the rest of the world.

The lack of high speed broadband has real implications for our country's economic growth, for residents in rural areas and urban communities who are encountering a widening digital divide and for communities who have no way to compete without high speed broadband.

###

CWA represents 700,000 workers in communications, media, airlines, manufacturing, public service and health care.

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FOR IMMEDIATE RELEASE
December 1, 2010

Media Contact: Sally Aman
202-262-8003
aman@a2pr.com

Venture Capitalist Ron Conway supports FCC plans to move forward on net neutrality

The following statement is from Ron Conway, one of the founders of SV Angel, the premier Silicon Valley angel venture fund:

“As an early-stage venture capitalist for over 20 years, I treasure the Internet as an engine for innovation and economic possibility—protecting its openness is vital to protecting America’s critical technological competitive advantages.

“I am proud to join a diverse coalition in support of the Chairman’s proposed rules of the road. This light-touch, common-sense framework will help protect investment and innovation throughout the ecosystem and will ensure certainty in markets for years to come.”

###

Ron Conway has been an active angel investor for over 15 years. He was the Founder and Managing Partner of the Angel Investors LP funds (1998-2005) whose investments included: Google, Ask Jeeves, [Paypal](#), Good Technology, Opsware, and Brightmail.

FOR IMMEDIATE RELEASE
December 1, 2010

Media Contact: Sally Aman
202-262-8003
aman@a2pr.com

Craig Newmark Statement on FCC Net Neutrality Announcement

The following statement should be attributed to Craig Newmark, founder of [craigslist](#):

“As the founder of [craigslist](#) and a passionate believer in the economic and social benefits of an open and free Internet, I proudly endorse the Chairman’s historic efforts to protect these important principles in our society. Common-sense rules of the road will help ensure certainty in markets while also preserving the openness and freedom of the Internet that has helped generate millions of jobs and share billions of ideas around the world. To clarify, I’m interested in preserving traditional American values like fairness and a level-playing, with the least amount of government involvement.”

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DISH Network Statement Regarding FCC's Proposed Order on Net Neutrality

ENGLEWOOD, Colo., Dec. 1, 2010 /PRNewswire/ -- DISH Network L.L.C. Chairman, President and CEO Charles Ergen issued the following statement regarding the FCC's proposed order on net neutrality:

"DISH Network applauds Chairman Genachowski for moving forward on critically important net neutrality rules. His proposal is a solid framework for protecting the open Internet. We look forward to working with the Commission in improving upon the draft order in the next few weeks. DISH Network has invested hundreds of millions of dollars in jobs-creating, Internet-based technology, and we agree with the Chairman that an open Internet platform is the best way to ensure continued innovation and investment."



About DISH Network

DISH Network Corporation (Nasdaq: [DISH](#)), through its subsidiary DISH Network L.L.C., provides more than 14.2 million satellite TV customers, as of September 30, 2010, with the highest quality programming and technology at the best value, including HD Free for Life. Subscribers enjoy industry-leading customer satisfaction, the largest high definition line-up with more than 200 national HD channels, the most international channels, and award-winning HD and DVR technology. DISH Network Corporation is included in the Nasdaq-100 Index (NDX) and is a Fortune 200 company. Visit www.dish.com.

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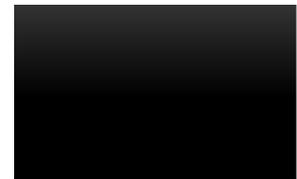
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For Immediate Release

Contact: 202-

225-2135

Doyle Commends FCC for Taking Up Net Neutrality at December Meeting
Congressman calls for strong protections that maintain open access to the Internet

Washington, DC – December 1, 2010 – U.S. Representative Mike Doyle (D-PA14) released the following statement today in response to the Federal Communications Commission (FCC) announcement that the Commission would consider the issue of “net neutrality” at its upcoming December meeting.

“I awoke to the FCC’s promise to Internet users that Christmas will come on December 21st this year. I’m glad to see this long deliberation finally come to a vote. I applaud Chairman Genachowski for moving forward on a proposal that would protect internet users and preserve net neutrality, but I worry that the Grinch might still steal our Net Neutrality Christmas present.

“Far from being new and onerous regulations, net neutrality rules would preserve a status quo that existed when the Internet was founded and when many of American consumers’ favorite services started. And I believe that net neutrality rules would allow the growth of new and improved internet services and applications that drive people’s demand for bigger and faster internet connections – which would further the Commission’s goal of promoting deployment of high-speed broadband.

“Since the FCC unjustly did away with a particular legal framework, the Sword of Damocles has hung over the heads of broadband providers who said they would never selectively block or restrict consumers from accessing the content of their choice from whomever they wanted, so ISPs, too, would also benefit from clear rules of the road. They should be ecstatic that the Commission is choosing this path over other scenarios.

“As with all laws and regulations, the details make all the difference between a success and a sell-out.

“I look forward to working with the FCC, ISPs, consumer advocates, internet entrepreneurs, and developers of innovative new technology and content to ensure that any regulations issued by the FCC will actually preserve net neutrality.

“I will work in the 112th Congress to help my colleagues clearly understand this issue and what’s at stake.”

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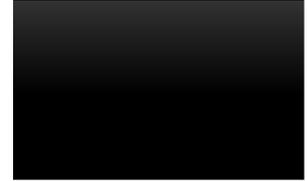
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Fabian Nunez Commends FCC for Avoiding Net Neutrality Rules That Would Exacerbate Digital Divide

Speaker Emeritus of the California State Assembly Highlights Broadband as Key to Overcoming Unemployment Challenges

WASHINGTON, Dec. 1, 2010 /PRNewswire-USNewswire/ -- In response to Federal Communications Commission (FCC) Chairman Genachowski's announcement today of a proposed middle ground on Internet regulation, Fabian Nunez, Speaker Emeritus of the California State Assembly, released the following statement:

"I commend the FCC and Chairman Genachowski for taking a step forward and pursuing a plan that avoids extreme net neutrality measures that would make it difficult for more Americans to get online. Minority families, students and workers need broadband to improve their economic status and to enjoy all the rights and privileges enabled by a high-speed Internet connection. Broadband is especially important to Hispanic Californians, as it can help us overcome the serious unemployment challenges we face."

Fabian Nunez is honorary co-chairman of the Internet Innovation Alliance Broadband Ambassador Program.

[About The Internet Innovation Alliance](#)

The Internet Innovation Alliance is a broad-based coalition of business and non-profit organizations that aims to ensure every American, regardless of race, income or geography, has access to the critical tool that is broadband Internet. The IIA seeks to promote public policies that support equal opportunity for universal broadband availability and adoption so that everyone, everywhere can take advantage of the benefits of the Internet – from education to health care, employment, community building, civic engagement and beyond.

SOURCE Internet Innovation Alliance

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ITI in the News

ITI routinely serves as a source for media organizations covering high tech industry trends, global government policy developments impacting the tech sector, events hosted by the Council and other related news.

ITI Statement on FCC's Net Neutrality Policy Position

Wednesday, December 1, 2010 9:30 am

WASHINGTON, DC (December 1, 2010) – Dean Garfield, president and CEO of the Information Technology Industry Council (ITI), released the following statement today following the announcement of the FCC's proposed policy position on net neutrality.

"The FCC's action today is an important step as industry and policymakers work in resolving the net neutrality issue. The fact is that no outcome will please every stakeholder. At the same time, prolonging the net neutrality policy limbo benefits no one – especially consumers.

"We applaud Chairman Genachowski for his leadership to move forward with a balanced approach in the face of the heightened polemics on this issue.

"While ITI's members cover a range of the views commonly held in this debate, we recognize that we can't make the perfect the enemy of the good. The FCC's policy position represents a fair middle ground that will provide regulatory certainty to an issue that has been lacking it since the Comcast decision last spring. This will move the debate beyond net neutrality so we can focus on policies that will bring greater and faster broadband Internet access to more Americans, such as the FCC's '100 Squared' initiative, and making more spectrum available for commercial uses. Both of these efforts will greatly benefit the economy, create jobs and ensure all Americans have access to arguably the greatest technological development of the past century - the Internet.

"ITI and its members look forward to working with the FCC, policy makers and the private sector to help bring the net neutrality order to closure."

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[America's Broadband Revolution \(Op-Ed\)](#)

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About ITI

The [Information Technology Industry Council \(ITI\)](#) is the premiere voice, advocate, and thought leader for the information and communications technology (ICT) industry. ITI is widely recognized as the tech industry's most effective advocacy organization in Washington D.C., and in various foreign capitals around the world.

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CDT Statement on FCC Decision to Move Ahead on Neutrality Rules

By *CDT*

Created 12/01/2010 - 11:35am

December 1, 2010

““The Internet is and should remain a medium that is open to innovation, not one where big network operators get to pick winners and losers. This rulemaking is about preserving the characteristics that have made the Internet such an overwhelming success.””

Leslie Harris - President & CEO, CDT

Washington, DC -- Today, the Center for Democracy & Technology released the following statement on the announcement that the Federal Communications Commission plans to vote later this month on proposed "rules of the road" for preserving the Internet's open character. The following quotes can be attributed to CDT President Leslie Harris:

"We commend Chairman Genachowski for recognizing that the time to act is now. The Internet is and should remain a medium that is open to innovation, not one where big network operators get to pick winners and losers. This rulemaking is about preserving the characteristics that have made the Internet such an overwhelming success. It is a first step but a critical one.

"At the same time, adopting these historic rules will not be the end of the

Internet Neutrality debate, it will be just the end of the beginning. The Commission will need to vigorously enforce the new rules. And it will need to address the critical question of protections for wireless Internet users, which appear limited in the current proposal.”

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Created 12/01/2010 - 11:35am

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Tuesday, November 30, 2010

IIA Commends FCC for Seeking Middle Ground on Net Neutrality

More extreme Internet regulations would have hindered investment and forestalled growth

WASHINGTON, D.C. - December 1, 2010 - Based on reports about a forthcoming order from the Federal Communications Commission (FCC), the Internet Innovation Alliance (IIA) - a broad-based coalition supporting broadband availability and access for all Americans - today released the following statement applauding the Commission for pursuing a reasonable middle ground on the net neutrality issue and rejecting extreme regulations like Title II that would stifle growth and investment in the broadband ecosystem:

"The Chairman deserves a lot of credit for proceeding so thoughtfully and choosing a commonsense compromise in the face of hyper-partisan brinksmanship," said Internet Innovation Alliance Co-Chairman David Sutphen. "By finally turning the page on this issue, the FCC can now focus its attention on the National Broadband Plan and achieving universal access and adoption, as well as fostering broadband innovation and investment."

Added IIA Co-Chairman Bruce Mehlman, "We continue to see new regulations largely as a solution in search of a problem. However, today's proposal seems to be the most effective option for reducing regulatory uncertainty in the broadband marketplace, enabling more widespread investment and deployment that will ultimately benefit consumers and our economy."

The IIA is holding a Symposium titled, "A View from Wall Street: Implications of Washington Telecom Policy on Jobs, Investment and Economic Recovery" on Tuesday, December 7th at the Newseum in Washington, DC. To RSVP for this event, please visit <http://www.internetinnovation.org/>.

Posted by IIA on 11/30 at 04:55 PM

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December 8, 2010

Chairman Julius Genachowski
Federal Communications Commission
445 12th St. SW
Washington, DC 20554

Dear Chairman Genachowski,

I am a Managing Director at Lightspeed Venture Partners, a Venture Capital firm with over \$2 billion under management. My focus is on internet investing. Because of this, I appreciate first-hand the importance of a free and open internet to allow for the development of vibrant, entrepreneurial new company formation. But this innovation also requires fast internet infrastructure, and the network providers need an economic incentive to upgrade their networks to reach world class. As such, I strongly support your proposed rules to protect an open and free Internet. I urge the Commission to swiftly adopt the framework that you outlined.

America's technology economy represents almost one-quarter of the entire economy. In order to sustain its tremendous growth and promise, we must both protect the Internet's openness and freedom, and create an environment which fosters the building of faster data networks. The reasonable and proactive guidelines that you proposed achieve both objectives. I believe the entrepreneurs we support will embrace this framework, building their businesses with much more confidence that the playing field will be level, that unreasonable discrimination will not be tolerated, that faster networks will be built and that transparency will allow the FCC to take further action if necessary to protect a landscape of fair competition.

The story of America's start-up economy is well illustrated by technology companies that the partners at my firm have funded, including Doubleclick, Living Social and Playdom—all employing hundreds of Americans and creating new value and opportunity throughout the country. Many exciting start-ups are being built right now, and with these guidelines, they'll have an opportunity to become the next great success stories. Your proposal will help incubate growth for decades to come and should be adopted without further delay.

Sincerely,

Jeremy Liew
Managing Director
Lightspeed Venture Partners



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101 Spear Street, Suite 255
San Francisco, CA 94105
Tel: (415) 202-5820
Fax: (415) 520-0305
www.javelinvp.com

December 1, 2010

Chairman Julius Genachowski
Federal Communications Commission
445 12th St. SW
Washington, DC 20554

Dear Chairman Genachowski,

As a technology venture capitalist representing hundreds of millions of dollars in investment, I strongly support your proposed rules to protect an open and free Internet. I urge the Commission to swiftly adopt the framework outlined today.

America's technology economy represents almost one-quarter of the entire economy, and in order to sustain its tremendous growth and promise, we must protect the Internet's openness and freedom with the reasonable and proactive guidelines proposed this morning. I believe the entrepreneurs we support will embrace this framework, building their businesses with much more confidence that the playing field is level, unreasonable discrimination will not be tolerated, and that transparency will allow the FCC to take further action if necessary to protect a landscape of fair competition.

The story of America's start-up economy is well illustrated by technology companies like eBay, Amazon, and Google—all employing thousands of Americans and creating new value and opportunity throughout the country. Many exciting start-ups are being built right now, and with these guidelines, they'll have an opportunity to become the next great success stories. Your proposal will help incubate growth for decades to come and should be adopted without further delay.

Sincerely,

Jed Katz
Managing Director
Javelin Venture Partners

John Kerry

U.S. Senator for Massachusetts

Kerry, Dorgan, Wyden Urge FCC to Act This Year on Open Internet

For Immediate Release: Tuesday, November 30, 2010

CONTACT: DC Press Office, (202) 224-4159

WASHINGTON, D.C. – Senators John Kerry (D-Mass.), Byron Dorgan (D-N.D.), and Ron Wyden (D-Ore.) today urged the Federal Communications Commission (FCC) to chart a path to guarantee network neutrality by the end of this year.

The Senators – all long time advocates of Network Neutrality – wrote a letter to FCC Chairman Julius Genachowski supporting his effort to conclude the FCC’s Open Internet proceeding in December. This proceeding will determine the FCC’s proper role in maintaining Network Neutrality.

The full text of the letter is below:

Dear Chairman Genachowski:

We are writing to urge you to bring the Open Internet rulemaking to conclusion in December. Heading into 2011, the Commission can provide the certainty necessary for policymakers, consumers, investors, and innovators that the Internet will remain an open network, under the watchful eye of the Federal Communications Commission, and that the service will be delivered and managed with full and complete transparency. Combined, that will make it possible for the agency, advocates, engineers, and the media to police practices that could threaten innovation at the edge of the network.

We recognize that you have led a difficult, inclusive, and often technical debate as matter of both law and engineering on the question of the proper role of the agency and rules in this space. We have supported that process and support the President’s goal of protecting and preserving an open Internet. We are also well aware that it is always easier to criticize the policy-making process than it is to make good policy -- and as a result you have taken incoming fire from all sides. Yet, while time consuming, we think the deliberation and discourse has moved the center of opinion within the community of experts, industry, and advocates to a principled compromise that is sustainable and will work. We understand that there are some who would have you go further and some that would have you do nothing. But we believe you are headed toward a principled center and we support that effort.

We look forward to working with you.

Sincerely,

John Kerry

Byron Dorgan

Ron Wyden

United States Senator

United States Senator

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CTIA is the International Association for the Wireless Telecommunications Industry, Dedicated to Expanding the Wireless Frontier

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CTIA-The Wireless Association® Statement on Chairman Genachowski's Remarks on Net Neutrality

December 1, 2010

WASHINGTON, DC – *After Chairman Julius Genachowski's remarks, CTIA-The Wireless Association President and CEO Steve Largent released the following statement:*

"Although we have not seen the specific language of the Chairman's proposal, in his remarks, Chairman Genachowski emphasized the appropriateness of recognizing differences between fixed and mobile broadband. While we maintain our belief that any action in this area is unnecessary in the dynamic and rapidly evolving wireless environment, we understand and are pleased that the proposed rules have moved away from broad Title II regulation and toward a more tailored approach that recognizes the unique nature of wireless services. The wireless ecosystem moves at a startling pace, and if new rules are adopted, they should be reviewed in two years.

"The U.S. wireless industry is dedicated to serving its customers, is leading the world in investment and innovation, and is playing a prominent role in our country's economic recovery. We believe the best environment in which to continue this record is one that avoids overregulation and removes uncertainty. We believe significant input from a bipartisan majority of Congress and others, and the willingness of the Chairman to seek a workable solution, have contributed toward making the proposed rules less onerous. While we will wait to review the specific language in the text, we appreciate the Chairman's attempt to find a way forward on this issue that recognizes the need to create certainty in the market and facilitate investment."

###

CTIA-The Wireless Association® (www.ctia.org) is an international organization representing the wireless communications industry. Membership in the association includes wireless carriers and their suppliers, as well as providers and manufacturers of wireless data services and products. CTIA advocates on behalf of its members at all levels of government. The association also coordinates the industry's voluntary best practices and initiatives, and sponsors the industry's leading wireless tradeshows. CTIA was founded in 1984 and is based in Washington, DC.

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Latino Perspectives on Telecommunications and Technology Policy

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HTTP Reacts to FCC Announcement

December 1, 2010 by HTTP

 Category: [Digital Divide](#), [Net Neutrality](#)

Washington, D.C., December 1, 2010 – Federal Communications Commission (FCC) Chairman Julius Genachowski just released the agenda for their upcoming December 21st meeting at a press conference held at the FCC. In regards to net neutrality, the FCC will consider “an order adopting basic rules of the road to preserve the open Internet as a platform for innovation, investment, competition, and free expression.”

The following can be attributed to Jason Llorenz, Esq., executive Director of the Hispanic Technology & Telecommunications Partnership (HTTP):

“The Hispanic Technology & Telecommunications Partnership (HTTP) looks forward to reviewing the FCC’s proposed announcement of a compromise on network neutrality that appears to preserve an open Internet while encouraging the continued broadband innovation and investment needed to reach universal Internet adoption and access across America. This middle-ground approach seems to have taken into consideration many of the concerns HTTP has voiced over the past year, on the issue of broadband access and adoption.

“In our increasingly connected world, Hispanics continue to lag behind in their adoption of broadband technology, putting our growing population at a serious disadvantage in the classroom, in the workplace, and in every day life,” said Gus West, co-Chair of HTTP and chairman of The Hispanic Institute. “We are optimistic that it appears the FCC has listened to our community and has come to a sensible framework regarding net neutrality that supports an open and robust Internet – without extreme or burdensome regulation – so that our community can continue to work toward universal digital inclusion.”

“Broadband connectivity holds tremendous promise and opportunity – not just for Hispanics, but for all Americans – at this very critical time. The http coalition is eager to work with the Commission and Congress in the coming weeks and months on this proposed framework and help to find solutions that may arise based on limitations of current law and the changing communications landscape, said Llorenz.”

The Hispanic Technology and Telecommunications Partnership (HTTP) is a coalition of national Hispanic organizations working to increase awareness of the impact of technology and telecommunications policy on the U.S. Hispanic community. For additional information, visit www.httponline.org

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LULAC Encouraged by Progress from the FCC on Net Neutrality

December 1, 2010

Contact: Lizette Jenness Olmos, (202) 365-4553 mobile

Chairman's Proposed Rules Preserve Internet Openness while Ensuring the Costs of Broadband Deployment are not Shifted onto Consumers

Washington, DC – Today, the League of United Latin American Citizens was encouraged by FCC Chairman Julius Genachowski's announcement of proposed rules that will preserve the open, vibrant Internet while ensuring that the costs of broadband deployment are not shifted onto the backs of consumers. The announcement should serve as a blueprint for compromise on Net Neutrality and allow the FCC to refocus attention on its National Broadband Plan which LULAC believes should be the agency's number one priority.

"Chairman Genachowski today indicated that the FCC is close to resolving this important debate and will issue a draft order that appears to be based on Chairman Waxman's legislation, which LULAC has already endorsed," said Margaret Moran, LULAC National President. "We find this to be a good compromise to the complex challenge of how to best regulate the internet through the preservation of important net neutrality principles, while securing an environment that encourages access, adoption and continued investment in our digital future."

As we have long maintained, Americans on the wrong side of the Digital Divide - as well as those who stretch their thin budgets to subscribe today - can ill afford to shoulder the \$350 billion price tag for deploying the next generation of high-speed pipes throughout the nation. LULAC had early expressed concern to the FCC that if net neutrality rules barred innovative partnerships between content providers and internet service providers, consumers would be left to pick up the entire tab of the broadband build out to the homes—a prospect that we find unacceptable.

President Obama has repeatedly stressed the importance of broadband Internet access for job creation, skills training and education. For Latinos, who make up a disproportionate amount of America's unemployed, the stakes could not be much higher. We're encouraged by the FCC's proposal and we anxiously await its details. In addition, we believe it is important for Congress to weigh in on this issue to ensure that the FCC is given clear authority to enforce these rules given recent court decisions that have cast doubt on the extent of the FCC's ability to regulate broadband.

"As seen in our 60 community technology centers, Hispanic Americans use broadband to connect to critically important tools and resources that dramatically improve the quality of their lives. A level-headed regulatory framework will ensure that members of the Latino community benefit from enhanced access to robust and reliable networks," stated Brent Wilkes, LULAC National Executive Director. "With only 24% of Spanish dominant households having broadband access in their homes, it is absolutely critical that the FCC conclude its work on net neutrality and return its focus to implementation of the National Broadband Plan which aims to provide 100% broadband access to all Americans."

The League of United Latin American Citizens, the largest and oldest Hispanic membership organization in the country, advances the economic condition, educational attainment, political influence, housing, health and civil rights of Hispanic Americans through community-based programs operating through 880 LULAC councils nationwide.

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01 December 2010

Sprint Statement on the Federal Communications Commission's Proposed Net Neutrality Rules

OVERLAND PARK, Kan. (Dec. 1, 2010) - Today, Vonya B. McCann, senior vice president of government affairs for [Sprint \(NYSE:S\)](#), issued the following statement in response to the FCC's proposed net neutrality rules for broadband and wireless services:

"Sprint has been a leader in preserving an open Internet, providing consumers and developers with access to the websites of their choice, information to ease the creation of new applications, dynamic and innovative devices, and affordable pricing that allow consumers to take advantage of broadband services.

"Sprint commends the FCC for the careful and deliberate approach it has taken on this issue. It is an important next step in ensuring the freedom and openness of the Internet, while also recognizing the differences between fixed and mobile networks and the importance of providing all broadband providers with the flexibility to manage their networks.

"While Sprint has not seen the details of the item, the outline proposed by Chairman Genachowski appears to be a fair and balanced approach to a difficult issue. With a new year on the horizon, we will be looking at the rules closely but are encouraged that the Commission appears to be ready to resolve this issue."

About Sprint Nextel

Sprint Nextel offers a comprehensive range of wireless and wireline communications services bringing the freedom of mobility to consumers, businesses and government users. Sprint Nextel served more than 48.8 million customers at the end of the third quarter of 2010 and is widely recognized for developing, engineering and deploying innovative technologies, including the first wireless 4G service from a national carrier in the United States; offering industry-leading mobile data services, leading prepaid brands including Virgin Mobile USA, Boost Mobile, Common Cents Mobile and Assurance Wireless; instant national and international push-to-talk capabilities; and a global Tier 1 Internet backbone. *Newsweek* ranked Sprint No. 6 in its 2010 Green Rankings, listing it as one of the nation's greenest companies, the highest of any telecommunications company. You can learn more and visit Sprint at www.sprint.com or www.facebook.com/sprint and www.twitter.com/sprint.

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Statement of NCTA President & CEO Kyle McSlarrow Regarding Proposed FCC Rules to Preserve an Open Internet

Publication Type: Statement

Date: 12/1/2010

CONTACT: Rob Stoddard/Brian Dietz, 202-222-2350

“NCTA has consistently taken the view that broadband services should be regulated with a light touch under Title I of the Communications Act and not as common carrier services under Title II. Similarly, we have stressed that net neutrality regulation is unnecessary in light of the competitive marketplace, the absence of conduct that was harmful to consumers or competition, and the very real risk that regulation would undermine one of the great success stories in America -- rapid growth in the development of broadband networks that are changing the way we live and allowing consumers to enjoy an amazing array of applications, content and services.

“Nonetheless, with bipartisan encouragement, we made clear we would participate in negotiations, constructively and in good faith, with the goal of providing greater certainty through a framework that would preserve the openness of the Internet while protecting the ability of all actors in the ecosystem to invest and innovate to the benefit of consumers. Those negotiations over the last six months have not been easy, but they produced a rough consensus on a number of points, which we believe are reflected in the order circulated today.

“First, and perhaps most important, the order circulated today is grounded within the framework of Title I. We further understand that the rules proposed basically codify a code of conduct and commitments made by our industry five years ago; add a discrimination principle based on a “reasonableness” standard; and add a transparency rule that we believe can be helpful in aiding customer choice. We further understand that the rules do not preclude or inhibit our ability to innovate and deploy new and specialized services. Importantly, they appear to reflect Chairman Genachowski’s previously stated position that such rules will not and should not result in price regulation and to recognize the value of flexible business models such as usage based pricing.

“We recognize that this item will now be considered by the FCC as a whole. While not perfect from our point of view and in the absence of further action by Congress, we believe that it is a fair resolution of this set of issues and that it is proposed in a way that achieves our essential and shared objectives: preserving the openness of the Internet and the incentives to invest and innovate for the benefit of consumers. Should the order change in any material way from our understanding, we reserve our rights to vigorously challenge any such rule. Accordingly, NCTA will await the final resolution of the order at the next FCC meeting before making a final determination of our views or on any actions we might take subsequent to that meeting.

“Finally, I do want to acknowledge and thank the members of Congress who, on a bipartisan basis, made clear that Title I was and is the appropriate regulatory framework. And I want to thank and applaud Chairman Genachowski, his Chief of Staff, Eddie Lazarus, and their staff for listening, for their hard work on incredibly complex business and technology issues, and for their leadership in seeking a fair resolution of a difficult and controversial set of policy goals.”

###

NCTA is the principal trade association for the U.S. cable industry, representing cable operators serving more than 90 percent of the nation’s cable television households and more than 200 cable program networks. The cable industry is the nation’s largest broadband provider of high-speed Internet access, serving more than 41 million customers, after investing more than \$160 billion to build a two-way interactive network with fiber optic technology. Cable companies also provide state-of-the-art digital telephone service to more than 22 million American consumers.

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ADE ENCOURAGED BY FCC'S NETWORK NEUTRALITY COMPROMISE

Posted Dec 01, 2010



Cynthia Miller, ADE Marketing Officer 404-815-4066 or cmiller@adeql.org

Organization applauds the Commission for choosing mainstream compromise over extreme action in net neutrality debate

ATLANTA, GEORGIA, Wednesday, December 1, 2010 – Shirley Franklin, senior advisor for the Alliance for Digital Equality (ADE) and former mayor of Atlanta, issued the following statement today regarding a release by the Federal Communications Commission (FCC) on a network neutrality compromise:

“Last week, Americans across the country collectively paused to acknowledge and give thanks for the many blessings that we have. Thanksgiving provides us with this unique opportunity for reflection every year, introducing a spirit that encourages us to look past our differences and find common ground. Today ADE commends the FCC for embracing this spirit, rejecting partisan bickering and choosing mainstream compromise over extreme action in the debate over net neutrality.

Today’s announcement shows that thoughtful debate on policy can lead to solutions that uphold our commitment to preserving the open Internet while maintaining a focus on the priorities of the American people: restoration of our economy and a solution to creating jobs. Bringing certainty to the telecommunications industry is a big step on the road toward achieving these things. We look forward to working with the FCC in the coming weeks to ensure that this middle ground is fully realized and remain hopeful that this compromise will allow everyone to focus on these priorities.”

ADE’s partner the Communications Workers of America issued this statement.

###

The Alliance for Digital Equality (ADE) is a non-profit consumer advocacy organization that serves to facilitate and ensure equal access to technology in underserved communities. The Alliance also serves as a bridge between policymakers and minority individuals in order to help the public understand how legislative and regulatory policies regarding new technologies can impact and empower their daily lives. For more information on The Alliance for Digital Equality, please visit www.ADEQL.org.

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National Association for the Advancement of Colored People (NAACP) Responds to FCC Announcement

WASHINGTON, Dec. 1, 2010 /PRNewswire-USNewswire/ -- *In response to today's announcement from the Federal Communications Commission (FCC) and Chairman Genachowski, the National Association for the Advancement of Colored People (NAACP) issued the following statement:*

"The National Association for the Advancement of Colored People (NAACP) applauds the Federal Communications Commission (FCC) for a proposal we believe will go a long way towards ensuring a free and open Internet. It is our hope that this development will enable our federal policy makers and the Administration to expedite increased access to broadband technologies for all of America's people.

As our nation's oldest and largest grassroots based civil rights organization, the NAACP is encouraged by FCC Chairman Genachowski's remarks concerning the proposal that reflect the FCC's desire to promote rules that safeguard the civil rights, free speech and economic opportunity for our nation's most vulnerable. Broadband is an integral tool in promoting civic engagement and is crucial to voter education, mobilization and protection. We are equally concerned during these tough economic times with jobs and the pace of the nation's recovery. We believe that the FCC's proposal will help foster equal access to affordable and sustainable broadband and stimulate job creation in all communities, including underserved, rural, low-income and, racial and ethnic minority communities.

The FCC Chairman stated its proposal will 'protect free expression; it would increase certainty in the marketplace, and spur investment both at the edge and in the core of our broadband networks.' We are pleased that the FCC's proposal seems to echo similar Congressional proposals and President Obama's commitment to 'keep the Internet as it should be – open and free.'

The NAACP looks forward to working with the Federal Communications Commission to advance a full and robust National Broadband Plan."

Founded in 1909, the NAACP is the nation's oldest and largest grassroots based civil rights organization. Its members throughout the United States and the world are the premier advocates for civil rights in their communities, conducting voter mobilization and monitoring equal opportunity in the public and private sectors.

SOURCE National Association for the Advancement of Colored People (NAACP)

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Contact:

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One Economy Response to FCC Statement on Open Internet

One Economy applauds the FCC's statement on the Open Internet and the thoughtful, deliberate, open, and inclusive process that the Chairman took in reaching this point. The FCC, with input from numerous vital constituents, has constructed a balanced framework that provides sufficient flexibility in an ever-changing technological world. We hope that the broadband, content, application, and public interest communities see in this statement common ground to support.

With this important step in the process taken, we now must focus the energy and collective intelligence of this community on implementing key recommendations in the FCC's National Broadband Plan. The broadband adoption recommendations have received significant bi-partisan as well as private and public support, and we believe the time is now to modernize the Universal Service Fund.

FOR IMMEDIATE RELEASE
December 1, 2010
mobile

CONTACT: Sharon Jenkins
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- or -

Stephanie Gadlin
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mobile

Stephanie.Gadlin@mail.house.gov

**RUSH STATEMENT IN RESPONSE TO TODAY'S RELEASE
OF THE
FEDERAL COMMUNICATION COMMISSION'S
PROPOSED RULE CHANGES**

WASHINGTON — “Today’s announcement by the Federal Communications Commission that it will propose rules at its December 2010 meeting to preserve an open Internet for all broadband consumers was not without controversy or suspense, but it is the right decision at this time.

“The time is now for the Federal government to do more in aligning our nation’s laws and rules governing broadband access with critical national goals. Their actions should include, but not be limited to, helping more Americans find good-paying jobs and training programs, expanding the scale, scope and reach of industry and commerce, cultivating more entrepreneurial activity among all Americans, and empowering communities and individuals to connect online more broadly than ever before with their peers.

“I am hopeful that the leaders of the 112th Congress will work with those of us on the other side of the aisle to continue the momentum we’ve gained in this session of Congress. I am committed to working to help the FCC realize its vision of achieving our shared national goals and I urge my colleagues on both sides of the aisle to do the same.”

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CEA COMMENTS ON FCC'S ACTION TO HELP PROTECT AND PRESERVE AN OPEN INTERNET

Arlington, Virginia

12/2/2010

The Federal Communications Commission (FCC) Chairman Julius Genachowski announced that he has circulated an Order to his FCC colleagues regarding the preservation of the open Internet, which is scheduled for a vote at the Commission's December 21 open meeting. In response to the Order, Gary Shapiro, president and CEO of the Consumer Electronics Association (CEA)[®], released the following statement:

"We applaud and share Chairman Genachowski's desire to preserve and protect a free and open Internet. An open Internet has fueled innovation, new companies, new services and products. It must be preserved. Innovation flourishes when entrepreneurs know their products and services will work when they connect them to the Internet.

"We appreciate that the Order circulated is grounded within the framework of Title I and appears entirely based on the compromise worked out last month by various consumer and business interests. CEA supports policies which encourage the use of open, industry-developed standards to promote interoperability and allows equal access to the pipelines of the Internet. Access to the Internet and redeployment of currently underused spectrum are crucial to our national competitiveness and the future of innovation.

"CEA and its members look forward to working with the Commission and Congress and other industries to develop common sense approaches that preserve openness without undermining incentives to invest in broadband infrastructure."

About CEA:

The Consumer Electronics Association (CEA) is the preeminent trade association promoting growth in the \$170 billion U.S. consumer electronics industry. More than 2,000 companies enjoy the benefits of CEA membership, including legislative advocacy, market research, technical training and education, industry promotion, standards development and the fostering of business and strategic relationships. CEA also sponsors and manages the International CES – The Global Stage for Innovation. All profits from CES are reinvested into CEA's industry services. Find CEA online at www.CE.org.

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FOR IMMEDIATE RELEASE
December 1, 2010

Media Contact: Sally Aman
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Statement on FCC Announcement on Net Neutrality

The following statement is from Ram Shriram, founder and managing partner of Sherpalo Ventures:

“As an early-stage investor with deep ties to the technology community, I applaud Chairman Genachowski’s proposed framework to protect a free and open Internet. After months of careful dealings with a wide-array of stakeholders, I am pleased to see the Chairman build such strong consensus amongst industry and public interest groups. From my early years at Netscape to my experiences with Amazon and Google, I have seen the Internet blossom from its early days into an inspiring engine for growth and investment. Nothing is more important to America’s economic future than the protection of a free and open Internet, and I am confident that Chairman Genachowski’s proposed framework will achieve just that.”

###

Ram Shriram started Sherpalo in January, 2000, with the goal of applying his wealth of operating and company building experience to promising early stage ventures. He has invested across the internet food chain in businesses ranging from e-commerce to mobile applications that have collectively created over 25,000 jobs.

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Mobile Future News

12/01/2010

Mobile Future Statement on FCC Announcement of Net Neutrality Order

Today, FCC Chairman Genachowski announced his intention to pursue a network neutrality order under a Title I framework.

The following statement should be attributed to Jonathan Spalter, chairman of the Mobile Future Coalition:

“We applaud Chairman Genachowski for supporting a measured, forward-looking policy framework that recognizes the dynamic nature of the telecom ecosystem and the importance of continued investment, job creation and innovation in the vibrant communications sector. We appreciate Chairman Genachowski’s leadership, commitment and support for continued growth and opportunity for consumers, technology innovators and workers, and investors in the communications sector and throughout the U.S. economy.”

Additional information about Mobile Future can be found at www.mobilefuture.org

###

Mobile Future is a broad-based coalition of businesses, non-profit organizations and individuals interested in, and dedicated to, advocating for an environment in which innovations in wireless technology and services are enabled and encouraged. Its mission is to educate the public and key decision makers on innovations in the wireless industry that have transformed the way Americans work and play, and to advocate continued investment in wireless technologies.



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TechNet Leadership Comments on FCC's Draft Open Internet Framework

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“We applaud the work of the Chairman Genachowski and FCC on this draft Open Internet framework,” said Rey Ramsey, President and CEO of TechNet. “Chairman Genachowski has offered a quality framework that hits the right balance between encouraging investments, fostering innovation and protecting consumers in a manner that is both transparent and enforceable. We appreciate the FCC's efforts to move this debate forward and believe this a good start in that direction. While some stakeholders have expressed initial concerns, we urge them to remain engaged in the process. This framework is a snapshot in time; as the market and technology continue to evolve, this framework will evolve and improve over time.”

“Cisco supports the FCC completing this policy debate in a way that maintains an Open Internet, allows network operators to engage in reasonable network management and preserves incentives for investment in network infrastructure,” said John Chambers, Chairman and CEO of Cisco and co-founder of TechNet. “We look forward to Chairman Genachowski making progress on the key goals of his National Broadband Plan such as additional spectrum for wireless broadband and reforming Universal Service for broadband.”

“Maintaining an Open Internet is critical to our economy’s growth and Chairman Genachowski and his team deserve kudos for their thoughtful leadership,” said John Doerr, Partner at Kleiner Perkins Caufield & Byers and co-founder of TechNet. “This effort is a pragmatic balance of innovation, economic growth and crucial investment in the Internet. We look forward to working with FCC to protect these principles so the Internet grows and thrives for generations to come.”

About TechNet:

TechNet is the national, bipartisan network of CEOs that promotes the growth of technology industries and the economy by building long-term relationships between technology leaders and policymakers and by advocating a targeted policy agenda. TechNet’s members represent more than one million employees in the fields of information technology, biotechnology, e-commerce and finance. TechNet has offices in Washington, DC, Palo Alto, Sacramento, Seattle, Boston and Austin. Web address: www.technet.org. You can also follow us on Facebook and Twitter at @technetupdate.

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For Immediate Release: December 1, 2010

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PRESS RELEASE

Dec. 1, 2010, 4:55 p.m. EST

Statement from Time Warner Cable on the FCC's proposed Net Neutrality Order



NEW YORK, Dec 01, 2010 (BUSINESS WIRE) -- Time Warner Cable has consistently believed that the best way to preserve and enhance the great American success story of the Internet is to ensure that all participants in the Internet ecosystem have the ability and incentive to invest and innovate. We understand that FCC Chairman Genachowski's proposed Order takes steps intended to ensure the continued openness of the Internet, while at the same time affords network providers flexibility to provide subscribers with the best possible experience by appropriately managing their networks for optimum performance. Importantly, we understand that the Order also enables network operators to provide specialized services that we may not even be able to imagine today. The proposal, now under review by the full Commission, appears to strike an appropriate balance between these important objectives, and provided it does, we believe that we can support it. We would like to commend Chairman Genachowski, and everyone at the Commission, who have worked tirelessly to craft what we believe to be a fair resolution to these complex and controversial policy issues. We also want to thank the many Members of Congress who, on a bipartisan basis, urged the Commission to take a less regulatory path in order to ensure that the Internet continues its vibrant growth and development.

SOURCE: Time Warner Cable

Time Warner Cable
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National Medical Association Supportive of Net Neutrality Proposal; Sees Positive Implications for Telehealth

SILVER SPRING, Md., Dec. 1, 2010 /PRNewswire-USNewswire/ -- The Federal Communications Commission (FCC) today released details about its net neutrality proposal to be considered in December.

The following statement is from Leonard Weather, Jr., R.Ph., M.D., President of the National Medical Association (NMA):

"Based on today's announcement by the Federal Communications Commission, the National Medical Association believes the FCC is acting prudently by working to develop a middle ground solution for net neutrality rules applied to the internet, and our organization is encouraged by remarks indicating that the final proposal will steer clear of extreme measures, such as the path of Title II reclassification."

"If approved, a compromise would enable and promote wider adoption of healthcare solutions, services and information through use of the Internet. Such a plan, as outlined today by Chairman Genachowski, would allow for large segments of the African American population to access healthcare solutions via wired and wireless broadband connections, benefiting everyone. Healthcare costs are reduced through such technologies, and new offerings powered by the Internet allow for better monitoring and care of chronic diseases disproportionately impacting the urban and rural communities."

"Reaching agreement on net neutrality would stimulate further investment in telemedicine technologies; bring affordable access to more Americans, and work to eliminate healthcare disparities in underserved communities."

"The NMA views the FCC's announcement today as a path toward carefully consideration to preserve an open Internet, while ensuring access to the many vital benefits offered by broadband."

SOURCE National Medical Association

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[The Perfect, the Good, and the FCC](#)

December 1, 2010 – 8:03 am

It has been a busy week in U.S. communications policy, with an FCC meeting adopting important [spectrum policy reforms](#), an [FCC complaint](#) about Comcast's approval policies for cable modems, and a [dispute](#) between Comcast and Level 3 over fees for Internet backbone traffic. And late last night, it got even more interesting.

FCC Chairman Julius Genachowski [reportedly](#) circulated a draft Open Internet order, to be considered at the FCC's December 21 meeting. According to a statement given to reporters, the order builds on the compromise terms from Congressional negotiations led by Representative Henry Waxman this fall. What does that mean? I'm confident of two things: Hardly anyone will like the proposal; and it's the right thing to do.

Advocates of network neutrality will be disappointed the FCC isn't going forward with "reclassification" of broadband access as a regulated telecommunications service, while many Republicans and network operators will complain about a "power grab" to "regulate the Internet" even after Democratic losses in the midterm elections. Both should put aside their ideologies and look realistically at the situation. Don't let the perfect be the enemy of the good.

If you believe in the need to protect the open Internet, this is the realistic way forward, and it could lay the groundwork for other steps if necessary in the future. If you see network neutrality as a dangerous drag on Internet investment, this is the realistic way to remove that regulatory overhang. Kill this proposal, and it's hard to envision anything but years of further uncertainty, most likely ending with a worse compromise down the road. I don't love it either, but I'm a realist. The fate of network neutrality will hinge not on the FCC's rhetoric, but on its implementation. There can't be implementation without an order. And I can't see any other order making it through in the current environment.

It's important to understand how we got here.

It seems like the network neutrality fight has been going on forever. When I entered academia in 2004, I thought the issues were pretty well developed. Concerns about closed, discriminatory broadband networks, which I and others started writing about [five years earlier](#), were widely recognized. The outcome also seemed pretty clear. Even FCC Chairman Michael Powell, a Republican who favored deregulation of broadband access networks, acknowledged the importance of an open Internet. He gave a speech setting forth four "Internet freedoms" which should be protected to ensure innovation and consumer choice. A year later, the FCC memorialized those

principles in a policy statement, and the Supreme Court ratified the FCC's deregulatory classification of broadband on the theory that it retained the power to act when it found the justification. The only question was how the FCC would actually move forward when issues arose.

Fast forward through five years of loud, contentious fights. We're pretty much still in the same place. The FCC's one attempt to take more specific action, its 2008 order against Comcast's network management practices, was overturned in court earlier this year. This uncertainty benefits no one. It hurts those in favor of network neutrality the most, because companies are moving forward with infrastructure investments and business strategies that become difficult to unwind after the fact. We've already seen exclusive content deals like ESPN3 and TV Anywhere take hold. There are reports of application blocking and other restrictions on wireless networks. And now, Comcast and Level 3 opening up a can of worms in the backbone market. The FCC might find these practices legitimate, but until it's operating under a defined legal and procedural framework, it can't even make that assessment.

The network neutrality battle is frequently posed as a binary choice: inaction or reclassification. In fact, neither is realistic. Concerns about the open Internet won't go away if the FCC does nothing now. Comcast's clumsy 2008 response to peer-to-peer file-sharing traffic won't be the last time a network operator provokes popular and Congressional ire. And broadband will only become more important and economically significant. In other words, network neutrality rules will be on the FCC docket indefinitely, until the agency takes a concrete step forward. Again, I say this with the perspective of someone who has watched this issue now for a dozen years.

On the other side, whatever the merits of the reclassification path, it's not going to happen. There may have been a window of opportunity earlier this year, but it closed. A majority of the members of the House of Representatives signed on to a letter opposing the idea, and one could scarcely create a better issue to draw the united fire of grassroots Tea Party activists, the most powerful bipartisan corporate lobbying interests, and Republicans eager to take down the Obama Administration. I could imagine an FCC Chairman risking everything to push reclassification at any cost, but I can't say I'd recommend that to Chairman Genachowski now. Especially when there's an alternative that achieves the same objectives.

Keep in mind that reclassification itself doesn't make Net neutrality happen, even if the FCC order survives the court challenge. It gives the agency legal authority and a set of precedents, but applying those precedents to contemporary broadband practices will still be a painstaking process. Everyone knows the 1996 Telecommunications Act is outdated in this converged digital era. Anything the FCC does is a necessary stopgap until Congress replaces it, a process likely to take several years. The open Internet is the principle worth fighting for, not a particular legal theory.

While there is no guarantee of success under the approach Chairman Genachowski has chosen either, there is a good legal basis to support it. The Supreme Court in the 2005 *Brand X* case expressly stated that Title I "ancillary authority" gave the FCC some authority to adopt broadband rules. And the court that overturned the FCC's *Comcast* order actually provided a roadmap for a successful do-over, by emphasizing what the Commission failed to argue then. This new approach would parallel what I proposed in a law review article, [Off the Hook](#), published at the beginning of this year. The FCC picked the wrong statutory provision in *Comcast*, and its sloppiness in the proceeding under prior Chairman Kevin Martin undermined its legal case. The current Chairman won't make those mistakes.

It's not the most satisfying solution, but it's the best option today.

Disclosure: I co-led the FCC review for the Obama Administration's Transition Team in 2008, and advised the FCC and National Telecommunications & Information Administration in 2009. My FCC consulting engagement ended before Chairman Genachowski developed the current proposal, and these are entirely my personal views.

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[Wikileaks FAQ](#)

December 7th, 2010 | by mollysauter | Published in [Future of the Internet](#) | [13 Comments](#)

I just finished recording a podcast with Larry Lessig and the Berkman fellows about Wikileaks. It should be online within a day or two. In the meantime, we've been trying to simply nail down some of the facts surrounding the situation. We figured we'd share what we've gathered so far as a FAQ, and we'll update it as we learn more or get corrections. Feel free to leave new questions in the comments and we'll aim to work those in too.

What is Wikileaks?

Wikileaks is a self-described “not-for-profit media organization,” launched in 2006 for the purposes of disseminating original documents from anonymous sources and leakers. Its [website](#) says: “Wikileaks will accept restricted or censored material of political, ethical, diplomatic or historical significance. We do not accept rumor, opinion, other kinds of first hand accounts or material that is publicly available elsewhere.”

More detailed information about the history of the organization can be found on [Wikipedia](#) (with all the caveats that apply to a rapidly-changing Wiki topic). Wikipedia incidentally has nothing to do with Wikileaks — both share the word “Wiki” in the title, but they're not affiliated.

Who is Julian Assange and what is his role in the Wikileaks organization?

[Julian Assange](#) is an Australian citizen who is said to serve as the editor-in-chief and spokesperson for Wikileaks since its founding in 2006. Previously he'd been described as an advisor. Sometimes he is cited as its founder. The media and popular imagination currently equate him with Wikileaks itself, with uncertain accuracy.

In 2006, Assange wrote a [series of essays](#) which have recently been tapped as an explanation of his political philosophy. A close reading of these essays shows that Assange's personal philosophy is in opposition to secrecy-based, authoritarian conspiracy governments, in which category he includes the US government amidst many others not conventionally thought of as authoritarian. Thus, as opposed to espousing a philosophy of radical transparency, Assange is not “[about letting sunlight into the room so much as about throwing grit in the machine.](#)” For further analysis, check out [Aaron Bady](#)'s original blog post.

Why is Wikileaks so much in the public eye right now?

At the end of November 2010, Wikileaks began to slowly release a trove of what it says are 251,287 diplomatic cables acquired from an anonymous source. These documents came on the heels of the release of the “Collateral Murder” video in April, and Afghan and Iraq War Logs in July and October, which totaled 466,743 documents. The combined 718,030 are said to originate from a single source, thought to be U.S. Army intelligence analyst Pfc. [Bradley Manning](#), who was arrested in May 2010, but that’s not confirmed.

Has Wikileaks released classified material in the past?

Yes, under an evolving set of models.

Berkman Fellow [Ethan Zuckerman](#) has some interesting thoughts on the development of Wikileaks and its practices over the years, which will be explained in greater detail when the Berkman Center podcast is released later this week. In the meantime, here’s a capsule version.

Wikileaks has moved through three phases since its founding in 2006. In its first phase, during which it released several substantial troves of documents related to Kenya, Wikileaks operated very much with a standard wiki model: the public readership could actively post and edit materials and had a say in the types of materials that were accepted and how such materials were vetted. The documents released in that first phase were more or less a straight dump to the Web: very little organized redacting occurred on the part of Wikileaks. Wikileaks’ second phase was exemplified with the release of the “Collateral Murder” video in April of 2010. The video was a highly curated, produced and packaged political statement. It was meant to illustrate a political point of view, not merely to inform. The third phase is the one we currently see with the release of the diplomatic cables: Wikileaks working in close conjunction with a select group of news organizations to analyze, redact and release the cables in a curated manner, rather than dumping them on the Internet or using them to illustrate a singular political point of view.

What news organizations have access to the diplomatic cables and how did they get them?

According to the [Associated Press](#), Wikileaks gave four news organizations ([Le Monde](#), [El Pais](#), [The Guardian](#) and [Der Spiegel](#)) all 251,287 classified documents. The Guardian subsequently shared their trove with [The New York Times](#).

So have all 251,287 documents been released to the public?

No. Each of the five news organizations is hosting the text of at least some of the documents in various forms with or without the relevant metadata (country of origin, classification level, reference ID). The Guardian and Der Spiegel have [performed analyses](#) of the metadata of the entire trove, excluding the body text. The Guardian’s analysis is available for download from its [website](#).

Wikileaks itself has released (as of 1:06pm on 7 December 2010) 1095 documents out of the total 251,287. The [Associated Press has reported](#) that Wikileaks is only releasing cables in coordination with the actions of the five selected news organizations. Julian Assange made [similar statements](#) in an interview with Guardian readers on 3 December 2010. Cables are being released daily as the five news organizations publish articles related to the content.

Are each of the five news organizations hosting all the documents that Wikileaks has released?

No. Each of the five news organizations hosts a different selection of the released documents, in different forms, which may or may not overlap. It’s not clear how much they’re coordinating on releasing new documents, since each appears to have a full set.

How are the five news organizations releasing the cables?

Le Monde hosts an application, developed in conjunction with [Linkfluence](#), which host the searchable text of several hundred cables. The text can be searched by the sender (either country of origin, office or official), date range, persons of interest cited in the docs, classification status, or any combination of the above. Only the untranslated, English text of the cables can be accessed and there is no cut-and-paste available.

El Pais offers access to over 200 cables, available in the original English or in Spanish translation, searchable by country of origin and key terms and subjects (such as “Google and China”). These searches also return *El Pais* articles written on a given subject (often places ahead of the cables in the search listings). They also offer a [“How to read a diplomatic cable”](#) feature, explaining what all the abbreviations and and technical verbage mean in plainspeak, posted on 28 November 2010.

The Guardian offers the cable data in several forms: they have performed an analysis of metadata of the entire 251,287 document trove, and made it available in several forms (spread sheets hosted on Google Docs and in downloadable form) as well as infographics.

The Guardian also hosts [at least 422 cables](#) on their website, searchable by subject, originating country and countries referenced.

The New York Times hosts what it calls a

selection of the documents from a cache of a quarter-million confidential American diplomatic cables that WikiLeaks intends to make public starting on Nov. 28. A small number of names and passages in some of the cables have been removed by The New York Times to protect diplomats’ confidential sources, to keep from compromising American intelligence efforts or to protect the privacy of ordinary citizens.

The documents are not searchable and are organized by general subject.

Who is responsible for redacting the documents? What actions did Wikileaks take to ensure that individuals were not put in danger by publication of the documents?

According to the [Associated Press](#) and statements released by [Wikileaks](#) and [Julian Assange](#), Wikileaks is currently relying on the expertise of the five news organizations to redact the cables as they are released, and is following their redactions as it releases the documents on its website. (This cannot be verified without examining the original documents, which we have not done — nor are we linking to them here.) According to the [BBC](#), Julian Assange approached the US State Department for guidance on redacting the documents prior to their release. One can imagine the dilemma for the Department there: assist and risk legitimating the enterprise; don’t assist and risk poor redaction. In a [public letter](#), Harold Koh, legal adviser to the Department of State, declined to assist the organization and demanded the return of the documents.

Are the documents hosted anywhere else on the Internet? What is the “insurance” file?

In late July 2010, Wikileaks [is said to have posted](#) to its Afghan War Logs site and to a torrent site an encrypted file with “insurance” in the name. The file, which apparently can still be found on various peer-to-peer networks, is 1.4 gigabytes and is encrypted with [AES256](#), a very strong encryption standard which would make it virtually impossible to open without the password. What is in the insurance file is not known. It has been [speculated](#) that it contains the unredacted cables provided by the original source(s), as well as other, previously unreleased information held by Wikileaks. There is further speculation, which has been indirectly [boosted](#) by Julian Assange, that the key to the file will be distributed in the event of either the death of Assange or the destruction of Wikileaks as a functioning organization. However, none of these things is known. All that is known for sure is that it’s a really big file with heavy encryption that’s already in a number of people’s hands and floating around for others to get.

What happens if Wikileaks gets shut down? Can it be shut down?

It depends on what's meant by "Wikileaks" and what's meant by "shut down."

Julian Assange has made statements suggesting that if Wikileaks becomes non-functional as an organization then the key to the encrypted "insurance" file will be released. The actual machination of how such a "[dead man's switch](#)" would operate is not known. If the key were released, and if the encrypted insurance file contains unredacted and unreleased secret documents, then those decrypted files would be available to many people nearly instantaneously. Wikileaks [claimed](#) in August that the insurance file had been downloaded over 100,000 times.

Wikileaks apparently maintains a small paid staff — who and where is not exactly on a "people" page, though there used to be a physical PO box in Australia where documents could be sent — and is additionally supported by volunteers, speculated to be at most a few thousand. So, would it be possible for a motivated organization to disrupt its real-world infrastructure? Yes, probably. However, at this point, it is not practical to recover the information the organization has already distributed (which includes the entire trove of diplomatic cables to the press as well as whatever is in the encrypted insurance file), as well as any other undistributed information the organization might seek to release. So in terms of the recovery of leaked information, the downfall of Wikileaks as an organization would matter little.

Furthermore, there appear to be currently over a thousand sites mirroring Wikileaks and its content. Wikileaks has made available downloadable files containing its entire archive of released materials to date.

On a more technical level, the Wikileaks website can come under attack, and its means of collecting money can be made much more difficult.

Why did wikileaks.org stop working as a way to find the site?

For a traditional website to work it will want a domain name like website.com, so people can find it. Those domain names can stop working for any number of reasons. One commonly assumed action for Wikileaks is that ICANN, the Internet Corporation for Assigned Names and Numbers that manages certain top-level protocol and parameter assignments for the Internet, intervened. It did not.

A little technical discussion to explain why: The domain name system ("DNS") is hierarchical, and its zones are exclusive of one another rather than inherited (save for the lateral mirroring among the twelve root zone servers). The root zone orchestrated by ICANN is a very small file — just a mapping between each top-level domain like .org or .ch ("TLD") and the IP address(es) of the servers designated to say more about that TLD (one server, not in ICANN's hands, keeps track of names under .org, one for names under .ch, etc.). You can see a user-friendly version of the file [here](#), with the Swiss name servers described [here](#). The info you see there is what ICANN can directly change — and that only for its own root zone servers (B, L, and sort-of A), hoping to have it mirrored by the others; map below the fold [here](#).

So for those servers, ICANN could all-or-nothing delete .ch, which means for those drawing TLD info from the ICANN roots they'd eventually (depending on caching of previous info) cease finding the nic.ch server(s) in Switzerland through which to resolve any .ch name. But there's no way to express in the TLD zone something like "go to nic.ch for every domain name under .ch except wikileaks.ch." And if .ch were ditched, the mirroring root servers would likely balk at mirroring that elision, and ISPs using B, L, and A to resolve TLDs would just turn to other root zone servers — or hard code in the last known IP address for nic.ch as the place to go for .ch names.

I guess a too-crafty-by-half solution would be to mirror everything in the .ch zone to a new .ch server run by ICANN, then delete wikileaks.ch's info from that server's files, then redirect the root zone to the new server instead of the old. That would work for about five minutes. After that, increasing chaos as Swiss webmasters made changes to their .ch names in the "official" nic.ch registry only to find them not reflected for those users unlucky enough to be rerouted to ICANN's snapshot mirror. At which

point the mirror roots (and the ISPs) awaken to the deception and take action a la the preceding graf.

Note that wikileaks.org went down not because of anything done to its DNS entry within the list kept by the [registry](#)* that minds the list of .org domains. Instead, the name server to which its entry pointed was attacked by unknown parties — DDOS'd — and [EveryDNS](#), the operator of the name server, chose to stop answering queries about wikileaks in the hopes that the DDOS would stop. (Apparently it did.) EveryDNS is not to be confused with [EasyDNS](#), which is a separate company that isn't involved in the situation!

*I'm on the board of Trustees for the non-profit [Internet Society](#), ISOC, which is the parent to the [Public Interest Registry](#), which keeps track of names in .org.

If a domain name doesn't work, a website can try to register and maintain another domain name, or it can just use a direct IP address — a number — to be found. A website also needs hosting, and Wikileaks has apparently had to shift its hosting at least once after being dropped by a chosen provider: Amazon's commodity hosting service [shut down the site](#) for terms of service violations after being contacted by U.S. Senator Joseph Lieberman.

[The FCC tees up net neutrality](#)

December 3rd, 2010 | by jz | Published in [Future of the Internet](#), [Generativity](#), [net neutrality](#) | [3 Comments](#)

A few months ago it looked like there'd be no action on net neutrality in the US by the FCC or Congress. After some momentum gathered during both the Bush and Obama administrations, a federal court ruling had cast doubt on the FCC's ability to regulate in the area, and a rancorous election season suggested this wouldn't find much room within Congress's agenda.

Then in September the FCC announced that its open Internet proceeding was [continuing](#), and yesterday the commission's [agenda](#) for the December meeting suggests a vote in short order.

While the proposed rules are not yet publicly available, reports drawing from the chairman's [speech](#) yesterday and other talk in DC have something modeled on Congressman Henry Waxman's draft legislative [proposal](#). The central plank is that broadband Internet service providers — at least non-wireless ones — must let their subscribers get where they want to go on the Internet. An ISP can't decide, say, that you're not to be allowed to get to facebook.com or that your service package doesn't permit streaming video or Internet telephony, each of which could conceivably compete with other services offered by the ISP, such as regular cable television or phone service.

It's good to have that off the table — it would be awful if ISP's started to do such things, and the prospect isn't as far-fetched as it might seem. An ISP might want to charge Facebook or Vimeo or some other content source for the privilege of reaching the ISP's subscribers, and the most direct way to do that is to threaten to halt the movement of bits from that source until a deal is reached. (This might look something like the recurring fights between the likes of [Cablevision and Fox](#) over showing the World Series, though in that case it was the content provider holding out for payment from the cable company. The risk that eager fans might not get to see baseball resulted in calls for FCC and Congressional intervention.)

With a net neutrality rule in place, if a Web site's bits can't be stopped in the middle just on the basis of where they came from, the ISP can't threaten to come between the site and its users. The market alone may not be able to deal with this in the absence of a net neutrality rule, both because there isn't much competition for broadband at a given location and because it's good for people to have assurances ahead of time that sites they are beginning a relationship with — as they put photos on Flickr or stow mail on Gmail — won't suddenly be pulled out from under them, held ransom to extra payments either from the sites or from them.

The telcos and other ISPs seem reconciled to this prospect, at least for wired networks. Now's the time to lock that in, when such holdups are not central to their business models — not by source, at least — and even application blocking has not historically been a core goal. (To be sure, five years ago at least one U.S. ISP [appeared](#) to be [blocking](#) an Internet telephony service, and it's happened [elsewhere](#) on a larger scale around the world.)

The FCC rules are said to exempt wireless from this mandate, instead simply requiring transparency about what's being blocked. **[Update:** A look at the FCC chairman's [speech](#) suggests there may be more than a transparency requirement for wireless; it mentions a "basic no blocking rule" there too. That would track the [Waxman bill](#) at p. 4 lines 1-7.] My reaction now is the [same as it was](#) when that division between wired and wireless was proposed as part of the Google/Verizon "framework" the two companies released in August. Basically:

Some critics have said: who cares about network neutrality for regular broadband; wireless is the important part.

I'm not so sure. If the framework had said the opposite — Verizon is OK with network neutrality for wireless but not for regular broadband — I can imagine many critics being just as upset, saying that wireless is still ancillary and that full broadband, with consumers' wi-fi attached, is what really matters. I guess they'd say that both matter. I'm skeptical myself of rules that carve a difference between them — one point of the Internet is to be medium-agnostic — but I'm less inclined to find an evil plan lurking in the differentiation. I can see that bandwidth management, at least, can be more crucial for wireless than wired at this stage in its development, and a Verizon might not feel comfortable having to justify any policies in those terms as an exception to a network neutrality rule. I'm less confident that there's robust competition in the wireless Internet space — there are still only a handful of providers, and switching among them is costly.

If a basic net neutrality mandate can be established for broadband — not only formally mandated by law (which includes FCC edict), but accepted as doable by the ISP's — that's good progress, and a metric against which the wireless ISPs will always be measured. Any protestations that they have to discriminate for the network's sake — or for the sake of a business model — will be increasingly belied by their wired counterparts' experiences under no-longer-controversial net neutrality rules. [And if the rule for wireless goes beyond the weak tea of Google/Verizon -- no-blocking as well as transparency -- that much the better.]

Another exception built in is for reasonable network management. Some critics have described this as a hole large enough to drive a truck through. But there has to be some kind of exception. The most obvious example is if a denial-of-service attack is in progress; there an ISP may refuse to carry bits precisely because of the content or purpose of the communication, discriminating by source, and no one would find that unacceptable. Should "reasonable" be stretched too far that could lead to trouble — but the alternative is to try to write down a more detailed set of technical requirements that might become stale very quickly. (I'm also no fan of Internet privacy legislation that makes specific reference, say, to "cookies.") This is exactly what a commission is for: to lay down principles, to stand by them, and then to adjudicate complaints under them with the benefit of transparency about what's going on. The ongoing [Level 3/Comcast dispute](#) is a great example of the utter rabbit hole of complexity — coupled with obscurity — surrounding some disputes over the movement of bits. There's no easy rule I can think of to anticipate it, much less resolve it, today. (And on that example, I hope to be part of a Berkman Center podcast next week exploring the topic as a way of thinking through just how unusual and not-fully-realized the economics of Internet connectivity are.)

Finally there is the question — abstruse to anyone who isn't a student of US telecom law — of whether the FCC should proceed under its "Title I" or "Title II" authority here. You can read some of the details in a guest post by Kevin Werbach at the FCC blog [here](#). Essentially Title I is the weaker brew — so-called "ancillary authority" — and the FCC's use of it to advance the first round of net neutrality rules is what got it into trouble in the federal court ruling mentioned at the beginning of this post. Title II is stronger medicine, representing a claim to be able to more comprehensively regulate in the area, and ISPs have long rued the prospect of a reclassification of Internet services to Title II. I think whatever works ... works. If this can happen with Title I, despite the D.C. Circuit ruling, great. If not — Title II remains a possibility. (Congressional action could clear all this up, of course, but it seems remote that Congress would wade into this once it reconvenes politically divided between House and

Senate.)

I'll read the proposed rules with interest when they're released. In the meantime, the Chairman's speech shows the FCC knows what's at stake and is moving within a field of complex interests and claims to assure an Internet that's not cantonized, and that is open to new applications and content coming from anywhere, not just incumbents.

As part of a panel on net neutrality yesterday at Yale Law School with [Susan Crawford](#), [Dawn Nunziato](#), and [Nick Bramble](#), I've drafted some general thoughts on why net neutrality matters. That should be up on a Yale site next week — I'll link to it or include a copy here once the essays are released.

[The FTC's do-not-track list](#)

December 2nd, 2010 | by jz | Published in [Future of the Internet](#) | [Click to comment](#)

Yesterday the FTC announced a new project to encourage the formation of a “do-not-track” list, where Internet users could opt out of certain kinds of cookie-based Web tracking in one place and for good. The NYT room for debate blog asked for [reactions](#) —

It's amazing to think that the sophistication and intensity of behavioral tracking technologies are primarily for the purpose of targeted advertising: giving dog food ads to dog owners, and homemade veggie burger ads to locavore vegans. All that borderline Orwellian machinery to ... offer us stuff we might actually have interest in purchasing. What's more, if we click on an ad at a favorite Web site, we're sending money to that Web site. The more relevant the ad, the more clicks we make — and the more money we cause to be sent in support of the site we like. So I can see the worry of making opt-out so easy and permanent that people do it without another thought — and then injure the model that's bringing them free content.

This feels different to me than a do-not-call list, which seems like an unambiguously good idea. There I'm opting out of getting bothered by sales calls while I'm eating dinner or reading a book. Those calls weren't underwriting the cost of my food or going to the author of my book. Do-not-track, on the other hand, doesn't opt out of getting ads at all, it just opts out of having them targeted. If do-not-call didn't affect how many calls I got — just whether I was getting pitched stuff I was likely to want — I'm not sure I would care one way or the other. I'd hang up on them all.

Nonetheless I support some sort of global do-not-track system. That's because there are currently no functioning limits on what gets collected and how it is used, and the rise of cookie consortia like Doubleclick means otherwise-unrelated Web sites can all quietly serve as collection points for data about us that gets fed to a central source. If kept for long periods of time and not distilled, that data can prove as revealing about us as, say, our search engine histories. If the data is distilled — say, I'm targeted into old-fashioned advertising categories like “empty nester” or “college wannabe” — I'm much less concerned about its collection in order to better hone my placement.

I'd couple opt-out with some helpful auditing tools. Let people see what's being collected about them and what impact it's having. For example, imagine a browser button that toggles between targeted and not-targeted, flipping back and forth between ads in the same space. Users may quickly get a sense of what they prefer, and if they can be assured that they can wipe everything clean at any time after checking out what's been gathered about them, they might be willing to let the data collection pay out a bit before deciding whether to pull the plug.

The real nightmare scenarios to avoid are not better placed dog food ads. They have to do with varying price or service depending on undisclosed and long-collected behavior cues. Imagine if your wait for a customer service agent — and level of flexibility in making a return on a regrettable product purchase — depended on your overall purchasing (and product return) history across multiple merchants. Or if the price you were quoted (or coupons offered) at Amazon were

a function of how quickly you click to purchase something at Etsy? (Those with known itchy trigger fingers don't get the discount, of course.) Or if your life insurance rates were grounded not just in openly collected facts like a medical checkup, but unexplained variances in what Web sites you elected to visit (backpacked across Europe, did you?). Bottom line: Web surfers get a bad deal right now; information is collected about them all over the place, and used in murky ways. Let's empower them to know what's going on and opt out of practices they don't like, both prospectively and retroactively. Those options can be honed to eliminate abuses while still touting to people the products and services they want — and that fund the free content and services they already enjoy.

[Uniflow is watching](#)

November 30th, 2010 | by Jennifer | Published in [Future of the Internet](#), [censorship](#) | [Click to comment](#)

Several weeks ago, Canon [announced](#) that the latest version of its document management system, Uniflow 5, features a new security tool that allows a company to prevent its employees from printing, scanning, copying or faxing documents that contain keywords such as client or project names. The Uniflow server identifies prohibited keywords, which are designated by a central administrator, and blocks transmission of the offending document.

There are certainly reasons why this feature is worrisome. Uniflow blocks transmission of documents that use specific words, in effect selectively censoring the content of existing documents. In addition to preventing dissemination, Uniflow notifies an administrator, forwards the document at issue, and exposes the infringing employee's identity. These procedures give an employer all the evidence it needs to hold the employee responsible for illicit transmission. Finally, the power imbalance in an employer-employee relationship likely will make the employee overly cautious, in particular if her employer does not disclose the magic keywords that trigger Uniflow's alarm. In order to make sure she avoids disseminating sensitive documents, she may hesitate even when sending files she believes can be shared, because the cost to her if she is mistaken is too high to warrant the risk.

Nevertheless, I can also see Uniflow as an extension of employer email monitoring. Most employers have explicit technology policies that give employees notice that their work email belongs to the employer, who may monitor its contents. Therefore, workers don't have an expectation of privacy in their messages. If employers have a similar disclosure for company documents, Uniflow is simply the mechanism used for such monitoring. While keyword automation can lead to more extensive surveillance by decreasing the time and expense required to keep a close eye on employees, an employer often has good reason to control the dissemination of its sensitive documents. For example, employers should be able to regulate client information, legal advice, and intellectual property to protect against liability or loss of company assets. The documents do, after all, belong to the company. Can preventing circulation of its own speech really be labeled "censorship"? And Uniflow prevents only routine office transmission. A whistleblower, for example, can circumvent the security measure by taking pictures of relevant documents with his smartphone. So while Uniflow instinctively makes me uncomfortable, in general, I don't think its use will lead to untenable outcomes, at least in the workplace. (Use by governments, on the other hand, presents another question — as does government email surveillance.)

Instead, increasingly pervasive distributed surveillance is of [greater concern](#). An employee knows that Uniflow is watching and can either print only documents she knows are keyword-free or avoid scrutiny by not using Canon machines if she thinks she is printing documents with prohibited keywords. In addition, she knows how her employer will use any information that it collects about her copying habits. But individuals often have no control over or even awareness of the personal information distributed observers digitally collect and publicize online. And once it is in the public sphere, they have no control over its use or further dissemination across the Internet. In addition to spreading information online, technology also facilitates sweeping data capture at both endpoints: collecting data to put online and collecting data from online sources. At one end surveillance casts a broad net; on the other it pans for gold.

In the employment context, consider an employee who called in sick to go to a World Series game. MLB [photographed the](#)

[face of every fan](#) at the game and posted the panoramic composite image online (wide net), supported by Facebook Connect. A new [app](#) that runs on Facebook allows users to find photos of themselves and their friends and tag them automatically, so our hapless fan may be outed if one of his friends runs the software and his employer monitors — [directly](#) or [indirectly](#) — social media sites (gold).

The EU is currently grappling with this issue. It is [drafting](#) legislation that would give its citizens a right to remove personal data from websites. But in addition to difficulties enforcing EU law across an international Internet, the DMCA tack hasn't proven a particularly acclaimed copyright protection. While sites might be sympathetic to personal information takedown notices, identifying and contacting the totality of sites that have the data could be problematic. In the book, JZ [proposes](#) an alternative approach: engaging the Internet to disseminate the cure along with the disease by attaching metadata to personal information. Tagging personal information with the individual's request that his data not be posted publicly or copied or searchable (for example) attenuates its spread. In fact, Facebook implemented such an approach with its facial recognition tool. Automatic tagging includes not only the person's name but also the photo preferences he has set up on his Facebook account. So truant employees can control the dissemination of their photos after all. Sometimes you don't need mystery keywords or a centralized security system. All you have to do is ask.

—Jennifer Halbleib

[FOI Topics and Links of the Week](#)

November 29th, 2010 | by Jennifer | Published in [Future of the Internet, news](#) | [Click to comment](#)

[Google calls out Facebook](#). Last month, Facebook [added](#) an information download feature that made users' data portable. But there was one big exception. A user could download any content that he had uploaded or created — photos, wall posts, messages, etc.; however, he could only get a list of his friends, no contact information that would allow him to rebuild his social network easily elsewhere. Effectively, he could now sit alone in a room with all of his data. Google, which has always allowed its users and third parties (with the user's permission) to export contact information, put its foot down last week and changed its terms of service. Now sites have access to Google Contacts only if they are willing to reciprocate. So a user will have to export her contacts herself and then import them into Facebook, perhaps alerting her to Facebook's one-sided policy. While this change promotes fairness and openness in general, it doesn't take into account the possibility that some people use Facebook because it provides both contact with and a degree of separation from those in their social graph. Unlike a Google Contact, which is created when a user emails someone directly, Facebook users may friend people they wouldn't normally give their email addresses or phone numbers to, with the expectation that these friends can't batch download personal contact information. Facebook's policy may be tailored to respect such expectations, instead of being motivated by data protectionism, particularly given hits the company has taken in the past regarding user privacy. But a simple resolution of these conflicting interests — data portability and expectation of privacy — would allow a user to download the contact information of all his friends except those that have designated such information as private. The battles continue [here](#).

[For every smartphone, someone, somewhere has an app kill switch](#). This week, Microsoft discussed the circumstances in which its kill switch could be flipped on the Windows Phone. It emphasized that pre-screening apps and subsequent removal of any remaining risky apps from the Market Place were preferred tools for addressing privacy and security concerns, characterizing the kill switch as a scam in case of impending meltdown.

[i\(Gold\)Bricks](#). An iPhone 3G user has accused Apple of a different type of killing. In a lawsuit filed last week, she alleges that Apple intentionally used the iOS 4 update to debilitate iPhone 3Gs in order to increase sales of the iPhone 4. Part of her claim is based on the charge that Apple didn't allow consumers to revert to a previous version of iOS after experiencing poor iOS 4 performance on an iPhone 3G — at least without voiding the warranty by jailbreaking the phone.

[What are the limits on employee Internet policies?](#) The NLRB is suing a Connecticut company, alleging that the employer

fired one of its workers because she posted a negative comment about her supervisor on her Facebook page from her home computer. According the Legal Times, the NLRB is challenging a provision of the policy that the union says prohibits “depicting the company in any way over the Internet without company permission.” The EMT service contends the woman was fired for “multiple serious issues.”

[A picture is worth a thousand dollars in traffic tickets.](#) Next generation speed cameras not only calculate a driver’s speed, but also check to see if his insurance is current, his seatbelt is on, and he’s keeping a safe distance from the car in front of him. Some jurisdictions are apparently having difficulty making money off their speed cams. Upping the number of violations per picture should help.

[Market Captcha.](#) In the grand capitalist tradition of slapping an ad on any exposed surface, NuCaptcha is selling squiggly commercial space. Website visitors will have to type in a company slogan to proceed. Several prominent companies have signed up. I wonder if sellers of knock-off Rolexes and cheap pharmaceuticals will as well.

—Jennifer Halbleib

[“... helpful to people in relationships where this type of monitoring can be useful.”](#)

October 28th, 2010 | by jz | Published in [Android](#), [Future of the Internet](#), [Generativity](#), [iphone](#) | [4 Comments](#)

The NYT Bits blog [broke the story](#) of an Android app called the “SMS replicator.” This odious piece of spyware is described [here](#); unless it’s a prank, the idea is that a stalker type with momentary access to someone else’s Android phone can install it. It doesn’t show up as an icon, but runs quietly in the background; any text messages are then forwarded to the stalker’s phone too.

Zak Tanjeloff, chief executive of the app’s creator, [DLP Mobile](#), said in a news release: “This app is certainly controversial, but can be helpful to people in relationships where this type of monitoring can be useful.”

Controversial, indeed; I think it’s awful and here I am spreading the word about it.

It was up in the Android app store until the NYT inquiry got it taken down. The company behind it didn’t bother with a counterpart for the iPhone:

Mr. Tanjeloff said in a phone interview that his company had decided to build the SMS application for the Android platform because it would not need to be reviewed before it reached users.

“We can’t build it for the iPhone because it wouldn’t make it past the App Store approval process,” Mr. Tanjeloff said.

Here, then, a certain generative trade-off, one I’ve described more with [viruses and trojans from afar](#) than a fellow phone-user’s malice. With the iPhone, apps like these just aren’t available — at least without the stalker having to jailbreak the targeted iPhone first. On the more generative Android, it’s simply easier for bad stuff to brazenly find its way onto the platform since Google isn’t as obsessed with curating the selection of software for the phone. And with Android, the official apps market isn’t the only source for software — so the banning of SMS Replicator there doesn’t exclude it from the phone; the enterprising stalker can install it from elsewhere.

Such software has been [available for a long time](#) on PCs, and few if any would say that its existence would be reason to upend the generative PC environment. But the competition between Android and iPhone highlights that generativity really does

come with some costs. Should there be a well engineered Android worm that hops from phone to phone — either directly or by going through the SMS or email addressbook of each victim and recommending installation to the next — those costs will be even more drawn into focus, and the temptation may arise quickly to update Android not to be so open — or to exercise a kill switch targeting a particular piece of code.

It suggests the need, at least, for some easy-to-use auditing software for generative (or partially generative) platforms, Android, iPhone, and PC alike, so users can have a sense of what's going on inside the device — and what data is going in and out.

To be sure, the generative dilemma trading off openness and security interests me because it runs so deep. More superficial security problems can happen even on more locked down platforms, such as today's [revelation by Wired](#) that a quick key sequence can apparently bypass an iPhone's four-digit security code. iOS update no doubt soon to follow.

[Systems for managing book reseach chaos](#)

October 18th, 2010 | by mollysauter | Published in [Future of the Internet](#) | [4 Comments](#)

JZ asked for suggestions of good note-managing systems, and here's what y'all said:

“[Scrivener](#) on Mac is awesome.”

“[Zotero](#) add-on for Firefox. Free and syncs across computers.”

“Try [Devon Agent](#) + [Devon Note](#) for research and [Avenir](#) for writing.”

“[Tiddlywiki](#) is the way to go. It is simple, versatile, portable, platform independent and very effective.”

“If on Mac might want to look at Zengobi's [Curio](#).”

“Have you ever tried [Basket](#)?”

“Why don't you give [Diigo](#), [Livebinders](#) or [Evernote](#) a try. We use those for research papers...should work for a book.”

“[Celtx](#) might fit the bill. It is focused on script based projects, but it does have a text editor.”

“Looks like the Scrivener team recommends [PageFour](#) if you don't have a Mac.”

“I use [Ulysses](#) on Mac for keeping notes.”

“I think her name is [Sally](#). Or maybe [Elizabeth Stark](#).” (or [Molly](#)!)

Stay tuned for research and reviews as we prepare to manage the coming storm. If you have any other suggestions or comments, please leave them below.

[FOI Topics and Links of the Week](#)

October 18th, 2010 | by Jennifer | Published in [Android](#), [Facebook](#), [Future of the Internet](#), [Generativity](#), [blackberry](#), [censorship](#), [cybersecurity](#), [iphone](#) | [1 Comment](#)

[T-Mobile gives its G2 Droid amnesia](#). The G2s appearing on T-Mobile shelves this week come with an extra piece of

hardware, and it's not a free car charger. If G2 owners teach their Droids (either by coding or downloading software) to do something that interferes with T-Mobile's business model, the company-installed rootkit will induce short-term memory loss and the smartphone will forget and revert to a more T-Mobile-friendly configuration. The G2 has the [technological capability](#) to run software applications that the [service provider](#) won't allow. In addition, because this time T-Mobile implemented what it's calling a "security measure" at the hardware level, it is more difficult for even techies to circumvent. h/t Tom Glaisyer @ New America Foundation, with a followup [here](#).

[Addressing the zombie invasion.](#) U.S. officials are evaluating an Australian plan that targets the botnet epidemic. In particular, the American government is eyeing provisions that allow an ISP to notify customers with infected computers — since botnets typically run in the background of a user's own applications, often the consumer is unaware that her PC has been taken over — and perhaps even quarantine maliciously co-opted machines by limiting online access. As the FOI book echoed in 2008, such a program [increases security](#) without resorting to perfect enforcement and may also encourage ISPs to provide consumers with tools to disinfect their computers, either as part of the service plan or for an additional fee.

[iOS developer guidelines relaxed enough for torrent apps?](#) Last week Apple approved its first BitTorrent app. But it turns out that Apple didn't intend to allow torrent apps. Instead, the developer avoided the term "torrent client" in the app description, temporarily evading rejection. When Apple became aware of the app's capabilities, it [removed](#) the app from the App Store.

[Android apps share information.](#) A Duke-Penn State-Intel study using the new TaintDroid tool revealed that half of thirty randomly selected popular Android apps send personal information such as location or phone number to ad networks, sometimes with surprising frequency. When an Android owner downloads an app, he or she has to give permission for the app to collect personal information. But from that sole initial disclosure it's usually not clear when information will be accessed and how it will be used. Privacy policies are often unintelligible. Hopefully utilities like TaintDroid will soon be available in downloadable form to allow Android (and [iPhone](#)) owners to monitor in real time what information their apps are accessing.

[Italy demands that Apple remove an offensive app from the App Store.](#) Child pornography? No. Graphic violence? Not so much. Italy is upset that a travel app characterizes the country as the home of the Mafia (also of pizza and scooters). Since Italy knows Apple can remove the app, it may feel entitled to [demand](#) that the company do so whenever Italians' dignity is the least bit bruised. In a walled garden, the country of Da Vinci need not cultivate perspective.

[RIM jumps on the anti-fart app bandwagon.](#) RIM takes the position that apps that keep users coming back and convince them to purchase upgrades or additional content are more valuable to RIM and developers than fart apps. But should the [value](#) of an app be determined ex ante by device-makers or set by user behavior? Good search and rating systems seem like a better way to run an efficient app store — one that allows both apps that provide "ongoing entertainment value" and inexpensive, one-off apps that may serve important, if temporary, functions. (Ever unexpectedly have to entertain a child for an afternoon?) Still, nice of [CompuServe](#) RIM to tell us what we want. Because [listening](#) to users and developers isn't a plan that's going to [work](#).

[Can a wireless provider block texts it doesn't like?](#) New York federal court was presented with that question in a case where T-Mobile blocked all texts from a texting service because one of the service's clients provided information via text on legal marijuana dispensaries in California. Under the recently proposed Google-Verizon net neutrality [principles](#) (analyzed [here](#)), a wireless company would have latitude to discriminate based on the sender, recipient, or content of the message as long as its practice is transparent. But it's hard to see how the discrimination in this case is required because of the "unique technical and operational characteristics of wireless networks." We'll have to wait to see how courts address the issue as the parties have [settled](#) the case. Although the full terms of the agreement weren't disclosed, it "requires T-Mobile to stop blocking the New York-based EZ Texting service's thousands of clients, *if they meet T-Mobile's approval*. The medical-marijuana info service, which used texts to tell its users where the nearest medical-marijuana store was, remains blocked." (emphasis added).

[The future of HR. Social Intelligence](#) will help potential employers determine whether you are a good hire and monitor you (with real-time updates) when you're on the payroll by trolling your [public social network](#) profiles. "[C]ompany spokespeople emphasize liability. What happens if one of your employees freaks out, comes to work and starts threatening coworkers with a

samurai sword? You'll be held responsible because all of the signs of such behavior were clear for all to see on public Facebook pages. That's why you should scan every prospective hire and run continued scans on every existing employee."

[iPhone expression that's more than skin deep](#). Children and adults with disabilities affecting speech are converting their iPhones to alternative communication devices. Smartphone apps that are mobile, easy to use, and even cool give a voice to autistic kids and stroke victims alike.

—Jennifer Halbleib

[Apple opens up?](#)

September 28th, 2010 | by Jennifer | Published in [Future of the Internet](#), [Generativity](#), [iphone](#) | [Click to comment](#)

Earlier this month, Apple [announced](#) changes to its iOS Program License for app developers. This move happened ["suddenly"](#) and was ["surprising"](#) to the tech community. Some e-news sites [speculated](#) that Apple was bowing to FTC pressure; this spring, the agency launched a probe into whether Apple's ban on third-party app development tools constituted an impermissible anti-competitive practice. The new license reflects two main changes for developers: Apple relaxed restrictions it implemented earlier this year on the tools that could be used develop apps, and it published App Store review guidelines to make the app approval process more transparent. We are beginning to see the contours of these new policies as they are put into practice.

Unfailingly quotable Steve Jobs [summed up](#) Apple's position on third-party development tools when the restrictions rolled back this month were originally instituted in April: "We've been there before, and intermediate layers between the platform and the developer ultimately produces sub-standard apps and hinders the progress of the platform." At the time, many Internet news outlets considered the new rules a nativist response to the release of an Adobe cross-platform app development tool, which allows programmers to write apps once using Flash and then create variations for multiple mobile operating systems. Now Adobe's tool and others like it are back in the game. The major remaining restriction, that an app can't download any code, appears legitimately motivated at least in part by security concerns. But Adobe [notes](#) that Flash content in apps or the Safari web browser still is not allowed — developers can create apps with Flash but users can't view Flash video.

Other restrictions imposed by Apple this year limited the analytic information an app could collect when the developer used an advertising network owned by a company that also made a device or an operating system. For example, AdMob is owned by Google, as is Android, so developers using AdMob couldn't access the same information as, say, those using Apple's iAd. Developers use ads to pay for free apps and need analytics to accurately target the ads to users. In an important corollary to loosening restraints on app developers, Apple now seems to [permit](#) unrestricted collection of analytic information by any mobile ad platform. If true, it will allow more mobile ad companies, and Google and AdMob in particular, to compete for app developers in the iPhone market.

Although the review guidelines are behind the iOS developer fee pay wall, they quickly [leaked](#) onto the Web. Apple must still approve every app, but now the company is providing some ex ante guidance for developers. However, the wording of the press release and guidelines is vague and broad, and terms are undefined. What's "amateur"? To qualify as not amateur, does an app either need to look professional or be an idea so cool that Apple doesn't care how polished the app is? The judges at Apple retain substantial discretion in interpreting the guidelines. But now at least their interpretation is confined within more precise parameters than [Steve Job's](#) "porn, malicious, bandwidth hog, illegal, privacy, and unforeseen." The judges are human, so they will make mistakes. But if they're also good judges, their mistakes will be fewer in number, both because they have the guidelines in hand — which may have been true before the guidelines were public — and because developers will work to adhere to the guidelines and avoid the grief of getting rejected. Already, highly anticipated apps like those with Google Voice are being [reinstated](#) under the new regime.

Nevertheless, the powers-that-approve at Apple won't be entirely "good" from the point of view of users, because these judges are never entirely accountable to consumers. In a perfectly free market they would be, but not in a [world](#) of two-year contracts, exclusive service providers, and trapped data. Apple must take into account corporate interests, regulatory concerns, input from their business partners, developer needs, and the like, as well. Not that perfect accountability is necessarily desirable; most U.S. judges are life-tenured, free from the control of the citizenry (mostly). This situation allows them to make decisions for the long-term benefit of society rather than being pressured to give into immediate demands that will cause bigger problems later. But federal judges are insulated from all constituencies, not beholden to several masters. iOS users and the developers that program for them know that Apple takes other considerations into account besides users' first-order best interest. Perhaps Android will challenge Apple's curation with a [search-based](#) approach that relies on users' judgment of what apps they find valuable and what is the [appropriate number](#) of, say, fart apps.

That said, the shift in Apple's policy is reason for optimism. While Apple can change its mind and rescind the changes, as [JZ notes](#), once you crack open a platform, even just a little, it's hard to go back. As soon as users and developers rely on the increased freedom, they will consider it unfair of Apple to backtrack. Perhaps Apple is slowly relinquishing control of the iOS platform. First came the SDK, then more liberal development rules, what's next?

—Jennifer Halbleib

[Shouting fire in a crowded Twitter](#)

September 22nd, 2010 | by jz | Published in [Future of the Internet](#), [cybersecurity](#) | [3 Comments](#)

Tweeting has become a foundational Internet technology. It's not even dependent on the World Wide Web — people can send and receive tweets without having to visit twitter.com. And the act of tweeting isn't even unique to Twitter — many other Internet platforms are seeking to compete by allowing people to "emote" an update to a self-designated group of followers. Thus Facebook has made central its desire to know "what's on your mind," and many other sites are seeking to let people casually share what they're up to, such as users of Google Reader sharing items that they find interesting.

Foundational technologies like this can attract attacks the same way that banks beckoned Willie Sutton: crooks go where the money is. Here the money is people's browsers and PCs; compromise them and you can potentially access their passwords, personal information, and even cause them to pay the attack forward — involuntarily tweeting the next attack vector. With many interlinked users, a vulnerability can be exploited with lightning speed. It's a reminder that a feature we cherish about the Internet and Web — linking disparate people and sites seamlessly together — can also be a problem. Consider a standard Web page at, say, nytimes.com. You're visiting the New York Times, and that's where the page is thought to come from. But in a venerable practice echoed by nearly every other online news and content hub, nytimes.com serves up banner ads from a vendor like doubleclick.net. Your computer visits doubleclick at the instant of rendering the page for you so the an ad can appear in its designated real estate.

In fact, given its popularity as an ad server network, your computer probably visits doubleclick.net more than most any other site — even though you've likely never asked to go there yourself in your Web surfing. Doubleclick in turn gets the ads it runs from its customers: companies who want to sell you something or otherwise try to get to you click on their ads. So: visiting one site actually means you're visiting a third party site, which in turn is getting information from *fourth* parties. Even the most careful site can thus become host to malware, if the ad content is designed to attack your browser, not just appeal to your eyeballs. Just ask the New York Times, [which suffered this problem last fall](#). It's akin to the fact that a hamburger from your favorite fast food outlet contains the meat of 100 cows from three continents. If just one source has E.coli — watch out.

What to do about it? In the short term: backup your data, update those virus definitions, and use an obscure browser, figuring Willie Sutton will go for the big banks over the small savings and loan. Over the longer term, we'll need defense mechanisms that can react as speedily as an attack can hit — at least enough to eliminate its viral quality when passed around through a

platform like Twitter. Ideally those platforms would be distributed rather than orchestrated by a handful of security vendors, so that the ability to block bad code isn't so readily triggered by a single gatekeeper — or a government that can pressure it.

That's because what's true of code is also true of content. Perhaps a deeper lesson of this flash-in-the-pan Twitter pandemic is its suggestion of how quickly a *meme* can spread. Someone tweets a fascinating but false statement and it gets retweeted and retweeted — with no easy way for a correction to chase after it. Once alerted to yesterday's virus problem, Twitter could set up an automated system to look for manifestations of dangerous code in a tweet and squelch it. Should we sleep better or worse with the thought that the same technique could be applied to another kind of clear and present danger: falsehoods designed to wreck a business, ruin a reputation, or incite a panic.

[A shorter version of this entry appears in the NYT's [Room for Debate blog](#).]

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Yesterday the FTC announced a new project to encourage the formation of a "do-not-track" list, where Internet users could opt out of certain kinds of cookie-based Web tracking in one place and for good. The NYT room for debate blog asked for reactions – It's amazing to think that the sophistication and intensity of behavioral [...]

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Several weeks ago, Canon announced that the latest version of its document management system, Uniflow 5, features a new security tool that allows a company to prevent its employees from printing, scanning, copying or faxing documents that contain keywords such as client or project names. The Uniflow server identifies prohibited keywords, which are designated by [...]

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Google calls out Facebook. Last month, Facebook added an information download feature that made users' data portable. But there was one big exception. A user could download any content that he had uploaded or created — photos, wall posts, messages, etc.; however, he could only get a list of his friends, no contact information that [...]

Oct 28, 2010

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The NYT Bits blog broke the story of an Android app called the "SMS replicator." This odious piece of spyware is described here; unless it's a prank, the idea is that a stalker type with momentary access to someone else's Android phone can install it. It doesn't show up as an icon, but runs quietly [...]

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JZ asked for suggestions of good note-managing systems, and here's what y'all said: "Scrivener on Mac is awesome." "Zotero add-on for Firefox. Free and syncs across computers." "Try Devon Agent + Devon Note for research and Avenir for writing." "Tiddlywiki is the way to go. It is simple, versatile, portable, platform independent and very effective." "If [...]"

About Jonathan Zittrain



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