

Chapter 1

THE REVOLUTION WILL NOT BE

STREAMED

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INTRODUCTION: THE PROMISE OF THE INTERNET

On a cold February morning 13 years ago, President Bill Clinton made history by signing the Telecommunications Act of 1996 into law. It was the first signing at the Library of Congress and the first to be streamed live over the Internet.¹ This symbolism was intended to capture the legislation's promise of bringing the information revolution to the doorstep of every American. As President Clinton signed a bill he described as "truly revolutionary" and that would "protect consumers against monopolies," he spoke of the future the law would bring. "Soon, working parents will be able to check up on their children in class via computer," he said. "On a rainy Saturday night, you'll be able to order up every movie ever produced or every symphony ever created in a minute's time."²

Americans are still waiting on the promise of this digital revolution.

The story of how this digital promise was broken is a tale of typical Washington politics. Before the ink was even dry on the 1996 Act, the powerful media and telecommunications giants and their army of overpaid lobbyists went straight to work obstructing and undermining the competition the new law was intended to create. By the dawn of the 21st century, what they could not get overturned in the courts was gladly undone by a new FCC staffed and led by the same lobbyists.

Instead of "protection against monopolies," consumers have been left with high prices, few choices and a duopoly of cable and phone companies. Instead of "every American child" being connected, today we have more than 20 million school-age kids without home Internet connections. And instead of every American being able to order up a movie in "a minute's time," today less than 5 percent of Americans have a home Internet connection capable of downloading a movie in less than 30

¹ See Mike Mills, "Ushering in a New Age in Communications; Clinton Signs 'Revolutionary' Bill into Law at a Ceremony Packed with Symbolism," *Washington Post*, Feb. 9, 1996.

² See "Remarks by the President in Signing Ceremony for the Telecommunications Act Conference Report," The White House Office of the Press Secretary, Feb. 8, 1996.

minutes.³ Worst of all, the promise of the Internet as a democracy-enhancing, free-flowing communications conduit is now in serious jeopardy.⁴

But this story actually begins long before the 1996 Act came into being. It begins nearly half a century ago, during a time when the network computing industry was in its infancy and the nation's communications market was still a government-sanctioned monopoly. In the 1960s, the Federal Communications Commission began to craft a regulatory structure that would allow the Internet to grow and thrive as an open and competitive communications platform. The FCC established a bold series of safeguards through the so-called *Computer Inquiries* that would protect competition on the Internet from the monopoly whims of the phone companies that owned and controlled the Internet's infrastructure. This regulatory structure was remarkably successful and became the foundation of the 1996 Act's pro-competition legal framework.⁵ Not only was this structure successful, it had broad bipartisan support. From the 1960s through 1996, Democratic and Republican administrations alike replaced policies of regulated monopoly with policies of competition in market after market. The Reagan administration, with a Democratic Congress, broke up AT&T to increase competition in long-distance, device and computer markets. The Clinton administration worked with a Republican Congress to increase competition in local networks. Both parties shared the principle that meaningful competition — not regulated monopolies or unregulated market concentration — best serves innovation and consumer freedom. In 2001, however, without congressional approval, President George W. Bush's administration unilaterally reversed course and abandoned this core bipartisan principle.

For a brief period in the late 1990s, following the first efforts to implement the 1996 Act, the law appeared to be working. Local and long-distance competition increased and monthly charges began to fall. Dial-up Internet went from a novelty to being available to almost every American household. Even those in remote rural areas had access to multiple, highly competitive Internet Service Providers (ISPs) by the end of the decade.⁶ The number of ISPs more than doubled

³ See *infra* Figure 8, explaining that only 4 percent of U.S. households subscribe to broadband connections with advertised speeds above 10 megabits per second.

⁴ At the 1996 Act's signing ceremony, President Clinton said: "It is fitting that we mark this moment here in the Library of Congress. It is Thomas Jefferson's building. ... He understood that democracy depends upon the free flow of information. ... Today, the information revolution is spreading light, the light Jefferson spoke about, all across our land and all across the world. It will allow every American child to bring the ideas stored in this reading room into his or her own living room or school room."

⁵ It is important to note here that we're referring to the "pro-competitive" framework of the 1996 Act, as it applies to Internet and telecommunications policy. The 1996 Act has often been rightly criticized for opening the door to massive consolidation of traditional media, especially in the broadcast radio and television markets.

⁶ See Shane M. Greenstein, "The Economic Geography of Internet Infrastructure in the United States," in the *Handbook of Telecommunications Economics Volume 2*, ed. S. Majumdar et al., North-Holland (2005), p. 310, discussing how 92 percent of the U.S. population could reach seven

in the few short years after the Act became law.⁷ And the United States was an early global leader in broadband deployment, with new startup companies like Earthlink, @Home Network and Covad bringing broadband into the living rooms of ordinary Americans.

Abandoning the Commitment to Competition

But just as the Internet was becoming an essential technology for the average American, the FCC and the courts began to tear down the 1996 Act's basic competitive framework. In just a few short years, nearly all of the important safeguards established by Congress and by the FCC were removed. However, as America blindly followed this path of "deregulation," our foreign counterparts maintained their commitment to the very pro-competitive policies pioneered in the 1996 Act. And they saw their broadband Internet markets blossom, while ours withered.

At the turn of the century, the United States was ranked fifth among the world's nations in broadband penetration. But just a few short years later, we had dropped precipitously to 22nd place. Consumers in countries that maintained the commitment to competition, such as South Korea and Japan, are today able to access broadband with symmetrical speeds reaching 1 Gigabit per second (Gbps) for less than the monthly price a U.S. consumer would pay for service that's 100 times slower.⁸ The commitment to competition in countries like England has led to the development of robust and fiercely competitive marketplaces.⁹

By turning its back on the 1996 Act, the FCC ordered up a future of digital mediocrity and stuck American consumers with the bill. Americans pay more per month for broadband than consumers in all but seven of the 30 nations in the Organization for Economic Co-operation and Development (OECD). The speeds of the connections offered to U.S. consumers are quite slow compared to the connections offered to consumers in other countries like Japan and France. Overall, America ranks 14th in average advertised download speed, at just under 9 Mbps, some 10 times slower than the international leader Japan. When price and speed are considered together as a measure of value, we see that Americans pay more per megabit per second (Mbps) than consumers in many other countries. The value of U.S. connections is some four times less than that of countries like France, and is

or more dial-up ISPs via a local call in 1998.

⁷ *Ibid.* at p. 310, stating that according to *Boardwatch Magazine*, there were 3,000 ISPs in the fall of 1996; that number had increased to 4,200 by January 1998. By 2000, the number had increased to 6,000. See "Broadband Internet Access: Background and Issues," *Congressional Research Service*, Resources, Science, and Industry Division, IB10045, Jan. 10, 2001.

⁸ See *infra* note 30.

⁹ See *infra* note 31.

only slightly better than the value of connections in Hungary, a country with a per capita GDP nearly two-and-a-half times lower than the United States.¹⁰

Nowhere is this digital mediocrity more evident than in the state of competition in our broadband markets. In the aftermath of the 1996 Act, the average American consumer had access to more than a dozen ISPs; today, our broadband market is a stagnant duopoly. Nationwide, incumbent phone and cable companies control 97 percent of the fixed-line residential broadband market. When complementary (and slow and expensive) mobile data connections are factored in, the incumbent phone and cable companies' nationwide market share stands at 95 percent. This situation is essentially unchanged since 2005, when the FCC took its final step to destroy the last vestige of the 1996 Act's competitive framework.¹¹

As expected, this uncompetitive market has slowed innovation and advancement. Only 4 percent of U.S. homes have broadband connections with advertised download speeds in excess of 10 Mbps, and many of these are cable modem lines that may rarely reach these speeds due to the shared and over-subscribed nature of cable infrastructure.¹² Prices have slowly and steadily increased, the precise outcome expected when competition is nowhere to be found. In 2003, the average monthly price for a broadband connection in the United States was \$42.15. This climbed to \$44.09 four years later, during a period when incumbents were given substantial "regulatory relief" that was supposed to lead to lower prices.¹³

The abandonment of the 1996 Act's commitment to competition and universal service also left tens of millions of Americans stranded on the wrong side of the digital divide, a situation that has not improved with advances in technology. As broadband replaced dial-up as the only truly viable conduit for connecting to the Internet, the digital divide remained largely unchanged, or in some cases, actually got worse. In 2001, only 28 percent of homes with annual household incomes below \$35,000 were connected to the Internet. By the end of 2007, just 29 percent of homes with annual household incomes below \$35,000 were connected to the Internet via broadband.¹⁴

Similarly, in 2001, just 37 percent of racial and ethnic minorities were connected to the Internet, compared to 55 percent of non-Hispanic white Americans. By 2007, only 40 percent of minority homes were connected to broadband versus 55 percent of whites.¹⁵ And while there was no real geographic digital divide to speak of at the turn of the century — with 51 percent of urban homes connected to the Internet

¹⁰ See *infra* Figure 2.

¹¹ See *infra* Figure 21.

¹² See *infra* Figure 8 and discussion on page 109.

¹³ See *infra* note 162.

¹⁴ See *infra* Figure 9.

¹⁵ See *infra* Figure 10.

versus 48 percent of rural homes — rural America was left behind as technology progressed. By 2007, 54 percent of urban homes had broadband, compared to 39 percent of rural homes.¹⁶ These trends combine to hit hardest those living in the poorer and more rural states. While two-thirds of the population in states like New Hampshire and Massachusetts has broadband at home, only one-third of the population in states like Mississippi and West Virginia is connected.

To bring broadband adoption in states like Mississippi and West Virginia more in line with the levels seen in northeastern states, we need policies that encourage more rural broadband deployment and lower monthly costs. To bring all Americans the low-priced, fast connections widely available in other countries, we need real competition, not the phony choices offered by the phone and cable duopoly. And to ensure our economic future is driven by American ingenuity and innovation, we need to maintain our historical commitment to protecting the open Internet.

The FCC's Premature Deregulation

It's clear that absent government intervention, the invisible hand of the marketplace won't solve these problems. The 1996 Act was supposed to be that intervention. Congress intended for the FCC to faithfully implement the Act and to prevent all the inequity and technological stagnation discussed above. At the heart of the 1996 Act is a progressive, pro-competition regulatory structure — one that was intended to break open the bottlenecks in local communications networks. The FCC was supposed to use this new structure to create within the communications industry the level of competition seen in the computer industry — and with it, bring consumers the benefits of lower prices, better services and unfettered innovation.

But it didn't.

Instead, beginning in 2001, the FCC set out on a destructive path of premature deregulation, seeing competition where it did not exist and ignoring abuses of market power at every turn. Aided by compliant courts and an uninterested Congress, the FCC undid most of the 1996 Act's competitive structure, producing a policy failure that is directly responsible for all of America's broadband problems.

Almost right out of the gate, the Bush administration's FCC declared war on competitive ISPs. It quickly decided that even though the cable platform had transformed into a two-way communications medium, cable companies didn't need to abide by any of the pro-competitive requirements of the 1996 Act.¹⁷ The FCC also decided that incumbent monopoly phone companies would no longer be required to provide competitive broadband ISPs wholesale access at reasonable rates and conditions. This abandonment of "open access" policy flew

¹⁶ See *infra* Figure 11.

¹⁷ See discussion beginning *infra* page 59.

in the face of congressional intent and doomed the competitive ISPs to irrelevancy and bankruptcy.

Meanwhile, overseas, other countries maintained this commitment to competition and reaped the benefits. The OECD countries with open access policies have broadband penetration levels nearly twice that of countries without these policies.¹⁸ Citizens in the countries with open access policies also get more broadband bang for their buck. For example, consumers in countries with “line sharing” open access policies pay about \$14 per Mbps; consumers in countries without these policies pay more than double this amount.¹⁹

The FCC, in its blind pursuit of deregulation, abandoned line sharing and other open access policies in the hopes that this “regulatory relief” would inspire incumbents to make massive investments in broadband infrastructure. But this hope, based in part on the promises made by the incumbents to get favorable FCC treatment, turned out to be completely false. An examination of the data reveals that the pace of broadband deployment was no different in the years before major FCC broadband deregulation than it was in the years after.²⁰ States like Virginia and Maine saw no improvement in deployment, while in some states like Nebraska, things actually got worse.²¹

The FCC also justified its abandonment of competition policy by arguing that the incumbent phone and cable companies would offer third-party ISPs wholesale access on favorable terms, even though they weren’t obligated to do so. In retrospect, letting the fox guard the henhouse was a colossal mistake. An examination of the offerings of the few remaining third-party broadband ISPs illustrates the obvious: that incumbents have absolutely no reason to offer their competitors favorable wholesale rates. For example, Earthlink still resells Time Warner Cable broadband service, but the monthly rate is so high that no consumer in his or her right mind would pay it. Earthlink’s 7 Mbps tier costs consumers nearly \$30 more than if they bought it from Time Warner Cable directly, while the lowest-price tier is nearly 20 percent cheaper if purchased from Time Warner Cable.²²

In many cases, once they were granted relief from providing reasonable wholesale access, incumbents refused to offer wholesale altogether or jacked up the rates so high that third-party ISPs would lose money. The complete and utter implosion of the wholesale DSL business in the aftermath of the FCC’s deregulatory orders is proof positive that the Commission’s claims about competition were flawed and that the promises made by the incumbents were hollow. Again, consider

¹⁸ See *infra* Figure 16.

¹⁹ See *infra* Figure 18.

²⁰ See *infra* Figure 24.

²¹ See *infra* Figures 25-26.

²² See *infra* Figure 19.

Earthlink, the nation's largest wholesale ISP. From 2001 to 2006, they saw a steady, cumulative 260 percent increase in the number of retail broadband customers. But in the year following the implementation of the FCC's last deregulatory order, they lost nearly half their broadband customers.²³

A review of the history makes it clear that the FCC's heart was never really in promoting this type of "intra-modal" competition. All along, the Commission predicted a future of "inter-modal" competition, or competition between broadband providers using different technologies. Though this was only half of the approach Congress directed the Commission to pursue in the 1996 Act, the FCC couldn't even get this part right. The FCC basically pinned the hopes for America's broadband future on a form of competition that it took no steps to help develop. In fact, the FCC made a series of decisions that completely undermined the ability of providers of new broadband technologies to enter the market and effectively compete against the phone and cable duopoly.

For "third-platform" competition to become reality, new ISPs need reasonable access to "middle-mile" or "special access" high-capacity telecommunications lines that transport data back and forth from the Internet backbone to local facilities. In most areas of the country, these high-capacity lines are only available from legacy monopoly phone companies like AT&T, Verizon or Qwest. To compete, any new providers need the FCC to ensure that the monopoly phone companies don't charge unfair rates. But instead of protecting competition, in many cases, the FCC let the monopoly phone companies charge whatever they wanted. In some areas, the special access rates of return are now at such a high level that even the most stalwart monopolist would blush. In one California study area, Verizon earned a 700 percent rate of return in 2007 from its special access lines.²⁴

The bottom line: Every move the FCC made to supposedly constrain phone and cable companies from exploiting their market power backfired. Almost without exception, every claim made by the agency about what would lower prices or increase competition turned out to be completely, utterly wrong.

Making Up for Lost Time: A National Broadband Plan

We need a new direction. Each month that policymakers let pass without addressing our broadband problems is another month that millions of low-income children fall further behind in acquiring the technology skills that they will need to compete in the 21st-century global economy. Each month of FCC inaction is another month that millions of Americans will pay billions more than they should for Internet connections that are too slow to even deserve to be called "broadband." And each month of neglect is another month that the phone and

²³ See *infra* Figure 20.

²⁴ See *infra* Figure 30.

cable companies can use their duopoly profits to implement secretive network management schemes that violate consumer privacy, undermine competition, and threaten the future of the Internet as an open platform for innovation.

The policy failures of the past decade discussed on the pages that follow have left America in such a deep hole that it may not be possible to completely dig ourselves out of it. But we must try. The new FCC, as instructed by Congress, must formulate a bold and transformative national broadband plan that will once again put America back on top. The path that the Commission needs to follow will be politically perilous. But the time for acquiescence to the revolving-door telecom lobby is long gone. The Commission's policy decisions should be based on empirical data and a firmly grounded understanding of the market. It may indeed be the case that some of the tools from the 1996 Act won't work now that the duopolists have been allowed to run amok for the past decade. However, if we have any hope to get back on track, the agency's decisions must be based on facts and on its overarching duty to promote the public interest above private gains.

After a lengthy examination and analysis of the policy missteps underlying America's broadband problems, we propose a path forward — a path that begins in earnest with the national broadband plan. The FCC first needs to re-examine all of its deregulatory actions and the associated predictions made since 1996 and honestly assess where things went wrong. This process will enable the Commission to formulate a meaningful standard for assessing market power and will greatly improve its ability to make meaningful predictions about competitive market development. This, in turn, will lead the FCC toward the policies that will be most effective at addressing our broadband problems.

The FCC overreached by completely deregulating the high-capacity enterprise broadband market, and it wrongly predicted the development of meaningful competition in the special access market. The negative impacts of these decisions have only been compounded by the near-total reconstitution of the old Ma Bell monopoly through the Commission's approval of the mergers between SBC and AT&T and Verizon with MCI. This string of decisions has completely undermined the ability of any viable third-platform broadband competitor to emerge to effectively challenge the phone and cable duopoly. The FCC must reverse course here and apply a more meaningful approach to regulating the enterprise, special access and middle-mile transport markets. With new pricing discipline, last-mile fixed wireless providers would finally have a chance to compete on a more level playing field.

The FCC also blatantly flaunted the will of Congress by declaring that all broadband access services were "information services" beyond the reach of the 1996 Act's policy framework. The new Commission should immediately reverse these improper classifications. Doing so will enable the Commission to determine — on a case-by-case, market-by-market basis — what, if any, Title II provisions of

the Act should apply. In most markets, the only appropriate regulatory treatment may be a simple obligation for broadband providers to offer reasonable and nondiscriminatory pricing and access, while some less-competitive markets may require more aggressive access requirements.

The FCC has other powerful tools at its disposal. Below, we present irrefutable evidence that the so-called Section 706 test is not being met. This section of the 1996 Act requires the FCC to take immediate action to promote competition if it determines that advanced broadband is not being deployed to all Americans in a reasonable and timely fashion. Given that a majority of the current FCC has dissented in previous Section 706 orders, reversing course here should not be a point of controversy. With this declaration that Congress' standard under Section 706 is not being met, the FCC will have wide latitude to promote competition in the duopoly broadband market.

Whatever course of action the FCC ultimately takes to promote competition, it must first send a strong signal that it intends to protect the open Internet. By adopting firm, clear and specific Network Neutrality rules, the Commission can bring certainty to the market and end this debate that has dragged on for far too long. FCC inaction on this central issue will only serve to embolden incumbent efforts to seize control of the content and applications markets, potentially destroying the one sector of our economy that holds the most promise for our economic future.

We examine how nondiscrimination — the principle at the core of Network Neutrality — has been an integral part of the FCC's policymaking from the Internet's infancy. We also describe how the application of this principle directly led to the development of the Internet as a primary driver for American economic growth and social change. We illustrate how the regulatory framework developed by the FCC to protect the competitive applications and content market from the anti-competitive telecommunications market was incorporated into the 1996 Act, only to be recklessly abandoned later during the Bush era. We explore the underlying economic incentives motivating network operators to discriminate and control the content carried on their networks, and we discuss what implications this behavior will have if the FCC fails to step in and once again restore rules protecting consumers.

The national broadband plan will also need to continue the work begun by the American Recovery and Reinvestment Act to close the digital divide and finally deliver on the 1996 Act's promise of universal, affordable advanced communications services.²⁵ The FCC's work here must move beyond the stale, self-interested debate that has characterized this issue in recent years. Though there is wide agreement that the Universal Service Fund is broken, inefficient, and must be fixed — that's where the agreement ends. While there are no shortage

²⁵ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

of complaints about the USF, there is a dearth of good non-self-interested ideas on how to fix it. We propose a bold and transformative shift in USF policy. Done properly, we believe the FCC can ensure universal access to affordable broadband while also substantially reducing the size of the fund over the long term.

This path to reform begins with an understanding of how technology has fundamentally changed the communications marketplace, and how this change has transformed the old paradigms about universal service policy. When the current universal service regime was created in 1996, the Internet was an application that rode on top of the telephone infrastructure. Today, it's the opposite. Telephony is just one of many applications that broadband offers. But our universal service policy has not kept pace with advances in technology. Today, the FCC throws almost \$5 billion per year down the drain by inefficiently supporting legacy telephone technologies while, 20 million rural Americans live in areas unserved by any broadband provider.²⁶ This is especially wasteful given the fact that in the 1996 Act, Congress directed the FCC to treat universal service as "evolving" and to modernize the support system to account for advances in technology.²⁷

The national broadband plan must account for how convergence has changed the business of telecommunications. Before broadband, carriers were only able to earn perhaps \$20 per customer each month selling phone service. In today's converged world, a carrier can earn well over \$100 on that same line by offering phone, TV and Internet services. Unfortunately, our current regulatory structure does not account for this potential — ignoring that with this additional revenue, many carriers can operate profitably without ongoing subsidies. In fact, the need for the majority of current USF subsidies is questionable.

Below, we propose an alternative to this broken process. We suggest that the FCC implement a 10-year transition as part of the national broadband plan, whereby a new support model that accounts for "triple-play" revenue is phased in, and the resulting cost-savings are used to fund the buildout of broadband infrastructure in unserved areas. We estimate that after this transition, every rural home will have access to broadband, and spending on subsidies to high-cost areas could be reduced by billions a year.

The national broadband plan must also address the most difficult issue plaguing our country's broadband markets — the fact that 50 million low-income Americans still lack access to this essential technology. FCC policy can play a role in bridging this divide, for example, by extending the Lifeline/Linkup low-income program to broadband and by expanding the "e-rate" program to ensure American students receive the benefits of broadband both in school and at home.

²⁶ See *infra* notes 286-289.

²⁷ See *infra* page 138.

FCC action to create more meaningful marketplace competition will also lead to lower prices and help increase broadband adoption rates in low-income communities. However, many of the programs that will provide the most impact on the digital divide lie outside of the Commission's jurisdiction. Therefore, Congress needs to explore a wide mix of policies aimed at solving this problem, including programs that provide practical technology training, enhance digital literacy, and develop community-based content and applications.

Finally, the FCC must use the national broadband plan to establish the agency as the pre-eminent authority and resource for all broadband market data. States all over the country have undertaken efforts to map out broadband deployment and adoption, often at great and unnecessary expense. In many cases, these public-private efforts are conducted in a manner that places more focus on private, rather than public, concerns. The data generated from these efforts is often nontransparent and nonverifiable. The FCC should conclude efforts begun in 2008 to reform its own data gathering practices, so it has the information needed to make the right policy decisions. But just as good data enables the FCC to make informed decisions, so too can it empower consumers to make smart decisions. Thus the FCC should make as much of its broadband data publicly accessible as possible.

President Obama promised to bring change to Washington, and it appears that is already happening. The very fact that the FCC is preparing a national broadband plan is in and of itself a huge step forward. However, this plan cannot be a long list of platitudes and bromides. It cannot simply state goals that we all agree are noble; it must contain policies that are bold and transformative — policies that atone for the FCC's past record of neglect and finally deliver on those promises made by our leaders so long ago.