Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services	)	WT Docket No. 09-66

COMMENTS OF AT&T INC.

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Pursuant to the Notice of Inquiry ("*NOI*") released by the Commission on August 27, 2009,[1] AT&T Inc. ("AT&T") submits the following comments.

INTRODUCTION AND SUMMARY

The Commission issued the *NOI* to expand the record developed in this proceeding several months ago, in order "to increase [its] understanding of the various segments that are part of the mobile wireless 'ecosystem'" and "to understand the ways in which competition in the provision of mobile wireless services affects adjacent markets." *NOI* ¶ 7. Just as AT&T's earlier comments demonstrated that competition for mobile wireless services themselves is intense, the same is true of competition for each link in the so-called "mobile 'value chain.'" *Id.* ¶ 9. U.S. wireless consumers enjoy choice at every level, from wireless providers, to service plans, to handsets and other devices, to operating systems, to applications. The U.S. wireless industry is leading the world in the deployment of next-generation broadband wireless networks,

[1] Notice of Inquiry, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless including Commercial Mobile Services,* WT Docket No. 09-66, FCC 09-67 (rel. Aug. 27, 2009) ("*NOI*").

in smartphones and other devices that take advantage of these networks, and in other types of innovation, all of which has propelled massive investment and growth at a time when other industries are struggling to remain afloat. This array of new products and services, in turn, has generated unprecedented and ever increasing usage, necessitating still more network capacity and, hence, still more investment and innovation in network infrastructure.

As explained in detail in AT&T's comments in response to the *Wireless Innovation NOI*,[2] AT&T is at the forefront of this virtuous cycle of innovation and investment that has led to unparalleled and unprecedented competition and choice for consumers. AT&T has made massive investments – in 2008, more than any other public company in America – to deliver consumers next-generation communications services, and much of this investment has focused on wireless services.

Thus, AT&T is expanding the availability and quality of its 3G mobile broadband network, while at the same time investing heavily in 4G Long-Term Evolution ("LTE") technology. With the introduction of the iPhone, AT&T led the smartphone revolution that has given consumers a greater mobile experience than ever before and that is rapidly transforming the industry as well as the lives of Americans of every variety from coast to coast. More recently, AT&T introduced netbooks, which are extending the industry and consumers to yet another frontier, and it continues to pioneer the use of wireless technologies in industries such as health and energy. AT&T now offers consumers more than 100 different devices, and it has been a leader in creating a robust platform for the development of applications for these devices. AT&T also continues to be a leader in traditional wireless services, offering consumers

[2] Notice of Inquiry, *Fostering Innovation and Investment in the Wireless Communications Market; A National Broadband Plan for Our Future*, GN Docket Nos. 09-157, 09-51, FCC 09-66 (rel. Aug. 27, 2009) ("*Wireless Innovation NOI*").

competitive pricing plans and flexible service arrangements. In sum, AT&T's conduct alone is overwhelming proof that there is intense rivalry in the industry, which is forcing carriers to invest, innovate, and respond rapidly to the needs of consumers.

But, of course, the Commission need not and should not look just at AT&T. Over the last two decades, this Commission, marching in lock step with Congress, has taken aggressive steps to ensure a pro-competitive, de-regulatory environment for wireless that has facilitated investment and enabled competitive forces to drive innovation and consumer welfare throughout the entire industry. And the results have been outstanding. Each year since 1993 – since the Commission was first tasked by Congress with reviewing, on an annual basis, "competitive market conditions with respect to commercial mobile services"[3] – the Commission has carefully examined market structure, provider conduct, consumer behavior, and market performance, and each year it has found escalating growth, declining prices, breakneck innovation, ever-increasing capital investment, and enormous contributions to consumer welfare. The record compiled earlier this year in this proceeding, moreover, again demonstrated that in every respect the wireless industry in the United States remains the most competitive segment in the U.S. telecommunications industry and the envy of the world.

Now, the Commission seeks to broaden its inquiry beyond its traditional framework, to investigate not just competition in wireless service itself, but also the conditions in the edge markets (such as devices, operating systems, and applications) that rely on wireless service, as well as in the inputs (such as spectrum and special access) necessary to provide wireless service. This broader review – albeit unnecessary to fulfill the Commission's statutory mandate –

[3] 47 U.S.C. § 332(c)(1)(C).

underscores the vibrantly competitive nature of the wireless industry and highlights the enormous consumer welfare gains that this competition generates.

Most Americans can choose from among at least five facilities-based carriers, and almost all can choose from among at least three. The U.S. wireless industry is the least concentrated of the 26 major industrialized countries that make up the Organization for Economic Co-Operation and Development ("OECD"), and a recent study by the U.K.'s telecommunications regulator, which touts the U.K as the most competitive wireless market in Europe, uses metrics that demonstrate the U.S. is far more competitive. Consumer choice is likewise the defining feature of wireless "edge" markets: U.S. consumers can choose from over 600 handsets from more than 30 manufacturers, from feature phones used primarily for voice and texting, to "qwerty" devices for heavy texting and email, to smartphones for more varied broadband applications. Consumers can pick phones that run the operating system of their choice, and they have access to tens of thousands of applications from a range of "application stores." The volume of applications consumers have downloaded is now counted in the billions.

But these numbers, impressive as they are, tell only part of the story. What is notable about consumer choice in the wireless industry – and what sets it apart from the wireline world – is the degree to which consumers have a choice not only in the devices and services they purchase, but also in the degree to which they can control the applications that run on their devices. With the advent and proliferation of "app stores," consumers now have access to many tens of thousands of wireless applications. To be sure, most app stores screen or certify applications they make available, to ensure quality and protect consumers and networks from applications that might threaten privacy or network security, for example. That model has been extremely successful, as many consumers prefer the choice and convenience it offers, together

with the confidence and security that comes from obtaining applications through a source that has verified their safety and efficiency.

At the same time, those who prefer a different environment – one in which consumers themselves, rather than app store owners, assume responsibility for avoiding potentially harmful apps – have options. Google's popular Android operating system, for example, is avowedly "open": developers can make available any applications at all, and it is up to the users to determine whether they are safe and effective. As Google acknowledges, "not having a pre-approval process can lead to a lot of shoddy and useless applications being passed through,"[4] but that is a risk a customer can choose to take. Likewise, in the recently concluded 700 MHz auction, the Commission – in a rare departure from its long-held policy of licensing spectrum without restrictions, on a flexible-use basis – attached strict conditions to the C block that require the licensee to permit subscribers to attach any device and run any application, thus setting in motion an experiment pursuant to which consumers will be guaranteed additional choices of services and devices with even less manufacturer or network provider management of the applications the customer can run.

It would be a profound mistake, however, to assume that, because some customers may prefer such an environment, all customers do. U.S. wireless penetration exceeds 270 million, and more than 87 percent of the population in this country has a wireless phone. Many of these customers may be technologically sophisticated and eager to take on the challenge of policing the applications they use on their phones. But many others may not be, and still others may lack the time or interest to undertake that role. As it stands today, the wireless industry gives *all* customers a choice: among network providers, among handsets, among operating systems,

[4] *See infra* p. 67.

among applications, and – critically – in the degree to which they assume responsibility for the efficiency, security, and safety of the applications that run on their device.

The customer choice available in wireless today provides the lens through which the Commission should view all issues affecting the industry. The standard measures the Commission has traditionally used to gauge competition – *e.g.*, subscribership, pricing trends, and usage – are still relevant, and, as we detail below, those measures continue to demonstrate fierce competition in the industry. But the facts here establish two additional, critical propositions: Consumers have a broad array of choices in all aspects of their service, and carriers are investing enormous sums to enhance consumer choice still further. Those realities – the consumer choice that characterizes the industry, and the ongoing investment of billions upon billions of dollars even in an economic downturn – cannot be taken for granted. As the Commission undertakes its broader, more comprehensive analysis of the industry, it must be vigilant to ensure that the policies that result from its analysis do not impede consumer choice or diminish carriers' incentives to invest.

* * *

These comments are organized into two parts. Part I highlights the extensive choices available to retail purchasers of wireless service. It begins by describing the competitive indicia the Commission has traditionally used to gauge competition in the wireless industry, and explains that those indicia reveal, yet again, a vibrantly competitive marketplace. Indeed, although it can sometimes get lost in the excitement of smartphones and novel new applications, the data show that many conventional cell phone users – in particular, a large segment of the rapidly increasing number of customers that rely on pre-paid plans – are paying 60 percent less for service than they were just six months ago.

After exploring these and other facts relating to retail wireless service, Part I then addresses the "edge" market segments highlighted in the *NOI* – in particular, the device, operating system, and application market segments – and explains the array of options available to consumers, not just in what devices they use, but also in the degree to which consumers take responsibility for ensuring the safety, reliability, and efficiency of the applications they use on those devices. Part I concludes by discussing the widespread availability of wireless service – including the latest handsets and advanced features and services – in the overwhelming majority of rural areas in the U.S.

In Part II, AT&T addresses the "mobile 'value chain,'" including spectrum and non-spectrum inputs that carriers require to provide service. As to spectrum, AT&T highlights the overarching need to make available more spectrum for wireless use, particularly to meet consumers' ever-increasing appetite for wireless broadband, as well as the importance of licensing that spectrum with limited restrictions and keeping it free from interference. As to non-spectrum inputs, AT&T discusses the explosive growth in competitive wireless backhaul facilities, which should put to rest competitors' claims that special access regulation is necessary to permit competition in wireless (if the explosive competition in wireless service itself has not already done so). Part II also responds to the Commission's request for comment on roaming, explaining that the current roaming regulatory framework – which makes it mandatory in most circumstances to offer automatic roaming for common-carrier services, but allows competition to drive roaming for information services – is amply sufficient to facilitate competition and consumer choice.

I. EACH RETAIL SEGMENT IN THE WIRELESS "ECOSYSTEM" IS CHARACTERIZED BY COMPETITION, CONSUMER CHOICE, AND ROBUST INVESTMENT

The Commission issued its first Wireless Competition report in 1995, at a time when the marketplace was still characterized by Commission-sanctioned duopolies. There were 24 million wireless subscribers nationwide, and the Commission highlighted the service's "ten percent penetration rate," noting that "no one [had] predicted that the service would be as popular as it has become."[5] Cellular phones were large and unwieldy devices that, in limited coverage areas, allowed only basic voice calls and nothing else, and which were pitched primarily as a "business tool."[6]

The wireless industry's extraordinary growth since that point is due to many factors, but one takes precedence above all others: the consistent, bipartisan commitment of this Commission and Congress to put in place a pro-competitive, de-regulatory framework that would create certainty, facilitate investment, and unleash innovation. Thus, in the 1990s, the Commission moved aggressively to transform the industry from one characterized by market-by-market duopoly to one characterized by multiple facilities-based competitors. The Commission licensed multiple carriers in each market,[7] forbore from spectrum ownership limitations,[8] and

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[5] First Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 10 FCC Rcd 8844, ¶ 3 (1995).

[6] *Id.*

[7] *See* William C. Beckwith, *Cutting the Cord: Removing the CMRS Spectrum Cap To Promote Wireless-Landline Convergence and Wireless Alternatives in the Local Loop*, 7 CommLaw Conspectus 369, 371 n.19 (1999) (citing Council of Economic Advisors, *Progress Report: Growth and Competition in U.S. Telecommunications 1993-1998*, at 14 (Feb. 8, 1999) (showing "full-fledged competition" in wireless services as the Commission began to "creat[e] new wireless licensees in U.S. markets")).

[8] *See* Report and Order, *Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting the Cellular*

phased out the requirement to maintain analog network capabilities in light of the competitive state of the industry.[9] The Commission also embraced a policy of flexible, exclusive-use, geographically defined licenses that allowed carriers to choose the business models that would enable them to compete.[10] For its part, Congress preempted state regulation of wireless rates,[11] eliminated the restriction on Bell companies' provisioning of wireless long distance,[12] and authorized the use of competitive bidding for CMRS and other wireless licenses.[13] Through these and other procompetitive steps – many of which are discussed in AT&T's comments in response to the *Wireless Innovation NOI* – the Commission and Congress enabled the emergence of multiple robust, facilities-based providers, and permitted them to compete in a vibrantly competitive environment that *demanded* investment and innovation.

Radiotelephone Service and other Commercial Mobile Radio Services, 17 FCC Rcd 18401, ¶ 47 (2002).

[9] *See id.* ¶ 8 (modifying 47 C.F.R. §§ 22.901 and 22.933 (2000) in light of the "competitive state of mobile telephony").

[10] *See, e.g.*, Report and Order, *Amendment of Parts 2 and 22 of the Commission's Rules To Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service*, 3 FCC Rcd 7033 (1988) (the "Liberalization of Technical and Auxiliary Offerings" Order of 1988).

[11] *See* 47 U.S.C. § 332(c)(3)(A) ("no State or local government shall have any authority to regulate the entry of or the rates charged by any commercial mobile service or any private mobile service").

[12] *Id.* § 271(b)(3), (g)(3) (permitting Bell companies to provide "incidental interLATA services," which include "commercial mobile services").

[13] *See* Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, tit. VI, § 6002(b), 107 Stat. 312, 387-392 (1993); *see id.* 107 Stat. at 389 (the Commission shall "prescribe area designations and bandwidth assignments that promote . . . an equitable distribution of licenses and services among geographic areas" and "investment in and rapid deployment of new technologies and services"), *codified at* 47 U.S.C. § 309(j)(4)(C) (2008).

As we now discuss in detail – and as discussed in the attached declaration of Robert D. Willig[14] – the results speak for themselves. The U.S. wireless industry is the most competitive in the world, and, as a direct result, it is driving innovation and infrastructure investment at a pace that, even a few years ago, would have been unrecognizable.

A. The Wireless Industry As a Whole Is Thriving by Giving Consumers Unparalleled and Unprecedented Choice

The U.S. mobile "ecosystem" is characterized by choice at every level. As noted at the outset, most Americans can choose from among at least five facilities-based carriers and almost all consumers can choose from among at least three or more.[15] New nationwide wireless networks such as Clearwire are being deployed, while many smaller carriers (such as Leap, MetroPCS, and Cellular South) are growing rapidly.[16] Facilities-based wireless carriers have

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[14] *See* Declaration of Robert D. Willig, WT Docket No. 09-66 (FCC filed Sept. 30, 2009) ("Willig Decl.") (attached hereto). Dr. Willig is Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. He was formerly Supervisor in the Economics Research Department of Bell Laboratories. His teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. From 1989 to 1991, Dr. Willig served as Chief Economist in the Antitrust Division of the U.S. Department of Justice, where he led the development of the 1992 Merger Guidelines. Dr. Willig is the author of *Welfare Analysis of Policies Affecting Prices and Products, Contestable Markets and the Theory of Industry Structure* (with William Baumol and John Panzar), and numerous articles, and he has served on the editorial boards of The American Economic Review, The Journal of Industrial Economics, and the MIT Press Series on regulation. Dr. Willig has served as a consultant and advisor for the Federal Trade Commission, the Department of Justice, OECD, the Inter-American Development Bank, the World Bank, and the governments of many nations.

[15] *See* Thirteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services,* 24 FCC Rcd 6185, ¶ 2 (2009) ("*Thirteenth Report*") (more than 95 percent of the U.S. population lives in census blocks with at least three competing mobile operators, and more than 60 percent lives in census blocks with at least five competing providers).

[16] *See, e.g.*, Clearwire News Release, *Clearwire Introduces CLEAR™ 4G WiMAX Internet Service in 10 New Markets* (Sept. 1, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1326282&highlight= (Clearwire currently provides WiMAX service in 14

also voluntarily leased capacity on their networks to a range of Mobile Virtual Network Operators ("MVNOs"), which give consumers additional options by reselling service together with unique content and devices.[17] The U.S. wireless marketplace is the most competitive and least concentrated in the world.[18]

But the choice customers have among wireless providers is only the beginning. Competition among these providers has created a market imperative to differentiate their services, which is manifest, first, in the array of service offerings available for every type of wireless customer. There are prepaid offerings for light cell phone users at one end of the spectrum, unlimited everything (calling, text, data, etc.) plans at the other end of the spectrum,

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markets covering more than 10 million people); Clearwire News Release, *Clearwire Reports Second Quarter 2009 Results* (Aug. 11, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1319733&highlight= (Clearwire plans to extend its network to more than 30 million people in more than 25 markets by the end of 2009, and to 120 million people across 80 markets by the end of 2010); MetroPCS Press Release, *MetroPCS Reports Second Quarter 2009 Results* (Aug. 6, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1317658&highlight= (MetroPCS increased its number of covered POPs by 31 million from 2Q08 to 2Q09); Leap Wireless Press Release, *Leap Reports Nearly 30 Percent Year-Over-Year Improvements in Second Quarter Adjusted OIBDA and Service Revenues* (Aug. 6, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-newsArticle&ID=1318295&highlight= (Leap increased its number of covered POPs by 29 million from 2Q08 to 2Q09); Cellular South News Release, *Cellular South Expands 3G High-Speed Mobile Broadband Data Services Throughout Much of Mississippi Delta Region* (Aug. 4, 2009), https://www.cellularsouth.com/news/2009/20090804.html (Cellular South recently began offering 3G mobile broadband services in 15 counties and 60 cities in the Mississippi Delta as the company continues to expand 3G services across its footprint).

[17] *See Thirteenth Report* ¶¶ 17-18.

[18] *See The United States and World Wireless Markets: Competition and Innovation Are Driving Wireless Value in the U.S.*, at 6, 11 (May 2009) ("*CTIA Study*"), *attached to* Ex Parte Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, RM-11361, GN Docket No. 09-51, WC Docket No. 07-52 (FCC filed May 12, 2009) (the United States wireless marketplace is the least concentrated of the 26 OECD countries tracked by Merrill Lynch).

and countless variation in between.[19] In the last few months alone, a wide number of prepaid plans have been announced that offer unlimited voice and text messaging, plus a significant amount of data usage, for $40-$45 per month – a *60 percent* decrease from the prevailing prices just six months ago.[20] Numerous websites have sprung up to help consumers navigate among the array of service plans and to select the carrier and plan that best meets their needs.[21] And consumers can also choose from a stream of new, innovative service arrangements. In the case of Amazon's Kindle, for example, customers obtain lifetime wireless service for the limited purpose of downloading books, built-in to the price of the hardware and associated content.[22]

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[19] *See, e.g.*, Jason Armstrong et al., Goldman Sachs, *2Q09 Wireless Survey: Phone Subsidies Rise, Prepaid Competition Up*, at 7, Exhibit 7 (June 29, 2009) (comparing examples of low usage, mid usage, and high usage offerings); Phil Cusick et al., Macquarie Research, *Slumdog Millionaires*, at 20 (May 1, 2009) ("Prepaid growth for the industry, in our view, is either at the low-end (very cheap, limited service under US$20/month) or high-end prepaid with unlimited usage for US$40-50/month.").

[20] *See, e.g.*, Craig Moffett et al., BernsteinResearch, *Quick Take – U.S. Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing)*, at 1, 2, Exhibit 1 (Aug. 4, 2009) ("In the just over six months since Sprint cut its *Boost Unlimited* price to $50, prevailing unlimited pre-paid prices have fallen by a staggering 60%." Following Sprint's price cut in January, T-Mobile reduced prices for existing customers of its pre-paid service from $100 to $50; Virgin Mobile reduced its price from $80 to $50; Tracfone introduced a $45 unlimited voice and text plan with 30 MB of data; MetroPCS added features to all of its plans, effectively reducing prices by more than 10 percent; and Leap added unlimited mobile web service to its $40 plan.); Mike McCormack et al., J.P. Morgan, *A New Look at Wireless Subscriber Trends*, at 1 (June 1, 2009) ("We believe customers are finding compelling value in pay-in-advance offerings. Given that the pay-in-advance carriers offer unlimited voice, text, and data functionality for $40-$50 per month, the national carriers are likely to see pressure on their growth and customer base as consumers look to reduce monthly expenses and find competing offers more compelling.").

[21] *See, e.g.*, Wireless Advisor, http://www.wirelessadvisor.com; Wirefly, http://www.wirefly.com; Phone Scoop, http://www.phonescoop.com; LetsTalk, http://www.letstalk.com; AmazonWireless, http://wireless.amazon.com/.

[22] *See* Amazon News Release, *Introducing Kindle DX – Amazon's Large Screen Addition to the Kindle Family of Wireless Reading Devices* (May 6, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1285140&highlight= ("Amazon . . . pays for the wireless connectivity on Kindle . . . so books can be downloaded in less than 60 seconds – with no monthly fees, data plans, or service contracts.").

Likewise, Garmin's state-of-the-art portable navigation device (the nuvi 1690) now comes with two years of 3G service built-in to the price of the device, after which data service is available for $5 per month.[23]

Consumer choice in the industry extends not just to the wireless services they buy and how they pay for them, moreover, but also to the devices they use. Consumers can now choose from more than 600 different types of handsets and wireless devices from more than 30 manufacturers.[24] Here, too, there are devices for every type of customer, from simple handsets with large numeric keypads, to BlackBerries and other types of PDAs with full "qwerty" keyboards that are ideal for heavy texting and e-mail, to smartphones optimized for heavy data usage, to wireless-enabled "netbooks" designed for robust Internet access.[25] And, just as they do with respect to wireless service, consumers can choose not only which handsets they use, but also how to purchase them: whether they are served by a large carrier or a small one – and whether they live in an urban area or a rural one – consumers generally have the option to

[23] *See* AT&T News Release, *Garmin nuvi 1690 and nuLink! To Connect Drivers to Real Time Data Through AT&T Wireless Network* (Sept. 17, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27141.

[24] *See CTIA Study* at 11.

[25] *See, e.g.*, AT&T, *Cell Phones & Devices*, http://www.wireless.att.com/cell-phone-service/cell-phones/index.jsp; Verizon Wireless, *Phones & Accessories*, http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewStoreIndex&lid=//global//phones+and+accessories; Sprint Nextel, *Phones*, http://www.sprint.com/index.html; T-Mobile, *Choose a Phone*, http://www.t-mobile.com/shop/phones/?WT.z_unav=mst_shop_phones; U.S. Cellular, *Phones*, http://www.uscc.com/uscellular/SilverStream/Pages/b_showphone.html; MetroPCS, *Phones: Buy a Phone*, http://www.metropcs.com/shop/phonelist.aspx; Cricket (Leap Wireless), *Phones*, http://www.mycricket.com/cricketphones/.

purchase wireless devices at a subsidized price in exchange for a term plan, or they can eschew a commitment and pay the full retail price.[26]

Consumers also have the ability to use their wireless services and devices to access a vast and rapidly increasing array of content from a wide variety of sources. Here, again, the operative concept is choice. Consumers can choose to access content on the Internet, they can download applications from one of the rapidly proliferating mobile application stores now available, or they can obtain proprietary content from their wireless service provider or device supplier. Indeed, as highlighted at the outset, consumers even have a choice in the degree to which they manage the operating systems and associated applications that run on their devices. Customers who wish to take responsibility for the efficiency and security risks inherent in downloading apps can choose a device that runs Google's Android operating system and, therefore, that runs any of the multitude of applications that have been developed for Android's "open source" platform. Consumers can also obtain a laptop card and connect to the Internet over a wireless connection just as they do with their home computer using a broadband connection. And, in the future, consumers will also be able to choose a service that runs on Verizon's 700 MHz C block spectrum, to which the Commission attached "open access" conditions that go beyond the requirements applicable to licensees of any other Commission-licensed spectrum and that were intended to permit the Commission to "observe the real-world effects" of such unprecedented

[26] *See, e.g.*, Mike McCormack et al., J.P. Morgan, *A New Look at Wireless Subscriber Trends*, at 2, Table 1 (June 1, 2009) (comparing postpaid, prepaid, and pay-in-advance plans); AT&T Wireless, *Shopping Online – Top Questions and Answers*, http://www.wireless.att.com/learn/basics/shopping-faqs.jsp#106 (AT&T's "no-commitment pricing" does not require a two-year contract or other long-term service commitment, and is available to customers that are not on a prepaid or GoPhone plan); *supra* note 74.

regulation.[27] By contrast, customers who prefer the confidence that comes from knowing applications have been reviewed for compatibility and security can choose the iPhone, a BlackBerry device (such as the Storm, Tour, or Bold models), or the Palm Pre. A wide variety of business models have thus evolved – and are continuing to evolve – to meet consumer demand for innovative new services, from the strict open source model required by the 700 MHz C block spectrum, to the Google Android model, to the slightly more protected environment of Apple's iPhone, to special-purpose devices such as Amazon's Kindle.

The choices the industry provides to customers have enabled wireless to thrive and to become a major engine of growth and investment for the U.S. economy as a whole. The industry has succeeded in making wireless services of every variety available and affordable to all Americans, which has in turn propelled rapid increases in subscribers and usage and thus enabled carriers to invest heavily to provide even greater choice. In the midst of the most severe economic downturn since the Great Depression, the four national carriers have continued to invest heavily in their networks. U.S. wireless carriers spent $20.17 billion in capital expenditures in 2008,[28] and the major wireless providers are on track to invest the same amount in 2009, if not more.[29] Moreover, investment by new entrants, such as Clearwire, and smaller

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[27] Second Report and Order, *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, 22 FCC Rcd 15289, ¶ 205 (2007) ("*Second Report and Order*"); *see also* Comments of AT&T Inc., at 115-17, *Fostering Innovation and Investment in the Wireless Communications Market; A National Broadband Plan for Our Future*, GN Docket Nos. 09-157, 09-51 (FCC filed Sept. 30, 2009) ("*AT&T Wireless Innovation NOI Comments*") (discussing C block requirements).

[28] *See* Comments of CTIA – The Wireless Association, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 12-13 (FCC filed Aug. 31, 2009) (this investment yields "a total cumulative capital expenditure in operational systems of more than $90 billion over the last four years (not including the billions of dollars paid to the federal treasury for spectrum, or investment in pre-operational systems)").

[29] *See, e.g.*, Simon Flannery et al., Morgan Stanley, *2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 87, Exhibit 132 (Aug. 31, 2009) (comparing

carriers, such as Leap and MetroPCS, are at record levels, expected to reach more than $20 billion this year.[30] The wireless industry has thus been one of the few engines of investment, growth, and stability in a U.S. economy that has otherwise been battered by recession.

And the industry is poised to continue that role. AT&T, which has already deployed its 3G mobile broadband network to 350 U.S. major metropolitan areas, will add about 20 additional metro areas later this year; it is also devoting more spectrum to this network and upgrading it to HSPA 7.2 technology.[31] That is so even as AT&T continues its plans to deploy LTE, with trials scheduled for 2010 and deployment expected to begin in 2011.[32] Verizon's 3G network covers approximately 95 percent of the U.S. population,[33] and Verizon is now in the

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estimated 2009 capex for Verizon Wireless, AT&T, Sprint, and T-Mobile of $19.0 billion with 2008 capex of $18.7 billion); David Barden et al., Bank of America/Merrill Lynch, *2Q09 Telecom Results Heads Up and Model Handbook*, at 28 (July 17, 2009) ("We project an increase of 1.6% YoY in aggregate wireless capex for 2009. . . . In aggregate, after a 5.4% increase in 2008 to $20.6 billion, we forecast 2009 spending of $20.9 billion . . . driven by increases from Clearwire, Verizon, and AT&T."); Phil Cusick et al., Macquarie Research, *Follow the Money: 2Q Telco and Cable Capex Preview*, at 1 (July 23, 2009) ("We believe the major carriers will maintain or increase their capex budgets for 2009.").

[30] *See* David Barden et al., Bank of America/Merrill Lynch, *2Q09 Telecom Results Heads Up and Model Handbook*, at 28 (July 17, 2009).

[31] *See* AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835; AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068. AT&T plans to deploy HSPA 7.2 in 25 of the nation's 30 largest markets by the end of 2010, and to reach approximately 90 percent of its existing 3G network footprint with HSPA 7.2 by the end of 2011. *See* AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068.

[32] *See* AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835.

[33] *See* Verizon Wireless, *Network Facts*, http://aboutus.vzw.com/bestnetwork/network_facts.html (Verizon Wireless's 3G network covers 284 million people following the Alltel acquisition – more than 98 percent of Americans covered by Verizon Wireless's network).

process of upgrading to LTE technology.[34] Sprint is already replacing its current 3G network with its next-generation wireless network (using WiMAX technology), and Sprint expects to expand this next-generation coverage significantly.[35]

Smaller carriers are likewise expanding their broadband wireless footprint: U.S. Cellular's 3G network covers 40 percent of its customer base, including in "many unserved and underserved areas," and it plans to more than double that number by the end of this year;[36] U.S. Cellular also expects to conduct field trials of LTE technology in 2009 and 2010.[37] MetroPCS has announced that it too will deploy LTE technology, with a target of the second half of 2010.[38] Leap already operates a 3G network and expects to undertake LTE trials in late 2009 and 2010.[39]

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[34] *See* Verizon Wireless News Release, *Verizon Wireless Updates Specifications for 4G LTE 700 MHz Devices* (Aug. 21, 2009), http://news.vzw.com/news/2009/08/pr2009-08-21.html ("Verizon Wireless expects to commercially launch its LTE 4G network in up to 30 markets in 2010, covering 100 million people. In subsequent years, an equally aggressive growth plan will result in full nationwide coverage in 2013. The company's LTE network will ultimately connect a full range of electronics devices and machines.").

[35] *See* Sprint News Release, *Sprint's Now Network Powers Palm Pre Success* (June 11, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1298492&highlight=.

[36] *See* U.S. Cellular Press Release, *U.S. Cellular Reports Second Quarter Results* (Aug. 6, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=106793&p=irol-newsArticle&ID=1317829&highlight=; U.S. Cellular, *Expanding Wireless Broadband Wireless Services and Increasing Wireless Competition* (Sept. 8, 2009), attached to Letter from W. Lavey, Counsel of USCC, to M. Dortch, FCC, Docket Nos. 09-51 et al. (filed Sept. 9, 2009).

[37] *See* U.S. Cellular and TDS Presentation at the Kaufman Bros. 12th Annual Investor Conference at 18 (Sept. 10, 2009), http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTUyNjh8Q2hpbGRJRD0tMXxUeXBlPTM=&t=1.

[38] *See, e.g.*, MetroPCS Press Release, *Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch* (Sept. 15, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight=.

[39] *See* David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to $28*, at 6 (Aug. 7, 2009).

Cox too is building its own 3G wireless network and plans to test LTE technology.[40] Cincinnati Bell launched its 3G service in the fourth quarter of 2008.[41] Cellular South's 3G service is available in areas that reach two-thirds of the people in Mississippi, in 29 of the state's 30 largest cities, and the company continues to upgrade its network.[42] These carriers – and many others[43] – are thus standing right alongside the national carriers in investing in next-generation networks capable of meeting consumers' wireless broadband needs.

These network initiatives represent billions upon billions in capital investment and untold thousands of jobs – investment and jobs that are direct evidence of the robust competition that characterizes the industry, and that represent one of the few economic bright spots in a time when capital spending has plummeted and jobs continue to decline.

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[40] *See* Cox Press Release, *Cox To Launch Next Generation Bundle with Wireless in 2009* (Oct. 27, 2008), http://cox.mediaroom.com/index.php?s=43&item=19.

[41] Cincinnati Bell Inc., Form 10-K, at 5 (SEC filed Feb. 26, 2009).

[42] *See* Cellular South News Release, *Cellular South Expands 3G High-Speed Mobile Broadband Data Services Throughout Much of Mississippi Delta Region* (Aug. 4, 2009), https://www.cellularsouth.com/news/2009/20090804.html.

[43] Stelera Wireless offers wireless broadband service in south Texas using HSPA technology, and plans to offer service in 55 cities by the end of 2009 and to continue to build out its network in 2010. *See* Stelera Wireless Press Release, *Stelera Wireless Launches Wireless Broadband Network; Cutting Edge Internet Services Launched in South Texas* (Mar. 23, 2009), http://dev.stelerawireless.com/Portals/0/docs/National%20STX%20Press%20Release.docx. nTelos Wireless, which provides service in Virginia and West Virginia, has upgraded 86 percent of its cell sites to EV-DO. nTelos Holdings Corp., Form 10-Q (SEC filed Aug. 6, 2009) (upgrades as of June 30, 2009); *see also* nTelos Press Release, *nTelos Completes $46 Million Upgrade to 3G Network* (July 8, 2009), http://www.ir-site.com/images/library/ntelos/07-08-09.html (nTelos completed EV-DO upgrades in Richmond and Hampton Roads, Virginia). Appalachian Wireless, which serves 20 counties in eastern Kentucky and western Virginia, also offers EV-DO service. *See* Appalachian Wireless, http://www.appalachianwireless.com/. And Mobi PCS operates a statewide 3G network in Hawaii. *See* Mobi PCS Press Release, *Coral Wireless dba Mobi PCS Joins Associated Carrier Group* (July 20, 2009), http://www.mobipcs.com/releases/20090720.php.

B. Every Consumer Segment Is Characterized by Robust Competition

The Commission's statutory mandate in this proceeding is to "review competitive market conditions with respect to commercial mobile services," including "an analysis of whether . . . there is effective competition" among providers of such services.[44] As noted at the outset, the Commission has historically fulfilled that mandate by examining established and widely accepted indicators of effective competition: market structure, provider conduct, consumer behavior, and market performance.[45] This "structure-conduct-performance" framework has resulted in extensive, thorough reports that have uniformly established that the wireless marketplace is characterized by "effective competition" under any reasonable understanding of that term.[46]

The Commission's established framework continues to capture the most relevant measures for fulfilling the Commission's statutory mandate. Indeed, when the Commission asked earlier this year whether it should modify its analytical framework for assessing competition in the wireless industry, the overwhelming majority of commenters said "no." That

[44] 47 U.S.C. § 332(c)(1)(C).

[45] *See, e.g., Thirteenth Report* ¶ 5; Ninth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 19 FCC Rcd 20597, ¶¶ 8, 17 (2004) ("*Ninth Report*").

[46] *Thirteenth Report* ¶ 274; Twelfth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 23 FCC Rcd 2241, ¶ 293 (2008) ("*Twelfth Report*"); Eleventh Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 21 FCC Rcd 10947, ¶ 216 (2006) ("*Eleventh Report*"); Tenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 20 FCC Rcd 15908, ¶ 207 (2005) ("*Tenth Report*"); *Ninth Report* ¶ 225; Eighth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 18 FCC Rcd 14783, ¶ 220 (2003) ("*Eighth Report*").

broad consensus reflects the fact that the Commission's structure-conduct-performance framework addresses the full range of economic indicators that economists review to assess the performance of an industry. The Commission has elsewhere defined "[e]ffective competition" to "mean[] competition among service providers in a market that benefits consumers by expanding service offerings, promoting development of innovative technology, and lowering prices."[47] By asking (1) whether the market is structured to permit entry and competition; (2) whether providers are competing on the merits in order to attract and retain customers; (3) whether consumers are adequately informed and able to switch among providers; and (4) whether the industry as a whole exhibits the hallmarks of competition (such as competition on price, expansion of output, and improvement of service quality), the Commission's established framework tracks that definition and enables collection of the data necessary to meet its statutory mandate.

The *NOI* nevertheless proposes to broaden the Commission's inquiry to analyze competition not just in the provision of wireless service, but across the "entire mobile wireless market ecosystem." *NOI* ¶ 14. The Commission thus proposes to investigate competition for additional market segments that make up the "the entire mobile 'value chain'" (*NOI* ¶ 9), including devices and other "edge markets" such as operating systems, applications, and content. This expanded inquiry will only confirm the dynamic competition and unparalleled consumer choice that characterize the market today.

[47] Report and Order, *Market Entry and Regulation of Foreign-Affiliated Entities*, 11 FCC Rcd 3873, ¶ 1 (1995); *see* Public Notice, *Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition*, 24 FCC Rcd 5618, 5620 (2009).

1. Retail Service Market Segments Are Highly Competitive

The Commission seeks comment, first, on "the forces that drive adoption and demand" of mobile wireless services, including identification of "the different consumer market segments that [the Commission] should analyze to assess the effectiveness of these competitive forces." *NOI* ¶ 13.

Although the Commission will find extensive competition for every market segment, it is important that it not draw artificial distinctions that do not reflect the way wireless services are purchased, sold, and used. Many consumers use their wireless services and devices for both voice and data – not just as part of the same plan but as part of the same communication (as when a customer elects not to leave a voicemail and sends a text instead, or sends a text or e-mail instead of making a call in the first place). That trend will only continue, as advances in network innovation permit consumers to email, text, browse the web, or even share live video from their location while simultaneously holding a voice conversation using the same device. In view of these marketplace realities, it makes little sense to define and investigate "voice" and "data" as separate markets. The same is true for "consumer" and "business" segments: many customers use a single device for their personal and professional communications, thus compromising any effort to subdivide the wireless market into distinct customer segments. And "prepaid" and "postpaid" refer, not to separate products, but rather to separate ways of paying for the same product – indeed, analysts have highlighted that the recent price war among prepaid providers "is increasingly cannibalizing the lower end of the postpaid market" and "could lead to pricing pressure in the postpaid market over time."[48]

[48] John Hodulik et al., UBS, *Data Pricing Is the Linchpin*, at 6 (June 22, 2009).

But however the Commission chooses to analyze the retail market segment – whether as an undifferentiated whole or as the sum of a variety of service offerings each viewed in isolation – all of the data, related to every conceivable service offering and measured by any conceivable metric, demonstrates effective competition.

Multiple Providers. First, as noted above, the wireless marketplace today includes four national wireless carriers, three large regional providers, and dozens of smaller providers. In addition, there are dozens of MVNOs that obtain capacity from facilities-based providers and use it to compete against them (and each other). These wireless carriers compete directly with each other in every respect – they provide broad geographic coverage (using a combination of their own facilities, resale, and roaming arrangements), a range of services (including wireless, texting, and broadband), and a range of devices (including handsets, smartphones, and netbooks). No single wireless carrier has anything approaching a dominant market share. From the perspective of Wall Street analysts, the wireless industry is *too* competitive – the large number of players has led to fierce price wars, and in turn to shrinking average revenue and profits, which is unattractive from a shareholder perspective, though obviously very favorable for consumers.[49]

[49] *See, e.g.*, Craig Moffett et al., Bernstein Research, *Quick Take – U.S. Wireless: Sifting Through the Wreckage . . . A Q2 Scorecard*, at 2 (Aug. 6, 2009) (noting that price wars "leave[] the Wireless industry in a quandary," where "[s]ubsidies are rising rapidly" and "[m]argins would appear at risk."); Craig Moffett et al., BernsteinResearch, *Sprint (S) and T-Mobile USA (DTE): Finally Some Good News in U.S. Wireless . . . Winners and Losers from a Possible Deal*, at 1 (Sept. 14, 2009) (noting "[t]he U.S. Wireless market is crying out for consolidation," and "[t]he problem, put simply, is that there are too many cooks in the kitchen. In most markets, there are as many as seven different price actors."); Mike McCormack et al., J.P. Morgan, *Telecom Buzz: A New Look at Wireless Subscriber Trends*, at 1, 5 (June 1, 2009) (suggesting "[t]he proliferation of Leap and [MetroPCS] is taxing the competitiveness of the industry, mitigating the benefits of consolidation reaped over the last half decade. . . . [C]onsumers now have a half dozen or more carriers to choose from when selecting a wireless provider. The abundance of service providers is somewhat reminiscent of the early part of the decade," and consolidation may "help stabilize the industry").

The large number of U.S. wireless carriers also compares favorably to market structures abroad. As a recent study found, the U.S. wireless industry is the least concentrated of the 26 major industrialized countries that make up the OECD.[50] Another recent study by Ofcom, the regulatory agency in the United Kingdom, found the U.K. to be the most competitive wireless market in Europe,[51] and, by the standards employed in reaching that conclusion, the U.S. wireless market is even more competitive and less concentrated: In the U.K., even prior to the recently announced merger between the third and fourth largest wireless carriers (O2 and T-Mobile), the top four wireless carriers serve 93.5 percent of the market, and the top five serve 100 percent; in the U.S., the top four wireless carriers served 85 percent of the market as of the end of 2008, and the top five served less than 90 percent.[52]

If anything, moreover, the concentration levels in the United States understate the degree of competition in wireless. To the extent it is relevant at all, concentration matters because it provides a shorthand mechanism for assessing the likelihood of coordinated behavior.[53] In the U.S. wireless industry, however, the range of available products and service bundles (*e.g.*, voice, texting, Internet, email, music, video, GPS), coupled with the variation in providers' pricing

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[50] *See CTIA Study* at 6 (the United States wireless marketplace is the least concentrated of the 26 OECD countries tracked by Merrill Lynch, citing Merrill Lynch, *Global Wireless Matrix 4Q08*; the four OECD countries not tracked by Merrill Lynch are Iceland, Ireland, Luxembourg, and the Slovak Republic).

[51] *See* Ofcom News Release, *Ofcom Pledges Further Consumer Protection for Mobile Users and Publishes 3G Mobile Coverage Maps for the First Time* (July 8, 2009), http://www.ofcom.org.uk/media/news/2009/07/nr_20090708 ("The UK has the most competitive mobile industry in Europe with five mobile network operators."); *see also* U.K. Office of Communications (Ofcom), *Mostly Mobile: Ofcom's Mobile Sector Assessment, Second Consultation* (July 8, 2009), http://www.ofcom.org.uk/consult/condocs/msa/msa.pdf.

[52] *See* Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, WT Docket No. 09-66, at 2 (Sept. 10, 2009).

[53] *See, e.g., Thirteenth Report* ¶¶ 29, 63; DOJ/FTC Horizontal Merger Guidelines § 2.1, *available at* http://www.usdoj.gov/atr/public/guidelines/hmg.htm#21.

strategies (*e.g.*, rollover minutes, free night and weekend calling, free in-network calling, and handset subsidies) and handset offerings, precludes any serious risk that carriers could or would coordinate the prices, terms or conditions of service. And even if that were not the case, any such coordination would quickly break down, as the pace of innovation and the speed with which providers alter their terms and offerings would render it next to impossible to maintain any sort of coordination strategy.

What is more, concentration figures in the wireless industry reflect static market share, not the dynamic rate at which competition is occurring today. The Commission has thus previously focused on flow shares – *i.e.*, "a carrier's percentage of the total number of customers or revenues gained by the various carriers in a certain time period, as opposed to its percentage of the total number of current customers or revenues."[54] Wireless industry flow shares show a dramatic rise in competition, particularly from relatively new entrants (such as Leap and MetroPCS) who focus on offering pre-paid wireless services. For example, Morgan Stanley notes that prepaid plans accounted for the majority of wireless net subscriber adds for the last three consecutive quarters, with an aggregate 61 percent of net adds opting for a prepaid plan during this time.[55] Goldman Sachs projects that "prepaid subscriber additions will represent 33% of total industry net additions over the course of 2010."[56]

Any measure of concentration in the wireless industry – whether it is based on static market share or flow share – also fails to take due account of the degree to which wireline

[54] Memorandum Opinion and Order, *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent To Transfer Control*, 19 FCC Rcd 21522, ¶ 97 (2004); *see id*. ¶ 99.

[55] *See* Simon Flannery et al., Morgan Stanley, *2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 58, Exhibit 81 (Aug. 31, 2009).

[56] Jason Armstrong et al., Goldman Sachs, *Combining Telco/Cable*, at 21 (Sept. 8, 2009).

technologies provide competitive constraints on wireless carriers. Although more than 20 percent of U.S. households have "unplugged" their wireline phones, in the balance – nearly 80 percent of U.S. households[57] – consumers must still decide whether to use wireless or wired technology when making a call from their home. At the same time, customers in the U.S. are increasingly relying on wireless broadband for email, web surfing, social networking, e-commerce, and other functions that have historically been available only from wireline broadband services. The growing use of wireless broadband services is further enhanced by the availability of more than 65,000 Wi-Fi hotspots, from AT&T and others, across the country.[58] As these trends continue and accelerate – and as broadband services play an increasingly prominent role in the wireless industry – the availability of wireline broadband services must be recognized as a significant competitive constraint on wireless providers.

Entry. Marketplace evidence also demonstrates that new entry into retail wireless service is not merely feasible (which in itself would be competitively significant), but indeed likely and already occurring. Clearwire, cable companies, and other new providers have entered wireless services markets in recent years, and existing carriers continue to expand their footprints, service offerings, and reliability.[59] Even small entrants, moreover, can be successful. Virgin Mobile

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[57] *See* Stephen J. Blumberg & Julian V. Luke, Div. of Health Interview Statistics, Nat'l Ctr. for Health Statistics, Centers for Disease Control and Prevention, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2008*, at 1 (May 6, 2009) (statistics as of December 2008).

[58] *See* JiWire, *Wi-Fi Hotspot Directory*, http://www.jiwire.com/hotspot-hot-spot-directory-browse-by-country.htm (67,718 Wi-Fi hotspots in the U.S. as of September 10, 2009).

[59] *See* Cox News Release, *Cox To Launch Next Generation Bundle with Wireless in 2009* (Oct. 27, 2008), http://cox.mediaroom.com/index.php?s=43&item=19 ("As wireless communications enters the new generation, we are uniquely positioned to deliver the entertainment and communications services our customers want, whenever, however and wherever they want them."); Clearwire News Release, *Clearwire Reports Third Quarter 2008 Results* (Nov. 10, 2008), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1224458&highlight= ("We were very gratified when last week the FCC

went from no customers to being a major carrier with five million customers in just a few short years, and MetroPCS and Leap Wireless have been the fastest growing carriers in the nation.[60] MetroPCS, for example, reports that its customer base has grown more than 20 percent each quarter since 2007, and that it surged 36 percent in the past year; MetroPCS now serves more than 6.2 million customers.[61]

The prospects of these new entrants, moreover, are bright. For one thing, Leap and MetroPCS users incur more than twice the number of minutes of use as the average customer of the four national providers,[62] a fact which confirms that they are "ideally positioned to benefit from rising wireless substitution in 2009."[63] That substitution trend is likely to accelerate: Merrill Lynch "expect[s] the lower rungs of the national carrier post-paid contract base will

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announced unanimous approval of our pending transaction to combine Clearwire with Sprint's WiMAX business . . . . [W]e believe Clearwire will be set to unleash a new way to Internet by offering a true mobile broadband experience for our customers."); Comcast Press Release, *Comcast Begins National Rollout of High-Speed Wireless Data Service* (June 29, 2009), http://www.comcast.com/About/PressRelease/PressReleaseDetail.ashx?PRID=887 (in June 2009, Comcast began offering wireless data service using data cards over Clearwire's 4G and Sprint's 3G networks).

[60] *See, e.g.*, Virgin Mobile News Release, *Virgin Mobile USA Reports $98 Million in Adjusted EBITDA Excluding Transition and Restructuring Expenses for the First Six Months of 2009* (Aug. 10, 2009), http://virginmobileusa.marketwire.com/easyir/customrel.do?easyirid=13135DE328B72AB2&version=live&prid=526072&releasejsp=custom_124 (5 million customers as of the end of 2Q09); Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 36 (June 25, 2009) (in the second quarter of 2009, "subscriber growth decelerated [year-over-year] and [quarter-over-quarter] at all four national carriers, but accelerated at Leap and MetroPCS, (with growth at 40% and 37% respectively)").

[61] *See* Dianne Morrison, *Regional Carrier MetroPCS To Stay Independent*, moconews.net, (May 18, 2009), http://www.mocoNews.net/entry/419-regional-carrier-metropcs-to-stay-independent; MetroPCS Communications, Inc., Form 8-K, Exh. 99.1 (SEC filed Aug. 6, 2009) (stating MetroPCS has "approximately 6.3 million subscribers").

[62] *See* Simon Flannery et al., Morgan Stanley, *2Q Trend Tracker: Attractive Valuations & Share Shifts Favor the Bells*, at 53, Exhibit 72 (Aug. 31, 2009)

[63] Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 36 (June 25, 2009).

migrate to more flexible pre-pay options in a belt-tightening environment, and we have already seen net adds shift sharply towards pre-pay in recent quarters."[64] Prepaid providers including Leap and MetroPCS have thus "hit niches that are expanding the wireless market."[65]

Although these new entrants are thus poised to capitalize on the trends toward wireless substitution and prepaid plans, they are not limiting themselves to that market niche. Like the national providers, these carriers are investing heavily in next-generation networks that will permit them to offer robust broadband services. As explained above, Leap, which already operates a 3G network, expects to have its first operational LTE trial system in late 2009, and is considering launching a trial market in 2010.[66] U.S. Cellular has deployed a 3G network that will reach 70 percent of its customers by the end of 2009, and the company will conduct field trials of LTE technology in 2009 and 2010.[67] MetroPCS plans to deploy LTE technology in the second half of 2010.[68] These providers – and the other smaller carriers whose next generation

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[64] *Id.*

[65] Jason Armstrong et al., Goldman Sachs, *Combining Telco/Cable*, at 21 (Sept. 8, 2009) (estimating that "prepaid subscriber additions will represent 33% of total industry net additions over the course of 2010").

[66] *See* David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to $28*, at 6 (Aug. 7, 2009).

[67] U.S. Cellular Press Release, *U.S. Cellular Reports Second Quarter Results* (Aug. 6, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=106793&p=irol-newsArticle&ID=1317829&highlight=; U.S. Cellular and TDS Presentation at the Kaufman Bros. 12th Annual Investor Conference at 18 (Sept. 10, 2009), http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTUyNjh8Q2hpbGRJRD0tMXxUeXBlPTM=&t=1.

[68] *See, e.g.*, MetroPCS Press Release, *Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch* (Sept. 15, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight= (MetroPCS president and CEO Roger Linquist: "As the Internet goes 'mobile' we are excited to be at the forefront of this wireless evolution with the building out of our 4G broadband data services. We anticipate to begin offering our 4G LTE services and a dual-mode LTE/CDMA smartphone in our major metropolitan markets in late 2010.").

investment initiatives are detailed above[69] – are thus positioning themselves to compete at all levels of the industry, from low-cost prepaid plans to data-heavy broadband users and everywhere in between.

Pricing. The Commission has long recognized that "pricing levels and trends" are highly relevant to assessing the effectiveness of competition.[70] Here, those levels and trends underscore the intense competition that characterizes the industry. National, regional, and local carriers alike have lowered prices for wireless voice calls in the past year,[71] and reports of wireless price wars are now almost a "weekly occurrence."[72] The *Wall Street Journal* recently reported on yet another new low price offering that has investors "concern[ed] over a stepped-up price war" among wireless carriers.[73] Carriers also have continued to develop innovative pay-as-you-go

[69] *See supra* pp. 17-18.

[70] *Thirteenth Report* ¶ 187; *Twelfth Report* ¶ 194; *Eleventh Report* ¶ 149; *Tenth Report* ¶ 153; *Ninth Report* ¶ 167.

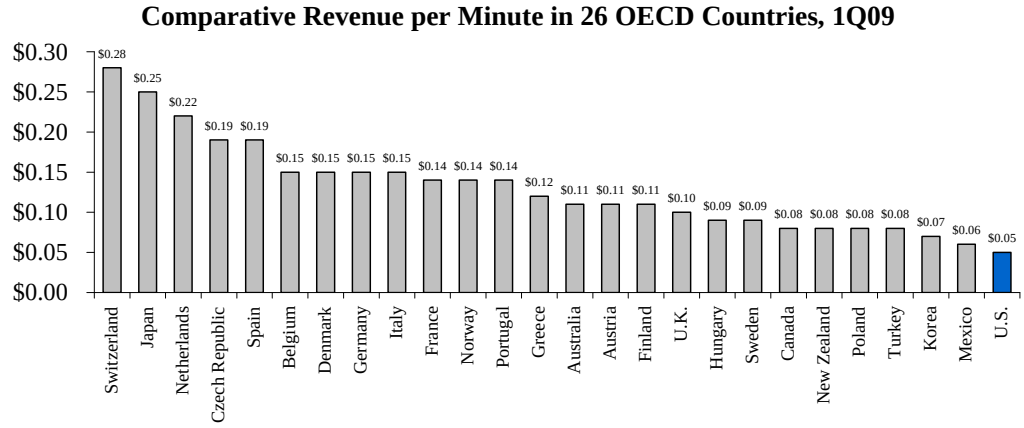
[71] *See, e.g.*, Roger Cheng, *Sprint Plan Ups Ante in Wireless Market*, Wall St. J. Online (Sept. 10, 2009) ("Over the past year, U.S. wireless carriers have gotten aggressive with flat-rate plans, with smaller players offering rates as low as $40 a month for pre-paid phones."), http://online.wsj.com/article/SB125259114965199573.html; Simon Flannery & Sean Ittel, Morgan Stanley, *Lowering Leap/PCS Estimates on Prepaid Pressures*, at 2, 4 (Sept. 11, 2009) (referring to "early August price cuts by MetroPCS and Leap": these companies "recently responded to the increased competitive pressure each by lowering their pricing and we believe it is possible that their actions and a potential national rollout of [Tracfone] Straight Talk could prompt a competitive response."); Timothy Horan et al., Oppenheimer, *2Q09 Recap: Mixed Quarter*, at 2 (Aug. 14, 2009) (citing "the ongoing price war in low-end wireless").

[72] Craig Moffett et al., Bernstein Research, *Quick Take – U.S. Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing)*, at 1 (Aug. 4, 2009) ("In what has become an almost weekly occurrence, another shoe dropped in Wireless pricing yesterday."); *id.* (citing a "'stealth price war' – one fought with rising subsidies rather than discounted service rates – in the high end post-paid market").

[73] Roger Cheng, *New Low Wireless Rate Reignites Fear over Price War*, Wall St. J. (July 2, 2009), http://online.wsj.com/article/BT-CO-20090702-714020.html?mod=dist_smartbrief; *see also* R.W. Baird, *Wireless Carriers Circling the Ring*, Barrons (July 2, 2009), http://online.barrons.com/article/SB124648889886482875.html?mod=googlenews_barrons.

calling plans, which have become increasingly popular during the past year.[74] As the Commission explained in its last report, this "continued rollout of differentiated pricing plans" for wireless voice services "indicates a competitive marketplace."[75]

Unsurprisingly, the aggressive price competition in wireless means that U.S. consumers are paying less for more and better service. As the figure below demonstrates, the per-minute cost of calls for U.S. customers continues to be lower than those in other major industrial countries – the most recent data demonstrates that United States average revenue per minute is *62 percent* lower than the average of the other 25 countries tracked by OECD.[76]



Source: Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09* , at 2, Table 1 & 3, Table 2 (June 25, 2009) (1Q09 data).

To be sure, many wireless customers in the U.S. pay more, on a monthly basis, than do their counterparts in other nations, and some consumer groups have seized on this fact to claim

[74] *See* AT&T News Release, *AT&T To Introduce GoPhone Three-Dollar per Day Unlimited Calling Option May 11* (May 8, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26802; *Cricket Unveils Unlimited Pay As You Go,* Prepaid Reviews (Oct. 3, 2008), http://www.prepaidreviews.com/blog/cricket/cricket-unveils-unlimited-pay-as-you-go-35489/.

[75] *Thirteenth Report* ¶ 111.

[76] *See* Glen Campbell, Bank of America/Merrill Lynch, *Global Wireless Matrix 2Q09, Voice and Data Divergence*, at 2, Table 1 & 3, Table 2 (June 25, 2009) (1Q09 data); *see also CTIA Study* at 3, 9; *Thirteenth Report*, ¶¶ 218-219 & Table 16.

that U.S. prices are higher than wireless prices elsewhere.[77] These claims confuse *prices*, which are lower in the U.S. than elsewhere, with *total spending*, which is often higher. Just as a customer that buys multiple gallons of milk from a supermarket will spend more than one who buys a single carton from the corner grocery, so too here: a wireless customer that uses more – whether in terms of calls, texting, or data – will likely spend more than one who uses less. But that says nothing about the relative *price* of the services. And, indeed, once consumption patterns are taken into account, it is clear that wireless prices in the U.S. are lower than they are elsewhere. Thus, for example, the Commission's own data reveals that, in the year that commenters make the focus of their claims, U.S. wireless subscribers used their service as much as four times more than their counterparts in other OECD countries.[78] When the price comparison is adjusted, as it must be, for this higher usage, the data on which the consumer groups rely further confirm that the industry prices in the United States are in fact lower than in other industrialized countries and constrained by effective competition.

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[77] *See* Comments of Consumer Federation of America, Consumers Union, Free Press, Media Access Project, New America Foundation, and Public Knowledge, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless Services*, WT Docket No. 09-66, at 8 (FCC filed June 15, 2009).

[78] *See Eleventh Report* ¶ 192 & Table 12 ("The United States widened its lead in mobile voice usage in 2005, with average MOUs estimated to be approximately 798 per month in the fourth quarter of 2005. This compares with an average across Western Europe of 142.6 MOUs, and estimates in individual countries that range from a high of 279 in Finland to a low of 81 in Germany. MOUs in comparable Asian-Pacific countries were generally higher than the Western European average, but still well below the U.S. figure, including Japan (147), Australia (178), South Korea (321.6), Hong Kong (395), and Singapore (313).") (footnotes omitted). The Commission's *Eleventh Report* contains the number of minutes for only a subset of the OECD countries on which CFA's comparison of annual spending is based. According to the 2007 OECD report relied on by CFA, the number of minutes in the U.S. in 2005 was closer to *thirty* times higher than the average of the other OECD countries. *See* Organization for Economic Co-Operation and Development, *OECD Communications Outlook 2007*, at 120, Table 4.10 (2007).

A recent report of the OECD – purporting to show high prices for U.S. wireless services relative to other OECD nations – suffers from similar flaws.[79] The OECD's findings are not based on actual usage, but instead rest on objectively unrealistic and hypothetical assumptions. For example, under the OECD methodology, a "medium use" consumer (which makes up the so-called medium use basket) makes 780 minutes of calls, sends 600 SMS messages, and sends 8 MMS messages, *per year*.[80] But, "[w]hile perhaps consistent with a few European countries," this and other usage assumptions in the OECD report "are exceedingly low by United States . . . standards."[81] The average U.S. wireless consumer uses 760 minutes of voice calls and sends more than 400 text messages *per month*.[82] Adjusting the totals to account for only outgoing calls (as does the OECD methodology), the OECD's usage profile for a "medium use" consumer understates the actual consumption pattern of an average U.S. consumer by an order of six times (for calls) and four times (for text messages). This matters because "[m]obile prices are almost always a function of the quantity consumed," and "sellers target their offerings to match the demand levels of their customers."[83] By assuming unrealistically low usage patterns, the OECD

[79] *See* Organization for Economic Co-Operation and Development, *OECD Communications Outlook 2009*, at 275-76 & Figs. 7.9, 7.10 (Aug. 2009) ("*OECD Communications Outlook 2009*") (purporting to show the United States has one of the highest prices per call in the low-use and medium-use baskets).

[80] *See id.* at 276 (describing the usage assumptions for the medium-use basket).

[81] George S. Ford, Chief Economist, Phoenix Center for Advanced Legal and Economic Public Policy Studies, *Be Careful What You Ask For: A Comment on the OECD's Mobile Price Metrics*, Phoenix Center Perspectives 09-03, at 1 (Sept. 16, 2009).

[82] *See CTIA Responds to OECD Communications Outlook Report on Usage and Cost for Mobile Phone Calls*, FierceWireless (Aug. 12, 2009) (quoting August 11, 2009 CTIA Press Release), *available at* http://www.fiercewireless.com/press-releases/ctia-responds-oecd-communications-outlook-report-usage-and-cost-mobile-phone-calls.

[83] George S. Ford, Chief Economist, Phoenix Center for Advanced Legal and Economic Public Policy Studies, *Be Careful What You Ask For: A Comment on the OECD's Mobile Price Metrics*, Phoenix Center Perspectives 09-03, at 2 (Sept. 16, 2009).

disproportionately weighs price plans that have met with little success in the marketplace, while ignoring the substantial cost savings realized by high-usage customers that make up the vast majority of U.S. wireless customers.[84]

Even as to the unrealistic usage scenarios it employs, moreover, the OECD paints a highly distorted view of the marketplace. It ignores, for example, the smaller and regional carriers that "are [a] viable option for many American consumers and offer highly competitive offerings."[85] It also fails to account for myriad factors that "could impact pricing in a particular market" – such as "the geographic scope of the network; prepaid plans; family plans; customer reward plans; handset subsidies; contract lengths; rollover minutes; the use of exchange rates or PPP adjustments; grandfathered plans; SMS and MMS messages; handset insurance; quality of customer service; quality of service; international prices; data plans; calling party pays versus receiving party pays; and mobile termination rates." [86] Thus, even as to the disproportionately low usage patterns it purports to study, the OECD report disregards numerous and substantial factors affecting price.

The price competition that characterizes the U.S. wireless industry extends beyond the highly competitive voice plans available to consumers. Carriers continue to offer better value text messaging plans that allow customers to buy large blocks or even unlimited text messages for a single price.[87] Likewise, with respect to broadband data, carriers have introduced tiered

[84] *See id.* at 3; *see also id.* at 6 ("picking a few usage baskets does not permit meaningful comparisons of mobile prices across countries"; "[i]ncorporating the full distribution of usage . . . is required to compare countries").

[85] *Id.* at 6.

[86] *Id.*

[87] *See, e.g.*, David Barden et al., Bank of America/Merrill Lynch, *4Q08 Wireless Services & Handset Pricing Analysis*, at 6-7 (Jan. 20, 2009) (describing key pricing changes, including unlimited text messaging); Craig Moffett et al., Bernstein Research, *Quick Take – U.S.*

pricing for laptop cards and smartphone data plans, based on a range of monthly megabyte allowances.[88] Finally, carriers also continue to expand their bundled offerings. For example, AT&T recently introduced the "A-List" – a new feature that allows unlimited mobile calling to and from five domestic phone numbers at no additional cost.[89] Sprint recently introduced an "Any Mobile, Anytime" plan which allows calls to any mobile phone in the U.S., regardless of the carrier, in addition to unlimited text messaging and data services and 450 minutes for calls to landline phones.[90] Last fall, Leap introduced a "Cricket PAYGo" service that offers customers the ability to pay $3 per day for unlimited voice, text, and web browsing,[91] and AT&T and others responded in kind with their own such offerings.[92]

Telecommunications: Another LEAP into the Abyss (of Pre-Paid Pricing), at 2, Exhibit 1 (Aug. 4, 2009) (comparing historical prices for unlimited voice, text, and Web pricing plans).

[88] *See* Jason Armstrong et al., Goldman Sachs, *2Q09 Wireless Survey: Phone Subsidies Rise, Prepaid Competition Up*, at 9, Exhibit 9 (June 29, 2009) (comparing laptop card pricing); Phil Cusick et al., Macquarie Research, *Verizon Launches Wireless Data Tiers*, at 2 (Sept. 9, 2009) ("Wireless carriers have traditionally offered tiered pricing for most services such as voice minutes and messaging, but thus far have only offered customers one rate for smartphone data plans – typically around US$30 per month. Today, Verizon entered the tiered data plan with two new plans priced at US$9.99 and US$19.99 offering 25 and 75MB of usage, respectively.").

[89] *See* AT&T News Release, *AT&T Customers Enjoy Unlimited Calling to Their A-List* (Sept. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27093.

[90] *See* Roger Cheng, *Sprint Plan Ups Ante in Wireless Market*, Wall St. J. Online (Sept. 10, 2009), http://online.wsj.com/article/SB125259114965199573.html.

[91] *See* Leap Wireless Press Release, *Leap's Cricket(R) Service Introduces Cricket PAYGo™ in Select Markets* (Oct. 2, 2008), http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=1204795&highlight=paygo; David Barden et al., Bank of America/Merrill Lynch, *2Q09 Wrap: Taking Optimism Out of the Model; PO to $28*, at 7 (Aug. 7, 2009).

[92] *See* AT&T News Release, *AT&T To Introduce GoPhone Three-Dollar per Day Unlimited Calling Option May 11* (May 8, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26802 (AT&T offers unlimited calling for $3 per day, only on days you use your phone); Verizon Wireless News Release, *New Prepaid Calling Plans from Verizon Wireless Combine the Convenience of Prepaid with America's Most Reliable Wireless Network* (Feb. 11, 2009), http://news.vzw.com/news/2009/02/pr2009-02-11.html

Output. As wireless prices have declined and service offerings have expanded, output has surged. As of the end of 2008, there were more than 270 million wireless subscribers in the United States, representing an increase of 15 million subscribers (nearly 6 percent) over the prior year.[93] Wireless penetration in the U.S. is now more than 87 percent, and more than 20 percent of U.S. consumers now live in households with only wireless service, as compared to just 8 percent of U.S. households in 2005.[94] In 2008, subscribers used more than 2.2 trillion wireless minutes, sent more than one trillion text messages (or more than 3.5 billion messages per day), and sent 15 billion MMS messages – all of which are marked increases from the year before.[95] Furthermore, mobile wireless broadband Internet access is the fastest growing segment of the U.S. broadband market: from June 2007 to June 2008 (the most recent year for which FCC data are available), wireless broadband additions far exceeded the additions from other modes of broadband (ADSL, cable, and other) combined.[96] Wireless consumers "have a number of

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(Verizon Wireless offers unlimited calling for $3.99 daily, charged only on the days calls are made and received; text messages are $0.01 per message sent and received); Boost Mobile, *Daily Chat & Text*, http://plans.boostmobile.com/chat.aspx (Sprint's Boost Mobile service offers unlimited text messaging for $1 per day, including unlimited mobile-to-mobile, nights, and weekend calling; all other calls are $0.10 per minute).

[93] *See* CTIA, *Background on CTIA's Semi-Annual Wireless Industry Survey* at 2, http://files.ctia.org/pdf/CTIA_Survey_Year-End_2008_Graphics.pdf.

[94] *See* CTIA, *Wireless Quick Facts*, http://www.ctia.org/media/index.cfm/AID/10323; Stephen J. Blumberg & Julian V. Luke, Div. of Health Interview Statistics, Nat'l Ctr. for Health Statistics, Centers for Disease Control and Prevention, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2008*, at 5, Table 1 (May 6, 2009).

[95] *See* CTIA Press Release, *CTIA – The Wireless Association® Announces Semi-Annual Wireless Industry Survey Results* (Apr. 1, 2009), http://www.ctia.org/media/press/body.cfm/prid/1811; CTIA, *Overview of Key Regulatory Issues*, at 2 (Sept. 14, 2009), attached to Letter from Scott Bergmann, CTIA, to Marlene Dortch, FCC, GN Docket Nos. 09-51 et al. (Sept. 14, 2009).

[96] *See* Ind. Anal. & Tech. Div., Wireline Competition Bureau, FCC, *High-Speed Services for Internet Access: Status as of June 30, 2008*, at Table 1 (July 2009).

options for mobile Internet access," including metered services and all-you-can-eat plans (either on a month-to-month basis or longer terms contracts), which enable them "to tailor their wireless service plans to their broadband needs."[97]

Non-Price Rivalry. The intense competition among wireless providers goes well beyond price, as carriers have differentiated themselves from their rivals with a range of service offerings. That is particularly evident with the roll-out of next generation networks. Carriers today offer wireless broadband Internet, email, video services, music services, turn-by-turn direction services, visual voicemail, and countless other data services. Customers can choose among myriad data plans, depending on which plan provides them the most value for their needs,[98] ranging from email-only plans to full-blown Internet access to service by the byte, megabyte, or gigabyte. These offerings are proving enormously popular: according to one estimate, "[t]he mobile Internet user population in the US is now roughly one-third the size of the wired Internet audience."[99] In the case of AT&T, the number of 3G laptop data cards increased by nearly 50 percent over the past year to 1.4 million,[100] and more than 50 percent of postpaid customers subscribe to a data plan.[101] Analysts estimate that wireless data traffic (including traffic on smartphones, mobile Internet devices, netbooks, and machine-to-machine)

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[97] Comments of CTIA – The Wireless Association, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 09-66, at 48 (FCC filed June 15, 2009) ("CTIA CMRS Comments").

[98] *See Thirteenth Report* ¶ 119 (noting the "diversity of pricing options" available to wireless data customers).

[99] *Getting To Know the Mobile Population*, eMarketer (Aug. 25, 2009), http://www.emarketer.com/Article.aspx?R=1007236

[100] *See* AT&T, *Investor Briefing: 2nd Quarter 2009*, at 5 (July 23, 2009), *available at* http://www.att.com/Investor/Financial/Earning_Info/docs/2Q_09_IB_FINAL.pdf.

[101] *See* AT&T, *AT&T Investor Update: 2Q09 Earnings Conference Call*, at 9 (July 23, 2009), *available at* http://www.att.com/Investor/Financial/Earning_Info/docs/2Q_09_slide_c.pdf.

will double every six months or so over the next five years, and expect monthly smartphone data traffic to grow by more than 120 percent in 2009.[102] "[L]ikely by 2010, data traffic will surpass voice traffic on mobile networks."[103]

The nation's largest wireless companies also continue to spend enormous sums on advertising.[104] And carriers also have made significant investments to enhance service quality and customer service, which have resulted in the highest consumer satisfaction ratings ever.[105] Thus, for example, the most recent report from J.D. Power and Associates shows that, in the second half of 2008, wireless carriers reduced the number of connectivity issues (*i.e.*, dropped calls), failed initial connections, and audio problems.[106] Consumer Reports' most recent survey

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[102] Timothy Horan et al., Oppenheimer, *The Genie Is Out of the Bottle – Applications Separating from the Network*, at 4, Exhibit 2 (June 11, 2009) (projecting the growth of monthly smartphone data traffic from 3,244 terabytes in 2008 to 7,252 in 2009, 16,389 in 2010, and 32,628 in 2011). *See also* William Power & Steven Beckert, Baird, *Q1 Wireless Recap: Prepay Eclipses Postpay and Data ARPU Cracks Emerge?*, at 5 (May 11, 2009) ("While data revenue growth has decelerated, overall traffic volumes continue to soar, with messaging still doubling YOY and email and web browsing taking off with the adoption of smartphones. RIM reported that the data traffic crossing its network grew from 345 terabytes in 2008 to 1,092 terabytes in 2009, a YOY growth rate of 216.5%.").

[103] Infonetics Research Press Release, *Mobile Backhaul Equipment Market Growing Fast, with No Letup in Sight* (May 27, 2009), http://www.infonetics.com/pr/2009/1-mobile-backhaul-market-research-highlights.asp.

[104] *See* Maureen Morrison, *Verizon Tops AT&T As Most-Advertised Brand*, Advertising Age (June 22, 2009), http://adage.com/datacenter/article?article_id=137407 (Verizon and AT&T spent $2.2 billion and just below $2 billion, respectively, in measured U.S. media spending in 2008, according to TNS Media Intelligence, "command[ing] the top two spots in Ad Age's ranking of the Top 100 megabrands for 2008").

[105] *See, e.g.*, AT&T News Release, *AT&T Wins Billing & OSS World Excellence Award for Customer Care* (Apr. 15, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26724 ("AT&T BusinessDirect® customer Web portal has been recognized with the Billing & OSS World 2009 Excellence Awards for Best Customer Care Solution. The annual awards recognize the leaders – vendors, service providers and integrators – in the development and deployment of billing and operations support systems (OSS) technologies and solutions.").

likewise shows a substantial increase in the percentage of customers who are completely or very satisfied with their wireless service, and it attributes that increase to fewer dropped calls and higher-quality connections.[107] These results reflect that carriers such as AT&T continue to pour money into their networks to maintain a high level of customer service in the face of exploding bandwidth consumption.

The Commission's own complaint data further confirm the improvements in service quality realized in the industry. The Commission tracks wireless complaints in five categories: "Carrier Marketing & Advertising," "Contract – Early Termination," "Service Related Issues," "Billing & Rates," and "Telephone Consumer Protection Act" ("TCPA").[108] "TCPA" complaints are complaints "regarding compliance with the TCPA requirements applicable to wireless telecommunications" – in other words, complaints about failure to comply with the Commission's rules prohibiting certain kinds of calls to wireless numbers.[109] Although the first four of the Commission's complaint categories may plausibly be said to involve carrier-related complaints, TCPA-related complaints plainly are not: wireless carriers obviously cannot police who calls their customers and why. And, critically, the overwhelming majority of wireless complaints the Commission receives are in fact TCPA-related. In the most recent quarter for

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[106] *See* J.D. Power and Associates Press Release, *J.D. Power and Associates Reports: Overall, Wireless Carriers Reduce Dropped Calls, Failed Connections and Static, Driving an Improvement in Call Quality Performance* (Aug. 27, 2009), http://www.jdpower.com/corporate/news/releases/pressrelease.aspx?ID=2009155.

[107] *See Best of Cell Phone Service*, Consumer Reports (Jan. 2009), http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/phones/cell-phone-service-providers/cell-phone-service/overview/cell-phone-service-ov.htm.

[108] *See, e.g.*, FCC, *Report on Informal Consumer Inquiries and Complaints – 1st Quarter Calendar Year 2009* at 9 (Sept. 8, 2009) ("*FCC 1Q09 Consumer Complaint Report*"), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293273A1.pdf.

[109] *See generally* Report and Order, *Rules and Regulations Implementing the Telephone Consumer Protection Act of 1991*, 18 FCC Rcd 14014 (2003).

which data are available (the first quarter of 2009), the Commission reported a total of only 4,299 non-TCPA wireless complaints.[110] Measured against the 270.3 million wireless subscribers in the U.S.,[111] that number is astonishingly low. It translates to a quarterly consumer complaint rate of approximately 0.0015 percent. Put more simply, this means that, over the course of three months, only one in 75,000 U.S. wireless subscribers is sufficiently dissatisfied with some aspect – indeed, any aspect – of his wireless service to complain to the Commission. And, while the Commission press release accompanying the most recent data asserts that "[w]ireless complaints increased" in the most recent quarter, the more relevant category – *non-TCPA-related* complaints – have in fact declined: the 4,299 non-TCPA-related wireless complaints reflected in the Commission's latest report represents a 30-percent reduction over the first quarter of 2008.[112] Thus, even as wireless subscribership and usage have surged, consumer complaints have decreased, further underscoring that carriers are competing – and competing successfully – on service quality.

Consumer Switching. As the Commission has explained, "if enough consumers have the ability and propensity to switch service providers in response to an increase in price or other harmful conduct, then the provider will have an incentive to compete on price and non-price factors."[113]

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[110] *See FCC 1Q09 Consumer Complaint Report* at 9.

[111] *See* CTIA, *Wireless Quick Facts*, http://www.ctia.org/advocacy/research/index.cfm/AID/10323.

[112] *See* FCC, *Report on Informal Consumer Inquiries and Complaints – 1st Quarter Calendar Year 2008* at 4 (Jan. 8, 2009), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-287778A1.pdf (reporting 6,125 carrier-related (*i.e.*, non-TCPA-related wireless) complaints in 1Q08).

[113] *Thirteenth Report* ¶ 177.

Here, there can be no question about consumers' "ability and propensity to switch service providers." For the national carriers, churn rates range from 1.2 percent to 4 percent per month, which means that between 15 percent and 48 percent of customers switch carriers or cancel service each year.[114] This high customer turnover directly affects profitability and accordingly spurs carriers to offer competitive prices and services in order to retain customers.

This customer turnover also reflects the ease with which customers can switch providers. Even before the Commission adopted wireless number portability, industry churn rates were high.[115] With the implementation of number portability, a potential barrier to switching providers – *i.e.*, the need to change telephone numbers – was eliminated.[116] To be sure, customers who choose to purchase a subsidized handset typically must sign a one- or two-year contract. But, as discussed further below,[117] consumers derive great benefits from those subsidies. Indeed, they are undoubtedly a major reason why wireless subscribership in this country has grown so rapidly and is accessible to virtually all Americans. Beyond that, a one- or two-year commitment with an early termination fee ("ETF") is hardly anticompetitive in effect. There are many robustly competitive markets in which comparable or even longer commitments are commonplace – *e.g.*, an automobile lease typically runs three years or more, newspaper or magazine subscriptions often require a multi-year commitment to obtain the lowest rate, and gym

[114] *See id.* ¶ 181. Similarly, a recent survey states that "9 percent of AT&T customers said they would switch carriers in the next six months, compared with 11 percent of Verizon customers." Phil Goldstein, *Report: AT&T Most Likely To Pick Up Switching Subscribers*, Fierce Wireless (May 28, 2009), http://www.fiercewireless.com/story/report-t-most-likely-pick-switching-subscribers/2009-05-28.

[115] *See Eighth Report* ¶ 68 ("Most carriers report churn rates between 1.5 percent and 3 percent per month. At current rates, more than 30 percent of subscribers change service providers each year.") (footnote omitted); *Ninth Report* ¶ 4 ("the advent of [local number portability] does not appear to have resulted in an increase in churn").

[116] *See Thirteenth Report* ¶¶ 182-184.

[117] *See infra* pp. 59-61.

memberships and apartment rentals often require a six-month or one-year commitment before the consumer is permitted to purchase on a month-to-month basis. And, in all events, not only are wireless customers free to purchase an unsubsidized phone without a term plan but, for most national carriers, those fees are less than $200 and are now reduced on a pro rata basis for each month the customer stays with the carrier.[118]

Customer switching is also facilitated by ample access to information about the availability and quality of competitive alternatives.[119] As the Commission has recognized, carriers have invested heavily in informing customers about the features, performance, pricing, and quality of their networks and services, and about how these characteristics compare with those of other networks.[120] In this regard, AT&T and many other carriers are signatories to the CTIA Consumer Code for Wireless Service, which, among many other protections, guarantees customers the information they need to make informed choices.[121] Third parties likewise have made businesses out of collecting and providing information about alternative providers to customers, and that information is widely available on the web.[122]

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[118] *Accord Thirteenth Report* ¶¶ 185-186 (noting the increasing prevalence of pro-rated early termination fees).

[119] *See id.* ¶¶ 178-186.

[120] *See id.* ¶ 179 (finding that the wireless industry has responded to consumers' desire for information "by launching various initiatives designed to educate consumers and help them make informed choices when purchasing wireless services").

[121] *See* CTIA, *Consumer Code Participants*, http://www.ctia.org/consumer_info/service/index.cfm/AID/10623.

[122] *See supra* p. 12; *accord Thirteenth Report* ¶ 178 (finding that the sources of third-party information available to consumers include publications, trade associations, marketing and consulting firms, and numerous web sites).

2. Device Market Segments Are Highly Competitive

The Commission seeks comment on how "wireless devices . . . should be examined and evaluated." *NOI* ¶ 16. Devices should be examined and evaluated as an important front in the competitive battle among network providers. Competition in the industry focuses not only on price, bucket size, service offerings, and dropped calls, but also on the devices carriers make available to meet consumers' varied needs. These devices have evolved – and continue to evolve – at a breakneck pace. It was not so long ago that cell phones were single-use devices the size of a brick. Now, consumers can choose from among a wide range of smartphones, feature phones, e-readers, and netbooks, with more options being released seemingly by the day. And carriers are increasingly exploring machine-to-machine wireless applications – in the health and energy fields, to name just two – that will require a vast expansion in the Commission's understanding of the term "wireless device." The device segment of the wireless ecosystem, in short, highlights both the vibrant competition and remarkable innovation that characterize the industry.

Handsets. The history of wireless handsets in the U.S. is a history of short-lived successes. In 1989, *Fortune* magazine, reporting on the 12-ounce, $2,995 Motorola MicroTAC flip phone, stated that "'[p]ortable phones won't get a lot smaller than this one.'"[123] In 1996, Motorola released the StarTAC mobile phone, which was one-fourth the size of the MicroTAC, which could fit in a customer's shirt pocket, and which promised to "'revolutionize the cellular industry.'"[124] That same year, Nokia launched its own so-called revolution in the form of the Nokia 9000 Communicator, which combined phone, fax, address-book and e-mail functionality,

[123] Robert Hahn and Hal J. Singer, *Why the iPhone Won't Last Forever and What the Government Should Do to Promote Its Successor*, Working Paper, at 4, Georgetown Center for Business and Public Policy (Sept. 2009) ("*Handset Exclusivity Paper*") (quoting Brian O'Reilly, *Gadgets for Executives*, Fortune (Sept. 11, 1989)).

[124] *Id.* (quoting *Motorola Puts Communications in the Palm of Your Hand*, PR Newswire (Jan. 3, 1996)).

signaling "'the birth of the real information age.'"[125] And in 2004, Motorola revolutionized the industry (again) with its "iconic, image-leading" Razr, which packaged simplicity with small size, which promised consumers that "once you picked up the Razr and used it, you never wanted another phone," and which exceeded its *lifetime* sales projections in just three months.[126]

The latest "game-changer" was the iPhone,[127] which was first introduced in June 2007 and which, according to industry analysts, overtook the Razr as the top-selling phone in the U.S. in the third quarter of 2008.[128] But, as with all those that came before, the iPhone's rein on top was fleeting: In the first quarter of 2009, RIM's Blackberry Curve overtook the iPhone to "become the best-selling consumer smartphone in the United States."[129] The most recent version of the iPhone then upped the ante – and may have retaken the lead[130] – but if there is one thing that is certain, it is that a new device, whether made by Apple or another manufacturer, will displace the current iPhone as the hottest, most innovative smartphone on the market.

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[125] *Id.* at 6 (quoting *Nokia Pioneers New Product Category with the World's First All-in-One Communicator*, Bus. Wire (Mar. 13, 1996)).

[126] *Id.* (internal quotation marks omitted).

[127] *See, e.g.*, Simon Flannery & Daniel Gaviria, Morgan Stanley, *AT&T, Inc.: Defensive Qualities Evident*, at 3 (Oct. 23, 2008).

[128] *See* Joshua Topolsky, *iPhone 3G Overtakes the RAZR As Best-Selling Domestic Handset*, Engadget (Nov. 10, 2008), http://www.engadget.com/2008/1/10/iphone-3g-overtakes-the-razr-as-best-selling-domestic-handset/.

[129] *Handset Exclusivity Paper* at 1 (citing NPD Group Press Release, *RIM Unseats Apple in the NPD Group's Latest Smartphone Ranking* (May 4, 2009), http://www.npd.com/press/releases/press_090504.html).

[130] Although third quarter 2009 market share data are not yet available, reports suggest that sales of the iPhone 3GS have been very strong. *See* Apple Press Release, *Apple Sells over One Million iPhone 3GS Models* (June 22, 2009), http://www.apple.com/pr/library/2009/06/22iphone.html; Timothy Horan et al., Oppenheimer, *2Q09 Preview Communications Services*, at 2 (July 10, 2009) (Analysts noted that "[d]emand for the new iPhone [3GS] is so impressive that 46% of Apple stores are currently reporting unavailability of units (~80% unavailability of the 16GB model).").

Indeed, far from closing the book on innovation and competition in devices, the iPhone opened a new chapter. Barely a day goes by without another announcement of a new device with new features promising consumers a new and unrivaled wireless experience. Thus, for example, Samsung offers the Instinct,[131] Blackberry has the Storm,[132] Palm offers the Palm Pre,[133] and T-Mobile has teamed with Google to release the Android-based T-Mobile G1 with Google.[134] The iPhone 3G was released in 2008 and the 3G S in 2009,[135] and BlackBerry, Palm, HTC, Samsung, Motorola, LG, and others continue to roll out handset after handset with the

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[131] *See* Sprint News Release, *Award-Winning Samsung Instinct™ Available Exclusively from Sprint on June 20 for Just $129.99* (June 18, 2008), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1167445&highlight=. In April 2009, Samsung updated its Instinct handset "with access to core Java [application programming interfaces], including messaging, multimedia and Bluetooth, which allow developers to take advantage of the phone's features." Sprint News Release, *Samsung Instinct s30, Exclusively from Sprint, Adds Attractive Styling, Instant Messaging, Improved Web Experience and Enhanced Open Development Capabilities to Popular Instinct* (Mar. 31, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1271892&highlight=.

[132] *See* Verizon Wireless News Release, *BlackBerry Takes the World by Storm with Verizon Wireless and Vodafone* (Oct. 8, 2008), http://news.vzw.com/news/2008/10/pr2008-10-07g.html. Verizon Wireless began selling the BlackBerry Storm in November 2008. *See* Verizon Wireless News Release, *Customers Across the Country Line Up As BlackBerry Storm Blows into Verizon Wireless Communications Stores* (Nov. 21, 2008), http://news.vzw.com/news/2008/11/pr2008-11-21b.html.

[133] *See* Sprint News Release, *Sprint To Offer Palm Pre Nationwide on June 6* (May 19, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1289761&highlight=; Sprint News Release, *Sprint Sets Sales Record with Weekend Debut of Palm Pre* (June 8, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1297438&highlight=; *Best of 2009 CES*, Laptop Mag. (Jan. 10, 2009), http://www.laptopmag.com/review/accessories/bestofces.aspx?pid=12.

[134] *See* T-Mobile Press Release, *T-Mobile Launches the Highly Anticipated T-Mobile G1* (Oct. 22, 2008), http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20081022&title=T-Mobile%20Launches%20the%20Highly%20Anticipated%20T-Mobile%20G1.

[135] *See* AT&T News Release, *iPhone 3G S Available at AT&T Tomorrow* (June 18, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26868.

latest cutting-edge features.[136] All told, competing providers have developed and released "over 25 similarly modeled smartphones in an attempt to match iPhone's technology, usability and style."[137]

Nor is it the case that device manufacturers are content merely to attempt to match the iPhone's capabilities. The Palm Pre, for example, is equipped with physical features that are not available on the iPhone: a removable battery; a keyboard, which many users prefer; and a flash for the camera. In addition, the operating system on the Palm Pre allows for multitasking, whereas the iPhone runs one application at a time.[138] For its part, the Nokia 5800 XpressMusic,

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[136] *See, e.g.*, HTC News Release, *The Innovation and Openness of a True Mobile Internet Experience Coming Soon to America's Most Dependable 3G Network from Sprint on HTC Hero with Google* (Sept. 3, 2009), http://www.htc.com/us/press.aspx?id=109704&lang=1033 (the HTC Hero, based on the Android OS, will be available on the Sprint network beginning in October 2009); Motorola Press Release, *T-Mobile USA Unveils the Motorola CLIQ with MOTOBLUR* (Sept. 10, 2009), http://mediacenter.motorola.com/content/detail.aspx?ReleaseID=11805&NewsAreaID=2 (the Android-based Motorola CLIQ, which "will be available exclusively in the U.S. from T-Mobile later this fall," features the MOTOBLUR solution to "manage[ ] and integrate[ ] communications – from work e-mail to social networking activity," updating and syncing contacts, posts, messages, and photos); Palm Press Release, *Thin Palm Pixi Phone Puts Fast, Intuitive Communication at Fingertips* (Sept. 9, 2009), http://investor.palm.com/releasedetail.cfm?ReleaseID=407921 (the Palm Pixi phone, featuring "the instinctively useable Palm webOS platform, strikingly thin design, a visible full keyboard and fashionable personalization options," will be "available exclusively from Sprint in time for the holidays"); Tal Liani et al., Bank of America/Merrill Lynch, *Motorola Inc.: New Chapter Begins; Raise PO to $10.60*, at 6, Chart 1 (Sept. 15, 2009) (comparing Android smartphones from Motorola, HTC, and Samsung).

[137] *See* Phil Cusick et al., Macquarie Research, *Wireless Emerging Devices: Smartphones To Drive the Data Rescue*, at 2-3 (Mar. 30, 2009) (Apple "reinvented the smartphone with the introduction of the iPhone, which became the fastest-selling mobile device in history. The iPhone has raised the bar for all handset OEMs with a mobile Internet browsing experience for which people have demonstrated a willingness to pay. . . . Since then, other vendors have released over 25 similarly modeled smartphones in an attempt to match iPhone's technology, usability and style.").

[138] *See* Rob Enderle, Principal Analyst, Enderle Group, *The Palm Pre: The Best Smartphone Yet. Period*, TG Daily (June 4, 2009), http://www.tgdaily.com/content/view/42722/145/; David Colker & Michelle Maltais,

also known as the "Tube," is optimized for music and video, and is considered by some to be preferable to the iPhone because "[t]he screen is bigger, the video quality is better, . . . the high definition screen will make things clearly noticeable," and "[i]t's lighter, faster and far cheaper."[139] As Google's senior director for mobile platforms puts it, the objective is not to match the iPhone, but to beat it: "the domestic [U.S.] market is so competitive that carriers and handset makers want to create highly distinctive versions of the Android phone *to give themselves an edge*."[140]

Indeed, the wide range of innovative, highly rated smartphones available in the marketplace ensures that all consumers have access to innovative devices, no matter which carrier they choose. Each of the national carriers boasts a full lineup of smartphones,[141] as do carriers such as U.S. Cellular, Leap Wireless, MetroPCS, and Cellular South.[142] The smartphone revolution has thus resulted in consumer choice for *all* customers of *all* carriers.

Technology Comparison: Will iPhone's Bell Get Rung by Pre?, L.A. Times (June 6, 2009), http://articles.latimes.com/2009/jun/06/business/fi-palm-pre-shootout6.

[139] Zack Whittaker, *Nokia 5800: The Quintessential iPhone Killer*, ZDNet (Feb. 18, 2009), http://blogs.zdnet.com/igeneration/?p=1044.

[140] Matt Richtel, *Google: Expect 18 Android Phones by Year's End*, N.Y. Times (May 27, 2009) (emphasis added), http://bits.blogs.nytimes.com/2009/05/27/google-expect-18-android-phones-by-years-end.

[141] In addition to the iPhone and assorted BlackBerries, AT&T offers smartphones such as the HTC FUZE, LG INCITE, Nokia Surge, Pantech Matrix Pro, and Samsung Jack. AT&T, *PDAs and Smartphones – Data Only*, http://www.wireless.att.com/cell-phone-service/cell-phones/pda-phones-smartphones.jsp. Verizon Wireless's smartphone offering includes the HTC Ozone, Motorola MOTO Q, Samsung Omnia, and the Verizon Wireless XV6900. Verizon Wireless, *Select a Phone or Device: PDA & Smartphones*, http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewPhoneOverviewByDevice&deviceType=PDA/SmartPhones. Sprint offers the HTC Snap, Motorola i920, Palm Centro, and Samsung ACE. Sprint, *Shop: Phones*, http://www.sprint.com. And T-Mobile offers the Motorola CLIQ, Samsung Behold, T-Mobile G1, and T-Mobile myTouch. T-Mobile, *Phones*, http://www.t-mobile.com/shop/phones/default.aspx?WT.z_HP=shop_phones.

[142] U.S. Cellular's smartphone offering includes the HTC Touch, HTC Touch Pro, LG Bliss, as well as the BlackBerry Curve and BlackBerry Pearl. U.S. Cellular, *Phones*,

Although smartphones are increasingly popular, moreover, conventional phones continue to represent the bulk – approximately 58 percent – of new cellphone activations,[143] and here too customer choice is overwhelming. As noted at the outset, wireless consumers can choose from a total of more than 600 devices, from 30 different manufacturers. Indeed, even among conventional handsets, consumer choice is the norm. Consumers can choose simple devices with large keypads that are tailored to address the preferences and needs of the young and/or elderly, ultrasmall devices that can fit in a change purse, devices with "Qwerty" keypads and multiple screens, devices with built-in cameras and music players, and devices that enable calling and texting but little else.[144]

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http://www.uscc.com/uscellular/SilverStream/Pages/b_showphone.html?zip=60411&mkt=608830&tm=1&prepaid=N&sort=0&filter=Y&smartphone=Y (zip code 60411). MetroPCS's smartphone offering includes the Samsung Finesse, Samsung Messager II, and the Samsung r450. MetroPCS, *Phones*, http://www.metropcs.com/shop/phonelist.aspx (zip code 49001). Leap Wireless offers the Cricket TXTM8, Motorola Hint QA30, and Samsung Messager II. Cricket Wireless (Leap), *Phones*, http://www.mycricket.com/cricketphones. And Cellular South's smartphone offering includes the HTC Touch Diamond, LG Spyder II, Motorola Hint QA30, and Samsung Finesse. Cellular South, *Phones*, https://www.cellularsouth.com/cscommerce/products/phones/category_phones_list.jsp?id=cat30003&homeFilter=pda/smartphone.

[143] *See* Simon Flannery et al., Morgan Stanley, *Survey: iPhone and Blackberry Ahead in July Smart-phone Adoption; Palm Fades*, at 2, Exhibit 1 (Aug. 21, 2009).

[144] To take just two examples, Firefly Mobile offers "[t]he mobile phone for mobile kids" – simple, colorful handsets that allow children to call or text their parents. Firefly Mobile, http://www.fireflymobile.com/. The Jitterbug phone "was created for people who prefer a simple, easy to use cell phone"; its handsets are "easy to use, with large back-lit buttons, a bright screen and large text." Jitterbug, *About Us*, http://www.jitterbug.com/AboutUs/; Consumer Bob, *Simple Cell Phone Dials Up Success*, NBC San Diego (July 29, 2009), http://www.nbcsandiego.com/around-town/real-estate/Simple-Cell-Phone-Dials-Success.html; *see also* Katherine Boehret, *App Aims To Up Social Status of Some Basic Cellphones*, All Things Digital (Mar. 10, 2009), http://solution.allthingsd.com/20090310/app-aims-to-up-social-status-of-some-basic-cellphones/ ("Believe it or not, there are people who want nothing to do with smart phones like BlackBerrys and iPhones – they just want a basic cellphone for making and receiving calls.").

With carriers and manufacturers pouring enormous resources into devices, it should come as no surprise that no single device or manufacturer has been able to maintain a durable market share. On the contrary, device market shares have fluctuated wildly. Motorola, which once "commanded 20%+ of the global smartphone market," has approximately six percent today.[145] At the end of 2007, Motorola, Samsung, and LG together accounted for two-thirds of new U.S. device sales;[146] by July 2009, that figure had dropped to 48 percent.[147] Despite the popularity of the iPhone, analysts estimate that Apple has only a 13 percent share of all new handset device activations.[148] Moreover, as noted, even among smartphones, industry data show that the Blackberry Curve outsold the iPhone in the first quarter of 2009, and other leading manufacturers (including LG, Samsung, and HTC) together account for 35 percent of smartphone activations.[149]

There is, in short, vigorous competition among providers and device manufacturers to provide customers the best, and the best value, wireless handsets. That competition manifests itself every day in the deployment of cutting-edge technology, aggressive pricing, and wide

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[145] Tal Liani et al., Bank of America/Merrill Lynch, *Motorola Inc.: New Chapter Begins; Raise PO to $10.60*, at 7 (Sept. 15, 2009).

[146] *See* Simon Flannery et al., Morgan Stanley, *Wireless Survey Suggests Verizon Gains As Sprint Fades*, at 9, Exhibit 11 (Apr. 8, 2008). *See also* David Barden et al., Bank of America, *Wireless Services Pricing Analysis*, at 10-11 (Sept. 8, 2006) (comparing 3Q06 vs. 1Q06 changes in "shelf space share" by manufacturer, with Samsung and Motorola in the lead with 26 percent and 22 percent, respectively, of all models sold by wireless providers).

[147] *See* Simon Flannery et al., Morgan Stanley, *Survey: iPhone and Blackberry Ahead in July Smartphone Adoption; Palm Fades*, at 3, Exhibit 2 (Aug. 21, 2009).

[148] *See id.*, at 2, Exhibit 1 & 3, Exhibit 2 (smartphones account for 42 percent of handset activations; the iPhone accounts for 30 percent of those smartphone activations).

[149] *See id.*, at 1 (iPhone and BlackBerry each accounted for 30 percent of smartphone activations in July 2009); *Handset Exclusivity Paper* at 1 (citing NPD Group Press Release, *RIM Unseats Apple in the NPD Group's Latest Smartphone Ranking* (May 4, 2009), http://www.npd.com/press/releases/press_090504.html).

variation in service offerings – all of which ensures that consumers have a wide range of options when choosing a wireless handset.

Specialized Devices. Any examination of the wireless "ecosystem" must take into account one of its fastest growing segments: specialized service offerings that use wireless service coupled with narrow-purpose devices. The Amazon "Kindle" – a wireless device that permits customers to download and read books – is perhaps the most well known example. Customers pay a one-time fee for the device, as well as a per-title fee for the content. The wireless service (which is provided by Sprint) is bundled with the device and associated content. Customers do not pay an additional fee for wireless connectivity, but they do agree to adhere to terms of use that restrict them to using the device (and its associated wireless service) only for its intended purpose and for no other purpose.[150]

The Kindle has proven exceptionally popular. Analysts estimate that Sprint serves 885,000 to one million Kindle users,[151] with approximately one million more expected by the end of 2010.[152] Following the successful launch of the Kindle in November 2007, in February 2009 Amazon released the Kindle 2, and in May 2009 Amazon released the Kindle DX, which

[150] *See* Andrew Berg, *Reading the Future of the Digital Book*, Wireless Week (May 31, 2009), http://www.wirelessweek.com/Articles/2009/06/Reading-the-Future-of-the-Digital-Book/; Amazon, *Amazon Kindle: License Agreement and Terms of Use* (last updated Feb. 9, 2009), http://www.amazon.com/gp/help/customer/display.html/ref=kin2w_ddp?nodeId=200144530&# wireless ("You agree you will use the wireless connectivity provided by Amazon only in connection with Services Amazon provides for the Device. You may not use the wireless connectivity for any other purpose.").

[151] *See* Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009) (estimating 885,000 Kindle users); Craig Moffett et al., BernsteinResearch, *Sprint (S): Pre-lude to a Turnaround?*, at 24, Exhibit 27 (June 23, 2009) (estimating one million users as of 1Q09).

[152] Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009).

features a larger screen and the ability to read documents in the Adobe PDF format.[153] Amazon's success is, in turn, provoking a competitive response. Sony is scheduled to release a competing next-generation e-book reader (the Sony Reader Daily Edition) in December 2009 which will offer comparable functionality (and which will access content through AT&T's 3G wireless network).[154] In October 2009, Best Buy will begin selling the IREX Technologies touch-screen e-reader, which features content downloads delivered over Verizon Wireless's network, as well as the ability to download content while traveling abroad.[155] Barnes & Noble is expected to release a Plastic Logic eReader with wireless downloads over AT&T's network in early 2010,[156] and the Hearst Corporation is said to be developing a wireless e-reader for periodicals.[157] All of these devices – though limited in what customers can do with the wireless service that comes along with them – promise still more customer choice and, therefore, enhanced consumer welfare.

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[153] *See* Amazon News Release, *Introducing Amazon Kindle* (Nov. 19, 2007), http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1079388&highlight=; Amazon News Release, *Introducing Amazon Kindle 2* (Feb. 9, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1254544&highlight=; Amazon News Release, *Introducing Kindle DX – Amazon's Large Screen Addition to the Kindle Family of Wireless Reading Devices* (May 6, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1285140&highlight=.

[154] *See* Sony Electronics Press Release, *Extra, Extra: Sony's Daily Edition Rounds Out New Line of Digital Readers* (Aug. 25, 2009), http://news.sel.sony.com/en/press_room/consumer/computer_peripheral/e_book/release/41492.html.

[155] *See* Verizon Wireless News Release, *IREX Technologies Turns the Page on eReaders with New 8.1-inch Consumer Device* (Sept. 23, 2009), http://news.vzw.com/news/2009/09/pr2009-09-23b.html.

[156] Jim Friedland & Kevin Kopelman, Cowen and Company, *Quick Take: Sony Announces E-Reader with Wireless Connectivity*, at 2 (Aug. 26, 2009); AT&T News Release, *Plastic Logic eReader Will Wirelessly Connect Using AT&T 3G Network* (July 22, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27157.

[157] *See* Michael V. Copeland, *Hearst To Launch a Wireless E-Reader*, Fortune (Feb. 27, 2009), http://money.cnn.com/2009/02/27/technology/copeland_hearst.fortune/.

Of course, e-readers are by no means the only type of specialized devices that will be made available to consumers if the Commission's recently announced net neutrality initiative does not shut the door to such innovation. One can imagine a whole range of devices tailored to consumers with various particularized needs or interests. Those devices might offer just a single functionality or some larger, but still limited, subset of the full range of applications available in the marketplace. Certainly, any net neutrality requirement the Commission adopts should reflect and respect the diversity of consumer tastes and preferences and leave room in the marketplace for devices that reflect those different tastes and preferences. If consumers prefer a device that is optimized for certain limited applications that are of particular interest to them, they should have that choice, just as they should have the choice of a device that is open to any and every available application.

Netbooks – small, light computing devices that are optimized for accessing web-based applications – are another increasingly popular device that rely on wireless connectivity (in particular, broadband connectivity). Laptop manufacturers such as Dell and retailers such as RadioShack and Costco began selling netbooks using AT&T's and Verizon Wireless's networks in early 2009, and, in July, Sprint followed with a promotional $0.99 offering for a Compaq Mini netbook that AT&T and Verizon Wireless were selling for $199.99.[158] Smaller wireless carriers – such as Cellular South and Cincinnati Bell Wireless – also have netbook offerings.[159]

[158] *See* RadioShack Press Release, *RadioShack Introduces 3G Netbook Utilizing AT&T's Mobile Broadband Service To Help People Stay Connected* (Dec. 11, 2008), http://ir.radioshackcorporation.com/releasedetail.cfm?ReleaseID=359371; Dell Press Release, *Dell and AT&T Energize On-the-Go Lifestyles with Special Offer for Select $99 Inspiron Mini 9* (Jan. 9, 2009), http://content.dell.com/us/en/corp/d/press-releases/2009-01-09-ATT-Mini9-Bundle.aspx; Verizon Wireless News Release, *Netbooks Hit Verizon Wireless Communications Stores May 17* (May 14, 2009), http://news.vzw.com/news/2009/05/pr2009-05-14.html; Christopher Larsen et al., PiperJaffray, *Sprint Getting More Competitive with Netbooks*, at 1

Netbooks are typically sold like handsets: an initial upfront cost is required to purchase the device, but the cost is subsidized if the consumer agrees to a service contract of a particular term (usually one or two years).[160] The customer must subscribe to a wireless data plan in order to activate wireless access for the netbook; price and data allowances vary by plan.[161] Consumers can also typically "bring their own netbook" – Cincinnati Bell, for example, offers a rebate for consumers who purchase a netbook independently and choose to have it serviced through them.[162] And if the netbook does not already have an agreement with a service provider, consumers can choose to purchase wireless USB devices that would allow them to access wireless broadband service in conjunction with a wireless data plan.

Myriad other specialty devices embed wireless service in order to provide an attractive service offering. As AT&T explains in detail in its comments in response to the *Wireless Innovation NOI*, AT&T is increasingly investing in machine-to-machine wireless applications that promise to generate enormous consumer welfare.[163] These efforts have in many respects

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(July 6, 2009); Marguerite Reardon, *Sprint Sells Netbook for a Buck*, CNET News.com (July 7, 2009), http://news.cnet.com/8301-1035_3-10280886-94.html.

[159] *See* Cellular South Press Release, *Cellular South Debuts Netbook with Built-In 3G High-Speed Mobile Broadband* (July 29, 2009), https://www.cellularsouth.com/news/2009/20090729.html; James Pilcher, *Technology: Review: Netbooks Worth Checking Out*, Cincinnatti.com (Sept. 11, 2009), http://news.cincinnati.com/article/20090911/BIZ02/909130301/1076/BIZ/Review++Netbooks+worth+checking+out.

[160] *See, e.g.*, Verizon Wireless, *Plans & Accessories, HP Mini 1151NR Netbook*, http://www.verizonwireless.com/b2c/hpnetbook/plansaccessories.jsp.

[161] For example, AT&T offers a plan for $40 per month with an allowance of 200 MB, as well as a plan for $60 per month with an allowance of 5 GB, with excess usage charges on a per-megabyte basis. AT&T, *DataConnect Plans*, http://www.wireless.att.com/cell-phone-service/cell-phone-plans/data-connect-plans.jsp.

[162] Cincinnati Bell, *Netbook Mail-In Rebate*, http://www.cincinnatibell.com/shared_content/pdf/zoomtown/netbook2_0709.pdf.

[163] *See AT&T Wireless Innovation NOI Comments* at 44-51.

already paid off. Thus, for example, AT&T has pioneered advances in "telehealth," working with device manufacturers to remotely monitor a patient's medical information and wirelessly transmit the information to doctors. Likewise, AT&T has developed path-breaking smart grid wireless applications that promise increased efficiency and savings throughout the nation's electricity infrastructure.[164] AT&T's wireless network is also in wide use in numerous other industries, including consumer products, automotive, industrial automation, payments and point of sales, transportation logistics, and security.[165]

AT&T also recently launched the AT&T Control Center, powered by Jasper Wireless – a platform to connect and support a variety of consumer electronic and business devices on AT&T's wireless network. The AT&T Control Center platform will offer automated management capabilities for all manner of device manufacturers, including instant activation when the device is powered on for the first time, usage analytics, performance assurance, customized rate plans that address the needs of particular market segments, design services to optimize devices for global deployment within a few weeks, and customer support to ensure continuity with support from expert engineers.[166] The platform will enable the wireless connection of, for example, personal and in-car navigation devices, e-readers, mobile Internet and gaming devices, and healthcare devices, among others.[167]

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[164] *See* AT&T, *Connecting People and Business with Sustainable Solutions*, http://www.att.com/Common/about_us/files/pdf/protect_the_planet/Brochure_ICT_Products.pdf; AT&T News Release, *AT&T To Offer Wireless Smart Grid Technology to Utility Companies* (Mar. 17, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26613.

[165] *See AT&T Wireless Innovation NOI Comments* at 45-46.

[166] AT&T News Release, *AT&T and Jasper Wireless Launch Integrated Platform to Wirelessly Connect Emerging Devices* (July 22, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26958.

[167] *See id.*

Nor, of course, is AT&T alone in this respect. General Motors has nearly 6 million subscribers to its exclusive OnStar service, which relies primarily on Verizon Wireless's network to provide services such as automatic crash response, stolen vehicle assistance, turn-by-turn navigation, and vehicle diagnostics, in addition to hands-free calling.[168] Other competitors are following suit with their own exclusive, wireless-based initiatives.[169] Ford, for example, offers an in-dash PC option in some of its trucks, with Internet access provided over Sprint's wireless network.[170] Chrysler, Dodge, Jeep, and Volkswagen offer a similar in-car Internet service, called uconnect web.[171] Verizon Wireless and Sprint now offer "MiFi" devices – portable WiFi hotspots that connect WiFi-enabled devices to their 3G wireless networks.[172] General Electric has introduced a digital smart meter that uses wireless connectivity to monitor power use.[173]

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[168] General Motors Corporation, Corp., Form 10-K, at 9 (SEC filed Mar. 4, 2009); Verizon Communications Inc., Form 10-K, at 6 (SEC filed Feb. 24, 2009).

[169] *See generally* Telematics Research Group, *Worldwide Telematics: Regional Markets and Forecast* (Apr. 2002), http://www.atec-tec.net/dossier/03vehicules/TelematicsResearchGroup_resume.pdf.

[170] Olga Kharif, *Cars Gone Wireless*, BusinessWeek (Apr. 9, 2009), http://www.businessweek.com/technology/content/apr2009/tc2009049_588284.htm.

[171] *See* Autonet Mobile Press Release, *Volkswagen Routan To Feature Wifi from Autonet Mobile* (June 9, 2009), http://www.autonetmobile.com/about/news/ANMVWRoutanPressReleaseJune9FINAL.pdf.

[172] *See* Marin Perez, *Sprint MiFi Hotspot Offers Personal 3G*, InformationWeek (May 14, 2009), http://www.informationweek.com/news/mobility/wifiwimax/showArticle.jhtml?articleID=217500233.

[173] *See* GE Digital Energy Press Release, *CenterPoint Energy Teams with GE on Advanced Metering System* (Mar. 30, 2009), http://www.microwavedata.com/AboutUs/NewsandEvents/Press-Releases.html?view=Article&task=Article&id=454. *See also* Tracy Ford, *Wireless Will Be Used To Make Electrical Grid Smart*, RCR Wireless News (Sept. 3, 2009), http://www.rcrwireless.com/article/20090903/FRONTPAGE/909039996/wireless-will-be-used-to-make-electrical-grid-smart; Randy Cauthron, *SMU Going to Wireless Meters*, Spencer Daily Reporter (Aug. 29, 2009), http://www.spencerdailyreporter.com/story/1565987.html (wireless

Progressive's "MyRate" auto insurance program relies on a small wireless device plugged into the insured's car that allows Progressive to see how, how much, and when the vehicle is being driven, and which in turn provides drivers with a customized insurance rate.[174] In these and many other ways,[175] more and more devices are becoming wireless-enabled, underscoring both the variation of wireless devices that exist today and the potential of such devices to drive economic growth and consumer welfare in the future.

Exclusive Distribution Arrangements. Smartphones (and smart devices) and smart networks are interdependent both from a technical and economic perspective.[176] As the above discussion makes clear, to remain competitive, carriers have not only invested heavily in their networks, but also have devoted enormous resources in collaboration with device manufacturers to innovate at the device level. That investment has ignited an explosion in the devices available to consumers, which in turn has lead to increased usage and, as a result, still more network

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meters have been installed in approximately 37 percent of the over 6,000 electric meters, and 32 percent of water meters monitored by Spencer Municipal Utilities).

[174] Progressive News Release, *One-of-a-Kind Car Insurance Program Lets Drivers Save Big Bucks Based on How They Drive* (June 27, 2008), http://newsroom.progressive.com/2008/June/myrate-launch.aspx.

[175] *See, e.g.*, Amol Sharma and Roger Cheng, *Sprint Looks To Power Gadgets Beyond Cell Phones*, Wall St. J. (Mar. 24, 2009) (Sprint "is now talking with companies such as GPS device maker Garmin Ltd., Eastman Kodak Co. and SanDisk Corp., which makes storage devices, about delivering wireless Internet service for their products"), http://online.wsj.com/article/SB123785070580819121.html; Nilay Patel, *T-Mobile Announces Tiny New "Embedded SIM" for Connected Devices*, Engadget (Apr. 23, 2009) ("T-Mobile's . . . new SIMs are the size of a pinhead and made of silicon instead of plastic, which allows them to be coded at the factory and hard-mounted directly to a device. . . . Devices with the new SIMs are expected to be out and sending data over T-Mo's network in as little as six months – the first is an energy meter from Echelon [a medical device] that should hit soon"), http://www.engadgetmobile.com/2009/04/23/t-mobile-announces-tiny-new-embedded-sim-for-connected-devices/.

[176] *See* Declaration of Thomas W. Hazlett, ¶ 46, GN Docket Nos. 09-157, 09-51 (FCC filed Sept. 30, 2009) ("Hazlett Decl.") (attached to *AT&T Wireless Innovation NOI Comments*); *AT&T Wireless Innovation NOI Comments* at 24-33.

investment, while at the same time spawning innovation and investment at the application level. This recent success story – *i.e.*, the industry's ability to channel investment into innovative devices – is directly traceable to the benefits of exclusive arrangements between device manufacturers and wireless providers, who have teamed together to share the risks and rewards of innovation.

Courts and economists uniformly recognize that exclusive arrangements – which are commonplace particularly in high-technology, capital intensive industries[177] – can promote innovation, investment, and competition.[178] Exclusivity can enhance each party's interest in the

[177] As just one example, the video game industry is characterized by three primary platforms – Nintendo (Wii), Sony (PlayStation), and Microsoft (Xbox) – that compete vigorously and that seek to differentiate themselves through exclusive arrangements with developers of specific, highly popular games. "Halo," for example, is available only for the Xbox, whereas "MLB 09 – The Show" is available only for the PlayStation and "Mario Kart" is available only for the Wii.

[178] *See* Willig Decl. ¶¶ 52-56; *see also* Declaration of Michael L. Katz, at 26-28, Exh. A to Reply Comments of AT&T Inc., WT Docket No. 09-66 (FCC filed July 13, 2009) ("Katz July 2009 Decl."); XI Herbert Hovenkamp, *Antitrust Law* ¶ 1810, at 136 (1998) ("[t]he benefits of exclusive dealing are many," "the potential of exclusive-dealing arrangements to produce beneficial results greatly exceeds their potential for harm," and these arrangements "should be presumptively lawful in all but a few carefully defined circumstances"); ABA, *Antitrust Law and Economics of Product Distribution*, at 270 (2006) (listing potential procompetitive benefits of exclusive dealing including, "assuring a source of supply or demand, providing guarantees against price increases, and stabilizing future revenue streams or cost estimates" as well as "increas[ing] investments in advertising and promotions by prohibiting free-riding by other dealers" and "benefit[ting] purchasers by providing price savings, improved customer service, the convenience of minimizing the number of suppliers, and reduced storage costs"); *id.* at 283-84 (collecting cases discussing efficiency justifications for exclusive dealing arrangements); *GTE Sylvania Inc.* v. *Continental T.V., Inc.*, 537 F.2d 980, 997 (9th Cir. 1976) ("[t]here is a veritable avalanche of precedent to the effect that, absent sufficient evidence of monopolization, a manufacturer may legally grant . . . an exclusive franchise"), *aff'd*, 433 U.S. 36 (1977); Benjamin Klein & Andres V. Lerner, *Procompetitive Justifications For Exclusive Dealing: Preventing Free-Riding And Creating Undivided Dealer Loyalty* (Nov. 12, 2006) *available at* http://www.usdoj.gov/atr/public/hearings/single_firm/docs/219980.htm (discussing numerous benefits of exclusive arrangements including increased dealer promotion and reduction in free riding); Benjamin Klein & Kevin M. Murphy, *Exclusive Dealing Intensifies Competition for Distribution*, 75 Antitrust L.J. 433, 437-38 (2008) (explaining that competition by manufacturers to obtain exclusive arrangements with distributors benefits consumers); Gregory Rosston &

competitive success of the venture. That enhanced incentive, in turn, increases each party's willingness to invest in the innovation: a party that might otherwise be concerned about free-riding can, through exclusivity, obtain some level of assurance that his investment in the many activities necessary to bring a product to market – research and development, manufacturing, promotions, staff training, network improvements, etc. – will not be stranded. Of particular importance in a technologically sophisticated industry, exclusivity can also encourage collaboration among partners who might otherwise be far less willing to cooperate on development activities.

The benefits of exclusive vertical agreements in a competitive marketplace are manifest in wireless.[179] Exclusive handset distribution arrangements have encouraged collaboration among network providers and manufacturers that has optimized handset performance and accelerated the delivery of next-generation features. They have increased carriers' incentives to make purchase commitments and to invest in promotions, network improvements and special training of sales staff. They have lowered manufacturers' barriers to entry and served as a key tool to maintain brand value. And, critically, they have encouraged other carriers and manufacturers to invest their own resources to improve their own handset portfolios or the prices, features and other characteristics of their existing offerings.

The iPhone – born of AT&T's exclusive arrangement with Apple – makes all of this abundantly clear. Released in June 2007, the iPhone represented a giant leap forward in smartphone design and functionality. The product has been extremely well received among

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Michael Topper, *An Antitrust Analysis of the Case for Wireless Network Neutrality*, SIEPR Discussion Paper No. 08-040, at 7 (Aug. 2009) ("A large economics literature details efficiency rationales for vertical restrictions on suppliers or distributors.").

[179] *See* Willig Decl. ¶¶ 26-29, 52-56; *see* Katz July 2009 Decl. at 26-28.

consumers,[180] and, to keep up with the exploding network usage that has resulted, AT&T has continued to invest billions in upgrading its infrastructure and deploying next generation networks. As explained, moreover, the popularity of the iPhone has triggered a vigorous competitive response, as competing carriers strive to match and exceed the popularity of the iPhone with their own devices, available through their own exclusive distribution agreements. The iPhone, in short, was a "game-changer."[181] It "rais[ed] the bar for competitive handset launches,"[182] and drove "greater data adoption for the overall industry."[183] And, while the

[180] *See* AT&T News Release, *Strong Wireless Growth, Continued Cost Discipline, Solid Free Cash Flow Highlight AT&T's Second-Quarter Results* (July 23, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26961; AT&T News Release, *AT&T's First Quarter Results Highlighted by Wireless Gains, U-Verse TV Growth, Double-Digit Increase* (Apr. 22, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26752; AT&T News Release, *AT&T Reports Fourth-Quarter and Full-Year Results Highlighted by Robust Wireless Data Growth, Accelerated U-Verse TV Ramp, Continued Double-Digit Growth in IP Data Services* (Jan. 28, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26502; AT&T News Release, *Strong Wireless Gains, Sound Operational Execution Highlight AT&T's Third Quarter; Results Led by 2.4 Million iPhone 3G Activations, Rapid Wireless Data Growth* (Oct. 22, 2008), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26227. *See* AdMob, *AdMob Mobile Metrics Report*, at 4 (June 2009), http://metrics.admob.com/wp-content/uploads/2009/07/admob-mobile-metrics-june-09.pdf (estimating 13 million U.S. iPhones as of June 2009); Phil Cusick et al., Macquarie Research, *Apple: iPhone Exclusivity in China*, at 7 (Aug. 31, 2009) (AT&T has sold 11.1 million iPhones as of June 2009, and there are nearly 9 million iPhones on its network).

[181] *See, e.g.*, Simon Flannery & Daniel Gaviria, Morgan Stanley, *AT&T, Inc.: Defensive Qualities Evident*, at 3 (Oct. 23, 2008) ("The iPhone is a game changer"); Timothy Horan et al., Oppenheimer, *2Q08 Mid-Quarter Review: 2Q08 Telecom Results Weak, But Mostly in Line with Expectations*, at 4 (Aug. 11, 2008) ("We believe that the 3G iPhone will be a game changer for the communications industry with true web browsing capabilities at real-time speeds."); Phil Cusick et al., Macquarie Research, *Wireless Emerging Devices: Smartphones To Drive Data Revenue*, at 12 (Mar. 30, 2009) ("Since the iPhone, there have been a number of similar branded phones available exclusively on one carrier, such as the Samsung Instinct and … Palm Pre (Sprint), Blackberry Storm (Verizon), and HTC G1 (T-Mobile USA).").

[182] Jason Armstrong et al., Goldman Sachs, *Americas: Wireless: The Mobile Data Opportunity – Finding the Best Spots in the Food Chain*, at 4 (Apr. 17, 2008).

[183] Christopher Larsen et al., PiperJaffray, *July Channel Checks Consistent with 2Q Results and Carrier Comments*, at 1 (Aug. 7, 2009).

iPhone's popularity obviously boosted AT&T's sales, it cannot plausibly be said to have *impeded* competition, any more than the popularity of the video game "Halo" – and the attendant boost in Xbox sales – can somehow be said to have impeded competition in the video game industry.[184]

In retrospect, of course, it is easy to view the iPhone as a great boon for AT&T and Apple. In fact, both companies risked a great deal. Apple had never before successfully developed and marketed a wireless handset. Its only previous venture into the handset arena – a three-party alliance among Apple, Motorola, and AT&T to develop and market the iTunes-enabled ROKR – was a failure.[185] For its part, although AT&T was in the midst of deploying its 3G broadband network, it had little practical experience in managing the network demands that come with enabling the intense wireless data usage that has resulted from the device's popularity.

AT&T made many substantial investments to help make the iPhone an innovative product. For example, AT&T invested thousands of man-hours working with Apple on critical issues such as fine tuning the RF signals used by the handset to maximize performance and battery life. AT&T also made significant contributions to innovative features of the iPhone, such as its "visual voicemail" feature (in which recorded calls are stored directly on the individual customer's handset). This feature had not been offered before, and AT&T therefore had to

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[184] *See supra* n. 177 (explaining that many popular video games are exclusive to particular video game consoles).

[185] *See* Michael Mace, *Motorola Rokr: Instant Failure*, Mobile Opportunity (Nov. 2005), http://mobileopportunity.blogspot.com/2005/11/motorola-rokr-instant-failure.html; Frank Rose, *Battle for the Soul of the MP3 Phone*, Wired (Nov. 2005), http://www.wired.com/wired/archive/13.11/phone.html?pg=1&topic=phone&topic_set=; *see also* Reply Comments of AT&T Inc., *Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition*, WT Docket No. 09-66, at 37-38 (FCC filed July 13, 2009).

develop and deploy the hardware and software necessary to implement visual voicemail (and other carriers have since made similar investments). AT&T also invested in new purchase and activation systems for the iPhone that would interact in real time with iTunes and would allow Apple's unique handheld point of sale devices to interface with AT&T's wireless service activation systems. AT&T significantly increased the capacity of its network to support the additional data traffic expected from iPhone users. AT&T also invested enormous resources in the promotion of the iPhone, and in special training for thousands of sales employees. And, as Apple has continued to add functionality to the iPhone, AT&T has continued to make these types of investments, including accelerating its deployment of 3G services throughout the U.S. and expanding the capacity of its 3G network. All of AT&T's 3G wireless customers benefited from these additional network investments, and performance improvements by AT&T have spurred other carriers to accelerate their own capacity investments, providing additional benefits to their customers.

To be sure, AT&T's investments in the iPhone have borne fruit: The product has been a success. But there were no guarantees at the time, and the Commission must be mindful not to confuse foresight with hindsight in considering the pleas of the disappointed competitors who, rather than rising to the competitive challenge, would ask the Commission to put in place rules that would inhibit the development of the next "game changer."[186]

Subsidized Handsets and ETFs. Just as exclusive handset distribution agreements are a defining, pro-competitive feature of the wireless industry, so too are subsidized handsets. And, like exclusive handset distribution agreements, subsidized phones – and the term commitments

[186] *See* Willig Decl. ¶¶ 26-29, 52-56.

and ETFs that go hand-in-glove with them – enhance consumer choice and are manifestly procompetitive.

As an initial matter, there can be no doubt that handset subsidies drive penetration of new and innovative handsets and services. Without subsidies, price would deter the penetration of new wireless devices. For example, AT&T offers the iPhone 3G to consumers at a price significantly below its cost – that subsidy has made the iPhone accessible to millions of consumers. And, again, the success of the iPhone has resulted in innovation by other wireless carriers. Subsidies – and the term commitments and ETFs that are necessary to permit providers to recoup the cost of subsidies – thus played a crucial role in the recent wave of innovation in smartphones.[187]

What is more, wireless services are overwhelmingly available without ETFs. Virtually all of the devices sold by AT&T are available with or without a term plan. Consumers who choose a subsidized device must commit to a term plan; consumers who are willing to pay list price for a device, or who avail themselves of AT&T's "bring your own device" offer, need not. Moreover, consumers can choose from a broad and increasing array of pre-paid wireless service options that have no contract term obligations (and, hence, no ETF), and that are typically lower in price than post-paid services.[188] In addition, even for consumers who prefer to purchase monthly service, the vast majority of wireless devices are available without an ETF. In short,

[187] ETFs also allow carriers to offer lower rates for wireless services to consumers by giving carriers certain and stable revenue flows, and by providing compensation for the lost revenues and up-front costs caused by early termination. In that way, as well, ETFs contribute to the penetration of wireless services.

[188] *See, e.g.*, Craig Moffett et al., BernsteinResearch, *Quick Take – U.S. Wireless: Sifting Through the Wreckage . . . A Q2 Scorecard*, at 2 (Aug. 6, 2009) ("[J]ust six months ago, post-paid all-you-can eat plans were priced at ~ 50% premium to prevailing prepaid plans. That gap is suddenly ~225%."); Craig Moffett et al., BernsteinResearch, *Weekend Media Blast: How the Other Half Lives*, at 2 (Sept. 18, 2009) ("The gap between pre-paid and post-paid 'everything' plans has widened to nearly $100 per month.").

although a subsidized handset is an option for consumers (and a popular one at that), consumers who would prefer to pay full price for a phone and take on no term commitment are generally free to do so.

Finally, it bears emphasis that consumers who do opt for a subsidized handset and accompanying term commitment are typically given a window within which they may cancel their service and return their device, subject only to a modest restocking fee. AT&T, for example, offers a 30-day trial window in which ETFs are not applied for any plan, as do Sprint and others.[189] Moreover, AT&T and most other carriers have begun prorating any ETFs that do apply. These pro-consumer policies belie any need for government intervention. Indeed, given that most consumers prefer a subsidized handset and accompanying term plan to an unsubsidized handset without a term plan, it would be demonstrably anti-consumer for the Commission to deny them that option.

3. Additional "Edge" Market Segments Are Highly Competitive

The variation, consumer choice, and innovation that characterize the network provider and device segments of the wireless industry are mirrored in the application and operating system segments. As network providers have invested billions in next generation networks, and as wireless providers and device manufacturers have worked to develop handsets optimized to take advantage of those networks, applications developers have responded with a blizzard of new and innovative applications that are proving enormously popular with consumers. And the

[189] *See* AT&T, *Plan Terms*, http://www.wireless.att.com/cell-phone-service/legal/plan-terms.jsp; Verizon Wireless, *Customer Agreement*, http://www.verizonwireless.com/b2c/globalText?textName=CUSTOMER_AGREEMENT&jspName=footer/customerAgreement.jsp; Sprint, *Early Termination Fee*, http://nextelonline.nextel.com/en/services/termination_fee/early_termination_fee.shtml?id9=vanity:etf; T-Mobile, *T-Mobile Terms and Conditions*, http://www.t-mobile.com/Templates/Popup.aspx?PAsset=Ftr_Ftr_TermsAndConditions&print=true.

growing array of operating systems with diverse business models on which to run these applications, coupled with the support, consultation and review processes available to them by application store providers, ensures that applications developers will have no shortage of outlets for bringing the fruits of their innovation to consumers.

Operating Systems. Wireless handsets today run a range of operating systems developed by third-party providers.[190] Neither AT&T nor any other carrier currently produces the operating system for any wireless device. Rather, AT&T offers consumers the choice of more than 100 wireless devices from the world's leading manufacturers, including Motorola, Nokia, Palm, LG, Samsung, Apple, RIM, Pantech, and Sony Ericsson, which in turn run a range of operating systems, including BlackBerry, Palm OS, iPhone OS, Windows Mobile, Symbian, and Java.[191] AT&T also offers a "Bring Your Own Device" program that permits consumers to purchase their own compatible GSM wireless device, running on the operating system of their choice.[192]

The variation in operating systems used in devices running on AT&T's network is matched by other providers in the industry. Verizon Wireless, for example, sells devices that run Palm OS, BlackBerry, and Windows Mobile, among others.[193] Sprint supports Android, Java

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[190] *See, e.g.*, Michael L. Katz, *Public Policy Principles for Promoting Efficient Wireless Innovation and Investment*, GN Docket Nos. 09-157 and 09-51, at Table 2 (FCC filed Sept. 20, 2009) (attached to *AT&T Wireless Innovation Comments*).

[191] *See* AT&T Choice, *Developers: Choose Your Strategy*, http://choice.att.com/developers/GettingStarted.aspx; AT&T, *Platforms & Operating Systems*, http://developer.cingular.com/developer/index.jsp;jsessionid=WP2Y0RLVPRTIFB4R0EWCPJUH0HIS0SXW?page=toolsTechOverview&id=800048.

[192] *See* AT&T Choice, *Customers: Devices*, http://choice.att.com/flash/customersdevices.aspx.

[193] *See* Verizon, *Verizon Development Center*, http://developer.verizon.com/downloads/Smart_Phone/PDF/SmartphoneDevices.pdf; Verizon, *Verizon Developer Community: Why Verizon?*, http://developer.verizon.com/jsps/devCenters/Network_Enablers/Landing_Pages/msg_cntr_why_vz.jsp.

ME, BlackBerry, Palm, Windows Mobile, the Brew mobile platform, and others.[194] And T-Mobile uses Android, RIM, Windows Mobile, SideKick, Motorola, Nokia, Samsung, and Sony Ericsson OS, among others.[195]

Among the more recently developed operating systems is Android, an avowedly "open" operating system which is already available on multiple devices, with more expected in the coming months.[196] In the Android model, the operating system is reportedly accessible to any developer with no pre-certification process; rather, the Android user community is expected to vet objectionable, inefficient, or unworkable applications.[197]

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[194] *See* Sprint, *Develop: Technologies*, http://developer.sprint.com/site/global/develop/technologies/p_technologies.jsp; Sprint, *Devices: Devices*, https://developer.sprint.com/show_devices.do; Sprint News Release, *Sprint Plans To Expand Customer Options by Launching Qualcomm's Brew Mobile Platform* (Sept. 11, 2009), http://phx.corporate-ir.net/phoenix.zhtml?c=127149&p=irol-newsArticle_Print_newsroom&ID=1330867&highlight=.

[195] *See* T-Mobile Partner Network, *Mobile Applications and Games Development Resources*, http://developer.t-mobile.com/site/global/develop_tools/apps_games/p_platforms.jsp; T-Mobile Partner Network, *All Devices*, http://developer.t-mobile.com/browseDevice.do?keyword=device+keyword+search.

[196] *See* Taylor Wimberly, *Sprint vs. T-Mobile: Which is the Best Android Carrier?*, CNETNews.com (Sept. 14, 2009), http://www.cnet.com/8301-19736_1-10351108-251.html (T-Mobile carries the G1 and the MyTouch 3G; the Motorola Cliq will be released later this year); Cellular South Press Release, *Cellular South Announces Launch of the HTC Hero; Android-Powered Smartphones Poised for Success* (Sept. 21, 2009), https://www.cellularsouth.com/news/2009/20090921.html (consumers can pre-order the Android-powered HTC Hero from Cellular South beginning October 5, 2009); *see also* Google And Blog, *Android Phones FAQ*, http://www.googleandblog.com/faq-about-google-android/ (updated Sept. 26, 2009) (listing more than 10 Android devices available overseas).

[197] *See* Letter from Richard Whitt, Google Inc., to James Schlichting, FCC, re: Apple's Rejection of the Google Voice for iPhone Application, at 5-6 (Aug. 21, 2009), http://wireless.fcc.gov/releases/9182009_Google_Filing_iPhone.pdf ("[T]here is no pre-approval process conducted by Google or any third-party before applications submitted by a registered developer (*i.e.*, developers who have provided verified credit card information) are available for download by users. There is a limited automated analysis that is performed on all uploaded applications at the time of submission, to identify technical issues that would prevent installation by the user and to notify the developer of these issues. . . . This automated process does not screen or reject applications on the basis of content or functionality. . . . Once an application has

Here again, the range of devices available to consumers, and the range of operating systems those devices run, translates into choices for consumers. As explained at the outset and discussed further below, as a means to ensure security and the efficient operation of the network, most operating systems require some level of pre-certification before running third-party provided applications. But those who prefer a different environment – one in which consumers themselves, rather than app store owners, assume responsibility for avoiding potentially harmful apps – plainly have options.

Applications. The volume of applications available to wireless consumers, and the rate at which consumers are downloading them, are stunning. Apple now boasts more than 85,000 applications in its App Store, and users have downloaded more than 2 *billion* of them.[198] And, although Apple's App Store is perhaps the best known, it is far from the only source of third-party applications for handsets – indeed, it is not even the largest. Each of the four national carriers, many handset makers, many operating systems suppliers, and numerous others have applications stores where customers can download applications to their handsets.[199] Many of

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been uploaded by the developer and made available for users of Android-powered handsets, the Android Market community is relied upon to flag applications that do not abide by our policies. An application that has received a threshold number of user flags is reviewed by Google staff and a determination as to whether the application violates our policies is made within approximately three days.").

[198] *See* Apple Press Release, *Apple's App Store Downloads Top Two Billion* (Sept. 28, 2009), http://www.apple.com/pr/library/2009/09/28appstore.html.

[199] *See, e.g.*, Nokia Press Release, *Ovi Store Opens for Business* (May 26, 2009), http://www.nokia.com/press/press-releases/archive/archiveshowpressrelease?newsid=1317441; Palm Press Release, *Palm Unveils More webOS Details: Palm Media Sync, Twitter Integration, App Catalog* (May 28, 2009), http://investor.palm.com/releasedetail.cfm?ReleaseID=386488; RIM Press Release, *RIM Launches BlackBerry App World: Users Able To Easily Discover and Download a Wide Range of Applications Directly from Their BlackBerry Smartphone* (Apr. 1, 2009), http://press.rim.com/release.jsp?id=2223.

these stores offer thousands of free applications; where an application is available for a fee, the charge ranges from $0.99 to more than $500.[200]

Store	Number of Applications	Number of Free Applications
Manufacturer App Stores		
Apple App Store	85,000+	15,058
Android Market	11,459	7,310
BlackBerry App World	2,734	658
Nokia Ovi Store	3.310	448
Palm App Catalog	80	80
Palm Software Store	5,000+	1,000+
Carrier and Third-Party App Stores		
AT&T MEdia Mall	90,000*	unknown
Handango	140,000+	unknown
HandMark	unknown	unknown
HandMarket Apps	1,200	unknown
Sprint Software Store	unknown	unknown
T-Mobile Web2Go	unknown	unknown
Verizon Wireless Mobile Web Games and Apps Store (formerly Get It Now!)	800	unknown

*includes applications, ringtones, wallpapers, and games

Sources: ***Apple.*** *Apple Press Release, Apple's App Store Downloads Top Two Billion (Sept. 28, 2009); 148apps.biz, App Store Metrics: App Prices, http://148apps.biz/app-store-metrics/?mpage=appprice (last visited Sept. 28, 2009).* ***Android.*** *AndroLib, Distribution of Free and Paid Apps, http://www.androlib.com/appstatsfreepaid.aspx.* ***BlackBerry.*** *BlackBerry, BlackBerry App World: Browse All Categories, http://appworld.blackberry.com/webstore/category/12.* ***Nokia.*** *Nokia Ovi Store, Applications, https://store.ovi.com/?lid=storeheader&lang=en-US#/index?priceType=free&q=&contentArea=home.* ***Palm App Catalog.*** *Jonathan Legget, Palm Pre Mobile Phone to Get Paid-For Apps This Week, Top 10 Mobile Phones (Sept. 21, 2009), http://www.top10.co.uk/mobilephones/news/2009/09/palm_pre_mobile_phone_to_get_paid_for_apps_this_week/.* ***Palm Software Store.*** *Palm, Palm App Store, http://appstore.pocketgear.com/palm/.* ***AT&T MEdia Mall.*** *AT&T Press Release, AT&T Customers Get More Mobile Broadband Coverage in Greater Philadelphia (Sept. 24, 2009); see also AT&T Press Release, AT&T Announces Top Mobile Apps and Games of First Quarter (May 4, 2009).* ***Handango.*** *Handango, Inc. Press Release, Handango and 3UK To Bring Premium Apps to Smartphone Customers Directly on Their Devices (Aug. 31, 2009).* ***HandMarket Apps.*** *Windsor Holden, Juniper Research, Handmark Gets in on the App Store Act, Analyst XPress (Aug. 5, 2009), http://www.juniperresearch.com/analyst-xpress-blog/2009/08/05/handmark-gets-in-on-the-app-store-act/.* ***Verizon Wireless Mobile Web Games and App Store.*** *Verizon. Get It Now Search, https://s-cache.getitnow.vzwshop.com/imgs/appmedia/3547.pdf; Verizon Wireless Press Release, Get to Games and Application Directly from the Mobile Web on Verizon Wireless Phones (Apr. 2, 2009); Verizon Wireless Press Release, Mobile Content Is Star at Verizon Wireless, PR Newswire (Apr. 2, 2009).*

Moreover, an app store is not the only medium through which apps are available to consumers. Apps can be directly downloaded to many devices from the web. The robust supply of applications available to wireless subscribers – and the multitude of sources through which those applications are available – means that anyone with an innovative application can find a medium through which to distribute it.

Although, as noted, developers can distribute apps to many devices directly over the Internet, developers who wish to develop and distribute applications through an app store have a

[200] *See, e.g.*, 148Apps.biz, *App Store Metrics: Application Price Distribution*, http://148apps.biz/app-store-metrics/?mpage=appprice.

host of tools available to assist them in accomplishing that result. AT&T, for example, provides extensive support for developers that wish to use AT&T's MEdia Mall, including a "Developer" tool on its website that makes AT&T's Universal Design guidelines available to developers to help them design applications that can be sold on AT&T's MEdia Mall (or elsewhere).[201] AT&T currently has more than 20,000 developers registered in its devCentral developer relations program,[202] and AT&T collaborates with developers to create applications and content for all of the world's major mobile operating systems. AT&T also makes available software development kits (SDKs) from several device and operating system manufacturers, testing tools for mobile applications, simulators for testing applications, "programming guides" with "in-depth technical discussion of different wireless technologies," "style guides" that "describe best practices and requirements for the different AT&T distribution channels," white papers with "developer insights, recommendations, and technical information," an "AT&T Apps Beta" program that allows developers to test applications with customers and receive customer feedback, and

[201] *See* AT&T Choice, *Developers: Choose Your Strategy*, http://choice.att.com/developers/GettingStarted.aspx; *see also* AT&T Choice, *Developers: Create It*, http://choice.att.com/developers/CreateIt.aspx ("Whether you are building a mobile web site or a downloadable application or even an application for the device's native operating system, we provide you with the tools and resources to help. In addition to the usual tools like SDKs, emulators, and custom APIs, AT&T offers dev support in the form of expert tutorials, web boards, webcasts and podcasts.").

[202] *See* AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068.

numerous other resources.[203] As a result of all of this, the MEdia Mall today offers more than 90,000 applications and other device content from more than 115 content providers.[204]

AT&T's approach, however, is just one of many options available to applications developers and consumers. As noted, in the Google/Android model, the operating system is reportedly accessible to any developer with no pre-certification process, thus allowing Google and its broadband and device partners to offer a different, competing customer experience – one that may be preferred by some consumers, but that involves its own trade-offs as the consumer bears a greater risk of malware and lower quality applications (as Google itself has acknowledged, "not having a pre-approval process can lead to a lot of shoddy and useless applications being passed through").[205] Likewise, the 700 MHz C Block licensee is subject to the Commission's "any device/any application" open access requirements. The C block licensee

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[203] AT&T, *AT&T Developer Resources*, http://developer.att.com/developer/index.jsp?page=toolsTechOverview&id=800064&WT.svl=800064; AT&T, *Apps Beta*, http://appsbeta.wireless.att.com/login?id=choiceconsumer.

[204] *See* AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835; AT&T News Release, *AT&T To Make Faster 3G Technology Available in Six Major Cities This Year* (Sept. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27068.

[205] *See* Casey Chan, *Android Users Ban Apps from Android Market, Not Google*, Android Central (Aug. 26, 2009), http://www.androidcentral.com/android-users-ban-apps-android-market-not-google; *see also* Bob Tedeschi, *Cellphones Largely Immune to Viruses, for Now*, N.Y. Times (Aug. 13, 2009) , http://www.nytimes.com/2009/08/13/technology/personaltech/13smart.html?_r=1 ("[M]obile software shops – like the Research in Motion App World for BlackBerrys, the Apple App Store, the Nokia Ovi Store and the application stores of the various wireless operators – test and approve programs before selling them. . . . Google, whose Android software runs the newest generation of smartphones, . . . said consumers must rely on user feedback to determine whether to trust a software maker. That leaves some risk, since newer apps in Android's 'Market' will have too little feedback for it to be of real use."); Samantha Rose Hunt, *Android: Browser So Vulnerable Users Urged Not To Use It*, TG Daily (Feb. 13, 2009), http://www.tgdaily.com/content/view/41445/108 (a "security researcher presented a new vulnerability in Google's mobile OS Android, which lets hackers take control of the phone's web browser and other processes from a remote location").

thus may not disable features on devices provided to customers nor lock devices so that they work only on the licensee's network; it must allow devices to access any and all capabilities of the licensee's C Block network; and it must ensure that devices the licensee provides to customers are open to any and all applications.[206] As the Commission has explained, these requirements – which depart from the Commission's long-held policy of licensing spectrum without restrictions on a flexible-use basis, and which were adopted "on a limited basis" so that the Commission could "observe the real-world effects" of an open-access mandate[207] – are unique to the 700 MHz C Block and go beyond the obligations applicable to licensees of other spectrum,[208] and they will thus ultimately give consumers yet another model to choose from.

Consumers, in short, have choices – not only in the applications they choose, but in the degree to which their provider plays a role in reviewing and certifying those applications. That choice must be preserved. As noted above, wireless penetration in the U.S. has now reached 87 percent, totaling more than 270 million subscribers. Among those millions are surely a large volume of subscribers that relish the opportunity to take part in Android's "open-source" user community, and that wish to decide for themselves whether a particular app may be harmful, inefficient, or worthless (or, in Google's words, "shoddy"). But those characteristics do not

[206] *See* 47 C.F.R. § 27.16(b), (e); *see also id.* § 27.16(b)(1)-(2) (establishing limited exception to open devices and applications requirements where "use would not be compliant with published technical standards reasonably necessary for the management or protection of the licensee's network," or "[a]s required to comply with statute or applicable government regulation").

[207] *Second Report and Order*, ¶ 205.

[208] *See id*. ¶ 202 (explaining that the Commission is not obligated to "treat all spectrum-based services identically" and need not "adopt a single regulatory model to assign spectrum rights in all bands"); *id*. ¶ 206 (applying open access requirements to "only C Block licensees"); *id*. ¶¶ 203-205 (applying open access requirements "only on a limited basis" and declining to apply such requirements to other spectrum blocks due to concerns about disruption of existing services and other "unanticipated drawbacks").

define all wireless subscribers. On the contrary, many subscribers may, for whatever reason – be it time, interest, or technical facility – prefer to delegate that job to their device manufacturer, network provider, or app store owner (or some combination of the three). It would be a profound mistake for this Commission – in the face of one of the most vibrant and popular developments in the history of the telecommunications industry – to adopt rules that prevent those consumers from making that choice.

Some parties, nonetheless, are asking the Commission to do just that. Notwithstanding the tens of thousands of applications that have become available to consumers in little over a year, and notwithstanding the billions of downloads of such applications during that time, they point to the unavailability of a single application (a 3G VoIP application) on a single device (the iPhone) as purported evidence of a looming market failure requiring Government intervention to ensure an "open Internet." This claim is remarkably thin on its face, but it is even more so when one considers all the facts. For one thing, Skype plainly has had no problem making its application available to consumers. According to Skype itself, Skype applications are available on more than 100 handsets, including those using Windows Mobile and Android operating systems.[209] AT&T itself permits Skype 3G applications to be downloaded to several of the phones it offers. It also permits Skype Wi-Fi applications on any phone, including the iPhone, and a Skype Wi-Fi application is currently available for download in the iTunes App Store.

Beyond that, claims that AT&T's policy with regard to Skype somehow portends a more generalized threat to Internet openness ignore the unique circumstances underlying that policy.

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[209] Skype News Release, *Worldwide, Consumers Still Perceive Wide Gap Between Their Computers and Mobile Devices; Want Greater Control Over Mobile Experience* (Mar. 17, 2009), http://about.skype.com/2009/03/worldwide_consumers_still_perc.html; *see also* Skype, *Use Skype: Mobile*, http://www.skype.com/mobile/ (identifying devices that can run Skype mobile).

As has been widely publicized, AT&T sells the iPhone at prices that reflect an enormous subsidy – the largest subsidy AT&T ever has offered on a wireless handset, on both a per-unit and aggregate basis. That subsidy has made the iPhone accessible to millions who might not otherwise have been able to afford it. From a consumer standpoint, it has been an unquestionable positive. That subsidy was, not surprisingly, predicated on certain assumptions regarding the monthly service revenues that would be generated by iPhone users. AT&T has indicated that it plans to "take a fresh look at possibly authorizing VoIP capabilities on the iPhone for use on AT&T's 3G network."[210] But its current policy of limiting such applications must be understood in light of that subsidy. That is especially the case given that AT&T does not restrict text messaging applications or applications that compete with AT&T's own applications from any device, including the iPhone. Nor does AT&T block or otherwise restrict the ability of users to access any lawful website. In short, and with all due respect to net neutrality advocates, the false significance attached to AT&T's policy with regard to a 3G VoIP application for the iPhone seems more like an attempt to justify a pre-conceived regulatory agenda than an honest assessment of the need for that agenda.

C. Wireless Competition Extends Across All Geographic Market Segments, Urban and Rural Alike

The *NOI* (¶ 33) asks "how competition differs between urban and rural areas" and why? AT&T's own experience here is instructive. AT&T's network alone provides coverage to close to 95 percent of the U.S. population, a percentage that will increase further upon approval of AT&T's acquisition of wireless assets from Verizon that are located primarily in rural areas

[210] Letter from James W. Cicconi, AT&T, to Ruth Milkman, FCC, RM-11361, RM-11497, at 8 (Aug. 21, 2009).

across 18 states.[211] By comparison, approximately 20 percent of the U.S. population lives in areas that are characterized as rural according to U.S. census data. Thus, AT&T alone provides coverage to the vast majority – at least three quarters – of rural America.

AT&T faces extensive competition in rural areas, just as it does in other parts of the country. The Commission's own data bear this out. According to the last CMRS report, more than 95 percent of the U.S. population was living in census blocks with at least three competing wireless carriers.[212] According to these data, even the least populated "counties with population densities of 100 persons per square mile or less . . . have an average of 3.6 mobile competitors," which is only marginally fewer that the average of 4.3 competitors in the nation as a whole.[213] The Commission correctly concluded, therefore, that "CMRS providers are competing effectively in rural areas."[214]

The extensive competition in rural areas is ensuring that rural consumers receive access to the most advanced wireless services and devices.[215] AT&T has broadly upgraded its network to 3G technology, including in numerous rural areas,[216] Verizon Wireless has announced its LTE

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[211] *See* AT&T News Release, *AT&T To Acquire Divestiture Properties from Verizon Wireless, Enhance Network Coverage and Customer Service* (May 8, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26803.

[212] *See Thirteenth Report* ¶ 2.

[213] *Twelfth Report* ¶ 105.

[214] *Id.* at ¶ 110.

[215] *See* Reply Comments of CTIA – The Wireless Association, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 2 (FCC filed July 21, 2009) ("90 percent of Americans live in areas with more than four 3G wireless broadband service providers").

[216] *See* AT&T News Release, *AT&T Extends Nation's Fastest 3G Mobile Broadband Network to Decatur, Granbury and Weatherford* (Aug. 4, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27039.

technology will be deployed nationwide,[217] and smaller wireless carriers that focus on rural areas have indicated that they are broadly deploying 3G technology. For example, US Cellular states that it "has 3G coverage enabled on about 60% of its cell sites," and provides "[b]roadband coverage to many unserved and underserved areas."[218] Stelera Wireless, based in Oklahoma City, was "founded a couple years go . . . with one goal in mind and that was to go build rural broadband only networks," which they have now deployed "in over 20 communities, communities that are 20,000 people and below, true rural." Stelera also is "in the process of building out 55 communities around the U.S. today," which it will complete by the end of 2009, and in 2010 "will begin building out an additional 250 cities across the U.S."[219] As the discussion above makes clear,[220] this is just a small sampling – virtually *all* wireless providers, no matter their size, are investing heavily to deploy next generation technology in their service areas. Moreover, smaller wireless carriers, along with other infrastructure providers, have together applied for more than $800 million of stimulus funding from the American Recovery

[217] *See, e.g.*, Marguerite Reardon, *Verizon Promises 4G Wireless for Rural America*, CNET News.com (Apr. 1, 2009), http://reviews.cnet.com/8301-12261_7-10209933-51.html (Verizon Wireless "'plan[s] to roll out LTE throughout the entire country, including places where we don't offer our CDMA cell phone service today.'" (quoting Tony Melone, Verizon Wireless Senior VP and CTO)).

[218] U.S. Cellular, *Expanding Wireless Broadband Services and Increasing Wireless Competition*, at 2 (Sept. 8, 2009), *attached to* Letter from W. Lavey, Skadden, Arps, Slate, Meagher & Flom LLP to Marlene Dortch, FCC, Docket Nos. 09-51 et al. (FCC filed Sept. 9, 2009).

[219] FCC National Broadband Plan Workshop, Wireless Broadband Deployment – General, Transcript at 19 (Aug. 12, 2009) (Ed Evans, CEO, Stelera Wireless), http://www.broadband.gov/docs/ws_03_deploy_wireless_transcript.pdf ("Wireless Broadband Hearing, Tr.").

[220] *See supra* pp. 17-18.

and Reinvestment Act of 2009, which, if granted, will further accelerate the deployment of mobile broadband in rural areas.[221]

AT&T and other wireless carriers also make the same handsets available in rural areas as they do in other parts of the country, and generally provide the same wireless service plans.[222]

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[221] For example, KeyOn Communications, a wireless broadband provider specializing in rural areas, has requested $150 million. *See* KeyOn Communications News Release, *KeyOn Files Applications for $150 Million of Federal Broadband Stimulus Funds Under the American Recovery and Reinvestment Act of 2009* (Aug. 19, 2009), http://www.keyon.com/investors.html#0819. U.S. Cellular has requested $23.5 million to provide wireless broadband to rural areas of California, Kansas, Missouri, and Nebraska. *See* Marin Perez, *U.S. Cellular Seeks Stimulus Grants*, Informationweek.com (Sept. 14, 2009), http://www.informationweek.com/news/government/mobile/showArticle.jhtml?articleID=220000265. ERF Wireless has applied for $24.6 million to build a WiMAX network for rural areas in east Texas and Louisiana. *See Broadband Stimulus Round 1 Applicants: ERF Wireless Applies for $24.6 Million in Louisiana and Texas,* StimulatingBroadband.com (Sept. 11, 2009), http://www.stimulatingbroadband.com/2009/09/broadband-stimulus-round-i-applicants_11.html. Rural wireless broadband carriers have partnered with Versar, Inc. and Lemko Corporation, a software provider for mobile networks, and submitted grant applications of more than $150 million. *See Broadband Stimulus Round 1 Applicants: Versar and Lemko Apply for $150 Million,* StimulatingBroadband.com (Sept. 18, 2009), http://www.stimulatingbroadband.com/2009/09/broadband-stimulus-round-i-applicants_18.html. And many other small providers have sought stimulus funding for rural broadband. *See* Broadband USA, *Applications Database: Search Applications*, http://www.ntia.doc.gov/broadbandgrants/applications/results.htm (NTCH, Inc. has applied for more than $175 million in grants and loans for EV-DO and LTE upgrades to networks in areas including west and central Tennessee, central Illinois, northwest Alabama, eastern North Carolina, and southwest Idaho; KeyStone Wireless has requested $39.6 million in grants and loans to construct a 3G wireless network in rural areas of central Pennsylvania; Union Telephone has applied for $30 million to expand the Union Wireless 3G network in Wyoming; Nex-Tech Wireless has applied for more than $18 million in grants and loans for 3G EV-DO networks in underserved areas in east Kansas; iPCS has applied for more than $7 million in grants and loans to expand its 3G network to 13 service areas; Agri-Valley Communications has applied for more than $31 million in grants and loans to provide LTE services in the northern half of Michigan's lower peninsula, and the eastern half of Michigan's upper peninsula; and MCG PCS has applied for $14 million to provide wireless broadband in Pennsylvania and western New York).

[222] *See, e.g.,* AT&T News Release, *AT&T To Acquire Divestiture Properties from Verizon Wireless, Enhance Network Coverage and Customer Service* (May 8, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=2680 ("After operations transition to AT&T, the primarily rural subscribers added through this transaction will be able to experience mobile broadband on all the smartphones AT&T offers."); *see also*

For their part, regional carriers that serve rural America likewise offer a range of competitive service plans and a rich array of cutting edge devices.[223] In many cases, as the Commission has recognized, wireless acquisitions have heightened competition in rural areas by making available to rural consumers "expanded and improved services and features," "increase[d] broadband deployment and next generation services," "higher quality service," and the benefits of "increase[d] efficiency and . . . economies of scale and scope."[224] Such acquisitions should be encouraged and promptly approved when they have no anticompetitive effects.

To be sure, the economics of providing any type of product or service – including wireless – are more challenging in rural areas, because the lower population density of these areas typically entails higher average delivery costs. In the case of wireless, for example, a cell site or backhaul facility in a rural area will serve fewer customers than a site or facility in an urban area, which translates into higher average costs.[225] But more so than with many other types of products and services, wireless carriers have incentives to provide service in rural areas in order to be able to reduce the cost of providing truly nationwide coverage to their customers.

Thirteenth Report ¶ 105 ("Providers based in rural areas seem to be providing many of the services that nationwide providers do.").

[223] *See supra* pp. 71-72.

[224] *E.g.*, Memorandum Opinion and Order and Declaratory Ruling, *Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent To Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements and Petition for Declaratory Ruling That the Transaction Is Consistent with Section 310(b)(4) of the Communications Act*, 23 FCC Rcd 17444, ¶ 121 (2008); *see generally id.* ¶¶ 119-156. Moreover, the Commission has imposed conditions to address any perceived competitive harms resulting from these transactions.

[225] This explains the strategy of some carriers to "have a network footprint covering only the principal population centers of [its] various markets," and to rely on roaming agreements to offer broader services. Leap Wireless International Inc., Form 10-Q, at 74 (SEC filed Aug. 7, 2009); *see also* Leap Wireless International Inc., Form 10-K, at 7 (SEC filed Feb. 27, 2009) ("We generally build out our Cricket network in local population centers of metropolitan communities serving the areas where our customers live, work and play."); *infra* pp. 89-94 (discussing roaming).

II. THE SPECTRUM AND NON-SPECTRUM INPUTS IN THE MOBILE VALUE CHAIN ARE HIGHLY COMPETITIVE

In addition to seeking information on the retail "edge" markets discussed above, the *NOI* expands the Commission's inquiry in this proceeding to include "upstream markets for key inputs," asking how "spectrum" and "non-spectrum" inputs alike "affect overall competition." *NOI* ¶¶ 9, 23. Here, too, there is no need to depart from the Commission's traditional approach: As an economic matter, the fact that wireless competition is robust at every level – as demonstrated above – indicates that providers of services in downstream markets are able to obtain access to upstream inputs on reasonable terms.[226] But in any case, here too, the Commission's broader inquiry will serve only to confirm that all aspects of the wireless "value chain" are highly competitive.

Indeed, as to both spectrum and non-spectrum inputs alike, the facts make clear that the Commission's core objective should be to encourage competitive supply. As to spectrum, that means taking aggressive steps to ensure that there is sufficient spectrum available to meet the rapidly growing demand for broadband services. The Commission also must preserve incentives to ensure valuable spectrum is developed to its most productive uses, which means giving licensees the flexibility to use their spectrum as they see fit and protecting it from interference. As to non-spectrum inputs, the *NOI* (¶ 26) focuses on wireless backhaul, for which there is significant and growing competition, particularly from intermodal sources such as cable and fixed wireless. To ensure this investment in competitive facilities continues, the Commission must ensure there are strong incentives to invest and therefore must eschew further rate regulation of legacy special access services that historically were used for wireless backhaul. Imposing additional price constraints on special access services will artificially encourage

[226] *See* Willig Decl. ¶¶ 61-62.

continued reliance on these services at the expense of the higher-capacity competitive facilities that are now being deployed. Finally, the Commission also should resist more intrusive regulation of roaming agreements. The Commission's existing policies preserve incentives for wireless carriers to invest to expand their coverage, while at the same time allowing carriers to obtain roaming agreements in the interim while that investment takes place.

A. The Commission Should Take Aggressive Steps To Make More Spectrum Available Under a Regime That Encourages Its Efficient Use

The amount of licensed spectrum allocated to mobile wireless services in the U.S. has historically lagged behind the amount available in other industrialized countries.[227] The recent 700 MHz auction helped correct this imbalance, bringing the total amount of licensed spectrum in the U.S. up to levels comparable to those in the European Union.[228] Yet the U.S. generally has more wireless carriers competing than in Europe or elsewhere,[229] meaning that, on average, there is less spectrum available to each U.S. carrier in a given market.

At the same time, and as demonstrated above, usage of wireless services in the U.S. far exceeds levels elsewhere.[230] The more than 270 million wireless customers in the U.S. make far more use of their mobile devices – both in terms of voice and data – than their foreign counterparts.[231] U.S. wireless carriers have managed the heavy strain on their networks by

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[227] For example, as of 2001, European Union regulators had issued mobile licenses allocating an average of 266 MHz per country, which was about fifty percent more than the amount allocated in the U.S. at that point. Thomas W. Hazlett and Roberto E. Munoz, *Spectrum Allocation in Latin America: An Economic Analysis*, 18 Info Econ. & Pol'y __ (2009) (publication pending), *available at* http://mason.gmu.edu/~thazlett/pubs/LA.TH.RM.5.5.09.doc.

[228] *See CTIA Study* at 15.

[229] *See* Letter from Christopher Guttman-McCabe, CTIA, to Marlene Dortch, FCC, WT Docket No. 09-66, at 2 (Sept. 10, 2009).

[230] *See supra* pp. 30, 34-35.

[231] *See* CTIA CMRS Comments, Attachment A at 9 (findings by Merrill Lynch and others that "U.S. wireless companies provide consumers with more service for their

engineering them to use spectrum as efficiently as possible. U.S. wireless networks serve more customers and carry more traffic than most other industrialized nations, and they do so at speeds that meet or exceed those of most any other country.[232] These networks have thus become some of the most efficient users of mobile wireless spectrum in the world.

Although heavy investment and technical ingenuity have allowed wireless competition and innovation to prosper thus far, rapidly growing demand for bandwidth-intensive wireless services is placing excessive demands on current networks and spectrum. Within the confines of their existing spectrum holdings, wireless carriers are accordingly doing everything they can to support this rising demand. Again, AT&T is deploying 2,000 new cell sites and HSPA 7.2 technology, and has future plans to deploy LTE technology.[233] Other wireless carriers, as shown above, also are deploying additional cell sites and next-generation wireless technologies. And still others are resorting to using spectrum originally allocated for other uses to offer mobile broadband.[234]

As this investment demonstrates, the principal concern today is not that spectrum is being underutilized (*see NOI* ¶ 24), but precisely the opposite. Independent studies show that, even before the recent rise in the growth in broadband data, commercial wireless spectrum was being

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telecommunication dollar, while maintaining the most spectrally efficient networks in the world.").

[232] *See OECD Communications Outlook 2009*, at 91, Table 3.8 & 132, Table 4.11 (the U.S. carried 443 minutes per mobile subscriber per month and served 263 million mobile subscribers in 2007, more than any other OECD country); *see also* Christopher Guttman-McCabe, CTIA, *Debunking the Myth on 3G Speeds in the U.S.* (Sept. 15, 2009), http://www.ctia.org/blog/index.cfm/2009/9/15/Debunking-the-Myth-on-3G-Speeds-in-the-US.

[233] *See* AT&T News Release, *AT&T To Deliver 3G Mobile Broadband Speed Boost* (May 27, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26835; *supra* p. 16.

[234] Clearwire, for example, "operate[s] primarily on spectrum located within the . . . 2.5 GHz band, which is designated for Broadband Radio Service, . . . and Educational Broadband Service." Clearwire Corp., Form 10-K, at 16 (SEC filed Mar. 25, 2009).

heavily utilized.[235] To achieve greater spectral efficiency, mobile operators have invested enormous sums to rapidly and continually upgrade their networks over the past decade – from TDMA to GSM to EDGE to HSPA to LTE and from 1xRTT to EV-DO to LTE – to achieve greater spectral efficiency.[236] LTE, for example, is twice as spectrally efficient as previous generation technologies such as EV-DO and UMTS/HSPA.[237] By contrast, studies also show that the least utilized bands are the unlicensed bands.[238] Service providers in these bands do not have incentives to use the most spectrally efficient technology or to minimize interference, creating concerns about a "tragedy of the anti-commons" that has deterred investment.[239]

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[235] *See, e.g.*, John T. MacDonald, *A Survey of Spectrum Utilization in Chicago* 6-7 (Mar. 7, 2007), http://www.ece.iit.edu/~wemi/publications/spectrum.pdf (For the 1850-1900 MHz band used for PCS: "In the utilization statistic, it appears as if the down-link side is fully occupied and the up-link side is not occupied. This cannot be the case because duplex telephone channels listen as often as they talk, so the utilization should be the same on both the up-link and down-link side. Because cellular phone service providers try to maximize their frequency utilization in order to maximize their revenues, the obvious conclusion is that this band has a nearly 100% utilization, yet the occupancy figure measures in at only 35%.").

[236] *See* Hazlett Decl. ¶ 34; Mike McCormack et al., Bear Stearns, *A Monthly Update on Critical Broadband Issues*, at 2, Exhibit 1 (Feb. 4, 2008) (describing the GSM and CDMA evolution paths); Craig Moffett et al., BernsteinResearch, *U.S. Telecom: Countdown to U.S. Wireless Market Saturation; How Much Risk in a Recession?*, at 24, Exhibit 45 (Nov. 19, 2007) (showing the timeline of network upgrades).

[237] *See* Rysavy Research, *Mobile Broadband Spectrum Demand*, at 14, Table 2 (Dec. 2008) (Spectral efficiency of LTE is 1.5 bps/Hz, compared to 0.75 for EV-DO and UMTS/HSPA).

[238] *See* Hazlett Decl. ¶¶ 36-38 & Fig. 3.

[239] Hazlett Decl. ¶ 41 & n.42 (internal quotation marks omitted); *see also* Forward by Professor William Webb, FIEEE, Head of Research and Development, Ofcom, to Rysavy Research, *Mobile Broadband Spectrum Demand* at 4 (Dec. 2008) ("[S]pectrum in the frequency bands below around 4-5 GHz (with important exceptions) is generally more valuable used in a licensed application rather than license-exempt or 'spectrum commons.' Research in the UK has shown that licensed applications such as cellular and broadcasting generate far more value to the economy than commons usage – in the case of the UK only 1% of the total value from the use of spectrum was generated by commons usage such as Wi-Fi. . . . Since most commons usage is short range it therefore makes sense to place it above the frequencies that are readily usable for cellular and broadcasting. However, bands such as at 2.4 GHz are an exception to this because they would be of limited use to cellular due to the interference already occurring in the band.").

Although market forces require commercial wireless carriers to use the most efficient technology in their networks and to maximize the use of their spectrum to provide the highest quality service to the largest possible number of users,[240] there are real and practical technical limits to how much network capacity can be created in any given spectrum band while at the same time ensuring the same high-degree of service to which customers have become accustomed and that is necessary for providers to remain competitive in the marketplace.[241] In order to satisfy the ever increasing array of bandwidth-intensive mobile wireless services and the rapid rise in the number of consumers using these services, mobile wireless carriers will need significant additional spectrum going forward.[242] For example, the International Telecommunications Union has conducted a highly detailed analysis of spectrum needs for advanced wireless services such as LTE and projects total spectrum requirements for the U.S. of as much as 840 MHz by 2010, 1300 MHz by 2015, and 1720 MHz by the year 2020.[243] By comparison, following the recent AWS and 700 MHz auctions, about 360 MHz[244] has been

[240] *See* Hazlett Decl. ¶¶ 8-24; Gerald R. Faulhaber & David J. Farber, *Innovation in the Wireless Ecosystem: A Customer-Centric Framework*, at 8-12 (FCC filed Sept. 30, 2009) ("Faulhaber/Farber") (attached to *AT&T Wireless Innovation NOI Comments*).

[241] *See, e.g.*, Faulhaber/Farber at 12-15.

[242] AT&T's companion comments in response to the *Wireless Innovation NOI* provide further details on how the Commission may repurpose spectrum for mobile wireless services given the fact that much of the radio spectrum resources has already been allocated.

[243] *See* International Telecommunication Union, *Report ITU-R M.2078: Estimated Spectrum Bandwidth Requirements for the Future Development of IMT-2000 and IMT-Advanced*, at 25, Table 25 (2006).

[244] *See* Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum*, at 4 (Apr. 15, 2008); Rysavy Research, *Mobile Broadband Spectrum Demand* at 23 & n.49 (Dec. 2008) (354 MHz allocated for CMRS, comprising the cellular, broadband PCS, SMR, AWS-1, and 700 MHz bands).

allocated for commercial mobile services in the U.S. (and approximately 680 MHz[245] for all mobile services), which in both cases is well short of the spectrum needed to satisfy projected demand.[246]

As the *NOI* recognizes, making additional spectrum available is particularly critical to facilitating the deployment of "next generation/4G network technologies such as WiMax and Long Term Evolution (LTE)." *NOI* ¶ 24. In order to migrate to LTE on a broad scale, wireless companies will need a "wide band of clean spectrum."[247] Wireless carriers including Verizon and AT&T accordingly plan to use their recently acquired 700 MHz spectrum to deploy LTE.[248] But it is widely understood that significant additional spectrum will be required to provide true wireless broadband services nationwide. As Motorola has noted, for example, "[i]t is clear that existing bands will not be enough for IMT [International Mobile Telecommunications, the ITU

[245] *See* Rysavy Research, *Mobile Broadband Spectrum Demand* at 23-24 & n.50 (Dec. 2008) (680 MHz includes "50 MHz of cellular spectrum, 24 MHz in the SMR bands, 120 MHz of broadband PCS, 90 MHz in the AWS-1 band, 70 MHz in the 700 MHz bands, 195 MHz in the BRS and EBS bands, and 132.425 MHz of MSS ATC spectrum.").

[246] *See* Faulhaber/Faber at 22; *see also* Rysavy Research, *Mobile Broadband Spectrum Demand* at 3 (Dec. 2008) ("Ericsson . . . indicates data traffic is already three times the voice traffic on some UMTS networks they have measured within the last twelve months. A leading national wireless broadband provider predicts that by 2018, 3G/4G mobile data traffic will expand by a factor of 250 (conservative estimate) to 600 (aggressive estimate). In contrast, mobile voice traffic is expected to 'only' triple in that same period.").

[247] Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum* at 3 (Apr. 15, 2008) ("Because LTE is an OFDM (orthogonal frequency-division multiplexing) system, the transition is different than previous Verizon/AT&T transitions. When they went from 1xRTT to EVDO or from TDMA to GSM to Edge, they had base stations that used some spectrum on the older technology and some on the new. With LTE, the companies can't gradually migrate spectrum and users to the new standard as 4G equipment supply and service demand ramp up. Instead, they need a wide band of clean spectrum to build complete systems from scratch.").

[248] *See, e.g.*, Simon Flannery et al., Morgan Stanley, *Telecom Services: 1Q Trend Tracker: Earnings Resilience Supports Outperformance Potential*, at 3 (June 5, 2009); Walter Piecyk & Joseph Galone, Pali Research, *Verizon Communications: Initiating Coverage with a Buy Rating and a $39 Target*, at 11 (June 17, 2009).

standard for 3G and 4G technologies including LTE] services approximately after the year 2015 and additional bands are needed. In order to deliver a true broadband experience, large blocks of spectrum will need to be identified and allocated."[249] Indeed, Clearwire's Chief Technology Officer has claimed that Clearwire's decision to use WiMax instead of LTE will give it a competitive advantage over traditional wireless carriers because it "'believe[s] the LTE operators will be hard-pressed to find the spectrum to build a nationwide broadband network.'"[250]

In evaluating spectrum, both from the perspective of making new spectrum available and in terms of the Commission's competitive analysis, it is important to recognize that a wide variety of bands can be used to support mobile wireless services. Today, for example, mobile wireless services are being provided on the following bands from 700 MHz to 2.5 GHz: 700 MHz, 800 MHz (cellular), 1.9 GHz (PCS and SMR), 1.7/2.1 GHz (AWS), 2.5 GHz (WiMAX), 2.6 GHz (BRS). New broadband technologies such as LTE likewise can operate on both low and high frequencies, from 450 MHz to 3.5 GHz (and potentially higher).[251] Moreover, just as technology has permitted higher and higher frequencies to be used in the past, the amount of usable spectrum will continue to increase going forward as engineers push radio frequencies up

[249] Motorola, White Paper: Spectrum Analysis for Future LTE Deployments, at 5 (2007), http://www.motorola.com/staticfiles/Business/Solutions/Industry%20Solutions/Service%20Providers/Wireless%20Operators/LTE/_Document/Static%20Files/LTE_Spectrum_Analysis_White_Paper_New.pdf ("ITU (ITU-R M.2078) projects overall spectrum requirements for the future development of IMT-2000 and for IMT-Advanced. The results assert that additional spectrum demand of between 500 MHz and 1 GHz will be needed in all ITU regions by 2020.").

[250] Unstrung.com, *Clearwire: We're Ready for Primetime* (June 12, 2008) (quoting Clearwire CTO John Saw), http://www.unstrung.com/document.asp?doc_id=156240.

[251] *See, e.g.*, Deepak Dasalukunte, Department of Electrical and Information Technology, *3G Evolution – HSPA and LTE for Mobile Broadband; Chap. 14, LTE Radio Access: An Overview* (Apr. 29, 2009), http://www.eit.lth.se/fileadmin/eit/courses/phd003/Slides/Ch14.pdf. MSS/ATC spectrum and 3650 (non-exclusive nationwide licenses) may support terrestrial mobile wireless services in the future.

into higher bands, and radio costs down.[252] It therefore would be a mistake to adopt 1 GHz as a demarcation point in "distinguish[ing] the competitive effects of different spectrum bands," as the *NOI* proposes. *NOI* ¶ 24. Carriers are capable of and already are using bands well above 1 GHz to provide the full range of wireless services that consumers demand, and that will continue to be true going forward.

The *NOI* (¶ 25) correctly recognizes, however, that different frequency bands have different propagation characteristics, which may "translate into capital and operating cost differences." Lower frequencies generally have broader propagation, which in theory may permit a radio system to be deployed over the same area with fewer cells than with higher frequency spectrum. But as one wireless engineer has explained, "it cannot be assumed that any radio system operating in a lower frequency band will require fewer cells or be more economical to deploy and operate than another radio system operating in a higher frequency band," because other factors – such as the presence of large buildings or other physical impediments – also affect propagation.[253] Thus, "in urban areas that are capacity-limited, there is likely to be little to no difference in the number of cells required at 700 MHz vs. 2.5 GHz."[254] Because the

[252] *See, e.g.*, Ray Horak, Telecommunications and Data Communications Handbook at 64 (2007) ("While there is no additional radio spectrum being manufactured these days, technology has continued to develop to the point that some WLL systems run effectively in the range of 38 GHz. Technology certainly will continue to develop and usable spectrum certainly will continue to increase, but it is important to remember that radio spectrum will always be limited.").

[253] Joanne C. Wilson, *Understanding Spectrum Issues in the Deployment of Broadband Wireless Access Networks*, Presentation to the Meeting of the South Carolina Senate Broadband and Telecommunications Technology Study Committee, at 18 (Dec. 12, 2007), *available at* http://www.scstatehouse.gov/citizensinterestpage/BroadbandTechnology&CommunicationStudyComm/commentsandpresentations/JoanneWilsonPresentation.pdf.

[254] *Id.*; *see also* Blair Levin et al., Stifel, Nicolaus & Co., *What 700 MHz Winners Can Do with Their Spectrum* at 5 (Apr. 15, 2008) ("700 MHz requires a third to a half of the base stations compared to 2.5 GHz. The differences blur in urban areas because one trades capacity for range. 700 MHz's big physical advantage is in rural areas, but that's not where the first

interrelationship of factors that affect the degree of spectral efficiency are extremely complex, it is critical that the Commission allow market forces to engineer the correct mix. By the same token, the Commission must consider a wide range of spectrum bands in its competitive analysis, rather than drawing an arbitrary demarcation point.

B. The Commission Should Encourage the Competitive Supply of Backhaul

The *NOI* (¶ 26) asks how "the structure of the market for backhaul services affect[s] overall competition" for wireless services. As discussed below, and as Professor Willig explains, the intense competition for mobile wireless services at every level of the value chain is powerful economic evidence that the structure of the market for backhaul services is in no way impeding wireless competition or investment, both of which are robust and increasing.[255] That should come as no surprise because, as AT&T has elsewhere shown repeatedly, there is significant and growing competition for wireless backhaul services. Moreover, going forward, competition will only further intensify because the exploding demand for backhaul capacity, resulting from the rapid growth of bandwidth-intensive wireless services, is attracting competitors of every stripe who are investing in our nation's infrastructure, replacing legacy backhaul facilities (such as DS1 and DS3 services) with fiber and microwave connections.

First, as a threshold matter, the robust competition in retail wireless service detailed above is itself sufficient to demonstrate effective competition for wireless backhaul. As Professor Willig explains, effective competition downstream is itself an indicator of effective competition upstream.[256] As explained in detail above, the wireless industry demonstrates all of

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build-out occurs. The 700 MHz advantage indoor is less than often thought because while 700 MHz penetrates walls better, 2.5 GHz uses windows better.").

[255] *See* Willig Decl. ¶ 76.

[256] *See* Willig Decl. ¶¶ 10, 61-62.

the hallmarks of effective competition, including declining price, expanding output, and robust investment. That evidence alone should dispel any concern that Commission intervention is warranted in this link in the mobile value chain.

Indeed, both the D.C. Circuit and this Commission have already embraced that view. In *USTA II*,[257] the D.C. Circuit found that data "clearly show that wireless carriers' reliance on special access has not posed a barrier that makes entry uneconomic."[258] The court of appeals also found that "market evidence . . . demonstrates that existing rates . . . don't impede competition" in the wireless marketplace.[259] On remand from *USTA II*, this Commission agreed that non-incumbent wireless providers had competed successfully using special access services purchased from incumbents and that the wireless market was "competitive," and it therefore categorically excluded the use of unbundled network elements by wireless providers.[260]

Additional evidence confirms effective competition for wireless backhaul. Indeed, the actions and statements of wireless providers themselves – including the most outspoken proponents of special access regulation – confirm as much. For example, T-Mobile has stated that it "has invested over $7 billion thus far" to build out its 3G network, that in 2009 it "plans to double the population currently covered by its high-speed network to reach more than 200 million people in the U.S.," and that it is "also planning next-generation mobile broadband services and is actively considering advanced technologies such as 'HSPA Plus' ('HSPA+') and

[257] *USTA v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) ("*USTA II*").

[258] *Id.* at 575.

[259] *Id.* at 576.

[260] Order on Remand, *Unbundled Access to Network Elements; Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 20 FCC Rcd 2533, ¶ 36 & n.106 (2005), *aff'd*, *Covad Communications Co. v. FCC*, 450 F.3d 528 (D.C. Cir. 2006).

Long Term Evolution ('LTE')."[261] Sprint has noted its "$7.4 billion investment in Clearwire Corp., [which] is proceeding aggressively with its deployment of 4G WiMax technology" that will be made available "to as many as 120 million people."[262] As Professor Willig explains, these levels of past and future investment in wireless networks reflect a confidence that any inputs to these networks can be obtained on reasonable terms.[263]

Beyond that, wireless providers have acknowledged that they have plentiful competitive alternatives for backhaul. For example, T-Mobile testified that "competitive forces work in metro areas where there's lots of fiber, be that from the utility company, from the cable company, from the existing, you know, telco provider. So, I think market forces are starting to work there."[264] T-Mobile went on to note that in rural areas, "there are good microwave solutions, . . . and some carriers are totally deploying their back haul solutions on a microwave basis."[265] As noted, Sprint has likewise stated that, with respect to its Clearwire WiMax network, it "will use self-provisioned microwave backhaul to handle the high-bandwidth

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[261] Comments of T-Mobile USA, Inc., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 2, 3 (FCC filed June 8, 2009); *see also* Reply Comments of T-Mobile USA, Inc., at 1, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, WT Docket No. 09-66 (FCC filed July 13, 2009) ("[C]ompetition in the CMRS retail marketplace is flourishing. Wireless carriers like T-Mobile continue to introduce new and innovative services, technologies, and pricing options that benefit consumers.").

[262] Comments of Sprint Nextel Corp., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 5 (FCC filed Sept. 4, 2009) (footnote omitted) ("Sprint Comments in GN Docket No. 09-51"); *see also* Comments of Sprint Nextel Corporation, at 5, *Petition of Rural Cellular Association for Rulemaking Regarding Exclusivity Arrangements Between Commercial Wireless Carriers and Handset Manufacturers*, RM-11497, DA 08-2278 (FCC filed Feb. 2, 2009) (wireless marketplace is "competitive and producing innovation that benefits the public").

[263] *See* Willig Decl. ¶¶ 61, 76-77.

[264] Wireless Broadband Hearing, Tr. at 45-46 (T-Mobile USA Senior Vice President Engineering, Neville Ray).

[265] *Id.* at 46.

requirements associated with 4G applications to the maximum extent possible."[266] In a recent presentation touting the benefits of that approach, Clearwire emphasized that "90% of Clearwire cell sites use microwave backhaul."[267] Stelera Wireless – which provides wireless broadband in rural areas using AWS spectrum and HSPA technology – has stated that "[w]e don't have a problem with back haul because we're using 300 MIP microwave off of those cell sites, so I've got plenty of back haul capacity to go back. So there's no issue there."[268]

Absent Commission action that stifles this competition, it will only intensify further going forward. There is widespread agreement that rapidly rising demand for wireless broadband is driving wireless carriers from primarily copper-based backhaul services to new connections using fiber and fixed wireless technologies.[269] Cable companies and fixed wireless providers have both acknowledged that this creates significant new opportunities for them.[270] T-

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[266] Sprint Comments in GN Docket No. 09-51, at 5; *see also* Yankee Group, *4G Network Backhaul Summit*, at 14 (Sept. 15, 2009) (presentation of John Saw, CTO, Clearwire) ("90% of Clearwire cell sites use microwave backhaul," and there is "[t]remendous scalability," with "50 Mbps – 1 Gbps of backhaul capacity per site").

[267] Yankee Group, *4G Network Backhaul Summit*, at 14 (Sept. 15, 2009) (presentation of John Saw, CTO, Clearwire).

[268] Wireless Broadband Hearing, Tr. at 42-43 (Stelera Wireless founder and CEO Ed Evans).

[269] *See, e.g.*, *id.* at 37 (Stelera Wireless founder and CEO Ed Evans: "[W]e aggregate through microwave back to a single long-haul Ethernet connection"); *id.* at 46 (Bechtel Telecommunications principal vice president and CTO Jake MacLeod: "Obviously, a lot of the carriers now are moving to Ethernet, and wireless is definitely a solution").

[270] *See, e.g.*, FCC National Broadband Plan Workshop, Deployment – Wired (Aug. 12, 2009), Tr. at 35 (Dallas Clement, EVP and Chief Strategy and Product Officer, Cox Communications: "Relative to wireless backhaul from cell sites . . . I'll tell you that in our commercial business it's a growth area. We're getting calls in our franchises from wireless providers who are preparing for their 4G networks and they're looking for lower cost alternatives for back haul. And because we're there and we can do sort of spurs off our network, we feel as though it's a big growth area and we're deploying capital to that area to be able to satisfy that demand."), http://www.broadband.gov/docs/ws_02_deploy_wired_transcript.pdf; *Q4 2008 Clearwire Corporation Earnings Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 030509a2078472.772 (Mar. 5, 2009) (Clearwire Corp. COO Perry Satterlee noted the company's

Mobile has testified that, looking at its "3G footprint today, we are certainly moving to, you know, a fiber backhaul solution environment."[271] One analyst projected that the U.S. backhaul services market will expand from approximately $3 billion annually today to $8 billion to $10 billion in the next two-to-four years.[272] The Yankee Group projects that wireless backhaul capacity requirements will increase 28-fold between 2008 and 2112.[273] Competitors plainly will have enormous opportunities to supply this growing segment.

Indeed, competitive providers have acknowledged that they are making major investments to compete in the supply of wireless backhaul. For example, Cox has stated that "the network that we're building today is all IP-connected to every cell site that we're deploying, and within the market that we're building, we're essentially connecting most of the cell sites with fiber, but there are the odd exception even with our infrastructure where we would use microwave to pick up a couple of the cell sites."[274] Fiber Tower has claimed that it "operates a 100 percent facilities-based communications network using fiber optic and wireless assets" that "spans more than 6,000 base stations in 13 United States markets" and that "the top eight mobile

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"pioneering use of almost exclusively microwave backhaul" and "negligible" operating costs); Tower Cloud, *Overview*, http://www.towercloud.com/company.shtml ("With the roll-out of 3G and 4G wireless as well as the escalation in widespread adoption of mobile data services, . . . there is an urgent need to upgrade … backhaul networks. Tower Cloud specializes in solving these network challenges to enable wireless operators to raise the business performance and quality of their networks while reducing unit costs.").

[271] Wireless Broadband Hearing, Tr. at 45 (T-Mobile USA Senior Vice President Engineering, Neville Ray).

[272] *See* Frank Louthan et al., Raymond James & Associates, *Examining the Convergence of the Telecom and Cable Sectors*, at 16 (Aug. 18, 2008).

[273] *See* Jennifer Pigg, Yankee Group, *Mobile Backhaul: Will the Levees Hold?*, at 3 (June 2009) ("Yankee Group forecasts that mobile traffic will have a CAGR of 130 percent from 2008 through 2012 – that is, 1 MB of traffic in 2008 will equal 28 MB of traffic in 2012.").

[274] Wireless Broadband Hearing, Tr. at 49 (Cox VP of Wireless Stephen Bye).

carriers" are "among FiberTower's largest customers."[275] As detailed in other filings, every major cable operator (Comcast, Cablevision, Time Warner, and Cox), at least six fixed wireless providers, and at least a dozen other competitive suppliers are all aggressively targeting wireless backhaul opportunities in areas throughout the country.[276]

Given this broad and rapidly increasing competition and the widely acknowledged need for more investment in high capacity backhaul infrastructure, it would be a mistake of the highest order for the Commission to impose further regulation on special access services. Artificially reducing ILEC special access rates would minimize the incentive for any company to expand its networks, by reducing the returns that either incumbents or new entrants could expect from continuing the deployment of next-generation infrastructure. As Sprint's own Chief Technology Officer has acknowledged, the only reason alternative high-capacity technologies such as fixed wireless are not already as prevalent in the United States as in the rest of the world is that "relatively abundant and inexpensive T-1 lines have stifled the technology here."[277] Ericsson has

[275] Comments of FiberTower Corp., *A National Broadband Plan for Our Future*, GN Docket No. 09-51, at 3 (FCC filed June 8, 2009); *see also* Ravi Potharlanka, COO, FiberTower Corp., *Written Testimony before the House Energy and Commerce Committee, Subcommittee on Communications, Technology, and the Internet, Hearing on Competition in the Wireless Industry*, at 3, 4 (May 7, 2009), http://energycommerce.house.gov/Press_111/20090507/testimony_potharlanka.pdf (FiberTower COO Ravi Potharlanka: "We offer our services to mobile wireless carriers, competitive and local exchange carriers, 1st responder networks, and to government and enterprise customers. Our network currently covers approximately 12,000 route miles with 7,000 miles covered using fixed wireless and another 5,000 miles using dark fiber. Through our partnership and master lease agreements we have the ability to access over 100,000 towers nationwide. . . . We have customer agreements with the eight largest U.S. wireless carriers.").

[276] Patrick Brogan & Evan Leo, *High-Capacity Services: Abundant, Affordable, and Evolving*, at 34-38 (July 2009), *attached to* Letter from Glenn Reynolds, USTelecom, to Marlene Dortch, FCC, WC Docket No. 05-25, GN Docket No. 09-51 (FCC filed July 16, 2009).

[277] Stephen Lawson, *Sprint Picks Wireless Backhaul for WiMAX*, Industry Standard (July 9, 2008), http://www.thestandard.com/news/2008/07/09/sprint-picks-wireless-backhaul-wimax (citing Sprint CTO Barry West).

likewise stated that "'[i]n the U.S. the ability to lease T1s has retarded microwave; it's always been less expensive to lease T1s.'"[278]

The Commission should take these comments to heart. Particularly in these economic times, the Commission's core mission should be to eliminate barriers to competitive supply and the investment that goes along with it. In this context, that means ensuring that competitive providers have an incentive to act on the enormous opportunities to supply the wireless backhaul that will be necessary to support providers' next-generation networks and consumers' ever-increasing appetite for wireless broadband.

C. The Current Roaming Framework Facilitates Effective Competition

Because no wireless carrier has facilities covering the entire U.S., carriers enter into roaming agreements with each other to fill in gaps in their networks. The *NOI* seeks "information on how [the Commission] should analyze the market from the perspective [of] market segments that include . . . roaming," and it then invites "general comment on the proper treatment of roaming services." *NOI* ¶¶ 20-22. The ordering of the Commission's questions is precisely right, as the response to the first question – *i.e.*, that market segments that rely on roaming are thriving – leads ineluctably to the response to the second – *i.e.*, that the Commission should not expand automatic roaming requirements.

First, the current roaming framework is sufficient to facilitate competition. The FCC historically has not regulated roaming, but, rather, has relied on carrier's mutual interdependence to ensure reasonable commercial terms.[279] The Commission has now created a § 208 complaint

[278] Anne Morris, *Microwave To Retain Key Role in Wireless Backhaul, As Fibre Waits in Wings*, Total Telecom (Sept. 2, 2009) (quoting Don McCullough, Ericsson).

[279] *See, e.g.*, *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 15817, ¶ 13 (2007) ("*Automatic Roaming Order*").

option for carriers claiming unreasonable roaming rates,[280] but regulation of those rates remains as unnecessary now as it ever was. As explained above, the industry as a whole is thriving, and indeed some of the very providers that claim to rely most heavily on roaming – in particular, regional and smaller providers – are growing faster than any other carriers.[281] Carriers of all sizes are investing in the deployment of next-generation networks, moreover, and the bulk of them offer nationwide, flat-rate calling plans.[282] To be sure, AT&T now serves with its own facilities many areas in which it previously relied on roaming, but AT&T remains a net payor of roaming fees: in the first six months of 2009, AT&T paid more than 40 percent more in roaming expenses than it collected from other carriers. AT&T thus plainly retains every incentive to enter into fair and reasonable roaming arrangements.

Not only is the roaming framework in place today sufficient, but extension of that framework would adversely affect competition and investment. Thus, for example, some have proposed extending automatic roaming mandates to areas in which the requesting carrier holds its own spectrum. Such a mandate, however, would diminish investment incentives for the requesting carrier and providing carrier alike. A requesting carrier that can demand automatic

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[280] *See id.* ¶¶ 30-32.

[281] *See supra* pp. 26-28 (discussing, *e.g.*, Leap, MetroPCS, and Cellular South). In addition, MVNOs such as TracFone and Virgin Mobile rely heavily on roaming. The former serves more than 10 million prepaid subscribers; the latter serves 5 million prepaid subscribers. *See* TracFone Wireless, *About Us*, http://www.tracfone.com/about.jsp?nextPage=about.jsp&task=about; Virgin Mobile News Release, *Virgin Mobile USA Reports $98 Million in Adjusted EBITDA Excluding Transition and Restructuring Expenses(1) for the First Six Months of 2009* (Aug. 10, 2009), http://virginmobileusa.marketwire.com/easyir/customrel.do?easyirid=13135DE328B72AB2&version=live&prid=526072&releasejsp=custom_124.

[282] *See, e.g.*, U.S. Cellular, *Plans: National Plans*, http://www.uscc.com/uscellular/SilverStream/Pages/b_plan.html?zip=60411&mkt=608830&tm=1&tabPlan=2 (zip code 60411); Cincinnati Bell, *Wireless Rate Plans: What's Included*, http://www.cincinnatibell.com/consumer/wireless/rate_plans/popup_900_premium.asp; nTelos Wireless, *Plans: nTelos Nation Plans*, http://www.nteloswireless.com/plans/nation/.

roaming throughout the area in which it already has spectrum will plainly have less incentive to make full use of its spectrum and to build out its own network.[283] At the same time, from the perspective of the providing carrier, a major source of competition today is network coverage.[284] Extension of automatic roaming would effectively eliminate the providing carrier's ability to compete on coverage and thus diminish its investment to build out as well. As the Commission has explained, "if a carrier is allowed to 'piggy back' on the network coverage of a competing carrier in the same market, then both carriers lose the incentive to build-out into high cost areas in order to achieve superior network coverage."[285] Consumers, in turn, would be "disadvantaged by a lack of product differentiation, lower network quality, reliability and coverage."[286]

For many of the same reasons, the extension of automatic roaming requirements to wireless services that are not interconnected with the PSTN would also be bad policy. For one thing, history has shown that voluntary negotiations will produce efficient roaming agreements, and there is no evidence of market failure in the data context that would suggest a different result here. Indeed, AT&T already has reciprocal roaming agreements for 2G data services. AT&T anticipates that similar reciprocal agreements will be reached as more carriers deploy 3G and ultimately 4G networks.

Such reciprocal, mutually beneficial, efficient roaming arrangements are a far cry, however, from the mandatory data roaming obligations some parties propose. Those proposals

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[283] *See* Willig Decl. ¶¶ 84-88.

[284] *See Eleventh Report* ¶ 133.

[285] *Automatic Roaming Order* ¶ 49.

[286] *Id.* Leap Wireless's strategy, for example, is to have "a network footprint covering only the principal population centers of [its] various markets," yet it "provide[s] [its] customers with unlimited usage in areas stretching from New York to California and from Wisconsin to Texas," through roaming arrangements. Leap Wireless International Inc., Form 10-K, at 4, 74 (SEC filed Feb. 27, 2009).

would permit carriers that have not deployed 3G (or 4G networks) – and who accordingly have not undertaken the network-based investment that would permit them to differentiate their services on that basis – to piggyback on the investments of others. Such a regime would undoubtedly diminish investment: carriers with easy access to data resale would have less incentive to invest in broadband infrastructure and network upgrades, as would larger carriers whose ability to differentiate their service on the basis of such upgrades would be compromised. As the D.C. Circuit observed, "[i]f parties who have not shared the risks are able to come in as equal partners on the successes, and avoid payment for the losers, the incentive to invest plainly declines."[287]

Mandatory data roaming could also place undue strain on the providing carriers' networks. The explosion of competition in the device and application segments of the marketplace detailed above has led to an explosion of wireless data traffic. As a result, data networks are under stress, and carriers such as AT&T are investing billions in order to increase bandwidth, upgrade infrastructure, and acquire additional spectrum. AT&T and other carriers are making these multi-billion-dollar expenditures to enable them to compete for and retain their *own* customers; creating additional, significant bandwidth demands on these carriers through an automatic data roaming requirement would further burden carriers' networks with the data traffic of *other carriers*' customers, which in turn would threaten service quality for the providing carriers' own customers. Mandatory data-roaming, in short, would not only permit free-riding

[287] *USTA v. FCC*, 290 F.3d 415, 424 (D.C. Cir. 2002); *see also* G. Rosston and M. Topper, *An Antitrust Analysis of the Case for Wireless Network Neutrality*, at 29-30 (Aug. 2009) (explaining that "rules designed to promote competition from wireless resellers led to substantially higher prices," because "resellers pushed for higher [wholesale] prices" that would, as a result of their mandated "percentage markup," "increase[] their profit margins").

and thereby undermine investment, it would also distort the competitive process by forcing carriers' to devote capacity to other carriers rather than to the needs of their own customers.

The Commission's recent announcement that it intends to impose net neutrality requirements on wireless networks also raises serious questions about how any data roaming requirements could be squared with network management necessities. The imposition of net neutrality on wireless networks would strip those networks of some of the tools they could otherwise use to manage limited bandwidth. If the Commission simultaneously requires carriers to make available their limited capacity to other networks, traffic congestion problems could be greatly exacerbated. The uncertainty over whether network managers would be punished for using network management tools later deemed "unreasonable" would be compounded by the uncertainty surrounding whether any remaining network management tools could be used to manage roaming traffic. For example, if, as the Commission posits in the *Comcast Order*,[288] carriers implemented tiered pricing in order to suppress usage, how would a carrier apply such tiers to the customers of other carriers? What incentive would those customers have to limit usage? Similarly, if a carrier decided to limit bandwidth during periods of congestion based on bandwidth usage by the customer over some recent time period,[289] it may be impossible, as a practical matter, to apply that policy to roamers. Those roaming customers would thus effectively receive preferential treatment over a carrier's own customers even as they create congestion that degrades the service experienced by others. Conversely, the imposition of mandatory data roaming could prove troublesome to carriers that have not expanded capacity sufficiently to accommodate the additional congestion posed by, for example, iPhone users.

[288] *See* Memorandum Opinion and Order, *Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications*, 23 FCC Rcd 13028, ¶ 49 (2008) ("*Comcast Order*").

[289] *See id.*

These considerations – along with the fact that roaming options should increase as carriers that currently use disparate technologies deploy LTE – underscore that consideration of data roaming at this point is, at best, premature and should be delayed until next-generation networks are more fully built out.[290]

CONCLUSION

The Commission should conclude that there is effective competition throughout the mobile "value chain."

Respectfully submitted,

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[290] AT&T has elsewhere explained that, in all events, the Commission lacks authority to impose mandatory automatic roaming requirements on non-interconnected services. *See* Comments of AT&T Inc., *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, WT Docket No. 05-265, at 14-16 (FCC filed Oct. 29, 2007).