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WIRELESS: THE COMMON MEDIUM OF CONVERSATION

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By the spring of 1994, the Federal Communication Commission (the "FCC" or "Commission") concluded that mobile wireless communications ("wireless") could be an ideal common medium[1] for conversation in the United States. To that end, in the mid-90s the FCC opened the doors of policy to the possibility that wireless would replace stationary landline communication ("landline").

I. THE EVOLUTION AWAY FROM LANDLINE

The 1934 Communications Act (the "'34 Act") effectively ordered the FCC to make landline the common medium of conversation in the United States.[2] It seemed obvious then, and is still clear now, that in order to support a unified society the nation should have at least one common medium of conversation. Just as radio and then television were each for a time the common medium for information, in the years leading up to the expansion of wireless, landline served as the common conversational medium. In myriad ways, FCC and state regulation enabled and entrenched that outcome.

Even long before the '34 Act, the landline industry was ruled by the American Telephone and Telegraph Company ("AT&T") monopoly under the oversight of the FCC and state regulators.[3] But when MCI Communications Corp. ("MCI") introduced long distance competition,

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[1] The author distinguishes between a common medium of conversation, wireless, and a common medium of information exchange and communication, for example: Reed E. Hundt, *The Internet as "The Common Medium,"* 19 MEDIA L. & POL'Y 143 (2010).

[2] *See* Communications Act of 1934, 47 U.S.C. § 151-610 (2011).

[3] *See generally* AT&T, *A Brief History: The Bell System*, http://www.corp.att.com/history/history3.html (last visited Nov. 21, 2011).

courtesy of specific financial and FCC regulatory measures,[4] followed by the government breakup of AT&T in 1984—splitting AT&T's local operations into seven Regional Bell Operating Companies ("RBOCs" or "Baby Bells") to permit greater long distance competition[5]—the communications industry was poised for upheaval. The long distance companies such as AT&T, MCI, and Sprint Nextel Corporation ("Sprint"), sought to take advantage of this new market environment by competing in the local phone market. Likewise, local phone companies such as the Baby Bells (SBC Communications Inc., NYNEX Corporation, Ameritech Corporation, and the other progeny of the AT&T breakup) wanted to leverage their monopolies into advantageous entry into long distance. This convergence of business motives led to the 1996 Telecommunications Act (the "'96 Act")[6] which was intended to open the door to voice and data competition in both local and long distance wire-based markets.[7]

Meanwhile, technological advances created a future for conversation that was indifferent to Congressional planning. Due to advances in price-performance of computer processors[8] and digitization of over-the-air electromagnetic waves in the early 1990s,[9] wireless became economically viable as a complement, and ultimately a substitute for landline conversation. In 1993, a Democratic President and Democratic Congress, through a rider to the Omnibus Budget Reconciliation Act ("OBRA"), created the possibility of changing the wireless industry structure by authorizing spectrum auctions.[10]

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[4] *See, e.g.,* Microwave Communications, Inc., 18 F.C.C.2d 979 (1967) (granting MCI its first license); Use of the Carterfone Device in Message Toll Telephone Service, 13 F.C.C.2d 420 (1968) (finding AT&T's rules prohibiting private two-way connections to a telephone network illegal).

[5] *See* United States v. AT&T, 552 F. Supp. 131 (D.D.C. 1982), *aff'd,* 460 U.S. 1001 (1983).

[6] *See* Telecommunications Act of 1996, 47 U.S.C. § 151 (codified as amended in 47 U.S.C.).

[7] *See* H.R. REP No. 104-458 at 1 (1996).

[8] *See generally* Giles F. Crimi et al., *Technology Direction for the 21st Century*, Science Applications International Corp., Nasa Contracting Report, Volume I (1996).

[9] *See* David J. Teece, *Telecommunications in Transition: Unbundling, Reintegration, and Competition*, 1 MICH. TELECOMM. TECH. L. REV. 47, 50 (1995).

[10] *See* Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, § 6002, 107 Stat. 312, 387- 1392 (adding Section 309(j) to the '34 Act, authorizing the FCC to award licenses for rights to use the radio spectrum through competitive bidding).

With auction authority, the FCC realized that it could sell spectrum either to make money for the government or to establish a different market structure. The Commission worked for approximately six straight months to examine the best possible answer, ultimately coming to the conclusion that wireless should replace landline as the common medium for conversation and that the Internet should become the common medium for information exchange. The FCC believed that wireless and the Internet eventually would erode the significance of landline to the point that a future FCC could eliminate all or most landline subsidies.

In short, the FCC decided to help both the Internet and wireless grow rapidly and to diminish the relative importance of the landline network as a common medium all without spending taxpayer money, because the FCC lacks appropriations power. Given the belief that the developing world would likely depend chiefly on wireless to communicate, the Commission wanted America to lead the way into that future. For that reason, the FCC's decision seemed sound. Still, the Commission had to promote its policies against the established success and market power of the landline industry.

II. CREATING A WIRELESS MARKET

The Commission's fundamental policy was to create the most deregulated and robustly competitive market for wireless in the history of communications. The goal of this policy was to give wireless a good chance to become the nation's common medium of conversation, just as the FCC hoped the Internet would be the common medium of information. By contrast, the '34 Act had selected regulated monopoly as the policy to create a common medium.[11] In both cases, unregulated competition and regulated monopoly, industry conduct and performance needed to align with the goal of creating a common medium.

To be a common medium, wireless needed to have a set of traits. The Commission came up with ten. Wireless needed to be:

1. Universal;
2. Accessible;
3. Easy to use;

[11] *See* Warren G. Lavey, *The Public Policies That Changed the Telephone Industry Into Regulated Monopolies: Lessons From Around 1915*, 39 FED. COMM. L.J. 3, 171-94 (1987).

4. Able to supplant the existing media (landline);
5. Ripe for innovation;
6. Good for business;
7. Accessible for emergency purposes;
8. Content neutral;
9. Able to eliminate distance; and
10. A national service.

In addition to recognizing and promoting these ten traits, the FCC also used the lessons from landline's regulatory history to remove barriers to wireless' emergence as a common medium. To that end the FCC took positions on spectrum caps, bundling, the infrastructure-service relationship, and deregulated pricing. When combined with the ten traits, these additional considerations would permit wireless to become the nation's common medium of conversation. And in time it might evolve to be a principal foundation for broadband information exchange; but that was beyond the FCC's ken in the 1990s.

1. Universality

First, wireless had to be universal. It could not be a common medium if everyone did not have the option to connect. Therefore, everyone had to be able to afford to connect to this common medium. The FCC counted on a robustly competitive market structure to drive the price down continuously as technological advances lowered cost and as cost decreases were passed on to customers. Demand then would intersect with supply far to the right along the quantity axis, that is, at a point that approximated universal service without the dead weight costs of a subsidy mechanism. To lower handset prices which had been a big barrier to penetration, the Commission allowed service providers to subsidize and in effect finance telephones.[12]

[12] "Under the predominant postpaid handset subsidy model, customers are required to sign a one- to two-year service contract in exchange for purchasing a handset at a discount, and are subject to paying an [early termination fee] if they cancel their wireless service before the term of their service contract expires." 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, *Fifteenth Report*, FCC GN Docket No. 11-103, at para. 93 (2011) [hereinafter *Fifteenth Report*].

2. Accessibility

Second, wireless had to be accessible. It had to be something that everyone could use anywhere, any time. The Commission divided licenses geographically so that firms could build businesses regionally.[13] The FCC hoped that the auctions would create firms in every part of the country, while also facilitating the creation of national firms. The Commission allowed smaller market license holders to charge any roaming[14] fees the market would bear to generate more revenue for building networks in less dense, more costly areas.[15] The hope was to encourage many firms to offer wireless almost everywhere, instead of depending on a few companies to extend their networks from dense to rural areas as monopoly landline and cable firms had done.[16]

The Commission assumed that the winners in the auction would build networks from inside to outside, from dense areas to less dense areas. Geographic coverage would suffer, but population coverage would be the first priority. Therefore, dropped calls in some areas would be an inevitable outcome of the policy of racing to maximum penetration. This traded quality of service for coverage. In the absence of quality of service regulation, some firms would spread the butter thinly over lots of bread. The Commission did not order spectrum buyers to put their scarce capital into less dense areas. It did not have a pro-rural policy as existed for the landline network, and the Commission did not create a universal service fund for wireless. In short, the FCC did not recreate landline regulation as it shaped the wireless industry. New media need new messages from government, and the Commission chose deregulated competition as its policy.

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[13] *See* Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Service Licensees, FCC WT Docket No. 96-148, at para. 2 (1996).

[14] "Roaming allows mobile wireless customers to automatically receive service when they are outside of the area covered by their 'home' provider's network. Mobile wireless service providers enter into roaming agreements with each other so that their customers will be able roam and receive service automatically, regardless of their location." FCC, *Rulemaking: Roaming for Mobile Wireless Services*, http://www.fcc.gov/rulemaking/05-265 (last visited November 21, 2011).

[15] *See* Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Service Providers, CC Docket No. 94-54, Second Report and Order and Third Notice of Proposed Rulemaking, 11 FCC Rcd 9462 (1996).

[16] *See* Map 2: Mobile Wireless Network Coverage, Fifteenth Report, *supra* note 15, at 4.

3. Ease of Use

Third, a wireless common medium had to be easy to use. The Commission therefore gave away wireless telephone numbers freely to license holders. The FCC wanted the experience of dialing on a wireless phone to be the same as on a landline phone. The rules required easy portability of numbers among carriers to make it easy for a consumer to switch from one carrier to another.[17] And in contrast to the additional dialing that had been required for accessing some long distance carriers, the FCC required landline companies to connect calls to and from wireless companies without any extra dialing by customers.[18]

4. Supplanting Landline as the Common Medium

Fourth, to be a common medium, wireless had to supplant the existing landline medium. One could alternatively imagine that wireless would merely complement landline. That mistaken belief had led AT&T to leave its wireless licenses with the local phone companies during the divestiture of 1984.[19] But a complement is a niche product, not a truly common medium and the Commission saw wireless replacing landline. The FCC thought mobile users would call mobile users and that, in time, hardly anyone would use landline. To make this productive future arrive sooner—a practical definition of the purpose of the FCC—the Commission made sure wireless companies could "borrow" the customers of the landline industry.[20]

In 1993, when the penetration of wireless was small compared to landline,[21] landline operators could have required the new wireless firms to pay for access to their customers. The landline firms had the market power: nearly 85-90 percent penetration,[22] whereas wireless had about 10 to 20

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[17] *See* Telephone Number Portability, Report and Notice of Proposed Rulemaking, 10 FCC Rcd. 12350 (June 27, 1996).

[18] *See* 47 U.S.C. 332(c).

[19] *See* AT&T, *supra* note 3.

[20] See 47 U.S.C. 251(c).

[21] *See* Trends in Telephone Service, Industry Analysis and Technology Division, Wireline Competition Bureau, FCC, September 2001, tbls. 11.1 & 16.1 *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-301823A1.pdf.

[22] *Id* at tbl. 16.1.

percent.[23] If landline firms had sought to slow the growth of wireless they could have done so. Therefore, the Commission ordered that the landline to wireless connection would cost virtually nothing. That was not a market price; it was a regulated interconnection price designed to transfer the network effects of landline to the relatively new wireless, and thus to facilitate rapid growth of wireless, while denying competitive advantage to landline.

5. Ripe for Innovation

Fifth, the Commission was attracted to wireless as the common medium of conversation because it was ripe for innovation. Advances in landline were few and far between, but in wireless, major price or performance improvements (so-called "generations" or "G's") occurred every few years.[24] The story of the generations is still playing out.[25] The FCC saw that wireless networks could be constantly refreshed through new invention and that new goods and services could be created through innovation. The Commission did not clearly see how quickly the Internet would be delivered wirelessly but that advance—which now is altering the structure, conduct, and performance of the computer industry—was partially a consequence of its commitment to a policy that emphasized innovation driven by competition.

In the United States, as opposed to Europe, government then did not order the generations by regulation.[26] Rather, generations evolved through competition in different places at different times and with different technological solutions. The Commission did not require through the auctions that particular generations be built. Most notoriously, the FCC

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[23] *See* 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 at para. 3 and n. 7 (1995).

[24] *See* Amit Kumar et al., *Evolution of Mobile Wireless Communication Networks: 1G to 4G*, 1 INT'L J. ELECTRONICS & COMM. TECH. 68 (2010), *available at* http://www.iject.org/pdf/amit.pdf.

[25] *See generally* Walter S. Mossberg, *In 4G Race, Verizon Pulls Ahead With Pricey Speed,* Wall St. J., January 6, 2011 *available at* http://online.wsj.com/article/SB10001424052748704405704576063810512813874.html.

[26] *See* Neil Gandal, et al., *Standards in Wireless Telephone Networks*, 27 TELECOMM. POL'Y, No. 5-6, June-July 2003 at 325.

permitted competition in air interface protocols.[27] It allowed Code Division Multiple Access ("CDMA"), a then upstart technology, to compete with Global System for Mobile Communications ("GSM"), the established European approach. As a result, cell phones did not readily work in both the USA and Europe.

Since 1994, many people have told me that my biggest mistake at the Commission was not ordering a single standard. Yet, in retrospect, I still cannot understand why the government should have selected a standard if the market could do the job instead. In particular, at the time I could not see why the FCC should guarantee that the European standard (GSM) would rule in the United States, or why CDMA should be excluded. Nearly twenty years later, in the wireless 4G network generation, Long Term Evolution ("LTE"), all standards are converging.[28]

6. Good for Business

Sixth, a wireless common medium needed to be good for business. If business users went down one path and consumers another—as was true for data from the 1970s until today's broadband era—the same medium would not be "common," because it could not serve the same person at work and at home.

Business must support a medium to make it common for another very basic reason: businesses, not consumers, generate a large part of the revenue needed to build networks. To help make wireless good for business the Commission, decided not to impose price regulation for business. In landline, by contrast, state regulators made businesses pay more than residences for local voice calls.[29] Their purpose was to create a subsidy transfer from business to residence in order to promote universal residential service, but the Commission's approach to wireless was fundamentally deregulatory. The FCC did not tell service providers how much to charge

[27] This is the hardwire and software for translating information from airwaves to processors in handsets, tablets or notebooks.

[28] *See* Verizon Wireless Inc., LTE: The Future of Mobile Broadband Technology, at 6-7 (2009), https://www.lte.vzw.com/Portals/95/docs/LTE%20The%20Future%20of%20Mobile%20Broadband%20Technology.pdf.

[29] FCC, Common Carrier Bureau, Industry Analysis Division, *Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service*, tbls. 2-3 (Mar. 1997).

businesses. Some companies, like Nextel, flourished by offering private businesses attractive prices for new value propositions, like "push to talk."[30]

As a result of our decisions, wireless rapidly penetrated the business community. The Commission believed that business was the best lead adopter and that if a business bought an employee a cell phone, that person would probably use it at home and, as a result, their neighbors would want to "keep up with the Joneses." Network effects would be expanded, and wireless would grow rapidly. That was plainly not true in landline, where even the most high-end customer premises equipment on the desk in the business did not have a consumer market. Some criticized the Commission for not using regulation to guarantee consumers better, or at least comparable prices to businesses as state regulators had done with landline. But the Commission envisioned a wealth transfer from landline to wireless—not from businesses to consumers.

7. Accessible for Emergency Purposes

Seventh, wireless was desirable because it could provide ubiquitous access to individuals for emergency purposes. Intrinsically superior to landline in this respect because of its portability, wireless never needed a separate network to serve a public safety purpose. Instead, by regulation the Commission required wireless service providers to provide a 911 service.[31] The taxpayer did not pay for that, because the service costs came from the customer and the wireless service provider company.

8. Content Neutrality

Eighth, to be a common medium, wireless needed to carry every kind of appropriate content. Fortunately, since 1934, Congress had placed a distinct regulatory prohibition on the FCC's controlling of content in personal conversations—unlike broadcasting.[32] The FCC can also regulate wireless rules of privacy, personal identification protection, and security.[33]

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[30] Press Release, Motorola Inc., Motorola Introduces Compact Digital Portable for Enhanced iDEN Technology (June 17, 1996), http://www.motorola.com/General/Press/PR960730_22785.html (last visited Nov. 21, 2011).

[31] *See* Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911Emergency Calling Systems, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd. 18676 (1996).

[32] *See* Electronic Communications Privacy Act, 18 U.S.C. § 2511 (2011).

9. Elimination of Distance

Ninth, to be a truly common medium, wireless needed to eliminate distance as a factor for users. The Commission wanted, as Nathaniel Hawthorne said of the telegraph, to let Maine and Texas talk to each other.[34] Here, wireless had a huge advantage over landline, which was historically organized in local networks (local exchange carriers) connected by a physically separate long distance system (interexchange carriers). With wireless, people can make calls from anywhere. Also, once their digital bits are sent across incredibly cheap, nearly boundless global fiber, distance has little economic and no perceptual meaning. To facilitate the end of boundaries, the Commission let wireless firms buy licenses from each other and choose the size of their networks.[35] In addition, the Commission put the price point on the sending, not the termination point.[36] In networks, termination is where a monopoly extracts rents. By arrangement there would be almost no termination charges, limiting monopoly power in the United States ("bill and keep").[37] As a result, wireless customers became indifferent as to the location of the person called. The medium is common across physical space and has eliminated distance making it "common" in an additional dimension.

10. A National Service

Tenth, the FCC decided that wireless would be more likely to emerge as the common medium of conversation if large national companies built,

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[33] For data communications (such as Internet access), the FCC has taken the view that its jurisdiction is more limited. As a result, Congress, and not the FCC, appears likely to take the lead in protecting personal privacy by law. A superior solution would be to empower an administrative agency to take on this task, because it can alter regulations to keep pace with technological change (or to stimulate it) more expeditiously than a legislature can do.

[34] Thoreau responded by noting that these two states had nothing to say to each other.

[35] *See* Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, Report and Order, 18 FCC Rcd 20604 (May 15, 2003).

[36] *See* Telecommunications Act of 1996, 47 U.S.C. § 251(b) (5) (2006).

[37] "Under a bill-and-keep arrangement, neither of the interconnecting carriers recovers any revenues from the other carrier for terminating the other carrier's traffic; instead, each of the carriers recovers all of its costs for carrying interconnecting traffic from its own end user customers." Robert E. Emeritz, *The Telecommunications Act of 1996: Law & Legislative History*, 6 (Pike and Fischer, Inc., 1996).

operated, and marketed national networks.[38] Therefore, as opposed to only creating many local, small firms, the auctions permitted bidders to create large, widespread firms. Small firms were possible, but the Commission welcomed scale,[39] because scale created common practices that bolstered the speed of wireless' spread. The rules also encouraged shared use of poles and towers, which helped create an independent and separately capitalized tower industry; that too accelerated the emergence of national wireless firms.

III. ADDITIONAL CONSIDERATIONS

The FCC also used other approaches to guard against potholes on the road toward wireless' emergence as the common medium. In addition to recognizing and fostering the ten traits of a wireless common medium, the Commission applied lessons from landline to help cultivate technological and economic efficiency within the wireless network. These included spectrum caps, bundling, infrastructure-service distinction, and price deregulation.

A. *Spectrum Caps*

A key move was spectrum caps. The Commission limited the amount of spectrum any firm could buy.[40] That probably reduced the amount of money the Commission could get for the taxpayers in the spectrum auctions, since a monopoly license almost certainly has more value than an individual license to compete. However, maximizing revenue in the sale of government licenses is usually wrong. Reducing revenue quite knowingly, the Commission divided the spectrum into blocks of limited geographic and spectral size to create a competitive market structure. The more successful wireless became, the greater the demand for spectrum — increasing the competition to find ways of using spectrum efficiently.

As the number of firms increased, it was inevitable that after the first auction the FCC would need to have a second auction. So the first auction begat the second auction, which begat the third auction—such that now

[38] In the way, for example, Detroit's cars and McDonald's hamburgers became part of the common culture.

[39] By contrast, electricity and water are localized industries where small scale retail has been the prevailing mode – to no useful effect in terms of performance for shareholders or customers.

[40] *See* CMRS Spectrum Aggregation Limit, 47 C.F.R §20.6 (2011).

there have been dozens of discrete auctions in the United States from 1994 until the present. This was part of the original plan. The government would have to find more spectrum to sell, but some frequencies always would prove more suitable for another medium—such as wireless broadband. Because monopolies always create artificial scarcity by restricting output, as long as monopoly was avoided, there never would be a spectrum shortage that policy could not solve. And the FCC sold term licenses not property rights, of course, so that if spectrum became too consolidated the Commission could not renew the licenses of the owners that owned too much of it.

B. *Bundling*

Believing that robust access network competition was an antidote against the risks of vertical integration into services, the Commission allowed callers to bundle landline and wireless service, most notably with AT&T and Verizon. We see now that ownership of the landline network confers advantages on some wireless firms and may be a problem for competition. Similarly, today wireless access networks—through smartphones and communications chips in less mobile computers—constitute a two-sided market in which a network service provider sells access to voicemail and Internet to customers on one side of the network and can sell or limit access to those customers by content and service firms. In this respect, by selling exposure to potential consumers, mobile communications networks resemble cable or credit card businesses.

In time wireless broadband will be the dominant means for linking everyone to the ecosystem of applications and storage, also known as the web and cloud computing. But all that is part of today's present and tomorrow's future. It was scarcely a glimmer in our eye in the mid-90s, when wireless and landline began to compete for the role of the common medium of conversation.

C. *Infrastructure-Service Distinction*

Access networks (or "infrastructure") and service provision do not need to be combined to constitute the same market. Sellers and buyers of infrastructure have discrete functions: (a) backhaul, (b) base stations, (c) electricity, (d) antennas, and (e) spectrum. These categories of markets are assembled into networks. Service provision utilizes a physical or electronic network. A mobile virtual network operator ("MVNO") is an example of a

pure service provider with no infrastructure.[41] By offering roaming and negotiating access to another firm's home stations, any carrier is at least in some circumstances a MVNO. In the landline industry, access by competitors to another's network was provided by regulations requiring unbundling (leasing, basically) or by structurally separating the infrastructure from the service. By choosing a competitive market structure for wireless, the Commission believed it could obviate the need for either unbundling or structural separation. The goal was to have mobile voice service providers race toward 100 percent industry market penetration. To get the biggest market shares firms would spend as much as possible, which would maximize investment and job growth.

D. *Deregulated Pricing*

Consistent with a competition policy, the Commission deregulated pricing. Indeed, when California announced that it intended to regulate wireless charges on a state basis, the FCC preempted it.[42] If competition set the price, regulation need not play a role. Moreover, retail price regulation of landline had generally thwarted competition and innovation, while providing disappointing welfare gains.

IV. DEVELOPMENTS

By noting and encouraging the ten attributes of a wireless common medium as well as taking heed of the lessons learned from landline, the FCC hoped that wireless would emerge as the common medium of conversation. The Commission believed wireless would be superior to landline in this role, both as a medium of conversation and as a means of mobile access to the Internet. The Commission successfully aligned its policies with technological trends.

Social values were always part of the decision making. For example, the Commission believed that it was better for society to allow users to call anywhere anytime to anybody without having to think about how far away they were geographically. The FCC thought it was good if the experience and high price of long distance calling disappeared, because the death of distance would tie families and society more closely together. The

[41] *See* Fifteenth Report, *supra* note 15, at para.32.

[42] *See* Petition of the People of the State of California and the Pub. Utils. Comm'n of the State of California to Retain Reg. Auth. over Intrastate Cellular Serv. Rates, Report and Order, 10 FCC Rcd, (May 19, 1995).

Commission even thought kids should have phones in their pockets as opposed to landline phones placed under the watchful eyes of the parents at home (a forgotten scene). Maybe this was a mistake, but if so, the Commission owns it. In brief, the FCC believed that communications regulation should start with a vision of a better society. The Commission did not think that societal effects were an accidental by-product. In any case, regulation without a compelling social vision will never be effective and is often costly.

Under the Bush administration, some of the Commission's earlier decisions were reversed. For example, the FCC repudiated spectrum caps and encouraged consolidation.[43] Two firms (AT&T and Verizon Communications Inc. ("Verizon")) came to control more than 60 percent of all the revenue in the wireless market in the U.S. Without spectrum caps, auctions threatened to become a tool for consolidation rather than competition.

In the 2000s, other issues emerged. For example, roaming has become an economic problem for smaller firms.[44] In addition, the geographic build out of wireless has reached the edge of economic sustainability. Outside of dense areas, multiple wireless firms cannot find enough users to generate traffic for each to pay for a build out. At the edge of the margin between dense and less dense areas competition is limited. The FCC's data roaming rulemaking[45] thus matters and efficient subsidies are needed to assure affordable wireless broadband in severely under-populated zones where few Americans visit. Moreover, some consolidation is inevitable as penetration rates approach 100 percent. A big challenge for the government is to find the right balance between "just enough" and "too little" competition. Merger decisions will define the balance point.

A factor the Commission did not fully envision in the 1990s was that the seven Regional Bell Operating Companies would be allowed to form two huge landline monopolies with great market power in their wireless

[43] *See* 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, 16 FCC Rcd 2763 (November 8, 2001).

[44] *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, FCC WT Docket No. 05-26, at para. 11 (April 7, 2011).

[45] *See Id.*

divisions.[46] The FCC had also hoped that some landline competition would emerge from the '96 Act, but subsequent FCC rulings killed that dream and we watched sadly as the Bush Administration allowed significant consolidation of the wireless industry.[47] Therefore, the Twin Bells—AT&T and Verizon—were able to enjoy the advantages of the three B's—bundling, brand, and backhaul—in their historic landline monopoly regions.

Still another important development has been the emergence of more vertically integrated business models, in devices such as Apple's iPhones and iPads. Do these breakthroughs enhance the commonality of wireless or do they somehow put it at risk? So far, enhancement is winning out. But this begs the question whether the FCC today has a plan as far reaching and little understood as the plans of the mid 1990s. I think it does have a vision and perhaps has had more success in explaining it than we did in the 1990s.

V. FUTURE SCENARIOS

In some ways, the FCC's total success in facilitating wireless' place as the common medium of conversation is now requiring a revision of the Commission's original goals. With the introduction of smartphones the world is now witnessing the merger of wireless, the common medium of conversation, with the Internet, the common medium of information, putting great strain on networks as users consume more data requiring more bandwidth.[48] While the FCC believed that its policies would result in competition and spectrum efficiency, this goal is being challenged by overwhelming demand.

These developments have forced wireless carriers to re-evaluate their business models in order to resolve their network capacity and spectrum constraints.[49] As a result, we are now witnessing huge battles over the future of the wireless industry, as the big four wireless providers, Verizon, Sprint, AT&T, and T-Mobile USA, Inc. ("T-Mobile"), the only providers with

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[46] *See* Stephen Grocer, *A Tangled Family Tree: How AT&T Became AT&T*, Deal J. (Mar. 29, 2011, 11:14 AM), http://blogs.wsj.com/deals/2011/03/29/a-tangled-family-tree-how-att-became-att/.

[47] *See* Lynnette Luna, *Bush Administration Advocates Spectrum-cap Repeal*, Connected Planet (Oct. 25, 2001, 12:00 PM), http://connectedplanetonline.com/news/telecom_bush_administration_advocates/.

[48] *See* Fifteenth Report, *supra* note 15, at para.186.

[49] *See* Fifteenth Report, *supra* note 15, at para. 83 & n. 228.

national networks, seek further consolidation in order to gain network efficiencies and increase market share.[50] This market consolidation is now trying to find its limits, as evidenced by AT&T's announcement of its intention to purchase T-Mobile.

On March 21, 2011, AT&T and T-Mobile made a formal announcement of an agreement under which AT&T would acquire T-Mobile from Deutsche Telekom for approximately $39 billion.[51] AT&T believed that the acquisition was necessary both to alleviate network capacity and spectrum constraints and to allow AT&T to deploy LTE to more than 97 percent of Americans[52]—fulfilling many of the goals set out in the Obama's Administration's National Broadband Plan.[53] Despite these claimed benefits, the acquisition also would have allowed AT&T to become the nation's largest wireless carrier, raising questions of whether AT&T is trying to put its former monopoly back together again.[54] The announcement was met with strong reaction, positive and negative, culminating with the Department of Justice filing a lawsuit to block the transaction on August 31, 2011.[55] The FCC has also opposed.[56] AT&T subsequently abandoned efforts to consummate the merger, as explained in more detail hereafter.

As wireless penetration rates approach 100 percent and the geographic build out of wireless reaches the edge of economic sustainability—where wireless firms cannot justify building their network out to less dense areas—some consolidation is inevitable. In examining this and future

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[50] *See* Fifteenth Report, *supra* note 15, at para. 75.

[51] *See* AT&T, *AT&T to Acquire T-Mobile USA From Deutsche Telekom*, http://www.att.com/gen/press-room?pid=19358&cdvn=news&newsarticleid=31703 (last visited Nov. 13, 2011).

[52] AT&T, Acquisition of T-Mobile USA, Inc. by AT&T Inc., Description of Transaction, Public Interest Showing and Related Demonstrations, WT Docket No. 11-65 at 1 (FCC filed April 21, 2011) [hereinafter *Description of Transaction*].

[53] *See generally* FCC, CONNECTING AMERICA: NATIONAL BROADBAND PLAN (2010), *available at* http://www.broadband.gov/download-plan/.

[54] *See* Sprint Nextel Corp. Petition to Deny, WT Docket No. 11-65 at ii (FCC filed May 31, 2011).

[55] *See* Complaint, United States v. AT&T Inc. et al., 1:11-cv-01560-ESH (D.D.C. Aug. 31, 2011).

[56] *See* Statement of Commissioner Mignon L. Clyburn, WT Docket No. 11-65, Daily Digest (Nov. 30, 2011), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db1201/DOC-311263A1.pdf.

consolidations, regulators should consider the ten traits that permitted wireless to become a successful common medium as well as the lessons learned from landline regulation to ensure that wireless remains the thriving common medium we know it to be.

A. *Universality*

Opponents argued that the acquisition will result in a duopoly in which markets will be augmented by pricing coordination and spectrum manipulation, resulting in pricing plans that will be too costly for certain segments of the population.[57] AT&T argued that with the existence of Verizon, Sprint, and the success of pre-paid phone plan providers such as MetroPCS Communications, Inc. and Leap Wireless International, Inc., however, the market would remain competitive, resulting in continued downward pressure on wireless prices.[58] AT&T's main claim that the transaction was necessary to expand LTE to 97 percent of the country, if accurate, was perhaps most persuasive, as the efficiencies created by such an acquisition might permit AT&T to build out those less dense areas that are not covered due to current market conditions. These less dense, rural areas are perhaps the last frontier of a truly universal network, and AT&T's claims may be essential for the universality required for a common medium of communication.

B. *Accessibility*

During the early stages of wireless, the Commission did not have a pro-rural policy and accepted the fact that the winners of auctions would build networks from dense areas to less dense areas. As network penetration nears 100 percent, however, the FCC has turned its attention to these less dense areas. The current Administration's National Broadband Plan has an expressly pro-rural policy, and the acquisition has received support from many local politicians seeking to attain network access for their rural constituents.[59] Like landline, a truly common medium must be accessible to even the remote corners of the population.

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[57] *See* Petition to Deny of Sprint Nextel Corporation, WT Docket No. 11-65, at 4 (May 31, 2011) [hereinafter *Sprint Petition to Deny*].

[58] *See* Description of Transaction, *supra* note 62, at 13.

[59] "The deal will allow AT&T to combine network resources with T-Mobile and invest more capital in infrastructure. That will help them reach places like Coal Run, which has been historically underserved by a host of utility and communications providers due to our relative

C. *Ripe for Innovation*

Opponents of the acquisition described T-Mobile as a 'maverick' of the U.S. wireless marketplace by acting as a leader in pricing and innovation through the introduction of Android phones and the integration of unlimited voice, text, and data service.[60] They argued that Android was the first effective challenge to AT&T's exclusive contract with the iPhone, expanding the smartphone market.[61] Indeed, exclusive handset contracts—such as the one which AT&T once had with the iPhone—raise concerns as to the availability of new devices across all carriers and the ability of exclusive handset contracts to further effect market share by attracting users to switch wireless providers. What initially made wireless so attractive to the Commission was its ability to evolve every few years. The Commission should ensure that there is a constant incentive to continue to innovate and improve the network.

D. *A National Network*

In the early days of wireless, the FCC decided that wireless would be more likely to emerge as the common medium of conversation if large national companies operated national networks. This was not a tacit election of monopoly as the desired market structure, as AT&T had been for landline, of course, but rather an acknowledgment that there are certain market advantages to larger networks, many of which are claimed by AT&T. Scale creates common practices and can help increase the speed at which new technology is spread through taking advantage of spectrum efficiencies and shared use of poles and towers. Indeed, AT&T claimed that the acquisition was necessary to allow it to roll out its LTE network to a larger population than it would be able to without the acquisition of T-Mobile.[62]

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isolation and rough terrain." Comments of Mayor C. LaVerne, WT Docket No. 11-65 at 39 (FCC filed July 17, 2011).

[60] Sprint Reply Comments, WT Docket No. 11-65, at 21 (June 21, 2011) [hereinafter *Sprint Reply Comments*].

[61] *Id.*

[62] *See* Description of Transaction, *supra* note 62, at 1.

E. *Bundling*

Today, wireless access networks constitute a two sided market in which network providers sell services to customers and access to these customers to content providers. In this way wireless providers are content gatekeepers and consolidation of any wireless market can result in a shift of costs to content providers and potential filtering of the content that consumers receive. While the current FCC network neutrality rules ensure the ability of content providers to gain access to Broadband, the rules do not apply to the wireless network.[63] Opponents worried about a post-acquisition environment in which AT&T would have the ability to manipulate prices to control content markets and strengthen their gatekeeper status.[64] While bundling services can be advantageous to consumers, regulators should ensure that providers are not controlling markets beyond the wireless realm.

F. *Infrastructure-Service Distinction*

Many MVNOs were concerned that the acquisition would result in higher costs.[65] As AT&T and T-Mobile are the only networks in the United States that use the GSM standard, the acquisition would result in AT&T controlling network access of all devices running on GSM in the U.S.[66] MVNO's and foreign wireless service providers were concerned over AT&T's ability to influence roaming and backhaul costs. Additionally, as AT&T would have less need to roam on other provider's networks due to the increased size of its own network, it was argued that AT&T would have less of an incentive to keep roaming prices low.[67] MVNOs usually work in niche markets, filling the gaps that the larger providers leave behind. Regulators should ensure that these niche markets are protected in order to reach the goal of 100 percent penetration.

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[63] *See* Preserving the Open Internet: Broadband Industry Practices, Report and Order, 25 FCC Rcd 17905 (Dec. 21, 2010).

[64] *See* Sprint Petition to Deny, *supra* note 66, at 46.

[65] *See* IDT Domestic Telecom Petition to Deny, WT Docket No. 11-65 (May 31, 2011).

[66] *Id* at 2.

[67] *See* Sprint Petition to Deny, *supra* note 66, at 43.

G. *Acquisition Conclusions*

While a potential AT&T-T-Mobile acquisition presented a challenge to the current wireless market structure, the FCC weighed the benefits and detriments of the transaction against its goals of a wireless common medium and come out against the acquisition. On November 22, 2011, the FCC announced that its staff had found the proposed transaction to be contrary to the public interest and circulated a proposed order referring the transaction to administrative hearings—creating yet another potential roadblock for AT&T.[68] The FCC took the additional step of releasing a 157-page staff report detailing the Commission's concerns over the transaction.[69] Following, the circulated proposal, AT&T announced that it had withdrawn without prejudice, the pending acquisition application from the FCC on November 23, 2011 in order to "focus their continuing efforts on obtaining antitrust clearance for the transaction from the Department of Justice."[70] Despite AT&T's contention that they would continue to pursue the acquisition it was clear that the transaction was trouble and after reviewing its options and the political landscape, AT&T announced that it was ending its bid to acquire T-Mobile on December 19, 2011.[71]

While hailed as a success by its opponents, the defeat of the AT&T-T-Mobile acquisition is in many ways a beginning of the conversation rather than an end. AT&T, along with the rest of the major wireless providers, still faces growing network constraints and T-Mobile remains in a competitively weak position.[72] The FCC's 157-page staff report is perhaps our best glance into how the Commission will review future transactions in the wireless

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[68] AT&T, AT&T and Deutsche Telekom Continue to Pursue Sale of DT's U.S. Wireless Assets, News Release Archives (Nov. 24, 2011), *available at:* http://www.att.com/gen/pressroom?pid=22077&cdvn=news&newsarticleid=33396&mapcode=financial (last visited Dec. 29, 2011) [hereinafter *AT&T Withdrawal*].

[69] Staff Analysis and Findings, WT Docket No. 11-65, *available at*: http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db1130/DA-11-1955A2.pdf.

[70] *See* AT&T Withdrawal, *supra* note 74.

[71] AT&T, AT&T Ends Bid To Add Network Capacity Through T-Mobile USA Purchase, News Release Archives (Dec. 19, 2011), *available at:* http://www.att.com/gen/pressroom?pid=22077&cdvn=news&newsarticleid=33396&mapcode=financial (last visited Dec. 29, 2011).

[72] *See* Kevin J. O'Brien, *As Deutsche Telekom Ponders Options, a New Deal Is Expected*, Dealbook (Dec. 20, 2011, 12:50 PM), http://dealbook.nytimes.com/2011/12/20/as-deutsche-telekom-ponders-options-a-new-deal-is-expected/.

market and how nearly 20 years later, the Commission is still diligently watching the market in order to protect and promote the wireless common medium.

VI. CONCLUSIONS

Wireless as a technology and as a common medium has done more than any other technology in history to lift people out of poverty.[73] In 1997, the last year that I was in the government, I went to Johannesburg as part of a government delegation. In the middle of Johannesburg there was a one square mile camp with nothing but shanties and shacks containing hundreds of thousands of people. It was a terrible place, plagued by crime and unemployment. The residents were the exiles of other African countries driven out by famine, war, or disease. The one thing with any relationship to the modern world was the cell phone tower.

Since that date, wireless has been the primary device of modernity for the poorest of the poor. Cellular is changing the way of life for all the poor of the world. The poor buy prepaid cards because they cannot afford a post-paid subscription. They borrow their neighbor's cell phone. They glue together phones from pieces they find in the streets or buy as scrap. Wireless is the common medium of conversation for the poor. It is the way to interact socially. It is the way to call for help. It is the way to be in business. In Africa the cell phone is the single most important factor in creating a new middle class with more than 300 million people.[74] Wireless communication is the way to bring the entire world's people into a single digital global market and into the Internet. All these developments have gone beyond even the dreams we had in the 1990s.

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[73] *See generally* U.N. Report, Information Economy Report 2010, *available at* http://unctad.org/Templates/webflyer.asp?docid=13912&intItemID=2068&lang=1.

[74] *See generally* Acha Leke et al., *What's Driving Africa's Growth*, McKinsey Quarterly (June 2010), http://www.mckinseyquarterly.com/Whats_driving_Africas_growth_2601.