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## The FCC and the “Pre-Internet”

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# The FCC and the “Pre-Internet”

JOHN BLEVINS\*

*Network neutrality has dominated broadband policy debates for the past decade. While important, network neutrality overshadows other policy levers that are equally important to the goals of better, cheaper, and more open broadband service. This lack of perspective has historical precedent—and understanding this history can help refocus today’s policy debate. In the 1960s and 1970s, telephone companies threatened the growth of the nascent data industry. The FCC responded with a series of rulemakings known as the “Computer Inquiries” proceedings. In the literature, Computer Inquiries enjoys hallowed status as a key foundation of the Internet’s rise.*

*This Article, however, argues that Computer Inquiries is less important than it seems. A series of lesser-known FCC proceedings was more important to the development of the “pre-Internet”—a term I use to describe the ancestral data networks that ultimately evolved into the Internet. When viewed in historical context, Computer Inquiries did not create growth, but instead reflected the growth that the pre-Internet proceedings had already unleashed. Computer Inquiries, however, contributed to the pre-Internet in other ways that the literature overlooks. Specifically, it became a crucial source of information that influenced the more important pre-Internet proceedings. Understanding how the FCC helped build the pre-Internet also provides important lessons for today’s modern policy debates. One implication is that today’s open Internet depended not upon “light touch” restraint, but upon aggressive regulatory enforcement over many years. It also illustrates how the current policy debate focuses too narrowly on network neutrality rules to the exclusion of other proceedings and policy levers that can construct a larger “habitat” of innovation.*

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#### INTRODUCTION

Network neutrality dominates broadband policy debates today. While strong network neutrality rules are necessary, the debates often overshadow equally important issues that are critical to the future of American broadband. Network neutrality rules, for instance, cannot empower cities to build blazing fast fiber networks. They cannot secure adequate spectrum for “super Wi-Fi” that enables the next generation of wireless innovation. They also do little to address broadband costs, which limit adoption and contribute to the “digital divide” that many low-income and rural communities experience. In short, network neutrality is important, but it’s not the only game in town.

This disproportionate focus on a single proceeding, however, is not new. A similar lack of perspective exists regarding the FCC’s role in the early history of the Internet. Specifically, the literature gives too much credit to a single set of FCC rules for encouraging the Internet’s growth. As a result, it overlooks several lesser-known proceedings and enforcement efforts that contributed more heavily to building the “pre-Internet”—a term I use to describe the early data networks that ultimately evolved into the Internet. Understanding this history can help refocus today’s policy debates. In particular, it can remind us that the FCC possesses a diverse toolkit of policy levers—not merely one high-profile set of rules—to achieve its goals of better, cheaper, and faster Internet service.

This history begins in the 1960s when the growth of computer services created several regulatory challenges for the FCC. One problem was that fledgling “data” services increasingly relied on telephone networks to reach customers.<sup>1</sup> At the same time, telephone carriers expressed interest in entering new data markets themselves. It was unclear how to regulate any of this activity—and history provided little guidance. Data services had never been regulated at all, while the FCC had extensively regulated telephone networks as common carriers for decades.<sup>2</sup> Neither approach, however, seemed to fit the new technological realities.

The FCC looked for answers in a series of regulatory proceedings in the 1960s and 1970s collectively known as the Computer Inquiries proceedings. Computer Inquiries enjoys hallowed status in the literature as a necessary condition of the Internet’s subsequent growth.<sup>3</sup> The literature especially celebrates Computer

1. Regulatory & Policy Problems Presented by the Interdependence of Computer and Communication Servs. & Facilities, 7 F.C.C.2d 11, 11 (1966) (notice of inquiry) [hereinafter Computer I NOI]; Bernard Strassburg, *Competition and Monopoly in the Computer and Data Transmission Industries*, 13 ANTITRUST BULL., 991, 993 (1968).

2. See GERALD W. BROCK, *THE SECOND INFORMATION REVOLUTION* 139 (2003).

3. Robert Cannon, *The Legacy of the Federal Communications Commission’s Computer Inquiries*, 55 FED. COMM. L.J. 167, 169 (2003) (stating that Computer Inquiries proceedings “were a necessary precondition for the success of the Internet”); Kevin Werbach, *The Network Utility*, 60 DUKE L.J. 1761, 1805–06 (2011) (“The modern PC and Internet markets developed as a direct result of the FCC’s actions in *Computer I.*”); see also *infra* notes 70–73 and

Inquiries’ “layered” regulatory approach, which combined elements of both regulation and deregulation.<sup>4</sup> Under this layered regime, the FCC deregulated the new data services “on top.” At the lower layer, however, the FCC continued to regulate the physical telephone infrastructure to protect the burgeoning data industry. In short, the FCC protected new cars by regulating only the roads.

Because of its perceived success, the literature often cites Computer Inquiries to justify both regulatory and deregulatory policies. For instance, some scholars emphasize the deregulatory aspects of Computer Inquiries, noting the wisdom of government restraint in dynamic new markets.<sup>5</sup> Other scholars, by contrast, celebrate Computer Inquiries’ regulatory interventions, which protected the nascent data industry from discrimination.<sup>6</sup> The shared assumption throughout the literature, however, is that Computer Inquiries was *important* and a key source of growth for early computer services. This Article challenges these assumptions.

The first argument is that Computer Inquiries is receiving credit for developments made possible by other contemporary FCC proceedings. During the 1960s and 1970s, the telephone network was inadequate for newer computer technologies. Transmission service was too slow and too expensive. Carriers also imposed numerous restrictions that stifled new data services and equipment.<sup>7</sup> The FCC responded with a diverse range of proceedings and enforcement efforts (collectively the “pre-Internet proceedings”) that addressed these concerns.<sup>8</sup> The pre-Internet proceedings pressured carriers to open their networks and to accommodate new competitors. They also created new freedoms for customers to attach devices, to interconnect with private networks, and to share and resell communications services.<sup>9</sup> Collectively, these actions had more tangible effects in the formative era of the 1960s and 1970s than Computer Inquiries’ more celebrated regulatory decisions, which the FCC did not adopt in final form until 1980.<sup>10</sup>

Computer Inquiries, however, was not irrelevant to the rise of the Internet. Indeed, a second argument is that Computer Inquiries contributed to the pre-Internet in ways the literature overlooks—namely, as an *informational* source for the pre-Internet proceedings. The voluminous comments in Computer Inquiries publicly documented—for the first time—the inadequacy of telephone networks and services for modern computer services. This dissatisfaction pressured carriers (particularly AT&T) to reform their services, and strongly influenced the other pre-Internet proceedings that invalidated carrier restrictions and opened the telephone network to

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accompanying text (discussing the legacy of Computer Inquiries).

4. See *infra* note 74 and accompanying text.

5. See *infra* notes 78–81 and accompanying text.

6. See *infra* notes 82–84 and accompanying text.

7. See *infra* Part II.A–B.

8. See *infra* Part II.C.

9. See *infra* Part II.C.

10. Amendment of Section 64.702 of the Comm’n’s Rules & Regulations (Second Computer Inquiry), 77 F.C.C.2d 384, 387 (1980) (final decision) [hereinafter Computer II Final Decision].

new uses.<sup>11</sup> This Article defends this claim with primary historical documents from the FCC archives that have never been identified in the literature.<sup>12</sup>

A third argument is that the more famous aspects of Computer Inquiries—its celebrated regulations—are less important than they seem. The literature, I argue, inverts the relationship of Computer Inquiries and the pre-Internet’s growth. When viewed in historical context, Computer Inquiries is an effect of growth rather than a cause. In many instances, it merely reflected either pre-existing norms or the legal and market reforms that the pre-Internet proceedings had already unleashed.

A related argument is that this history undermines the modern literature’s use of Computer Inquiries to justify certain deregulatory and regulatory policies. Deregulatory advocates ignore the often unspoken assumptions that the underlying physical network would remain extensively regulated.<sup>13</sup> Regulatory advocates, by contrast, overinterpret Computer Inquiries’ regulatory interventions. Contrary to its legacy in the literature, the final Computer Inquiries order was arguably a deregulatory effort to help AT&T expand into competitive markets. Indeed, the FCC’s reliance on both “unbundling” and ancillary jurisdiction arguably *reduced* regulation to facilitate AT&T’s expansion.<sup>14</sup>

A final contribution is that the pre-Internet’s history provides insights into today’s broadband policy debates. First, it contradicts claims that the Internet’s growth depended upon a “light touch” deregulatory approach.<sup>15</sup> In reality, the Internet’s growth relied upon aggressive regulatory intervention, but only at the *physical* layer (which was less competitive). In this respect, the pre-Internet history lends normative support for both network neutrality rules in general, and Title II<sup>16</sup> reclassification approaches specifically. It also reinforces—through new historical examples—the arguments of scholars who have recognized the regulatory foundations of the Internet’s development.<sup>17</sup>

The pre-Internet’s history also teaches us that today’s open Internet depends not merely upon a single proceeding, but upon a larger “habitat” of innovation that encompasses a diverse set of proceedings and policy levers. Focusing too heavily on one aspect of this habitat potentially diverts resources from other valuable initiatives. For instance, I argue that the credible threat of new competition was the single most important factor in motivating carriers to improve their networks in ways that

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11. *See infra* Part II.C.

12. *See, e.g.*, Motion for Official Notice [of the First Computer Inquiry], Application of Microwave Commc’ns, Inc., No. 16509-19 (F.C.C. May 5, 1968); *see also infra* Part II.C.1 (discussing additional documents from the FCC archives).

13. The concept of background assumptions is similar to James Joll’s historical analysis of the “unspoken assumptions” of World War I. JAMES JOLL, 1914: THE UNSPOKEN ASSUMPTIONS (1968). *See* Stuart Lloyd Mathison & Philip M. Walker, Public Policy Issues Arising from the Interdependence of Computers and Communication (1968) (unpublished master’s thesis) (on file with National Archives, FCC Docket No. 16979); *see also infra* Part III.B.2.

14. *See infra* notes 295 and 324–25 and accompanying text.

15. *See infra* note 352 and accompanying text.

16. Communications Act of 1934, 47 U.S.C. §§ 201–231 (2012).

17. *See infra* note 353.

benefited innovative data services.<sup>18</sup> The analogue today is that enabling municipal broadband projects and private projects such as Google Fiber<sup>19</sup> is perhaps the most effective means to pressure providers to increase speeds, lower costs, and improve service.

Part I provides an overview of Computer Inquiries and summarizes the current literature. Part II describes the FCC’s pre-Internet proceedings that created the foundation for data services’ growth. Part III argues that the Computer Inquiries regulatory decisions themselves are less consequential than the literature recognizes, and examines how the historical record complicates traditional narratives surrounding these proceedings. Part IV considers the relevance of this history to modern policy disputes, particularly broadband access regulation.

### I. AN INTRODUCTION TO COMPUTER INQUIRIES

This section provides a brief summary of the two major *Computer Inquiries* proceedings known as *Computer I*<sup>20</sup> and *Computer II*.<sup>21</sup> It then summarizes the literature’s traditional account of Computer Inquiries and its layered regulatory model.<sup>22</sup>

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18. See *infra* Part II.C.2.

19. *A Different Kind of Internet and TV*, GOOGLE FIBER, <https://fiber.google.com/about/> [<https://perma.cc/CY35-WR3E>].

20. The *Computer I* proceeding includes the following major actions from Docket No. 16979: Computer I NOI, *supra* note 1; Regulatory & Policy Problems Presented by the Interdependence of Computer & Commc’n Servs. & Facilities, 7 F.C.C.2d 19 (1967) (supplemental notice of inquiry); Regulatory & Policy Problems Presented by the Interdependence of Computer & Commc’ns Servs. & Facilities, 17 F.C.C.2d 587 (1969) (report and further notice of inquiry) [hereinafter Computer I 1969 Further Notice]; Regulatory & Policy Problems Presented by the Interdependence of Computer & Commc’n Servs. & Facilities, 28 F.C.C.2d 291 (1970) (tentative decision) [hereinafter Computer I Tentative Decision]; Regulatory & Policy Problems Presented by the Interdependence of Computer & Commc’n Servs. & Facilities, 28 F.C.C.2d 267 (1971) (final decision and order) [hereinafter Computer I Final Decision].

21. The *Computer II* proceeding includes the following major actions from Docket No. 20828: Amendment of Section 64.702 of the Comm’n’s Rules & Regulations, 61 F.C.C.2d 103 (1976) (notice of inquiry and proposed rulemaking) [hereinafter Computer II Notice]; Amendment of Section 64.702 of the Comm’n’s Rules & Regulations (Computer Inquiry), 64 F.C.C.2d 771 (1977) (supplemental notice) [hereinafter Computer II Supp. Notice]; Amendment of Section 64.702 of the Comm’n’s Rules & Regulations (Second Computer Inquiry), 72 F.C.C.2d 358 (1979) (tentative decision and further notice) [hereinafter Computer II Tentative Decision]; Computer II Final Decision, *supra* note 10; Amendment of Section 64.702 of the Comm’n’s Rules & Regulations (Second Computer Inquiry), 84 F.C.C.2d 50 (1980) (memorandum opinion and order) [hereinafter Computer II Reconsideration Order]. Materials from these FCC Dockets are filed at the National Archives in College Park, Maryland, and are on file with the author.

22. This Article focuses on the first and second Computer Inquiries proceedings. The third proceeding—known as *Computer III*—is discussed in Part IV.C, *infra*. Amendment of Sections 64.702 of the Commc’ns Rules & Regulations (Third Computer Inquiry), 104 F.C.C.2d 958 (1986).

*A. Brief History of Computer Inquiries**1. Computer I (1966–1971)*

The story of Computer Inquiries begins with the evolution of computers. Early computers were massive, expensive mainframes that provided limited processing and programming functions. To use these computers, people had to physically travel to the computer.<sup>23</sup> During this time, the telephone network was largely irrelevant to early mainframe computers.

In the 1960s, several developments caused telephone networks to become a vital component of computer services. The most important was the rise of remote access services that telephone lines made possible. With remote access, users could access and share computers from different locations.<sup>24</sup> Further, owners of large mainframe units (such as banks and large retail stores) could lease out idle computer capacity to other users.<sup>25</sup> Remote access also became more widespread because computing costs declined steadily in this period, even before Intel introduced its first microprocessor in the early 1970s.<sup>26</sup>

Collectively, these developments gave rise to a new “data services” industry that provided remote access to various business customers. Stockbrokers could quickly retrieve price information. Hotels and airlines could use computer technology for processing reservations and payroll records.<sup>27</sup> While data services initially served business clients, contemporary observers realized their potential in the future. For instance, J.C.R. Licklater and Robert Taylor offered strikingly prescient predictions of how computer networks would evolve to connect people.<sup>28</sup> It was an exciting time.

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23. Am. Tel. & Tel. Co. Revisions to Tariffs FCC Nos. 260 and 267 Relating to Dataspeed 40R, 62 F.C.C.2d 21, 27–28 (1977) [hereinafter Dataspeed Order] (memorandum opinion and order); see also GTE Serv. Corp. v. FCC, 474 F.2d 724, 726–27 (2d Cir. 1973) (discussing the evolution of the computer up to 1973); Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329, 1333 (1987) (discussing contemporary computer technology).

24. John R. Bonica, *A Re-Examination of the Computer Inquiry*, 7 RUTGERS J. COMPUTERS, TECH. & L. 23, 25–26 (1979); Lynn Hopewell, *Computer Communications: An Introduction and Overview*, in COMPUTERS AND COMMUNICATIONS 1, 10–16 (1976); Manley R. Irwin, *Computers and Communications: The Economics of Interdependence*, 34 LAW & CONTEMP. PROBS. 360, 360–61 (1969).

25. Computer I NOI, *supra* note 1, at 12; Comments of National Retail Association, in ANDREW J. LIPINSKI, DIGESTS OF THE RESPONSES TO THE FCC COMPUTER INQUIRY (1969) [hereinafter COMPUTER I DIGESTS].

26. BROCK, *supra* note 2, at 95.

27. Computer I NOI, *supra* note 1, at 12–13.

28. J.C.R. Licklater & Robert W. Taylor, *The Computer as a Communications Device*, SCI. & TECH., Apr. 1968, at 21, 21, reprinted in SYS. RESEARCH CTR., RESEARCH REPORT 61, IN MEMORIAM: J.C.R. LICKLIDER 1915–1990, at 21, 21 (1990), available at <http://www.hpl.hp.com/techreports/Compaq-DEC/SRC-RR-61.pdf> [https://perma.cc/3NF9-GSG2] (“In a few years, men will be able to communicate more effectively through a machine than face to face. That is a rather startling thing to say, but it is our conclusion.”).

The brave new world of data services, however, depended completely upon telephone networks to link users and computers.<sup>29</sup> Early data services used “private lines,” which were dedicated point-to-point lines that were not interconnected with the public telephone network. Companies would lease a private line, generally from the Bell System or Western Union. This line provided dedicated “always on” access to remote computers.<sup>30</sup> Over time, users began accessing data services through the publicly switched telephone network (PSTN)<sup>31</sup> through the use of a modem or coupling device. Unlike the high-capacity private lines that businesses purchased, public “dial-up” services could bring computing to the general public.<sup>32</sup>

Telephones and computers developed in two very different regulatory environments. The telephone network was a common carrier utility service, regulated extensively under Title II of the Communications Act of 1934.<sup>33</sup> Computers, by contrast, developed in a “self-contained” parallel environment free from such regulation.<sup>34</sup> As the technologies began converging, it raised difficult regulatory questions.<sup>35</sup> To address these questions, the FCC opened a proceeding called “the Computer Inquiry” in 1966.<sup>36</sup> It would later be known as *Computer I*.

*Computer I*'s initial notice of inquiry requested information on nearly a dozen different topics. In time, its focus narrowed to four primary issues: (1) the costs and adequacy of common carrier networks for new data services; (2) whether common carriers should be allowed to provide data services; (3) whether data providers should be allowed to offer communications services; and (4) the privacy of data.<sup>37</sup> The response was overwhelming. Thousands of pages of comments were filed by carriers, data services providers, business customers, and state and federal regulators. The comments were so voluminous that the FCC hired the Stanford Research Institute (SRI) to analyze and summarize them in a series of reports published in 1969.<sup>38</sup>

29. Bernard Strassburg, *The Computer Utility—Some Regulatory Implications*, 9 JURIMETRICS J. 19, 19–20 (1968).

30. *Am. Tel. & Tel. Co. v. FCC*, 572 F.2d 17, 19–20 (2d Cir. 1978) (overviewing private lines versus toll lines).

31. PSTN stands for the publicly switched telephone network.

32. See Strassburg, *supra* note 1, at 996–97.

33. 47 U.S.C. §§ 201–231 (2012); see JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 17 (2d ed. 2013) (“Congress designed Title II of the Act to govern wireline ‘common carriers’—that is, to the companies that provided telephone service indiscriminately to the public at large.”).

34. BROCK, *supra* note 2, at 139; Paul J. Berman, *Computer or Communications? Allocation of Functions and the Role of the Federal Communications Commission*, 27 FED. COMM. L.J. 161, 167 (1974) (noting that “computer services were easily excluded from FCC regulatory jurisdiction”); Manley R. Irwin, *Computers and Communications: Public Policy at the Crossroads*, 1 RUTGERS J. COMPUTERS & L. 35, 35 (1970) (noting that, originally, “computer and communications services operated in separate, distinct worlds”).

35. Strassburg, *supra* note 1, at 991–92.

36. *Computer I NOI*, *supra* note 1.

37. Donald A. Dunn, *Policy Issues Presented by the Interdependence of Computer and Communications Services*, 34 LAW & CONTEMP. PROBS. 369, 371 (1969).

38. *Id.* at 369–70. Dunn’s article is an “abstract” of the longer set of reports he helped organize as a member of the SRI. *Id.* at 369.

The final *Computer I* orders focused most heavily on the potential entry of common carriers into the unregulated data services market.<sup>39</sup> One of the authors of the SRI reports claimed this issue was “[e]asily the most controversial.”<sup>40</sup> The fear was that common carriers would possess unfair advantages in the new data markets.<sup>41</sup>

The FCC’s focus on common carrier entry, however, can be deceptive. *Computer I* largely ignored the first question about the *costs and adequacy* of the carriers’ networks and services.<sup>42</sup> These issues, however, were equally important (if not *more* important) at the time. As the 1969 SRI summaries illustrate, commenters felt that existing networks stifled data services—and not necessarily because of discrimination. The comments consistently critiqued carriers’ sluggish technologies and restrictive tariffs (that is, terms of service).<sup>43</sup> They focused on costs, transmission speeds, bandwidth offerings, error rates, and restrictions on line sharing and equipment attachments. Today’s literature on *Computer I*, however, has little to say about these important discussions.

The reason is that the FCC decided to address these issues in other proceedings. In its 1970 *Computer I Tentative Decision*, the FCC acknowledged “the adequacy of present tariff offerings of common carriers, and particularly the question of interconnection, was the subject of considerable comment.”<sup>44</sup> It explained, though, that it would address these practices “through rate, tariff and licensing proceedings that are now pending or that may be initiated in the future.”<sup>45</sup> In this respect, the original comments to *Computer I* reflected a much more diverse set of concerns than the final *Computer I* orders themselves. One explanation, then, for why the modern literature overlooks these issues is because the FCC addressed them in different proceedings—namely, in the pre-Internet proceedings discussed in the next Part.

Having excluded these questions, the FCC’s final *Computer I* order in 1971 adopted three important measures. First, it distinguished “communications” services from “data” services. Communications services would remain subject to Title II common carrier regulation. Data services would remain unregulated, though the FCC claimed to have authority to regulate them in the future if necessary.<sup>46</sup> In other words, telephone networks remained regulated, while the computer services that used them would remain unregulated.

Second, the FCC created a third “hybrid” category for services that included elements of both “communications” and “data.” The proper regulatory classification

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39. In general, both decisions devote the most time to addressing the concerns of common carriers entering data markets. See *Computer I Final Decision*, *supra* note 20, at 268–69; *Computer I Tentative Decision*, *supra* note 20, at 298–304.

40. Dunn, *supra* note 37, at 383.

41. *Computer I Final Decision*, *supra* note 20, at 269–70; *Computer I Tentative Decision*, *supra* note 20, at 299.

42. Dunn, *supra* note 37, at 371–76 (“Perhaps the most critical issue presented by the computer inquiry is whether or not the telephone carriers are going to be capable of meeting the rapidly growing demand for low-cost data communications.”).

43. See generally *COMPUTER I DIGESTS*, *supra* note 25.

44. *Computer I Tentative Decision*, *supra* note 20, at 292.

45. *Id.* at 294; see also *Computer I Final Decision*, *supra* note 20, at 283–84.

46. *Computer I Final Decision*, *supra* note 20, at 268; *Computer I Tentative Decision*, *supra* note 20, at 297–98.

for hybrid services depended on whether the service's "primary" use was data or communications.<sup>47</sup> Hybrid services would therefore require individualized, case-by-case analysis.<sup>48</sup> If the service was primarily communications, it would be regulated. If it was primarily data, it would not be.

Third, the FCC decided (controversially) that common carriers could enter the unregulated data services market. As a safeguard, it required certain carriers to create a distinct "data" subsidiary that used entirely different equipment, revenues, and even directors and officers. This rule became known as "maximum separation."<sup>49</sup> Its rationale was to prevent discrimination and especially cross-subsidization. Potential data competitors feared that carriers could charge artificially low prices in the data market by shifting costs to their regulated monopoly services, which could then be recovered from captive ratepayers.<sup>50</sup>

The maximum separation requirement, however, had important limits. For one, the rules applied only to carriers with revenues over one million dollars. Many carriers were thus exempted from the requirements altogether.<sup>51</sup> Even this requirement, however, had little practical effect on the world's largest carrier—AT&T and the Bell System. Since 1956, AT&T operated under a Department of Justice consent decree, which prohibited the company from providing anything other than communications services.<sup>52</sup> In short, AT&T was already prohibited from entering data markets. The Justice Department's restriction was critical for the early data market given that the Bell System had a nationwide presence and was—by orders of magnitude—the largest carrier in the country.<sup>53</sup>

## 2. *Computer II* (1976–1981)

Computer technology evolved in the 1970s, and *Computer I*'s regulatory definitions quickly became anachronistic. With the invention of the microprocessor in 1971, computers got smaller, smarter, and cheaper.<sup>54</sup> As a result, computing power became more decentralized and distributed. *Computer I*'s definitions, however, assumed a world of centralized computing processing distinct from the communications lines that linked to it. Modern computer terminals could now

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47. Computer I Final Decision, *supra* note 20, at 277–81; Computer I Tentative Decision, *supra* note 20, at 304–06.

48. Computer I Final Decision, *supra* note 20, at 276 (“[W]e are prepared to render *ad hoc* evaluations with respect to ‘hybrid services.’”).

49. *Id.* at 269–71; Computer I Tentative Decision, *supra* note 20, at 302–04.

50. Computer I Tentative Decision, *supra* note 20, at 299; Cannon, *supra* note 3, at 178–81 (“[S]trict safeguards were put into place in order to restrain the market power of the communications company and for the benefit of the data processing market.”).

51. See Computer I Final Decision, *supra* note 20, at 274–75; Computer I Tentative Decision, *supra* note 20, at 302–03.

52. United States v. W. Elec. Co., 1956 Trade Cas. (CCH) ¶ 68,246 (D.N.J. 1956), 1956 WL 99775 [hereinafter 1956 Consent Decree]; BROCK, *supra* note 2, at 116–20.

53. See Strassburg, *supra* note 1, at 993.

54. See BROCK, *supra* note 2, at 140; Cannon, *supra* note 3, at 181–82; Comment, *Interdependence of Communications and Data Processing: An Alternative Proposal for the Second Computer Inquiry*, 73 NW. U. L. REV. 307, 313–14 (1978).

perform both communications and data functions, which put pressure on *Computer I*'s mutually exclusive regulatory definitions.<sup>55</sup> Carriers also adopted new computer technologies to improve their own communications services, and wanted assurance that these new practices would not violate current regulations. Accordingly, in 1976, the FCC initiated a new proceeding that became known as *Computer II*.<sup>56</sup>

The FCC's ultimate *Computer II* decision evolved considerably through time. Initially, it proposed replacing *Computer I*'s definitions with three new categories: basic voice, basic non-voice, and enhanced non-voice.<sup>57</sup> As for terminal equipment (known as customer premises equipment or CPE), the FCC proposed regulating equipment that performed "basic media conversion" functions.<sup>58</sup> If these definitions seem difficult to understand, contemporary observers thought so too. The FCC later sheepishly acknowledged that "[w]ithout exception, every element of the definitional structure . . . was subject to criticism by one party or another" and was "uniformly criticized."<sup>59</sup>

The FCC tried to simplify matters in its final *Computer II* order in 1980. For purposes here, the order had three important parts. First, it adopted a more simplified set of definitions. It redefined network services as either "basic" or "enhanced." Basic services would be regulated, while enhanced services would not. Basic services provided pure transmission of information, and included traditional voice service. Enhanced services were, in practice, everything else. They included "any offering . . . which is more than a basic transmission service."<sup>60</sup> The FCC deregulated all enhanced services, but noted that they remained subject to its residual Title I<sup>61</sup> ancillary jurisdiction.<sup>62</sup> In short, the FCC deregulated the cars, but continued regulating the roads.

Second, the FCC allowed common carriers—over objections—to provide deregulated enhanced services. It took several steps, however, to prevent unfair competitive advantages. First, the FCC required the nation's two largest carriers (AT&T and GTE) to sell enhanced services through a fully separate "resale" entity. For similar reasons, the FCC required all facility-owning carriers to isolate (or "unbundle") their basic service and offer it on a nondiscriminatory tariffed basis to "all enhanced service providers under the same terms and conditions."<sup>63</sup> Most data services providers were not carriers, and thus needed nondiscriminatory access to the physical telephone infrastructure.<sup>64</sup> In short, carriers could enter the new markets, but were subject to restrictions.

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55. Computer II Supp. Notice, *supra* note 21, at 772–73 ("The original Computer Inquiry did not address the question of data processing elements being removed from the central computer and distributed . . .").

56. Computer II Notice, 61 F.C.C.2d 103 (1976).

57. Computer II Tentative Decision, 72 F.C.C.2d 358, 390–91 (1979).

58. *Id.* at 391, 412.

59. Computer II Final Decision, 77 F.C.C.2d 384, 410, 424–25 (1980).

60. *Id.* at 417–21.

61. 47 U.S.C. §§ 151–162 (2012).

62. Computer II Final Decision, 77 F.C.C.2d 384, 435 (1980).

63. *Id.* at 474.

64. *See id.* at 466–75.

Third, the FCC fully deregulated CPE.<sup>65</sup> Carriers could no longer provide equipment through tariffs. By removing CPE from carriers’ list of regulated services, carriers could not cross-subsidize it with local monopoly revenues. The FCC also required AT&T and GTE to sell CPE through the separate resale entity described above.<sup>66</sup> On reconsideration, the FCC ultimately waived the separate entity requirements for GTE, leaving them applicable only to AT&T.<sup>67</sup> At first glance, *Computer II* seems to impose strong restrictions on AT&T. However, as argued more fully in Part III, the real goal of *Computer II* was to *reduce* regulation to help AT&T expand into new data and equipment markets.<sup>68</sup>

### B. The Legacy of Computer Inquiries

When the FCC released *Computer II*, FCC Commissioner Tyrone Brown claimed the decision “is probably the most important the [FCC] will issue in my time here.”<sup>69</sup> The literature on Computer Inquiries echoes these views. Specifically, it assumes that Computer Inquiries was a landmark proceeding that helped fuel the Internet’s rise.<sup>70</sup> Robert Cannon characterizes it as a “necessary precursor[] to the success of the Internet.”<sup>71</sup> More recently, Kevin Werbach writes that the “modern PC and Internet markets developed as a direct result of the FCC’s actions in *Computer I*.”<sup>72</sup> William Friedman notes that the FCC’s “Computer Inquiries are widely recognized as having allowed the marriage of computers with phones to flourish with one key development being . . . the Internet Service Provider.”<sup>73</sup>

65. *See id.* at 438–39, 447.

66. *See id.* at 472–74.

67. Computer II Reconsideration Order, 84 F.C.C.2d 50, 72–73 (1980).

68. *See infra* Part III.B.2.b.

69. Computer II Final Decision, 77 F.C.C.2d 384, 517 (1980) (separate statement of Commissioner Brown).

70. BROCK, *supra* note 2, at 184 (Computer Inquiries provided “institutional foundation for the Internet as an unregulated communications system”); Steve Bickerstaff, *Shackles on the Giant: How the Federal Government Created Microsoft, Personal Computers, and the Internet*, 78 TEX. L. REV. 1, 45, 56 (1999) (“[P]erhaps the very existence of the Internet [is an] indirect by-product[] of the FCC’s decision in *Computer I* . . . .”); Cannon, *supra* note 3, at 169 (“They were a necessary precondition for the success of the Internet.”); Jonathan Weinberg, *The Internet and “Telecommunications Services,” Universal Service Mechanisms, Access Charges, and Other Flotsam of the Regulatory System*, 16 YALE J. ON REG. 211, 221–22 (1999) (stating the Computer Inquiries “approach was wildly successful in spurring innovation”); Kevin Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1233, 1259 (2007) (“The Internet is perhaps the most significant development that was made possible by this division [of data services and voice telephone networks.]”); Werbach, *supra* note 3, at 1806; Erica C. Tierney, Comment, *Brand X and the Federal Communication Commission’s Adoption of the Wireline Broadband Internet Access Order – What Now?*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 317, 321 (2007) (“The FCC’s policy decision in the Computer Inquiry proceedings . . . helped give rise to the unregulated growth of the Internet.”).

71. Cannon, *supra* note 3, at 204.

72. Werbach, *supra* note 3, at 1806.

73. William J. Friedman, *Preface*, 10 COMMLAW CONSPECTUS 187, 188 (2002); *see also* Catherine J. K. Sandoval, *Disclosure, Deception, and Deep-Packet Inspection: The*

The literature attributes Computer Inquiries' success to its "layered" regulatory model. Robert Cannon, whose seminal article on Computer Inquiries remains the most comprehensive, was one of the first to articulate this view.<sup>74</sup> The basic principle—one that predates Cannon<sup>75</sup>—is that communications networks exist in layers that possess distinct economic and technological aspects. For instance, the Internet relies upon physical layer functionality for actual transmission, and upon higher layer functionality for applications and content. In short, roads are different than cars—and regulation should reflect this reality.

Cannon argues persuasively that Computer Inquiries was ahead of its time because it reflected these technological and economic distinctions.<sup>76</sup> The lower-layer transmission services (the "roads") were uncompetitive natural monopolies. The FCC therefore correctly regulated physical transmission as a "basic" common carrier service. The higher-layer data services, by contrast, possessed much different economic characteristics. At this layer, barriers to entry are much lower because data and equipment markets lack the combination of high fixed costs and low marginal costs that characterize utility-type networks.<sup>77</sup> The FCC's nonregulation of data services recognized these distinctions as well. In short, the FCC was correct to regulate "the bottom" while deregulating "the top."

The literature acknowledges that the combination of both deregulation and regulation contributed to Computer Inquiries' success. Some scholars, however, emphasize the benefits of the *deregulatory* aspects of Computer Inquiries. One example is Jason Oxman's influential 1999 FCC working paper *The FCC and the Unregulation of the Internet*.<sup>78</sup> He writes that the "practical effect of the [FCC's] decision not to regulate data processing services has been nothing short of explosive."<sup>79</sup> The decision not to regulate emerging data services is "[p]erhaps the [FCC's] most important contribution to the success of the Internet."<sup>80</sup> Jonathan Weinberg notes that *Computer II*'s nonregulation of enhanced services was "wildly

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*Role of the Federal Trade Commission Act's Deceptive Conduct Prohibitions in the Net Neutrality Debate*, 78 FORDHAM L. REV. 641, 653 (2009) ("These regulations stemming from the Computer Inquiries, along with other FCC decisions, led to a proliferation of independent ISPs . . .").

74. Cannon, *supra* note 3, at 169, 194–98; see also Kevin Werbach, *Breaking the Ice: Rethinking Telecommunications Law for the Digital Age*, 4 J. ON TELECOMM. & HIGH TECH. L. 59, 84 (2005) (arguing that *Computer II* was "FCC's first foray into layered policy-making"); Richard S. Whitt, *A Horizontal Leap Forward: Formulating a New Communications Public Policy Framework Based on the Network Layers Model*, 56 FED. COMM. L.J. 587, 600–09 (2004).

75. INTERNET ENG'G TASK FORCE, NETWORK WORKING GRP. REQUEST FOR COMMENTS NO. 1122, REQUIREMENTS FOR INTERNET HOSTS -- COMMUNICATION LAYERS 93 (R. Braden ed., 1989), available at <http://tools.ietf.org/pdf/rfc1122> [<https://perma.cc/5D5D-RT7Z>].

76. Cannon, *supra* note 3, at 169, 194–98.

77. See Richard S. Whitt, *Evolving Broadband Policy: Taking Adaptive Stances to Foster Optimal Internet Platforms*, 17 COMM'LAW CONSPECTUS 417, 432–36 (2009).

78. Jason Oxman, *The FCC and the Unregulation of the Internet* 3, 11 (Office of Plans and Policy, Fed. Comm'ns Comm'n, Working Paper No. 31, 1999), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp31.pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf) [<https://perma.cc/D842-9W5V>].

79. *Id.* at 11.

80. *Id.* at 24.

successful in spurring innovation and competition in the enhanced-services market."<sup>81</sup>

Other scholars emphasize the benefits of the *regulatory* side of Computer Inquiries. One early example is Steve Bickerstaff, who argues that modern computer services are "a result of government regulatory constraints, not a free market."<sup>82</sup> Computer Inquiries is part of this story in that it "established a regulatory framework conducive to the innovative and explosive growth" of the Internet. He also credits Computer Inquiries with keeping AT&T and the Bell system from establishing a "nationwide computer services network." As a result, Internet services—and perhaps the Internet itself—"are indirect by-products of the FCC's decision in *Computer I*."<sup>83</sup> Kevin Werbach strikes a similar tone, writing that "[t]he celebrated success story of Internet 'unregulation' is therefore really about effective regulation."<sup>84</sup>

A related theme in the literature is the relationship between Computer Inquiries and AT&T. Some claim that the FCC's desire to limit AT&T motivated the Computer Inquiries decisions.<sup>85</sup> For instance, former Commissioner Glen Robinson describes the proceedings as a "bold and innovative attempt" to address the problem of AT&T's monopoly.<sup>86</sup> Other authors note that the FCC's mutually exclusive definitions of "data" and "communications" effectively quarantined AT&T from entering the data market under the 1956 consent decree.<sup>87</sup>

The literature views *Computer II*'s unbundling and structural separation requirements as especially important limits on AT&T and other incumbent carriers.<sup>88</sup> These measures ensured that enhanced service providers would obtain nondiscriminatory access to the underlying physical network.<sup>89</sup> Susan Crawford

81. Weinberg, *supra* note 70, at 222; *see also* Tierney, *supra* note 70, at 321 ("The FCC's policy decision in the Computer Inquiry proceedings . . . helped give rise to the unregulated growth of the Internet.").

82. Bickerstaff, *supra* note 70, at 61.

83. *Id.* at 45, 55–56.

84. Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV. 1, 14 (2005); *see also* Cannon, *supra* note 3, at 180 (noting that *Computer I* was "not a history of regulatory restraint"); Sandoval, *supra* note 73, at 653.

85. PETER W. HUBER, MICHAEL K. KELLOGG & JOHN THORNE, FEDERAL TELECOMMUNICATIONS LAW 1091 (2d ed. 1999) ("*Computer II* was mainly concerned with shutting AT&T out of information service markets."); Bickerstaff, *supra* note 70, at 33 ("The FCC's elaborate scheme of definition and regulation in *Computer II* was designed to contain the Bell System."); Susan P. Crawford, *Transporting Communications*, 89 B.U. L. REV. 871, 893–94 (2009).

86. Glen O. Robinson, *The New Video Competition: Dances with Regulators*, 97 COLUM. L. REV. 1016, 1036 (1997).

87. Cannon, *supra* note 3, at 179; Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 129 (2003) (stating that the *Computer I* "decision not to regulate data processing amounted to a quarantine, excluding the platform monopolist AT&T from the data processing (applications) sector"); Werbach, *supra* note 3, at 1804–05.

88. Brock, *supra* note 2, at 214.

89. Werbach, *supra* note 84, at 24. Werbach noted later that the structural separation proved "problematic." *Id.*

writes that unbundling was the “essential move in *Computer II*” by requiring carriers to sell “their basic transport services separately and without discrimination.”<sup>90</sup> This separation “was maintained in order to protect new computerized businesses.”<sup>91</sup> James Speta characterizes *Computer II*’s unbundling requirements as a type of successful interconnection regime.<sup>92</sup> Unbundling also benefited the CPE market. Joseph Farrell and Philip Weiser write that *Computer II*’s “open access rules, which facilitated competition in customer premises equipment, were the most successful and enduring.”<sup>93</sup>

The common assumption throughout this diverse literature is that the FCC’s decisions were *important*. In particular, the literature assumes that Computer Inquiries was a key source of growth for the data services and networks that ultimately evolved into the modern Internet. The remainder of the Article challenges this assumption. My specific point of departure is that *other proceedings*—the pre-Internet proceedings—are far more responsible for these successes than *Computer Inquiries*.

## II. BUILDING THE PRE-INTERNET: TARIFF BATTLES IN THE 1960S AND 1970S

This section explains how the FCC helped build the “pre-Internet.” In the 1960s and 1970s, the FCC initiated a series of tariff proceedings and rulemakings that forced changes to carriers’ services and eliminated restrictions that stifled data services. In doing so, these proceedings—which today’s literature often overlooks—provided a key foundation for data networks’ growth and innovation. This section also makes the novel observation that Computer Inquiries played an important role in influencing the pre-Internet proceedings—not because of its regulatory definitions—but as a source of information.

### A. Carrier Networks as Obstacles for Data Services

In the 1960s, data providers and customers argued that telephone networks posed obstacles to new data services. Some critiques raised fears of outright blocking.<sup>94</sup> Those critiques, however, were less common than concerns about the *costs* and *adequacy* of the traditional network for new data services. Though today’s literature often overlooks them, these latter critiques featured prominently in the original comments filed in *Computer I* and the contemporary literature.<sup>95</sup>

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90. Crawford, *supra* note 85, at 893.

91. *Id.* at 894.

92. James B. Speta, *A Common Carrier Approach to Internet Interconnection*, 54 FED. COMM. L.J. 225, 265–66 (2002).

93. Farrell & Weiser, *supra* note 87, at 130.

94. For instance, the dispute between Bunker-Ramo and Western Union is an example of the “modern” concern of blocking competitive services outright. Kevin Werbach notes that this “incident, now forgotten, anticipated the network neutrality fight by forty years.” Werbach, *supra* note 3, at 1801.

95. For *Computer I* comments, see, e.g., Response of Am. Newspaper Publishers Ass’n, *Computer I*, No. 16979 (F.C.C. Dec. 13, 1966) (“[W]e have experienced . . . unwarranted restrictions and outmoded regulations on the availability and use of communications channels.

At the time *Computer I* began, communications services cost too much.<sup>96</sup> As noted earlier, data services required private lines to connect customers to computers. Because they faced little to no competition, AT&T and other carriers artificially overpriced these private lines to subsidize cheap local service. Manley Irwin, arguably the first legal scholar to recognize these issues, wrote in 1967 that "communication costs are becoming a greater proportion of total operating cost" for data services.<sup>97</sup> Bunker-Ramo (which provided electronic display equipment and services) wrote that "smaller users cannot now afford the huge economic burden of leasing their own private lines."<sup>98</sup> These costs, it added, were "an inhibiting factor to the widespread use of computer services."<sup>99</sup>

High costs also impacted data services that relied on *publicly* switched lines (dial-up services). One particular problem was carriers' usage-based pricing structures, which imposed unnecessary costs on data providers. For instance, in the mid-1960s, carriers used time-based pricing—the longer the call, the more you paid. These charges, however, had a three-minute minimum charge even if you only spoke for one minute or even one second.<sup>100</sup> Such minimum charges were inappropriate for "bursty" data transmissions that might require only a few seconds (e.g., retrieving stock information; retrieving a case from a legal research service).<sup>101</sup>

Private-line owners faced similar problems with overbroad pricing structures. Unlike users of the public network, private-line owners were charged flat rates for full time twenty-four-hour use of the network. Many data customers, however, did

... It would be unfortunate if computer innovation were frustrated by unreasonable restrictions . . . ."); Comments of the Government Services Administration (GSA) and the Army, *in* COMPUTER I DIGESTS, *supra* note 25. For contemporary literature, see U.S. PRESIDENT'S TASK FORCE ON COMMUNICATIONS POLICY: FINAL REPORT 21 (1968) (arguing that "removal of tariff restrictions" would not harm the network); Irwin, *supra* note 24, at 361 (noting that tariffs are facing "questioning and reappraisal"). The literature often overlooks these complaints. For a notable exception, see Bickerstaff, *supra* note 70, at 19–21 (listing obstacles faced by new data services).

96. See Dunn, *supra* note 37, at 371–76; Bernard Strassburg, *The Marriage of Computers and Communications—Some Regulatory Implications*, 9 JURIMETRICS J. 12, 17 (1968) (stating that costs are "of vital relevance to the economics of the data processing industry"); see also Computer I NOI, *supra* note 20, at 16 ("[F]ears are expressed that the cost of communications may prove to be the limiting factor in the future growth of the industry.").

97. Manley R. Irwin, *The Computer Utility: Competition or Regulation?*, 76 YALE L.J. 1299, 1314 (1967).

98. Comments of Bunker-Ramo Corp., Computer I, No. 16979, *quoted in* Motion for Official Notice of Expressions of Need for MCI's New Concept of Microwave Serv. Contained in Pub. Responses to the Comm'n's Notice of Inquiry in [Computer I] at 8, Applications of Microwave Commc'ns, Inc. for Constr. Permits To Establish New Facilities in the Domestic Pub. Point-to-Point Microwave Radio Serv. at Chi., Ill., St. Louis, Mo., and Intermediate Points, No. 16509 (F.C.C. May 15, 1968).

99. *Id.*

100. Mathison & Walker, *supra* note 13, at 226.

101. Some of the parties who specifically critiqued the minimum time pricing in *Computer I* included Bunker-Ramo, the Business Equipment Manufacturers Association (BEMA), Electronic Industries Association, Univac, Xerox, and Collins Radio. *Computer I Digests*, *supra* note 25.

not use their leased channels all day.<sup>102</sup> Some needed access for a few hours a day when markets were open, while others wanted to access computers at night for tasks such as payroll processing.

A separate critique focused on the carriers' services themselves. The carriers' bandwidth offerings (i.e., the capacity available for data transfers) were often incompatible with data services' needs.<sup>103</sup> In terms of bandwidth, data customers confronted a feast-or-famine dilemma when leasing private lines. The most basic channel was appropriate for low-capacity voice calls, but lacked sufficient capacity for many data uses. The next highest bandwidth offering, however, was much larger (and thus more expensive) than necessary.<sup>104</sup> Data services therefore needed intermediate bandwidth channels to avoid needless costs.

These limited bandwidth offerings also impaired the equipment market. Manufacturers intentionally made certain devices less efficient in order to be compatible with low-speed voice lines.<sup>105</sup> For instance, the equipment manufacturer Rixon stated, "We feel that . . . channels with bandwidths approximating two or three present day voice channels should be made available for data use."<sup>106</sup>

The technology of the telephone network itself also posed challenges to data services.<sup>107</sup> Indeed, commenters frequently criticized carriers' networks for not keeping pace technologically with the demands of new data services.<sup>108</sup> Carriers had designed the telephone system to transport analog voices.<sup>109</sup> It was therefore not engineered to prevent errors in the transmission of digital information.<sup>110</sup> Indeed, parties frequently complained about error rates and channel reliability in the *Computer I* proceedings.<sup>111</sup> Collectively, these high costs and inadequacies threatened future growth.

#### *B. Tariff Restrictions as Obstacles to Data Services*

The *restrictions* that carriers imposed on users were an even greater frustration. Through its tariffs, the carriers prohibited practices that could have reduced, if not

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102. See *Am. Tel. & Tel. Co. v. FCC*, 572 F.2d 17, 20–21 (2d Cir. 1978).

103. Some of the parties criticizing bandwidth offerings included BEMA, Central Information Processing Corporation, IBM, UNIVAC, University Computing Company, Rixon, American Petroleum Institute, Lockheed, National Retail Merchant Association, and GSA and the Army. *COMPUTER I DIGESTS*, *supra* note 25.

104. Mathison & Walker, *supra* note 13, at 217–19. The authors note that the speeds went from 2000 bits per second immediately to 50,000 bits per second in the next available offering. *Id.*

105. *Id.* at 222.

106. Comments of Rixon, in *COMPUTER I DIGESTS*, *supra* note 25.

107. Dunn, *supra* note 37, at 374.

108. Herbert Nolan, *Moving Business Data Is Big Business*, 1 *RUTGERS J. COMPUTERS & L.* 2, 3–4 (1970); Strassburg, *supra* note 29, at 21 (“[C]ommunications common carriers must keep pace with the burgeoning computer industry . . .”).

109. Robert P. Bigelow, *Some Legal and Regulatory Problems of Multiple Access Computer Networks*, 11 *JURIMETRICS J.* 47, 55 (1970); Nolan, *supra* note 108, at 3–7.

110. Mathison & Walker, *supra* note 13, at 224–25.

111. Some examples include the comments of the National Association of Manufacturers, UNIVAC, and GSA and the Army. *COMPUTER I DIGESTS*, *supra* note 25.

eliminated, many of the problems described above.<sup>112</sup> Tariffs were essentially the telephone company's contract with the public. Before offering any regulated service, carriers had to file a tariff with regulators that listed its services and prices.<sup>113</sup> The tariffs, however, imposed various restrictions, such as the prohibition of using a residential line for business purposes. The FCC had broad authority under the Communications Act to reject tariff offerings that were not just and reasonable or were discriminatory.<sup>114</sup> Commenting parties urged the FCC to exercise this authority to prohibit these restrictions.<sup>115</sup> Specifically, parties criticized carriers' limits on: (1) foreign attachments, (2) interconnection, (3) line sharing, and (4) resale.

### 1. Foreign Attachments (CPE)

Today, we just assume we can plug any type of telephone into the wall without permission. That freedom, however, did not exist in the mid-1960s. Carriers prevented customers from attaching their own equipment to the telephone network unless they used carrier-provided interface equipment.<sup>116</sup> Similarly to a modern cable company, this tariff restriction required users to lease a modem from the carrier to connect computers and other data equipment.<sup>117</sup> These equipment restrictions applied only to the public telephone network. Carriers generally allowed private-line users to attach their own equipment—a practice that contradicted the carriers' professed concerns that customer equipment threatened the larger network.<sup>118</sup>

These equipment restrictions stifled data services in several respects. First, carrier modems were more expensive than comparable third-party modems.<sup>119</sup> Even worse, they did not work as well. Unlike independent modems, carrier modems were standardized general-purpose devices that could not support more specialized uses. As a result, these modems imposed artificial limits on the transmission capacities available to users.<sup>120</sup> The tariff restrictions also distorted equipment markets by preventing customers from choosing the devices most suited to their needs. In doing so, they stifled innovation and diversification, particularly for lower-cost models that could be used on the public telephone network.

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112. Comments of Dep't of Justice at 17–19, Computer I, No. 16979 (F.C.C. March 5, 1968) [hereinafter DOJ Computer I Comments] (urging FCC to “reconsider [restrictions’] appropriateness in the face of the inhibitions they impose on the cost, efficiency, and diversity of computer-based systems”); Mathison & Walker, *supra* note 13, at 35.

113. Daniel A. Lyons, *Tethering the Administrative State: The Case Against Chevron Deference for FCC Jurisdictional Claims*, 36 J. CORP. L. 823, 827 (2011). Tariffed services were offered to the public at large on a nondiscriminatory basis.

114. *Sw. Bell Tel. Co. v. FCC*, 19 F.3d 1475, 1480 (D.C. Cir. 1994). The FCC's regulation extended only to interstate service, not intrastate.

115. See generally COMPUTER I DIGESTS, *supra* note 25.

116. Manley R. Irwin, *Vertical Integration and the Communications Industry: Separation of Western Electric and AT&T?*, 3 ANTITRUST L. & ECON. REV. 125, 134 (1969).

117. Strassburg, *supra* note 1, at 996–97.

118. Mathison & Walker, *supra* note 13, at 35.

119. *Id.* at 124–27; Irwin, *supra* note 116, at 136–37.

120. Mathison & Walker, *supra* note 13, at 35–36, 124–27; DOJ Computer I Comments, *supra* note 112, at 21–24. The Department of Justice was more concerned by the bad quality of the public network modems than their costs. *Id.*

The comments in *Computer I* reflected widespread dissatisfaction with these restrictions.<sup>121</sup> The Business Equipment Manufacturers Association (BEMA) asserted that carrier modems increased cost and discouraged product innovation.<sup>122</sup> Federal parties, including the Army and the General Services Administration (GSA), called for greater flexibility in equipment choices.<sup>123</sup> Various other business users, such as Eastern Airlines and the National Association of Manufacturers, urged the FCC to eliminate the prohibition on foreign attachments altogether.<sup>124</sup>

## 2. Interconnection

Tariffs also imposed restrictions on interconnection. These restrictions were closely related to the foreign attachment restrictions—and the term “interconnection” was often used for both. Technically, however, this restriction prevented users from connecting their own private communications networks (e.g., private microwave systems) with the telephone network.<sup>125</sup> Unlike foreign attachment prohibitions, interconnection restrictions applied to both private lines and the public network.<sup>126</sup> The practical importance was that interconnection could potentially lower costs by reducing the need for leased private lines. Today, it would be somewhat similar to preventing a company from attaching its private intranet service to the public Internet.

Interconnection restrictions also inhibited competition in the *carrier* market. New specialized carriers sought to provide advanced transmission services that were more tailored to businesses’ specific demands. To do so, however, the companies needed to interconnect with *local* access networks (which were prohibitively expensive to build).<sup>127</sup> For instance, carriers such as MCI focused on constructing higher-volume intercity lines, but still needed AT&T’s local facilities as the final link to customers.<sup>128</sup> In other words, specialized carriers were building new interstate highways but still needed to connect to other people’s driveways to reach the house. Interconnection restrictions prevented them from doing so.

Commenters in *Computer I* widely criticized these restrictions. The Department of Justice explicitly accused AT&T of using interconnection restrictions to prevent new competitive carriers from entering the market. It wrote that “interconnection restrictions affect computer-based services [by preventing] the emergence of specialized carriers, such as MCI, which would provide data processors with low-cost channels [and] specialized services.”<sup>129</sup> MCI, unsurprisingly, also called for interconnection rights.<sup>130</sup> The Data Communications Association argued that the

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121. Irwin, *supra* note 116, at 136–37 (“[C]omputer suppliers and users are unanimous in seeking a relaxation of the prohibitions against customer-owned terminal devices.”).

122. Comments of BEMA, in *COMPUTER I DIGESTS*, *supra* note 25.

123. Comments of GSA and Army, in *COMPUTER I DIGESTS*, *supra* note 25.

124. *COMPUTER I DIGESTS*, *supra* note 25.

125. Irwin, *supra* note 116, at 130–31.

126. Mathison & Walker, *supra* note 13, at 155.

127. Brock, *supra* note 2, at 192–93.

128. Bigelow, *supra* note 109, at 56–57.

129. DOJ Computer I Comments, *supra* note 112, at 33–34.

130. Comments of MCI, in *COMPUTER I DIGESTS*, *supra* note 25, at 108.

"nature and extent of interconnection of data transmission equipment" would have a "substantial impact" on the other *Computer I* issues.<sup>131</sup> Other equipment manufacturers such as Xerox raised similar objections.<sup>132</sup> Indeed, the FCC itself noted that interconnection was one of the most commonly raised criticisms in the comments.<sup>133</sup>

### 3. Line Sharing and Resale

A third restriction prevented users from sharing leased private lines. As explained above, private lines offered twenty-four-hour "always on" connections between two fixed points.<sup>134</sup> These lines, however, often went underutilized both in terms of time and bandwidth.<sup>135</sup> If parties could share a line (e.g., two banks could share a line that connected to a computer in a different city), it would not only lower costs, but would also reduce wasted capacity as well. In short, sharing would make data services cheaper and more efficient.

Sharing could potentially work in two ways.<sup>136</sup> First, users could collectively purchase a line and use it at the same time. Under this arrangement, the parties could use specialized equipment (such as multiplexers) to subdivide high-capacity lines into multiple independent subchannels. In this respect, equipment restrictions limited potential line sharing arrangements as well. Alternatively, customers could "time share"—or purchase a single line and use it at different times. For instance, one party might use the line to access computer processing during normal business hours, while another might use it overnight while its employees were not working.

Resale services were closely related to line sharing. A resale provider might lease a high-capacity private line and then subdivide the various channels to sell to third parties.<sup>137</sup> In short, they could buy a wide road and create multiple lanes for different types of traffic. Under existing tariffs, however, these companies would be illegally "reselling" their transmission services to third parties. Carriers also enforced resale restrictions through "authorized user" provisions, which essentially limited the number of parties who could use the private line.<sup>138</sup>

Line sharing and resale restrictions stunted the emerging data services industry. The Department of Justice alleged that these restrictions limited the growth of *remote* access services that customers could share.<sup>139</sup> Interestingly, contemporary observers

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131. Comments of Data Communications Association at 1–2, *Computer I*, No. 16979, (F.C.C. June 12, 1970).

132. Comments of Xerox, *in* *COMPUTER I DIGESTS*, *supra* note 25.

133. *Computer I* Tentative Decision, *supra* note 20, at 292. The FCC's use of the term apparently included equipment attachments as well.

134. U.S. PRESIDENT'S TASK FORCE ON COMMUNICATIONS POLICY: FINAL REPORT, *supra* note 95, at 34–35.

135. *Am. Tel. & Tel. Co. v. FCC*, 572 F.2d 17, 20–21 (2d Cir. 1978).

136. DOJ *Computer I* Comments, *supra* note 112, at 39–42 (describing two categories of line-sharing practices); Mathison & Walker, *supra* note 13, at 181–212 (same).

137. Comment, *Resale and Sharing of Private Line Communications Services: A.T.&T. Restriction and FCC Regulation*, 61 VA. L. REV. 679, 679–80 (1975).

138. Mathison & Walker, *supra* note 13, at 178–79.

139. DOJ *Computer I* Comments, *supra* note 112, at 43–44 (noting that lack of sharing

cited the ARPANet (The Advanced Research Projects Agency Network)—the first direct ancestor of the modern Internet—to illustrate the types of remote access service that line sharing and resale could potentially enable.<sup>140</sup>

Resale restrictions also limited innovation. With the freedom to share and resell, new innovative carriers could emerge that offered integrated bundles of data and communications services.<sup>141</sup> For instance, a new company might purchase transmission from AT&T and combine it with a specialized data service. To the user, the transmission and data service would merge into one indistinguishable service. Such services would not only be cheaper, but companies could tailor them to the individual technological and business needs of customers.<sup>142</sup>

Given the growing costs of transmission service, commenters in *Computer I* consistently critiqued the carriers' restrictions on line sharing and resale. Indeed, virtually every noncarrier party who objected to tariff restrictions complained about the resale and line-sharing provisions.<sup>143</sup> Several parties also sought permission to use multiplexing equipment to enable sharing to bring down costs.<sup>144</sup>

In sum, in the mid-1960s, carriers' networks posed significant obstacles to the growth of data services—particularly remote access services. The network was technologically inadequate and too expensive. Carriers exacerbated these problems by preventing users from taking steps to lower costs and improve the technology. By the late 1970s, however, the telephone networks had opened themselves to growth. Indeed, many parties would later acknowledge that carriers had removed most of these unfavorable conditions and that the data industry was thriving. These improvements resulted not from Computer Inquiries, but from the pre-Internet proceedings described below.

### *C. Tariff Reforms and the Growth of Data Services*

In the 1960s and 1970s, the FCC opened a series of proceedings that laid the foundation for the explosive growth of computer networks. Rather than listing them chronologically, this section groups them thematically into proceedings that (1) liberalized entry for specialized common carriers, (2) authorized equipment attachment and interconnection, and (3) created line sharing and resale rights. In all of these proceedings, Computer Inquiries played an important role as a source of

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confines data services to local areas).

140. Mathison & Walker, *supra* note 13, at 184–85.

141. *Resale and Sharing of Private Line Communications Services: A.T. &T. Restriction and FCC Regulation*, *supra* note 137, at 709; Note, *The FCC Computer Inquiry: Interfaces of Competitive and Regulated Markets*, 71 MICH. L. REV. 172, 185–87 (1972) (stating that resale restrictions are “the primary device by which unregulated competition is prevented”).

142. *Id.*

143. See generally COMPUTER I DIGESTS, *supra* note 25. Some examples of parties specifically objecting to these restrictions include Bunker-Ramo Corporation, BEMA, Electronic Industries Association, UNIVAC, Xerox, Aetna, American Petroleum Institute, Association of American Railroads, and Lockheed Martin. *Id.*

144. These parties included Control Data Corporation and the Department of Justice. COMPUTER I DIGESTS, *supra* note 25.

information that influenced the FCC and the carriers. The literature, however, has largely overlooked this *informational* aspect of Computer Inquiries.<sup>145</sup>

In fact, Computer Inquiries influenced tariff reform even prior to these proceedings. The mere act of opening *Computer I* in 1966 created immediate pressure for reforms by publicizing dissatisfaction with carrier networks.<sup>146</sup> IBM noted in 1970 that “since this inquiry began, communications-served data processing has benefited from actions by the [FCC] and the carriers leading to liberalization of tariff restrictions[.]”<sup>147</sup> AT&T, for instance, reduced its minimum time charge from three minutes to one minute.<sup>148</sup> Carriers also began allowing increased sharing on both voice-grade and high-capacity lines.<sup>149</sup> More concrete reforms, however, would soon follow.

### 1. Entry—The Rise of MCI

For much of the twentieth century, the FCC sanctioned the Bell monopoly to preserve cheap local phone service. The Bell System offered local service at below-cost rates and compensated by overcharging for private and long-distance lines.<sup>150</sup> It also engaged in “rate averaging,” which means that Bell averaged the costs of serving high-cost areas and lower-cost areas denser areas. Accordingly, telephone rates were artificially high in urban areas and artificially low in rural areas.<sup>151</sup>

Beginning in the late 1950s, microwave technology slashed the costs of constructing transmission networks. Private microwave networks thus became an attractive substitute for overpriced private lines.<sup>152</sup> Microwave systems, however, used wireless frequencies, and the FCC required permission to install them. Over AT&T’s strong objections, the FCC approved these private systems in 1959.<sup>153</sup> That landmark decision—known as the *Above 890* decision—changed the game. Almost overnight, AT&T responded by overhauling its private-line services. Specifically, it lowered the costs and allowed more sharing—at least for larger customers with the

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145. *But see* Oxman, *supra* note 78, at 8 (noting the effect of “mere opening of the Computer Inquiry”).

146. Computer I 1969 Further Notice, *supra* note 21, at 592–93.

147. Comments of IBM at 2, Computer I, No. 16979 (F.C.C. June 15, 1970); *see also* Comments of the Bell Sys. Corp. at 2, Computer I, No. 16979 (F.C.C. June 15, 1970) (“[T]he Bell System has filed greatly liberalized interconnection tariff regulations and new service offerings.”); Comments of Bunker-Ramo Corporation at 31–33, Computer I, No. 16979 (F.C.C. June 15, 1970) (“[I]n the past two years, considerable improvement and flexibility have characterized both technical and tariff offerings by AT&T. Much remains to be done however.”); Comments of MCI at 2–3, Computer I, No. 16979 (F.C.C. June 15, 1970).

148. Computer I Tentative Decision, *supra* note 20, at 293.

149. *Id.* at 293–94.

150. NUCHTERLEIN & WEISER, *supra* note 33, at 38–39, 298–99.

151. *Id.*

152. BROCK, *supra* note 2, at 124–26; Manley R. Irwin, *The Communication Industry and the Policy of Competition*, 14 BUFF. L. REV. 256, 256–57 (1964).

153. Allocation of Frequencies in the Bands Above 890 Mc., 27 F.C.C. 359, 404–05 (1959) [hereinafter *Above 890 Decision*].

resources to build their own microwave networks.<sup>154</sup> Smaller users, however, continued to pay inflated prices.<sup>155</sup>

*Above 890* was the first crack in the Bell monopoly. Data services, however, were not yet a major concern.<sup>156</sup> Instead, the larger importance of *Above 890* is that it illustrated the benefits of competitive entry. The threat of new microwave systems prompted AT&T to improve its services in ways that ultimately benefited future data services. *Above 890* also rejected the carriers' arguments that competition would harm the overall network. AT&T argued that new private systems would deprive it of private-line revenues along its most profitable routes. This deprivation would ultimately result in higher overall prices—an argument the FCC rejected.<sup>157</sup> In later proceedings, parties used the *Above 890* decision rhetorically to defeat carriers' rate-averaging arguments.<sup>158</sup>

For data services, the rise of MCI was even more important. In 1969, the FCC authorized MCI to provide private-line service between St. Louis and Chicago.<sup>159</sup> AT&T and other carriers had vigorously opposed MCI's application (originally filed in 1963), and the proceeding dragged on unnecessarily for years before the FCC finally approved it.<sup>160</sup> The approval had enormous consequences. MCI was now a full-blown competitor to mighty Bell. Everyone recognized that MCI would not stop with a single intercity route. Indeed, the entry of MCI triggered a chain of events that ultimately led to the breakup of AT&T.

MCI's history is often told.<sup>161</sup> Most tellings, however, overlook how MCI used the needs of the emerging data industry to support its arguments. Interestingly, MCI critiqued AT&T's inflexible tariffs in remarkably similar language. Referring to the

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154. Irwin, *supra* note 152, at 267 (“Following the FCC’s *Above 890* decision . . . Bell introduced additional private line offerings . . .”); Lionel Kestenbaum, *The Limits of a Regulated Monopoly—Telephone Attachments, Interconnection and Use of Circuits*, 13 ANTITRUST BULL. 979, 983 (1968) (“Common carrier ventures into microwave, and service offerings such as Telpak, were spurred by competitive alternatives.”); Harry M. Trebing, *Common Carrier Regulation—The Silent Crisis*, 34 LAW & CONTEMP. PROBS. 299, 319–20 (1969).

155. Calvin Davison, Stephen L. Babcock & John D. Leshy, *Computers and Federal Regulation*, 21 ADMIN. L. REV. 287, 297 (1969).

156. Some parties did, however, plan to use microwave technology for data processing. *Above 890* Decision, *supra* note 153, at 369–75 (listing commenters’ proposed uses for private microwave service, including “data processing”).

157. *Id.* at 411–12; Irwin, *supra* note 152, at 261.

158. See, e.g., Application of MCI for Interstate Serv. at 2, No. 16509 (F.C.C. June 1, 1965) [hereinafter MCI 1965 Application] (citing *Above 890* for the proposition that the economic effect on carriers is not part of the Communications Act).

159. Applications of Microwave Commc’ns, Inc. for Constr. Permits To Establish New Facilities in the Domestic Pub. Point-to-Point Microwave Radio Serv. at Chi., Ill., St. Louis, Mo., & Intermediate Points, 18 F.C.C.2d 953 (1969) [hereinafter MCI Approval Order].

160. Irwin, *supra* note 34, at 44. For a view sympathetic to AT&T on these issues, see ALAN STONE, *WRONG NUMBER: THE BREAKUP OF AT&T* 158–62 (1989).

161. See generally PHILIP L. CANTELON, *THE HISTORY OF MCI: 1968-1988, THE EARLY YEARS* (1993); STEVE COLL, *THE DEAL OF A CENTURY: THE BREAK-UP OF AT&T* (1986); FRED W. HENCK & BERNARD STRASSBURG, *A SLIPPERY SLOPE: THE LONG ROAD TO THE BREAKUP OF AT&T* (1988); STONE, *supra* note 160; PETER TEMIN, *THE FALL OF THE BELL SYSTEM: A STUDY IN PRICES AND POLITICS* (1987).

coming "Computer Revolution," MCI explained that new computer customers need "high quality interconnection channels with no restriction as to their use and at low prices."<sup>162</sup> In a clear swipe at AT&T's unpopular tariffs, MCI wrote that its permissible uses were "limited only by man's imagination."<sup>163</sup> It promised to allow interconnection, line sharing, and more appropriate bandwidth offerings. Its filings explained that it "has no restrictive tariffs," and that "[w]hat a subscriber does with the channel . . . does not affect the rate that MCI charges."<sup>164</sup> It also noted that carriers' "existing rigid offerings have voided many attempts to sell . . . data transmission systems."<sup>165</sup> In short, MCI sought to be the "un-carrier."

MCI stressed data services even more heavily as the proceeding went on. In 1968, it filed a "motion for official notice" of the FCC's *Computer I* inquiry and its comments.<sup>166</sup> To my knowledge, the literature has never identified this document, but it illustrates the influence of *Computer I* on MCI's ultimate approval. MCI claimed that the "two proceedings are so interrelated that the [FCC's] determination of the MCI case will be materially aided by official notice of comments in the Inquiry." The document cited many of the complaints from *Computer I* as evidence of the need for new competitive carriers. In particular, it noted the "inability of the present-day communications network to serve the emerging computer industry." Data services needed a "large variety of bandwidths (currently unavailable) for customer-directed uses . . . unhampered by restrictive tariff provisions." It also quoted the Department of Justice's concern that users "who needed non-standard bandwidth must buy the next larger size, which may be an order of magnitude greater than his requirements."<sup>167</sup>

MCI was not alone in citing information from *Computer I*. The FCC's Common Carrier Bureau (in supporting MCI's Computer Inquiries notice) explained that "[c]omputer interests almost unanimously urged substantial change in common carriers' tariffs relating to foreign attachments and interconnection. They also called for shorter minimum rate periods, wider variety of bandwidth offerings, and changes in resale provisions."<sup>168</sup>

These arguments influenced the FCC's ultimate decision approving MCI's entry. In its initial decision, the FCC examiner cited the inflexibility of AT&T's existing tariffs as a reason to approve new competition.<sup>169</sup> MCI's pledge to offer "half-time

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162. MCI 1965 Application, *supra* note 158, at 40–44.

163. *Id.* at Statement of Eligibility, Exhibit G.

164. Response of MCI, MCI Approval Order, No. 16509 (F.C.C. Dec. 10, 1965); Nolan, *supra* note 108, at 7–8.

165. *Id.* (attaching a letter dated Dec. 23 from a potential customer of private-line services).

166. Motion for Official Notice of Expressions of Need for MCI's New Concept of Microwave Serv. Contained in Pub. Responses to the Comm'n's Notice of Inquiry in [Computer I] at 1, MCI Approval Order, No. 16509 (F.C.C. May 15, 1968).

167. *Id.* at 2–9.

168. Common Carrier Bureau's Supporting "Motion for Official Notice" at 2, MCI Approval Order, No. 16509 (F.C.C. May 31, 1968); *see also* Oral Argument Before Full Commission at 2901–2905, MCI Approval Order, No. 16509 (F.C.C. Apr. 30, 1968) (Common Carrier official noting the "benefits of flexibility and control" in urging full Commission to support MCI's application).

169. Applications of Microwave Commc'ns, Inc. for Constr. Permits To Establish New

use and party sharing” would be “of interest especially to computer companies.”<sup>170</sup> The FCC’s final approval also emphasized the flexibility that MCI offered in comparison to AT&T. It explained that “MCI imposes fewer restrictions on the nature of subscribers’ terminal equipment and on the use of its channels.”<sup>171</sup> This flexibility could be used for “high speed or lower speed data transmissions.”<sup>172</sup> Prices were important, but “flexibility”—particularly “the sharing and the part-time features”—were also “significant factors” the FCC should consider.<sup>173</sup>

The MCI proceeding led AT&T to reform its services in ways that would benefit future data services. For instance, in approving MCI’s application, the FCC observed that AT&T had recently revised its tariff to allow for “joint user arrangement[s]” on certain private lines.<sup>174</sup> AT&T’s new service would also “accommodate a combination of wideband data and voice grade arrangements.”<sup>175</sup> As in *Above 890*, the threat of competitive entry led to an immediate response.

## 2. Entry—Specialized Common Carriers

The FCC’s approval of MCI opened the floodgates for competition. Following the decision, the FCC received dozens of applications from new specialized common carriers (SCCs) for nearly 2000 new microwave stations.<sup>176</sup> Rather than dealing with each application individually, the FCC in 1971 adopted general rules that liberalized entry for specialized common carriers—once again over the fierce objections of existing carriers. AT&T would no longer have the private-line market to itself. This 1971 decision—the *SCC Order*—is another important landmark in the growth of data services.<sup>177</sup> The rich variety of private-line and data services of the late 1970s and 1980s traces directly back to this decision.

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Facilities in the Domestic Pub. Point-to-Point Microwave Radio Serv. at Chi., Ill., St. Louis, Mo., and Intermediate Points, 18 F.C.C.2d 979, 984 (1967) (initial decision of hearing examiner).

170. *Id.* at 1007. The examiner also displayed frustration with AT&T’s rate-averaging arguments, noting that the “averaging method is embodied neither in the Decalogue nor in the Constitution.” *Id.* at 1008.

171. MCI Approval Order, *supra* note 159, at 959.

172. *Id.* at 959.

173. *Id.* at 960.

174. *Id.* at 961 (quoting AT&T’s letter of transmittal).

175. *Id.* at 962. The FCC noted that AT&T’s new services contradicted its earlier claim that “no public need exists for the sharing provisions of the MCI proposal.” *Id.*

176. Wash. Utils. & Transp. Comm’n v. FCC, 513 F.2d 1142, 1145 & n.1 (9th Cir. 1975) (“As a result [of the MCI decision], a large number of applications were filed by others interested in providing specialized communications services in competition with the established carriers.”); *see also* Bigelow, *supra* note 109, at 56 (“The MCI decision has led to a rash of applications to establish common carrier microwave service.”); Irwin, *supra* note 34, at 44–45; *Resale and Sharing of Private Line Communications Services: A.T. &T. Restriction and FCC Regulation*, *supra* note 137, at 692–94.

177. Establishment of Policies & Procedures for Consideration of Application To Provide Specialized Common Carrier Servs., 29 F.C.C.2d 870 (1971) [hereinafter *SCC Order*] (first report and order). Philip Cantelon writes that MCI’s president “would later claim the *Specialized Common Carrier Services* decision was both the industry’s Magna Carta and its

Once again, the needs of data services drove the action. In their applications, several parties cited the carriers' restrictions on data services in support of liberalized entry policies. For instance, Hallmark wrote that SCCs would focus on "undeveloped yet badly needed communications channels [for] computer data transmission."<sup>178</sup> Greyhound wrote that "existing common carrier services are not adequate to meet existing consumer needs."<sup>179</sup> The data equipment manufacturer Dacom complained that customers faced "an intricate maze of restrictions and prohibitions."<sup>180</sup> It added that "the rate of growth of digital transmission" has been "adversely affected by characteristics and problems associated with the limited communications systems and services preferred by present common carriers."<sup>181</sup>

Interestingly, *Computer I* once again played a prominent informational role. The Department of Justice wrote that the Computer Inquiry had revealed a "solid consensus" that current rates and services were not "adequate" for computer users.<sup>182</sup> Southern Pacific Communications, an aspiring SCC that would become Sprint, wrote that *Computer I* had illustrated a "plethora" of evidence of the need for specialized services more tailored to data users.<sup>183</sup>

The FCC also relied on *Computer I* to justify its final decision.<sup>184</sup> The "computer inquiry showed that there was dissatisfaction on the part of the computer industry and by many data users."<sup>185</sup> The comments in that proceeding left "no doubt" about the "increasing and widespread demand" for "diverse and flexible" services that were not being "adequately met by the established carriers."<sup>186</sup> It added that, because of AT&T's size, the carrier might be unwilling to serve small niche customers with specialized data needs.<sup>187</sup> The FCC further concluded that competitive entry would "motivate innovations or modifications" by all carriers.<sup>188</sup> AT&T, for instance, had already responded by announcing plans to build an all-digital network by 1975.<sup>189</sup> The Department of Justice cited AT&T's response as "striking evidence that even the threat of new competition can generate substantial new service offerings."<sup>190</sup>

Constitution." CANTELON, *supra* note 161, at 103.

178. Letter from Hallmark, SCC Order, No. 18920 (F.C.C. Sept. 29, 1970).

179. Reply Comments of Greyhound Corp. at 3, SCC Order, No. 18920 (F.C.C. Dec. 1, 1970).

180. Comments of Data Commc'ns Ass'n at 3, SCC Order, No. 18920 (F.C.C. Sept. 30, 1970).

181. Letter from Data Commc'ns Ass'n, MCI Approval Order, No. 16509 (F.C.C. Sept. 29, 1970); *see also* Comments of Dep't of Justice at 3, MCI Approval Order, No. 16509 (F.C.C. Oct. 9, 1970) [hereinafter DOJ SCC Comments] ("[T]he service offerings of the established carriers have not been responsive to modern needs . . . particularly for transmission of data . . .").

182. DOJ SCC Comments, *supra* note 181, at 5–6.

183. Reply Comments of S. Pac. Commc'ns at 44–45, MCI Approval Order, No. 16509 (F.C.C. Dec. 1, 1970).

184. SCC Order, *supra* note 177, at 875, 881–83.

185. *Id.* at 882.

186. *Id.* at 907–08.

187. *See id.* at 907.

188. *Id.*

189. *Id.* at 908.

190. DOJ SCC Comments, *supra* note 181, at 17.

One final point is that the FCC's *SCC Order* itself was not sufficient to protect new competition. Following the order, the Bell System resisted competition by denying interconnection with local facilities—which it argued were purely “intrastate” and thus outside the FCC’s jurisdiction.<sup>191</sup> In the face of the SCCs’ complaints, the FCC ultimately required Bell to provide interconnection with the new SCCs.<sup>192</sup>

### 3. Foreign Attachments and Interconnection—*Carterfone* and Beyond

The FCC also bolstered data services by securing the right to attach equipment to the telephone network. The story of this “right of attachment” begins with the FCC’s *Carterfone* decision in 1968.<sup>193</sup> During the late 1950s in Texas, Thomas Carter developed a device that connected a telephone with a two-way radio.<sup>194</sup> With the “Carterfone,” a user could remain in contact with a telephone while working on a ranch or oil field.<sup>195</sup> In a sense, it was a primitive mobile phone. Attaching the Carterfone to the telephone network, however, violated AT&T’s tariff, and the carrier prohibited its users from connecting a Carterfone to its networks. Some Carterfone users claimed that AT&T physically removed their telephones for these violations.<sup>196</sup> Carter ultimately filed an antitrust claim against AT&T, and the court referred the case to the FCC, which ultimately ruled that AT&T’s equipment restrictions were illegal.<sup>197</sup> The FCC ultimately adopted regulations implementing this decision. These rules—still known as the “Part 68” rules—require carriers to allow any nonharmful device on their network that conforms to published standards.<sup>198</sup>

The literature celebrates *Carterfone* as one of the agency’s most successful decisions.<sup>199</sup> The decision helped establish the principle that markets—not carriers—will decide what equipment customers can use on the telephone network. Users could thus purchase their own telephones, modems, and fax machines from third parties rather than leasing them from the telephone company. For this reason, the freedom

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191. Bell Sys. Tariff Offerings of Local Distribution Facilities for Use by Other Common Carriers, 46 F.C.C.2d 413, 416 (1974) [hereinafter *Tariff Offerings*]; CANTELON, *supra* note 161, at 147.

192. *Tariff Offerings*, *supra* note 191, at 426–27.

193. Use of the Carterfone Device in Message Toll Tel. Serv., 13 F.C.C.2d 420 (1968) [hereinafter *Carterfone Decision*].

194. Nicholas Johnson, *Carterfone: My Story*, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 677, 686 (2009).

195. *Id.* at 690.

196. Mathison & Walker, *supra* note 13, at 136–40.

197. *Carterfone Decision*, *supra* note 193, at 421–23.

198. 47 C.F.R. § 68 (2014); *see also* Kevin Werbach, *Higher Standards Regulation in the Network Age*, 23 HARV. J.L. & TECH. 179, 206 (2009) (“Part 68, not *Carterfone*, marked the true beginning of open interconnection to the public telephone network.”).

199. Philip J. Weiser writes that the decision has been “universally praised” in the literature. Philip J. Weiser, *Toward a Next Generation Regulatory Strategy*, 35 LOY. U. CHI. L.J. 41, 68 (2003); *see also* GERALD R. FAULHABER, *TELECOMMUNICATIONS IN TURMOIL: TECHNOLOGY AND PUBLIC POLICY*, 59–60 (1987) (citing competitive policy as an “unqualified success”).

to attach unleashed explosive innovation and competition in the terminal equipment market.<sup>200</sup>

*Carterfone* is a familiar story. The literature, however, overlooks some important points. First, *Computer I* likely influenced the *Carterfone* decision. Indeed, some evidence suggests that *Carterfone* surprised many contemporary observers. Writing in 1969, Manley Irwin observed that *Carterfone* was "as startling to the computer industry as it was disappointing to the carriers."<sup>201</sup> The FCC's unanimous decision, however, came less than a year after commenters filed their first round of *Computer I* comments.<sup>202</sup> And as explained above, parties had consistently critiqued the foreign attachment restrictions in the stream of comments flooding into the FCC.

Second, *Carterfone*'s support for innovative equipment stimulated innovation and growth in data services as well.<sup>203</sup> Most importantly, *Carterfone* opened the door for independent modems on the *public* telephone network. A contemporary industry magazine observed that the FCC's *Carterfone* decision "breaks the market for modems wide open."<sup>204</sup> As noted earlier, carrier modems had become harmful bottlenecks that limited the capabilities of data equipment. With better and cheaper modems, the public could enjoy wider access to new data services.

A final point is that *Carterfone* alone did not establish a right of attachment. AT&T resisted the ruling for years through its revised tariffs. For instance, AT&T allowed foreign attachments only if the user first leased a carrier-supplied interface device called a protective connecting arrangement, or PCA. In addition to fighting the carriers, the FCC also struggled against hostile state regulators, who continued enforcing attachment restrictions at the state level.<sup>205</sup> In short, it was a slog. The FCC engaged in several follow-up proceedings before solidifying the *Carterfone* principles into the Part 68 rules.<sup>206</sup> The FCC also successfully preempted the field to overcome recalcitrant state regulators, with such preemption being upheld by a federal court in 1976 and 1977.<sup>207</sup> The larger point is that the right of attachment

200. See, e.g., C. Scott Hemphill, *Network Neutrality and the False Promise of Zero-Price Regulation*, 25 YALE J. ON REG. 135, 176 (2008); Tim Wu, *Wireless Carterfone*, 1 INT'L J. COMM. 389, 397 (2007) (crediting *Carterfone* for "mass consumer versions of the fax machine, the answering machine, and, perhaps most importantly, the modem").

201. Irwin, *supra* note 24, at 362.

202. The *Carterfone* decision was adopted on June 26, 1968. *Carterfone Decision*, *supra* note 193, at 420; see also James Pelkey, *Chapter 1 Data Communications: Emergence 1956-1968 Modems and Multiplexers*, ENTREPRENEURIAL CAPITALISM AND INNOVATION: A HISTORY OF COMPUTER COMMUNICATIONS 1968-1988, <http://www.historyofcomputercommunications.info/Book/1/1.10CarterfoneComputerInquiryDeregulation67-68.html> [<https://perma.cc/2ERM-TH7S>].

203. Irwin, *supra* note 34, at 48 (noting the importance of the *Carterfone* decision to "suppliers of computer and peripheral transmission devices").

204. Pelkey, *supra* note 202 (quoting Phil Hirsch & Angeline Pantages, *FCC Carterfone Decision Unsettles Carriers, Encourages Modem Makers*, DATAMATION, Aug. 1968, at 86).

205. See Note, *Competition in the Telephone Equipment Industry: Beyond Telerent*, 86 YALE L.J. 538, 541-44 (1977) (detailing the efforts of several states).

206. See HUBER ET AL., *supra* note 85, at 668-73.

207. N.C. Utils. Comm'n v. FCC, 552 F.2d 1036 (4th Cir. 1977); N.C. Utils. Comm'n v. FCC, 537 F.2d 787 (4th Cir. 1976).

resulted not merely from the FCC's initial decision, but from years of additional engagement and enforcement efforts.

By the late 1970s, however, the *Carterfone* regime was in place. Users could now choose from a diverse variety of data equipment, and they credited *Carterfone* and the Part 68 rules for improving the market.<sup>208</sup> In 1979, the Computer and Business Equipment Manufacturers Association (CBEMA) explained that the market for terminal equipment "has been competitive for many years" and that the market now "supports hundreds of companies who manufacture modems, terminals, storage devices," and other equipment.<sup>209</sup> The Department of Justice noted that unregulated third parties provided most of this new equipment.<sup>210</sup> The FCC also observed in *Computer II* that "[f]ollowing decisions by this Commission, the terminal equipment market is characterized by an increasing amount of new and potential competition."<sup>211</sup> As discussed later in the Article, this growth occurred prior to—and independently of—the FCC's 1980 *Computer II* decision that deregulated customer premises equipment.

#### 4. Resale and Line-Sharing Proceedings

Finally, the FCC also advanced data services by prohibiting limits on line sharing and resale services. Its 1976 *Resale Order* forced carriers to remove all remaining restrictions on these practices.<sup>212</sup> Once again, the FCC justified its decision by explicitly citing information from the *Computer I* and SCC proceedings. Both proceedings, it explained, had "manifested the existence of a substantially untapped, growing public need for non-voice communications."<sup>213</sup>

Easing these restrictions benefited the data industry in several respects.<sup>214</sup> First, it lowered costs. Customers could now spread the costs of data services among multiple parties. As for providers, the *Resale Order* opened "new markets that hundreds of new companies have entered"<sup>215</sup> and encouraged "an entire industry of [new] resellers."<sup>216</sup> Liberalized resale encouraged new companies by dramatically lowering barriers to entry. For instance, any resale provider could now purchase capacity on a private line from AT&T (the "underlying carrier" who owned the facilities),<sup>217</sup>

208. Comments of McDonnell Douglas Automation Co. at 32, *Computer II*, No. 20828 (F.C.C. June 6, 1977); Comments of Ad Hoc Telecomms. Users at 20–22, *Computer II*, No. 20828 (F.C.C. May 16, 1977).

209. Comments of CBEMA at 46–48, *Computer II*, No. 20828 (F.C.C. Oct. 1979).

210. *Computer II* Final Decision, *supra* note 10, at 412.

211. *Computer II* Tentative Decision, *supra* note 21, at 437.

212. Regulatory Policies Concerning Resale & Shared Use of Common Carrier Servs. & Facilities, 60 F.C.C.2d 261 (1976) [hereinafter *Resale Order*].

213. *Id.* at 266–67.

214. Comments of CBEMA, *Resale Order*, No. 20097 (F.C.C. Dec. 11, 1974) (noting that the FCC's decision would affect the "nature and availability" of services "essential . . . for computer and information processing purposes").

215. WALTER G. BOLTER, JERRY B. DUVALL, FRED J. KELSEY & JAMES W. MCCONNAUGHEY, *THE TRANSITION TO COMPETITION: TELECOMMUNICATIONS POLICY FOR THE 1980s*, at 160 (Walter G. Bolter ed., 1984).

216. FAULHABER, *supra* note 199, at 71.

217. *Resale Order*, *supra* note 212, at 271 (defining "underlying carriers").

combine it with innovative data processing features, and resell the entire service as one integrated offering to multiple customers. Resellers could also specifically tailor these services to the demands of individual industries, such as airlines.<sup>218</sup> In short, resale promised cheaper and more innovative services.

Liberal resale and sharing also promoted private-line competition. (As noted earlier, data services primarily used private lines to service business customers). In the comments, for instance, SCCs such as Southern Pacific (later Sprint) argued that resale restrictions had limited its ability to expand service.<sup>219</sup> If the company wanted to expand to a new city and finish the route by reselling AT&T’s facilities, AT&T denied its requests citing tariff restrictions.<sup>220</sup> In this respect, the *Resale Order* both facilitated competition and pressured AT&T to reform its services.

The *Resale Order* also provided the template for the ultimate *Computer II* orders, though today’s literature generally overlooks this ancestry. In particular, the *Resale Order* tackled challenges that would reemerge in *Computer II*. For instance, the FCC struggled with whether to regulate new resellers that offered both data and communications services. Incumbent carriers had argued that the Communications Act *required* the FCC to regulate any “communications” services.<sup>221</sup> Incumbents thus sought to use regulation to stifle competitive entry.

The *Resale Order* addressed this problem in an interesting way. It confirmed that Title II<sup>222</sup> governed resellers, but it waived several of the statute’s most onerous statutory requirements.<sup>223</sup> In particular, it liberalized entry and allowed markets to dictate prices and service offerings.<sup>224</sup> In effect, it deregulated resale services while affirming its potential regulatory jurisdiction over them—a pattern the FCC would repeat in *Computer II* a few years later.<sup>225</sup>

The *Resale Order* also anticipated *Computer II*’s celebrated unbundling and structural separation regimes. The FCC worried about a subset of resellers that owned facilities that provided monopoly voice services. These carriers could potentially cross-subsidize competitive resale services with regulated monopoly revenues. To address these concerns, the *Resale Order* required these specific carriers<sup>226</sup> to create a separate entity to provide competitive resale services.<sup>227</sup> The

218. *Id.* at 267–68. One early example was ARINC, which stands for Aeronautical Radio, Incorporated. Its resale service was specialized for the airline industry. The company had received special permission to implement sharing, and other organizations wanted similar rights. *Id.*

219. Comments of S. Pac. Commc’ns at 8–13, *Resale Order*, No. 20097 (F.C.C. Dec. 11, 1974).

220. *Id.* at 8–9.

221. The FCC lacked express authority to “forbear” from enforcing regulations until the 1996 Telecommunications Act. 47 U.S.C. § 160 (2012).

222. Communications Act of 1934, 47 U.S.C. §§ 201–231 (2012).

223. *Resale Order*, *supra* note 212, at 308 (confirming resale as a common carrier service).

224. *Id.* at 308–12.

225. This pattern of regulation with forbearance is similar in this respect to the FCC’s most recent proposed network neutrality regime that relies on Title II and forbearance. Steve Lohr, *F.C.C. Plans Strong Hand to Regulate the Internet*, N.Y. TIMES, Feb. 5, 2015, at B1.

226. The carriers in question were those that both owned facilities and provided monopoly voice services.

227. *Resale Order*, *supra* note 212, at 316 (“[U]nderlying carriers which provide basic

communications service would therefore be isolated (or unbundled) from the resale service.<sup>228</sup>

The FCC explicitly incorporated this model into *Computer II* a few years later. Specifically, it proposed both a separate entity for competitive “enhanced” services and required carriers to “unbundle” its basic transmission service.<sup>229</sup> Thus, any celebrations of *Computer II* must recognize the contributions of the more obscure *Resale Order* that forged the initial template.

In sum, the *Resale Order* facilitated the growth of the data industry in several respects. By prohibiting tariff restrictions, the FCC helped to lower the costs of communications capacity and to encourage the entry of many new competitive providers. The order also ensured that resale carriers and SCCs in competitive markets would not face the same Title II regulations as traditional common carriers providing monopoly services. Finally, the FCC explicitly modeled *Computer II*'s unbundling and structural separation regimes upon the *Resale Order*.

### III. THE LIMITS OF COMPUTER INQUIRIES

The previous section establishes the importance of the pre-Internet proceedings as a foundation of the Internet. I also, however, argued that Computer Inquiries influenced those proceedings in ways the literature overlooks—by providing *information*. This section, by contrast, argues that the more famous parts of Computer Inquiries—its celebrated regulatory decisions—were less consequential than the literature assumes. In many instances, Computer Inquiries merely ratified the effects of the pre-Internet proceedings. Further, understanding Computer Inquiries' historical context complicates modern narratives that invoke it to justify certain deregulatory and regulatory policies.

#### A. *The Limits of Computer I*

Despite their hype, *Computer I*'s decisions were narrower than they seem. Most importantly, *Computer I* neglected concerns about costs, network quality, or tariff restrictions.<sup>230</sup> These concerns, however, were arguably the most pressing issues for commenters when *Computer I* began. Indeed, virtually every noncarrier commenter critiqued some aspect of the carriers' network service offerings in the initial rounds

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monopoly services as part of their normal business will be required to establish separate, arms-length subsidiaries in order to engage in resale . . .”).

228. *Id.*

229. Computer II Final Decision, *supra* note 10, at 395 (“In essence, we proposed a resale structure for the provision of all [enhanced] services.”); Computer II Tentative Decision, *supra* note 21, at 393–99 (applying the *Resale Order* structure to carrier offerings of data). On reconsideration, the FCC applied the requirement only to AT&T. Computer II Reconsideration Order, *supra* note 21, at 72–73. The unbundling requirement to separate basic transmission and sell it independently, however, remained applicable to all such carriers. Computer II Final Decision, *supra* note 10, at 474–75.

230. Computer I Final Decision, *supra* note 20, at 283–84; Computer I Tentative Decision, *supra* note 20, at 294.

of comments.<sup>231</sup> Contemporary scholars also initially assumed the Computer Inquiry would address tariff restrictions. For instance, in 1969, Manley Irwin wrote that reform to the communications industry has "come about through a re-evaluation of long-standing tariff practices."<sup>232</sup> The Computer Inquiry was one "crucial"<sup>233</sup> inquiry into such practices.<sup>234</sup> The FCC, however, exiled these issues from the proceeding altogether, deciding instead to address them in individual "rate, tariff and licensing proceedings."<sup>235</sup>

We should therefore understand *Computer I* as a subset of a much larger series of proceedings that promoted competition and entry. Indeed, the literature of the late 1960s often listed the "Computer Inquiry" as merely one of several ongoing FCC efforts to liberalize entry and to reform carrier tariffs.<sup>236</sup> These articles therefore discussed the Computer Inquiry in the context of other equally important proceedings involving *Carterfone*, MCI, the specialized common carriers, authorized user restrictions, and the various rate investigations of AT&T.<sup>237</sup>

The *Computer I* decisions themselves broke little new ground, but instead reflected well-established practices and norms.<sup>238</sup> The FCC (and its predecessors) had regulated communications services since the early 1900s. Data services, by contrast, developed independently of the phone network and had never been regulated.<sup>239</sup> In continuing these policies through its regulatory definitions of "communications" and "data," the FCC was effectively pushing on an open door.<sup>240</sup> Further, *Computer I*'s alleged quarantine of AT&T merely maintained the status quo.

231. See generally COMPUTER I DIGESTS, *supra* note 25.

232. Irwin, *supra* note 116, at 136.

233. *Id.*

234. Kestenbaum, *supra* note 154, at 980–81 (listing the Department of Justice's early filings in *Computer I* seeking reform of restrictions on attachments, interconnection, and sharing).

235. Computer I Tentative Decision, *supra* note 20, at 294; see also Computer I Final Decision, *supra* note 20, at 283–84.

236. Strassburg, *supra* note 1, at 992 ("Apart from the record in the computer Inquiry, the issues of competition and monopoly permeate the current deliberations . . . in a number of other proceedings.").

237. Davison et al., *supra* note 155, at 288–98; Irwin, *supra* note 24, at 361–63; Irwin, *supra* note 116, at 136–37; Boyd Nelson, *Development of the Domestic Communications Industry: Evolution of its Structure in Consideration of Technological, Political and Economic Influences*, 28 FED. COMM. B.J. 118, 127–30 (1975) (transcript from seminar); Strassburg, *supra* note 29, at 19–21 (discussing importance of rate investigations to computer growth); Trebing, *supra* note 154, at 318–24.

238. BROCK, *supra* note 2, at 171 (noting "widespread agreement" on basic principles that telephone services should be regulated and computer services should not be); see also Comments of American Bankers, in COMPUTER I DIGESTS, *supra* note 25 ("It is assumed that use of communications facilities and services will be regulated.").

239. See *supra* note 34 and accompanying text; GTE Serv. Corp. v. FCC, 474 F.2d 724, 735–36 (2d Cir. 1973).

240. See *supra* note 52 and accompanying text; Hanan Samet, *Computers and Communications: The FCC Dilemma in Determining What to Regulate*, 28 DEPAUL L. REV. 71, 85 n.70 (1978). One could argue, however, that the definitions reinforced traditional norms of separation. See Crawford, *supra* note 85, at 891–92.

The 1956 consent decree already excluded AT&T from the data services market. The country's largest carrier also consistently disclaimed any interest in providing data services at the time.<sup>241</sup>

*Computer I*, therefore, deserves less credit for its *deregulatory* measures than the literature recognizes. For one, the FCC never seriously considered regulating data services beyond the narrow subset of pure message switching. The earliest comments to *Computer I* universally rejected any notion of regulating data services, which commenters viewed as naturally competitive.<sup>242</sup> This wide consensus reflects the strong norms against regulation that predated the proceeding. Indeed, Manley Irwin observed that merely raising the question of data regulation "caught some observers by surprise."<sup>243</sup> Robert Cannon also wrote that the FCC became "increasingly apologetic" about regulating data as the proceeding went on.<sup>244</sup>

The FCC's enforcement history further illustrates these pre-existing norms. In the years following *Computer I*, the FCC rarely applied the rules at all despite the growth in hybrid services. In fact, the FCC pursued only two cases under *Computer I*—both of which involved services by regulated carriers (Western Union and AT&T).<sup>245</sup> There is no evidence that the FCC used the *Computer I* rules to regulate any noncarrier company.

In addition, the FCC's deregulation itself was limited in scope. All parties implicitly assumed that the underlying telephone network would remain regulated.<sup>246</sup> The key issue in *Computer I* and the tariff proceedings was not *whether* to regulate common carriers, but *how*. The primary worry was that carriers would enjoy unfair advantages in data markets through cross-subsidization.<sup>247</sup> My research, however, failed to uncover a single commenter—including common carriers themselves—who proposed deregulating the underlying physical transmission service itself.

If *Computer I*'s deregulatory measures are overvalued, the same is true for its *regulatory* measures. As stated above, all parties assumed that Title II regulation would continue as it had for decades. Even the more novel "maximum separation" policy had only modest effects on the industry. The policy only applied to carriers

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241. Comments of the Bell Sys. at 4, *Computer I*, No. 16979 (F.C.C. June 15, 1970) ("We have made it clear . . . that our interest is to provide communications for the data processing industry rather than to offer processing services to the public."); Dunn, *supra* note 37, at 386.

242. Letter from IBM, *Computer I*, No. 16979 (F.C.C. Dec. 12, 1966) ("We are confident that the [FCC] Notice of Inquiry is not intended to encompass the vast area of computer uses that are not germane to the field of communication regulation.").

243. Manley R. Irwin, *The Computer Utility: Market Entry in Search of Public Policy*, 17 J. INDUS. ECON. 239, 240 (1969).

244. Cannon, *supra* note 3, at 175 (noting that the FCC clarified that "it never had any intention whatsoever at any time of regulating data processing").

245. *Computer II* Tentative Decision, *supra* note 21, at 379–80; Comments of GTE Telenet at 18, *Computer II*, No. 20828 (F.C.C. June 6, 1977) (noting that the FCC in six years had "not once directed an unregulated entity submit to Title II regulation . . . despite the fact that it has received a number of requests to do so").

246. Irwin, *supra* note 243, at 248 (noting that communications circuits are "clearly . . . subject" to regulation).

247. FAULHABER, *supra* note 199, at 115; Dunn, *supra* note 37, at 384 ("There is a deeply felt concern in the data-processing industry that the carriers are likely to sell teleprocessing [data] services below cost and recover the losses . . . from their monopoly business.").

with annual revenues over one million dollars.<sup>248</sup> The consent decree, however, already excluded the biggest one—AT&T.<sup>249</sup> Gerald Faulhaber writes that, because of the consent decree, “the separate subsidiary clause had no significance.”<sup>250</sup>

Maximum separation also ratified market decisions that several carriers had already independently made. GTE and some independent carriers structurally separated their communications and data services years before the *Computer I* decisions.<sup>251</sup> Western Union noted that “carriers on their own volition have moved vigorously to separate their regulated and nonregulated businesses.”<sup>252</sup> In this respect, *Computer I* arguably *reduced* the scope of Title II regulation by granting smaller carriers the freedom to integrate their services without strict separation.

For this reason perhaps, regulated carriers supported the separation requirements. Interestingly, GTE did not initially object to the forced separation regulations even though it would ultimately sue the FCC over them. Following the 1970 *Tentative Decision*, GTE wrote that it “takes no exception” to the FCC’s decision, and that it had “already implemented the safeguards proposed” years earlier.<sup>253</sup> GTE only sued after the FCC added *additional* restrictions in its *Final Decision*.<sup>254</sup> Accordingly, my research demonstrates that the litigation following *Computer I* stemmed from a narrower dispute than the literature previously recognized.

Further, *Computer I*’s regulations likely stunted the growth of a narrow subset of computer operations known as “message switching” or “store and function” services.<sup>255</sup> These services were, in a sense, early forms of email that threatened regulated telegram and telex services.<sup>256</sup> These services were also difficult to classify for regulatory purposes as they included both data processing and traditional communications functions. The FCC, however, largely punted on this question, ruling that these “hybrid” services would be classified on a case-by-case basis depending on the service’s “primary” use.<sup>257</sup> This decision arguably harmed

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248. See *supra* note 51 and accompanying text.

249. Robert Cannon has suggested that the requirements may only have been applied to AT&T and GTE. Cannon, *supra* note 3, at 179. The FCC, however, implied that the restriction would apply more broadly. See *Computer I* Final Decision, *supra* 20, at 275 n.7.

250. FAULHABER, *supra* note 199, at 66.

251. Comments of GTE and GTE Data Services at 2–3, *Computer I*, No. 16979 (F.C.C. June 15, 1970) (noting it had separated its data business in 1967) [hereinafter *GTE 1970 Comments*]; Irwin, *supra* note 34, at 43 (asking whether regulatory questions are “irrelevant” and face a “fait accompli” because many carriers have “established vertical affiliates for commercial [data] services”); Irwin, *supra* note 24, at 366.

252. W. Union, Request for Limited Reargument at 3, *Computer I*, No. 16979 (F.C.C. May 18, 1971).

253. GTE 1970 Comments, *supra* note 251, at 1–3.

254. These additional requirements limited carriers’ ability of data subsidiaries to market services to its parent and to share the same corporate name. *GTE Serv. Corp. v. FCC*, 474 F.2d 724, 732–33 (2d Cir. 1973) (noting that these challenges constituted the “principal attack”).

255. See Irwin, *supra* note 34, at 37 (“The dispute assumed a new order of magnitude when computers were utilized to store and forward record messages . . . .”); Strassburg, *supra* note 1, at 995–97 (introducing regulatory challenges of message switching).

256. This dynamic is identified in Comment, *Computer Services and the Federal Regulation of Communications*, 116 U. PA. L. REV. 328, 335–36 (1967).

257. See *supra* note 48 and accompanying text.

pure computerized message switching services by potentially subjecting them to Title II regulations and entry requirements.<sup>258</sup> It also subjected them to discrimination because carriers were freer to discriminate against fellow regulated carriers.<sup>259</sup>

## B. *The Limits of Computer II*

### 1. *Computer II* as Follower

*Computer II* is the more famous—and lasting—part of the Computer Inquiries proceedings. Recall that the final order announced three key decisions.<sup>260</sup> First, its definitions divided the world into regulated “basic” transmission services and deregulated “enhanced” services. Second, the FCC allowed regulated carriers to offer enhanced services and CPE (terminal equipment) subject to unbundling and structural separation requirements. Third, the FCC deregulated all terminal equipment, or CPE.<sup>261</sup>

The literature celebrates these decisions as a key foundation for the growth of data services and ultimately the Internet.<sup>262</sup> When viewed in historical context, however, they are less consequential than they appear. The literature inverts the causal relationship of *Computer II* and the growth of data services. *Computer II* was largely an *effect* of growth rather than a significant *cause*. The growth of the 1970s arose from technological innovation and the favorable legal environment that the pre-Internet proceedings had created. By the time the FCC adopted the final *Computer II* definitions in 1980, the sheer diversity of new services and equipment had rendered several *Computer II* decisions a *fait accompli*. In short, the pre-Internet proceedings led, while *Computer II* followed.

The FCC’s deregulation of CPE illustrates this dynamic. The growth of terminal equipment traces back to the 1968 *Carterfone* decision, which affirmed the freedom to attach equipment.<sup>263</sup> While carriers and state regulators resisted this regime for years, the FCC had firmly established this right in the late 1970s following multiple

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258. See Computer II Tentative Decision, *supra* note 21, at 381; Letter from Raymond R. Panko, Computer II, No. 20828 (F.C.C. May 16, 1977) (alleging that *Computer I* “impaired the development of CMS (computer message services) because their applicability is highly uncertain”); Berman, *supra* note 34, at 178–79 (“The Computer Rules, however, unwittingly or not, widen the FCC’s [authority] to include a good deal that is not strictly point-to-point communications.”); *The FCC Computer Inquiry: Interfaces of Competitive and Regulated Markets*, *supra* note 141, at 182–84 (predicting that regulations will cause providers to “cease offering the service”).

259. *Computer Services and the Federal Regulation of Communications*, *supra* note 256, at 337.

260. See *supra* Part I.A.2.

261. See *supra* Part I.A.2.

262. See *supra* notes 70–73 and accompanying text.

263. *Carterfone* Decision, *supra* note 193, at 423–24.

enforcement proceedings and court challenges.<sup>264</sup> The equipment market was therefore thriving well before the FCC decided *Computer II*.<sup>265</sup>

This rapid growth arguably forced the FCC's hand in both its definition and deregulation of CPE. Because things were moving so fast, the FCC had little choice but to deregulate the entire field. For instance, in its 1979 *Computer II Tentative Decision*, the FCC emphasized its inability to coherently divide regulated "communications" equipment from unregulated "data processing" equipment. The "rapidly changing" evolution of CPE would inevitably make any division "arbitrary" and would "result in a regulatory quagmire."<sup>266</sup> Despite these obstacles, the FCC initially clung to regulatory distinctions that turned on whether CPE offered "basic media conversion" functions.<sup>267</sup> Following a round of hostile comments, the FCC abandoned this effort in its *Computer II Final Decision* a year later. It acknowledged that its definition scheme "garnered little support" and had been "uniformly criticized."<sup>268</sup> It therefore deregulated CPE altogether in light of the "rapid pace of technological evolution."<sup>269</sup>

The larger point is that a combination of technological innovation and a favorable regulatory environment largely determined the outcome in *Computer II*. By liberalizing tariffs, the pre-Internet proceedings accelerated technological evolution in terminal equipment, which in turn made it impossible to craft coherent regulatory distinctions. Further, liberalized entry gave rise to a new coalition of equipment vendors and customers who could (and did) exert political pressure on the agency. In this respect, the tariff proceedings created a favorable feedback effect. Easier entry expanded the number of companies. That expanded number, in turn, lobbied for even stronger protections for competition.<sup>270</sup>

This dynamic also drove the FCC's treatment of "enhanced" services. Data services had enjoyed tremendous growth in the decade prior to *Computer II*'s final order.<sup>271</sup> Much like with the CPE markets, the FCC's pre-Internet proceedings helped accelerate this growth by intervening to liberalize carrier tariffs and to introduce new competition that pressured carriers to improve the telephone network. Indeed, the proceedings' records list several examples of AT&T responding (very quickly) to new competitive threats by upgrading its network, providing better service offerings, and permitting greater sharing.<sup>272</sup> Observers in the late 1970s specifically credited

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264. See *supra* notes 206–07 and accompanying text; see also Manley R. Irwin & William H. Barrett, *The Public Utility Status of the Computer Industry*, 3 RUTGERS J. COMPUTERS & L. 219, 226–30 (1974).

265. See *supra* text accompanying notes 208–11.

266. *Computer II Tentative Decision*, *supra* note 21, at 410–11.

267. *Id.* at 412.

268. *Computer II Final Decision*, *supra* note 10, at 410.

269. *Id.* at 436.

270. See FAULHABER, *supra* note 199, at 48–49.

271. Hopewell, *supra* note 24, at 7–8 (providing growth figures); *Interdependence of Communications and Data Processing: An Alternative Proposal for the Second Computer Inquiry*, *supra* note 54, at 313–14.

272. See *supra* Part II.C.4; see also DOJ SCC Comments, *supra* note 181, at 17 (citing new AT&T tariffs as "striking evidence that even the threat of new competition can generate substantial new service offerings"); MCI Motion for Official Notice of AT&T Tariff Changes

the tariff proceedings for helping establish a phone network that was now adequate for most data services' needs.<sup>273</sup>

More broadly, the rise of specialized common carriers and resale providers generated increased investment and competition in private-line markets. The approval of MCI immediately triggered hundreds of new applications from specialized carriers, many of whom aimed to tailor their services for data customers.<sup>274</sup> This expanded infrastructure became the bedrock of the Internet, which ultimately combined many of these preexisting networks through the shared TCP/IP (transmission control protocol/internet protocol) protocol.<sup>275</sup>

These developments frustrated the FCC's efforts to craft coherent definitions. Indeed, commenters uniformly criticized the FCC's initial "definitional approach" as vague and unworkable in light of rapid technological change.<sup>276</sup> The FCC finally settled on the now familiar definitions of basic and enhanced services. These definitions, however, were simpler and more humble efforts.<sup>277</sup> For instance, the FCC defined "basic" service narrowly to include only pure transmission capacity.<sup>278</sup> "Enhanced" services, by contrast, were everything else. The FCC defined them negatively in terms of what they were not—namely, "any offering . . . which is more than a basic transmission service."<sup>279</sup> These humble definitions reflected the futility of the FCC's earlier efforts to draw coherent lines. Indeed, the FCC defended its ultimate approach by citing the "ever continuing convergence of communications and data processing"<sup>280</sup> and the need to "comport[] with the actual development of

at 3, MCI Approval Order, No. 16509 (F.C.C. May 15, 1968) (stating that MCI's entry caused AT&T to "suddenly and belatedly c[o]me forward with its own sharing proposal").

273. Alex Curran, Am. Fed'n of Info. Processing Soc'ys, Dimension of the Need for Computer Communications at 1, 9, Computer II, No. 20828 (F.C.C. Nov. 7, 1976) (noting that "outspoken criticisms of data users during the late 1960s is no longer valid" and that major users—though not necessarily smaller users—now have adequate services); Donald Dunn, Limitations on Growth of Computer-Communications Services, Computer II, No. 20828 (F.C.C. Nov. 7, 1976) (noting that *Resale Order* "removed some of the most serious limits to the growth of this industry by opening the market . . . to essentially any firm willing to operate as a resale carrier").

274. See text accompanying note 176.

275. BROCK, *supra* note 2, at 294; see also Oxman, *supra* note 78, at 8–9 (noting the importance of private-line competition to data services); Werbach, *supra* note 70, at 1258 n.122 (citing an internet backbone expert for the proposition that "growth of private lines is the crucial metric for the success of the internet").

276. Computer II Tentative Decision, *supra* note 21, at 390, 393. They were particularly concerned that the definitions would either unreasonably expand or narrow regulation. *Id.* at 374 ("A great diversity of views exists as to the actual impact [of the proposed definitions] . . . on both the regulated and unregulated sectors.").

277. See Computer II Final Decision, *supra* note 10, at 417–18 ("Unnecessary confusion may have resulted in proposing these three service categories using voice/non-voice terminology.").

278. *Id.* at 418–19.

279. *Id.* at 420. The revised approach was necessary to provide a "regulatory demarcation" that was "relatively clear-cut." *Id.*

280. Computer II Tentative Decision, *supra* note 21, at 393–94.

this dynamic industry."<sup>281</sup> In short, enhanced services had become too complex to classify.

The dynamics unleashed by the pre-Internet proceedings influenced not only the FCC's *definitions* of enhanced services, but also their deregulation. Initially, the FCC wanted to continue regulating certain enhanced services. "Enhanced," however, was not coextensive with the FCC's older definition of "data." Instead, it encompassed a much broader category of services that easily qualified as communications services.<sup>282</sup> For instance, a reseller might purchase a private line from AT&T to offer an integrated "enhanced" package of communications and data services. The challenge was whether to regulate the "communications" component of enhanced services under Title II.

Initially, the FCC clung to its older definitions. Its *Computer II Tentative Decision* affirmed that enhanced *communications* services would remain regulated, and thus subject to tariff requirements.<sup>283</sup> In its *Computer II Final Decision*, however, the FCC ultimately abandoned efforts to make these distinctions and deregulated the entire category.<sup>284</sup> In reaching this conclusion (against its initial preferences), the FCC repeatedly emphasized the practical impossibility of drawing coherent lines in the face of such explosive technological evolution. It wrote:

[W]e conclude that further attempts to . . . distinguish enhanced services would be ultimately futile . . . . [O]ver the long run, any attempt to distinguish enhanced services will not result in regulatory certainty. . . . There are literally thousands of unregulated computer service vendors offering competing services connected to the interstate telecommunications network. The services they provide are many and varied. The only limitation [sic] . . . are those arising from the constraints of their own entrepreneurial capabilities and . . . the implicit requirement that they structure their services so as to avoid crossing a regulatory boundary that would subject them to regulation.<sup>285</sup>

Much like with CPE, the FCC's ultimate deregulatory decisions evolved considerably from its initial preferences. Its final definitions, however, were *reactive*. They were driven both by technological growth that made distinctions impossible and by the emergence of a new coalition of carriers, providers, and customers who strongly opposed efforts to impose restrictions. A key foundation of these developments, in turn, was the pre-Internet proceedings in the years before *Computer II*, which had helped accelerate and expand these forces.

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281. *Computer II Final Decision*, *supra* note 10, at 422.

282. *Computer II Tentative Decision*, *supra* note 21, at 390 ("[E]nhanced non-voice' service by definition subsumes both communications and data processing services . . .").

283. *Id.* at 399, 405.

284. *Computer II Final Decision*, *supra* note 10, at 425–28.

285. *Id.* at 425–26.

## 2. *Computer II* in Historical Context

Because of its perceived success, *Computer II* is often cited to justify modern regulatory and deregulatory policies. The historical context described above, however, challenges some of these uses. In particular, the modern literature often overlooks the embedded—and often unspoken—assumptions of *Computer II* that complicate traditional narratives.

### a. *Computer II* as Deregulation

When viewed in context, *Computer II* provides little support for those who invoke it to justify broad deregulation. For instance, one question in the modern network neutrality debates is whether to isolate and reclassify one piece of broadband access—the physical transmission layer—for Title II regulation.<sup>286</sup> Some opponents of this approach cite *Computer II* to justify their resistance. For instance, Fred Campbell, former FCC Wireless Chief, cites *Computer II* in arguing against such regulation. *Computer II*, he argues, illustrates both the futility of drawing coherent categories and the dangers of creating regulatory disparity among industry players.<sup>287</sup>

These arguments, however, overlook *Computer II*'s embedded background assumptions. Specifically, *Computer II* always assumed that extensive regulation would continue at the physical layer. The entire edifice of *Computer II* rested on Title II's continuing regulation of a distinct and isolated basic service. Indeed, the very term “enhanced” implies a service that builds upon a foundational platform.

Modern audiences should therefore understand that *Computer II*'s deregulatory language implicitly excluded physical transmission. Donald Dunn, a main author of the original *Computer I* SRI reports, stated, “[T]here is no serious argument about the appropriateness of some sort of regulation of firms operating only at level 1 [i.e., the basic physical transmission layer].”<sup>288</sup> Accordingly, *Computer II*'s language about the difficulties of drawing distinctions was limited to higher-layer enhanced services. Everyone assumed regulation of the underlying telephone network would continue.

The key questions therefore involved whether to regulate newer companies that incorporated “basic” transmission within a larger service. The *Resale Order* that predated *Computer II* illustrates this dynamic. Much like “enhanced,” the term “resale” implies a foundational regulated service that will be “resold.” When the FCC relaxed regulation for resale carriers, it nonetheless assumed that these carriers would

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286. Protecting and Promoting the Open Internet, 29 FCC Rcd. 5561, 5612–16 (2014) (providing notice of proposed rulemaking and requesting comment on reclassification authority for network neutrality rules).

287. Comments of Time Warner Cable at 9–11, Protecting and Promoting the Open Internet, No. 14-28 (F.C.C. July 15, 2014) (arguing against reclassification because “telecommunications and information-processing elements are inextricably combined . . .”); Fred Campbell, *A Primer on the Dangers of Imposing FCC Title II Regulations on the Internet*, CTR. FOR BOUNDLESS INFO. IN TECH: BLOG (May 14, 2014), <http://cbit.org/blog/2014/05/a-primer-on-the-dangers-of-imposing-fcc-title-ii-regulations-on-the-internet> [https://perma.cc/Q7BD-BWZX].

288. Dunn, *supra* note 273, at 12.

build upon regulated communications services. The agency explained, “[W]e anticipate that resale services will be provided by entities which do not provide monopoly services . . . .”<sup>289</sup> Instead, it assumed these newer carriers would purchase capacity from underlying monopoly carriers.<sup>290</sup>

*Computer II*'s concerns about regulatory disparity were similarly confined to enhanced services. Following the *Resale Order*, the FCC had created a regime that treated resale *communications* carriers better than resale *data* providers. Resale communications carriers could easily expand into data without triggering additional regulatory burdens. Pure data vendors, however, would trigger Title II regulations if they expanded into communications service.<sup>291</sup> In *Computer II*, the FCC solved the problem by sweeping all these resale services into the “enhanced” category and deregulating the entire category to avoid regulatory disparity.<sup>292</sup> These actions, however, were confined to enhanced services that built upon basic service. All parties assumed that regulatory disparity would continue between basic transmission providers and everyone else. In short, the debate simply involved one layer.

The larger point is that contemporary parties assumed a clear division between monopoly providers and everyone else. This assumption is reflected in both the *Resale Order* and *Computer II*, both of which assumed the existence of a foundational transmission service that would remain distinct and regulated. Not a single party in either proceeding assumed that the diversity of enhanced and resale services provided a reason to deregulate the entire network at all layers. Such a measure would have been unthinkable to contemporary parties.

#### b. *Computer II* as Regulation

History also challenges those who invoke *Computer II* to justify certain types of regulation. The literature often supports these arguments by citing the success of *Computer II*'s unbundling and structural separation requirements.<sup>293</sup> These measures, it claims, constrained carriers and opened the network for data services and, eventually, internet service providers. Susan Crawford has also argued that the unbundling requirement reinforced the norm of separation of transport and data—a norm she persuasively identifies as a key theme in American communications law history.<sup>294</sup>

This particular unbundling requirement, however, has a more ambiguous history. At the time of *Computer II*, the unbundling requirement actually *loosened* regulations on many carriers. Indeed, many parties objected to *Computer II* on the precise ground that it provided too much freedom to incumbent carriers.<sup>295</sup> Prior to the *Computer II*

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289. Resale Order, *supra* note 212, at 315–16.

290. *Id.* at 301–02.

291. Computer II Final Decision, *supra* note 10, at 426–27.

292. *Id.* at 427–28.

293. See *supra* notes 88–92 and accompanying text; see also NUCHECHTERLEIN & WEISER, *supra* note 33, at 190–91.

294. Crawford, *supra* note 85, at 893–94 (“The key separation between ‘transport’ and ‘other’ was maintained in order to protect new computerized businesses.”).

295. Computer II Final Decision, *supra* note 10, at 404 (“Other parties . . . urge the FCC to require all underlying carriers to establish separate subsidiaries . . . .”). The opposition came

*Final Decision*, the FCC imposed separation requirements on incumbent carriers providing data services (at least those with revenues over one million dollars).<sup>296</sup> The FCC, however, eliminated these requirements for all carriers except, ultimately, AT&T. Instead of separating their data services in a subsidiary, carriers merely had to unbundle them.

The unbundling requirement itself, however, provided relatively weak protection. The primary motivation for unbundling was to prevent cross-subsidies, rather than more modern concerns about blocking.<sup>297</sup> The end of structural separation, however, expanded opportunities to subsidize enhanced service offerings (paying for physical transmission, for instance, was not the only cost).<sup>298</sup> Further, unbundling itself would have accomplished little without the pre-Internet proceedings. Even with unbundling, a carrier could still limit a future internet service provider by applying restrictions on resale, interconnection, and equipment attachment.

Another theme in the literature is that *Computer II* focused primarily on restricting AT&T.<sup>299</sup> The problem, however, is that *Computer II* seems designed to help AT&T expand into new markets in several respects.

First, the FCC likely initiated *Computer II* in the first place to help AT&T. The literature, however, traditionally explains that *Computer II* responded to problems with the FCC's "hybrid" category, which created an "inundat[ion]" of "applications concerning hybrid services."<sup>300</sup> The contemporary comments filed in *Computer II*, however, tell a different story. Contrary to current perceptions, many parties were satisfied with the hybrid approach and urged the FCC to leave it alone.<sup>301</sup> They viewed its flexibility as protective because it ensured that the incidental use of communications would not trigger common carrier regulation.<sup>302</sup>

mostly from data services and equipment providers such as the Independent Data Communications Manufacturing Association, Association of Data Processing Service Organizations, North American Telephone Association, and TDX Systems. Opposition of United Tel. Sys. to Petition for Reconsideration at 2, *Computer II*, No. 20828 (F.C.C. Aug. 4, 1980) (summarizing petitions).

296. See *supra* note 51 and accompanying text.

297. See sources cited *supra* note 247 and accompanying text.

298. *Computer II* Reconsideration Order, *supra* note 21, at 72–75. The FCC concluded, however, that these carriers' relatively small size limited these concerns. See *id.* at 74.

299. See *supra* text accompanying notes 85–87.

300. Cannon, *supra* note 3, at 181; Farrell & Weiser, *supra* note 87, at 130 (noting a "stream of cases that ultimately led the FCC" to initiate a new proceeding).

301. McDonnell Douglas wanted "clear cut assurance" that replacing the hybrid category with two mutually exclusive definitions (e.g., communications versus data) would not result in greater regulation of their data practices. Comments of McDonnell Douglas at 3, *Computer II*, No. 20828 (F.C.C. June 6, 1977). Seattle First National Bank claimed that the FCC's definitions would be "intolerable" without the flexibility of the hybrid category. Comments of Seattle First National Bank at 5, 17–18, *Computer II*, No. 20828 (F.C.C. May 16, 1977); see also Comments of Comsat Gen. Corp. at 4–5, *Computer II*, No. 20828 (F.C.C. June 6, 1977); Comments of GTE Telenet at 2–3, *Computer II*, No. 20828 (F.C.C. June 6, 1977); *Computer II* Tentative Decision, *supra* note 21, at 379–80 ("The strongest criticisms levied against the proposed revisions . . . center around the elimination of the hybrid service categories . . .").

302. Comments of Aeronautical Radio, Inc. at 3, 7, *Computer II*, No. 20828 (F.C.C. June 6, 1977).

The comments also contradict the argument that *Computer I*'s rules had imposed excessive administrative costs on the FCC. Xerox explicitly stated that the FCC has "not been flooded with requests to resolve such issues."<sup>303</sup> GTE Telenet (an early packet-switching service) explained that the FCC had applied the *Computer I* rules in only two cases since 1971—both of which involved carrier-provided services.<sup>304</sup> In fact, there is not a single instance of the *Computer I* rules being applied adversely against a noncarrier "hybrid" service during this time—despite repeated requests.<sup>305</sup>

A more likely proximate cause of the *Computer II* proceeding was not a frustration with hybrid services but with AT&T's new Dataspeed terminal—a device that blurred the line between communications and data equipment. The Department of Justice's 1956 consent decree had limited AT&T to providing only "communications" equipment (e.g., telephones, telex terminals).<sup>306</sup> It could not manufacture or sell data processing devices such as computers. AT&T could, however, sell advanced types of communications devices such as teletype machines, which allowed users to send written messages (similar to telegrams or even e-mail) over telephone lines.<sup>307</sup>

In 1974, AT&T pushed the envelope by introducing its new Dataspeed terminal.<sup>308</sup> While the terminals themselves did not contain much processing ability, they provided access to a separate computer and thus functioned similarly to a computer from the user's perspective.<sup>309</sup> Companies like IBM challenged the device, arguing that AT&T was attempting to provide data processing equipment in violation of the 1956 consent decree.<sup>310</sup> The FCC, however, ultimately approved the device, finding it incidental to communications and thus legal.<sup>311</sup> This dispute directly inspired *Computer II* according to the Department of Justice in its comments.<sup>312</sup> The Ad Hoc Telecommunications Users similarly claimed that *Computer II* was a "review" of the FCC's earlier Dataspeed decision.<sup>313</sup> In releasing the initial

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303. Comments of Xerox at 6, *Computer II*, No. 20828 (F.C.C. June 12, 1980).

304. These proceedings involved AT&T's Dataspeed terminal and Western Union's Sicom message-switching service. Comments of GTE Telenet at 3, *Computer II*, No. 20828 (F.C.C. June 6, 1977).

305. *Id.* at 18 (noting that the FCC in six years had "not once directed an unregulated entity submit to Title II regulation . . . despite the fact that it has received a number of requests to do so").

306. *Computer II* Supp. Notice, *supra* note 21, at 771, 779 n.24.

307. *Interdependence of Communications and Data Processing: An Alternative Proposal for the Second Computer Inquiry*, *supra* note 54, at 321–22; *see also* Dataspeed Order, *supra* note 23, at 22–24; BROCK, *supra* note 2, at 175–76.

308. Dataspeed Order, *supra* note 23, at 21.

309. *See id.* at 23–27; *see also* Bonica, *supra* note 24, at 59–72 (describing the circumstances surrounding the Dataspeed decision); Samet, *supra* note 240, at 84–87.

310. *See* Dataspeed Order, *supra* note 23, at 26–27; *Interdependence of Communications and Data Processing: An Alternative Proposal for the Second Computer Inquiry*, *supra* note 54, at 334.

311. Dataspeed Order, *supra* note 23, at 29–30.

312. Comments of the Dep't of Justice at 2, *Computer II*, No. 20828 (F.C.C. May 26, 1977).

313. Comments of Ad Hoc Telecomms. Users at 2, *Computer II*, No. 20828 (F.C.C. May 16, 1977).

*Computer II* notice, one FCC commissioner noted that AT&T's Dataspeed terminal created a "watershed" question.<sup>314</sup> And indeed, Dataspeed was one of the first issues mentioned in the *Computer II Supplemental Notice* a year later.<sup>315</sup> These references to the link between Dataspeed and *Computer II* are also consistent with the contemporary legal literature.<sup>316</sup>

In addition, *Computer II*'s definition of "enhanced" services helped AT&T enter new data and equipment markets. The FCC adopted these definitions in the shadow of the Department of Justice's 1956 consent decree, which limited AT&T to "communications" services. The *Computer II* definition, however, used the term "enhanced," which encompassed both communications and data services. Because enhanced services and equipment could be "communications" or "incidental" to communications, AT&T would be free to offer them.<sup>317</sup> In short, *Computer II*'s definition erased the wall that had quarantined AT&T from data markets.<sup>318</sup>

Several contemporary parties criticized *Computer II* on these precise grounds, alleging that it implicitly repealed the 1956 consent decree.<sup>319</sup> GTE Telenet was particularly critical: "A proceeding begun . . . for the ostensible purpose of fine-tuning [definitions] . . . has become the vehicle for an ultra vires and manifestly incorrect interpretation of the 1956 Consent Decree."<sup>320</sup> The Computer and Communications Industry Association (CCIA) argued that *Computer II* illegally modified the consent decree.<sup>321</sup> MCI wrote that "the Decision authorizes the provision by AT&T of data processing services."<sup>322</sup> It claimed the FCC's entire motivation for establishing separate resale entities (for facility-owning carriers) was to benefit AT&T. This desire to help AT&T, however, had unintended consequences.

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314. *Computer II Notice*, *supra* note 21, at 111–12 (Hooks, Comm'r, concurring).

315. *Computer II Supp. Notice*, *supra* note 21, at 771.

316. See Bonica, *supra* note 24, at 73; Samet, *supra* note 240, at 74–75, 87.

317. *Computer II Final Decision*, *supra* note 10, at 490–95 (interpreting the consent decree's exception for services "incidental" to communications as "allowing AT&T to engage in the provision of various enhanced services"); *Computer II Tentative Decision*, *supra* note 21, at 424–32 ("[W]e believe the time has come to focus on the exception . . . which exempts . . . 'businesses or services incidental to . . . common carrier communications services.'"); see also Comments of AT&T at 11–13, *Computer II*, No. 20828 (F.C.C. June 6, 1977) (arguing for a broad definition of "communication" in order to provide innovative communications services); Comments of Delphi at 8, *Computer II*, No. 20828 (F.C.C. Oct. 1, 1979) (stating that the FCC's "purpose obviously is to expand the scope of traditional common carrier services" to help carriers); *Interdependence of Communications and Data Processing: An Alternative Proposal for the Second Computer Inquiry*, *supra* note 54, at 333 (explaining AT&T's expansive interpretation).

318. See *supra* note 87 and accompanying text (describing the "quarantine" created by *Computer I*).

319. See *Computer II Reconsideration Order*, *supra* note 21, at 106–07; *Computer II Final Decision*, *supra* note 10, at 491–92.

320. Petition for Reconsideration of GTE Telenet at 1, *Computer II*, No. 20828 (F.C.C. June 12, 1980).

321. Petition for Reconsideration of CCIA at 32, *Computer II*, No. 20828 (F.C.C. June 12, 1980) (alleging that the FCC's decision is "tantamount to agency modification" of the consent decree); Comments of CCIA at 18–19, *Computer II*, No. 20828 (F.C.C. Oct. 2, 1979).

322. Comments of MCI at 2, *Computer II*, No. 20828 (F.C.C. Oct. 2, 1979).

Specifically, it resulted in a “harsh sanction against the specialized common carriers for owning rather than leasing their facilities.”<sup>323</sup>

The FCC’s controversial extension of ancillary jurisdiction over enhanced services also benefited AT&T’s potential expansion. In the *Final Decision*, the FCC deregulated enhanced services but affirmed that it retained jurisdiction over them.<sup>324</sup> Several parties critiqued this position, claiming the FCC was illegally expanding its authority to data services.<sup>325</sup> The reality, however, was that this decision helped facilitate AT&T’s potential expansion into new data and terminal markets. As stated earlier, “enhanced” services included both data and communications components.<sup>326</sup> The Communications Act, however, arguably *required* the FCC to regulate any communications service.<sup>327</sup> Indeed, AT&T itself initially opposed deregulating enhanced services because it might threaten its ability to provide them.<sup>328</sup>

The FCC solved the puzzle with a neat trick—it deregulated via new regulation. More specifically, by extending ancillary jurisdiction to enhanced services, the FCC could plausibly claim that it was in fact regulating enhanced *communications* services.<sup>329</sup> The FCC concluded that “[s]o long as the service is not wholly data processing and devoid of any communications elements, the [FCC’s] jurisdiction reaches it.”<sup>330</sup> CBEMA made the point more explicitly: “This broad jurisdiction is asserted in order to fashion a basis upon which AT&T can participate in the deregulated enhanced services market.”<sup>331</sup> AT&T, however, defended the FCC’s extension of jurisdiction. It wrote that *Computer II* is “not deregulating[,] nor is it authorizing the Bell System to provide services outside the scope of communications as contemplated by the [1956] Decree.”<sup>332</sup>

The FCC Commissioners’ statements provide further evidence of the motivation to help AT&T. Commissioner Quello wrote that *Computer II* is a “first step along the road to full participation of AT&T and GTE in the provision of ‘enhanced’ telecommunications services.”<sup>333</sup> Commissioner Ferris suggested that the deregulation of enhanced services was an attempt to allow AT&T to expand while preventing competitors from being “ensnared in needless regulation.”<sup>334</sup> Because of

323. *Id.* at 2–3. MCI was writing after the *Computer II Tentative Decision* in which the FCC originally proposed applying the resale structural separation to all carriers.

324. *Computer II Final Decision*, *supra* note 10, at 435.

325. *Computer II Reconsideration Order*, *supra* note 21, at 91–92, 100–01.

326. *See supra* note 60 and accompanying text.

327. *Computer II Final Decision*, *supra* note 10, at 450.

328. Reply Comments of AT&T on Tentative Decision at 47–50, *Computer II*, No. 20828 (F.C.C. Dec. 7, 1979). Regulation also potentially raised the costs of entry for competitive providers of communications services.

329. *Computer II Final Decision*, *supra* note 10, at 492–93 (explaining that deregulation of enhanced services and CPE “does not . . . foreclose AT&T from providing either CPE or enhanced services”) (“[T]he record supports our belief that both enhanced services and CPE are within our subject matter jurisdiction . . .”).

330. *Id.* at 494.

331. Response of CBEMA at 7, *Computer II*, No. 20828 (F.C.C. Aug. 4, 1980).

332. Opposition of AT&T to Petitions for Reconsideration at 20–25, *Computer II*, No. 20828 (F.C.C. Aug. 4, 1980) [hereinafter AT&T 1980 Opposition].

333. *Computer II Final Decision*, *supra* note 10, at 503 (Quello, Comm’r, concurring).

334. *Id.* at 500 (Ferris, Comm’r, separate statement).

*Computer II*, “AT&T will be able to participate aggressively in markets where our traditional regulation is being withdrawn.”<sup>335</sup> Commissioner Washburn opened his statement by noting the benefits to AT&T: “I heartily approve today’s action which will enable AT&T and GTE to actively participate in the dynamic new technologies of the future.”<sup>336</sup> Commissioner Jones also opened her statement explaining that “I firmly believe that it is in the public interest that AT&T and GTE be allowed to participate actively . . . .”<sup>337</sup>

These statements undermine the claim that the *Computer II* regime aimed primarily to impose constraints upon AT&T and incumbent carriers more generally. If so, AT&T—the dominant carrier of its day—seemed quite pleased with the result.<sup>338</sup> In the litigation challenging *Computer II*, many attacked the FCC for relaxing these requirements and enabling AT&T to expand into new markets.<sup>339</sup> AT&T’s brief, however, defended each of the FCC’s decisions, including the structural separation and unbundling requirements.<sup>340</sup>

The conclusion that *Computer II* attempted to help AT&T is, somewhat ironically, consistent with the FCC’s strong language about the importance of using regulatory protections to prevent bottleneck control of key facilities.<sup>341</sup> At the time, some parties challenged the remaining restrictions on AT&T as too severe. For instance, Commissioner Jones argued that she was “not . . . satisfied that the degree of separation . . . is justified . . . .”<sup>342</sup> Fearing legal challenges, the FCC needed to establish a record to justify the continuing structural separation requirements. More speculatively, the FCC may have adopted strong language as a way to emphasize the remaining regulatory protections and to preempt criticism that *Computer II* was motivated to help AT&T. In any event, the FCC’s language should not obscure the larger point that *Computer II* aimed to secure AT&T’s ability to enter competitive new markets for data services and terminal equipment.

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In sum, the literature does not adequately reflect important aspects of Computer Inquiries’ history. One question, then, is why? One explanation is simply that the FCC addressed many of these important issues outside of the Computer Inquiries proceedings. From their outset, both the *Computer I* and *Computer II* proceedings omitted issues regarding network adequacy and carrier tariffs restrictions.<sup>343</sup> Because

335. *Id.* at 503.

336. *Id.* at 504 (Washburn, Comm’r, concurring).

337. *Id.* at 520 (Jones, Comm’r, dissenting in part).

338. AT&T 1980 Opposition, *supra* note 332, at 2 (noting AT&T’s general support for the *Computer II Final Decision* despite its filing of a limited petition for reconsideration).

339. *See Computer & Commc’ns Indus. Ass’n v. FCC*, 693 F.2d 198, 206 (D.C. Cir. 1982) (“The most fundamental challenge to the *Computer II* decision is the claim that the [FCC] has impermissibly deregulated enhanced services . . .”).

340. Brief of Am. Tel. & Tel. Co.-Intervenors at 17–24, *Computer & Commc’ns Indus. Ass’n v. FCC*, 693 F.2d 198, (D.C. Cir. 1982) (No. 80-147).

341. *Computer II Final Decision*, *supra* note 10, at 466–69.

342. *Id.* at 521 (Jones, Comm’r, dissenting in part).

343. *See Computer II Notice*, *supra* note 21, at 103 n.2; *supra* text accompanying notes 44–45.

the subsequent Computer Inquiries orders did not discuss them, they are less likely to be reflected in literature that relies on those orders.

Another possibility is that the open access debates of the late 1990s and early 2000s transformed Computer Inquiries.<sup>344</sup> The Internet initially developed on the telephone network, where traditional norms and laws had created a sharp division between physical transmission and higher-layer content. Dial-up service, for instance, relied heavily on the telephone lines of regulated Title II carriers.<sup>345</sup> It was easy to take this divide for granted until new technologies—particularly cable broadband—put pressure on the traditional regime.<sup>346</sup>

For cable companies who wanted to resist common carrier rules, *Computer II*'s deregulation provided a helpful analogy. From their perspective, *Computer II* deregulated enhanced services because they integrated communications and data components. Cable broadband, some argued, similarly combined transmission and information into one undifferentiated enhanced service (or “information service,” using today’s nomenclature).<sup>347</sup> Because the physical transmission component could not be individually isolated, the entire service should be deregulated just as it was in *Computer II*.

Other parties, however, strongly favored applying traditional regulation to cable broadband access. To them, the physical network should remain open and nondiscriminatory to promote innovation and entry. Otherwise, owners of physical facilities—that is, cable and telephone companies—would have too much power over companies (such as internet service providers and content providers) who required access to the physical infrastructure.<sup>348</sup>

For these critics of deregulation, *Computer II*'s unbundling regime provided a helpful analogy.<sup>349</sup> Under *Computer II*, carriers had to isolate the basic physical transmission service and make it available to all other entities on a nondiscriminatory basis. By analogy, they argued, cable companies should provide “open access” to its physical infrastructure to any competitive ISP—including the hundreds of dial-ups

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344. Another policy dispute that potentially caused a transformation of *Computer II* involved AT&T's frame relay service. See Cannon, *supra* note 3, at 189–90.

345. See Harold Feld, *Whose Line Is It Anyway? The First Amendment and Cable Open Access*, 8 COMM'LAW CONSPECTUS 23, 25–26 (2000).

346. NUCHESTERLEIN & WEISER, *supra* note 33, at 192–96.

347. Inquiry Concerning High-Speed Access to Internet over Cable & Other Facilities, 17 FCC Rcd. 4798, 4818–19, 4824–27 (2002) (stating that cable broadband is a “single, integrated information service”), *aff'd in part, vacated in part sub nom.* Brand X Internet Servs. v. FCC, 345 F.3d 1120 (9th Cir. 2003), *rev'd and remanded sub nom.* Nat'l Cable & Telecommunications Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005).

348. See John T. Nakahata, *Regulating Information Platforms: The Challenge of Rewriting Communications Regulation from the Bottom Up*, 1 J. TELECOMM. & HIGH TECH. L. 95, 115–16 (2002).

349. Daniel F. Spulber & Christopher S. Yoo, *Rethinking Broadband Internet Access*, 22 HARV. J.L. & TECH. 1, 4 (2008) (noting literature that cites Computer Inquiries as justification for open access and network neutrality regulations); Letter from Vint Cerf, Senior Vice President Internet Architecture and Tech., WorldCom, to Donald Evans, Sec'y of Commerce, Appropriate Framework for Broadband Access 2 (May 20, 2002) (“This policy of nondiscriminatory treatment was established back in the late 1970s in the so-called Computer Inquiry proceedings . . .”).

that existed at the time.<sup>350</sup> This debate became known as the open access debate, but it ultimately evolved into the more modern network neutrality debate. In short, *Computer Inquiries* provided helpful analogies to all parties. And it is likely not a coincidence that Robert Cannon's seminal article on *Computer Inquiries*' legacy was published in 2002 at the height of the open access debates.<sup>351</sup>

#### IV. WHY IT MATTERS: IMPLICATIONS FOR MODERN POLICY AND THE LITERATURE

This Part explains why the pre-Internet's history is relevant to modern policy debates and the current literature. First, the history illustrates that government interventions were both necessary to the rise of the Internet and were more extensive than the current literature often acknowledges. In particular, it illustrates the long tradition of regulating uncompetitive physical network layers—and thus has important parallels with the modern network neutrality debate. Second, the history illustrates that the FCC possesses a diverse and interrelated set of policy levers for encouraging a competitive environment. In this respect, the focus on network neutrality may be obscuring other equally important policy levers that can protect the open Internet.

##### A. *The Public Origins of the Pre-Internet*

The first lesson of the pre-Internet's history is that government mattered. It therefore challenges the commonly held view that the Internet's growth relied on a "light touch" deregulatory approach.<sup>352</sup> Specifically, the Internet's growth depended on a series of pro-competitive regulatory efforts that created a salubrious environment for data services to grow and evolve. While some scholars have recognized the importance of such regulatory efforts,<sup>353</sup> the pre-Internet proceedings provide additional concrete examples of how the FCC's intervention fueled the growth of the Internet's ancestral data networks. Without regulatory intervention,

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350. Earl W. Comstock & John W. Butler, *Access Denied: The FCC's Failure to Implement Open Access to Cable as Required by the Communications Act*, 8 *COMMLAW CONCEPTUS* 5, 11–13 (2000).

351. See Cannon, *supra* note 3.

352. See, e.g., Preserving the Open Internet; Broadband Industry Practices, 24 *FCC Rcd.* 13064, 13159 (2009) (McDowell, Comm'r, dissenting in part) (notice of proposed rulemaking) ("[T]he Internet is perhaps the greatest deregulatory success story of all time."); Comments of the National Cable & Telecommunications Assoc. at 2–3, Preserving the Open Internet; Broadband Industry Practices, No. 09-191 (F.C.C. Jan. 14, 2010) (outlining the FCC's deregulatory policy of "vigilant restraint"); Comments of Comcast Corporation at i, Framework for Broadband Internet Service, No. 10-127 (F.C.C. July 15, 2010) (noting the FCC's "longstanding, bipartisan, consensus, 'light-touch' policy approach to regulating broadband Internet service").

353. Bickerstaff, *supra* note 70, at 6 (noting the success of the "series of [FCC] regulatory decisions" to computer industry and the Internet); Cannon, *supra* note 3, at 180 (praising the "history of the FCC taking affirmative and aggressive regulation of communications networks, specifically for the benefit of the computer networks"); Werbach, *supra* note 84, at 8, 14 ("FCC regulation has advanced the development of the computer industry and its illustrious stepchild, the Internet.").

carriers’ tariffs would have stymied the growth of innovative data services and equipment. Instead, the FCC accelerated technological innovation by promoting entry, introducing competitive pressure, and securing rights of interconnection, equipment attachment, resale, and line sharing.<sup>354</sup> It also followed through to protect these reforms in the face of evasion and hostile state regulators.

In addition, the FCC’s regulatory efforts focused almost exclusively on the uncompetitive physical-layer services, which at that time meant the incumbent telephone network facilities. In this respect, the pre-Internet proceedings provide a better example of layered regulation than Computer Inquiries itself. In virtually all of the pre-Internet proceedings, the FCC intervened against the uncompetitive physical layer to promote competition in higher-layer markets that relied on physical network access as a necessary input.

Accordingly, the FCC’s pre-Internet proceedings illustrate *market-creating* regulation, as opposed to more traditional command and control, New Deal-style regulation. The *Carterfone* proceeding, for instance, helped create new cars by guaranteeing access to the roads. Specifically, it regulated the uncompetitive physical layer to generate growth for the equipment and private networks attached to it.<sup>355</sup> Similarly, the resale and line sharing reforms also helped new data services that relied upon physical network services.<sup>356</sup> Liberalizing entry for specialized common carriers achieved these same goals through market pressure at the physical layer.<sup>357</sup>

This history has several implications for modern debates, particularly the current network neutrality debate. First, it illustrates the long and successful history of pro-market regulation of uncompetitive physical access infrastructure. In this respect, it bolsters the normative arguments for network neutrality (or “Open Internet”) regulation to prevent discrimination by lower-layer access providers against higher-layer content and applications.

Indeed, the current case for nondiscrimination protections is even stronger given that today’s Internet access market increasingly resembles the monopoly telephone era. As Susan Crawford has persuasively argued, high-speed broadband has effectively become a cable monopoly.<sup>358</sup> While numerous cable companies exist, customers generally only have access to one in a local area. Accordingly, modern applications that require higher speeds depend on cable infrastructure as completely as data services once depended on AT&T and incumbent carriers. The pre-Internet history thus challenges those who claim the earlier history is irrelevant because it involved traditional monopoly telephone networks.<sup>359</sup> The pre-Internet proceedings

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354. *See supra* Part II.

355. *See supra* Part II.C.3.

356. *See supra* Part II.C.4.

357. *See supra* Part II.C.1–2.

358. Susan P. Crawford, *The Looming Cable Monopoly*, YALE L. & POL’Y REV. INTER ALIA (Jun. 1, 2010, 2:30 PM), [http://ylpr.yale.edu/inter\\_alia/looming-cable-monopoly](http://ylpr.yale.edu/inter_alia/looming-cable-monopoly) [<https://perma.cc/7U7Y-63MM>]; Author, *When It Comes to High-Speed Internet, U.S. ‘Falling Way Behind’*, NAT’L PUB. RADIO (Feb. 6, 2014, 2:47 PM), <http://www.npr.org/blogs/alltechconsidered/2014/02/06/272480919/when-it-comes-to-high-speed-internet-u-s-falling-way-behind> [<https://perma.cc/7A3G-LYJY>].

359. Fred Campbell, for instance, argues that the divide between telecommunications and information services is “premised on the existence of the PSTN [publicly switched telephone

(and Computer Inquiries, for that matter) focused on *competitiveness*, not technology. Throughout these historical proceedings, commenters urged the FCC to focus on *economics* rather than specific technology in adopting rules. Commenters argued that monopoly carriers should be regulated more heavily than competitive-resale and private-line competitors who lacked pricing power, even though they often used identical technologies.<sup>360</sup> And indeed, both the *Resale Order* and the *Computer II Final Decision* ultimately reflected this approach.<sup>361</sup>

More precisely, the pre-Internet history strengthens the normative case for the FCC's recent decision to isolate and "reclassify" broadband access as a Title II service.<sup>362</sup> As noted earlier, critics claim isolating the physical layer for regulation would be practically impossible and would create regulatory disparity.<sup>363</sup>

The history of the pre-Internet, however, undermines these critiques. Specifically, it illustrates the long tradition of separating physical transmission service from higher-layer information services for regulatory purposes. For instance, when the FCC deregulated "enhanced services" because these services inextricably combined data and communications functions, it was referring only to services that built upon basic regulated transmission. Some parties today, however, interpret this language as applying to the *entire* network—including physical transmission.<sup>364</sup> Such arguments, however, ignore the key background assumptions of Computer Inquiries' decisions and the pre-Internet proceedings more broadly. Indeed, the history of AT&T's control over the telephone network is a cautionary tale for those who would give private companies excessive control over vital communications infrastructure.

#### B. A Diverse Toolkit for Enforcement

A separate implication, however, is that protecting the open Internet is more complicated than it looks. The rise of the pre-Internet depended not merely upon

network].” Thus, services not connected have been unregulated. Campbell, *supra* note 287; *see also* Notice of Proposed Rule Making ¶35, *Appropriate Framework for Broadband Access*, No. 02-33 (F.C.C. Feb. 15, 2002) (“[T]he core assumption underlying the *Computer Inquiries* was that the telephone network is the primary, if not exclusive, means through which information service providers can obtain access to customers.”).

360. Computer II Tentative Decision, *supra* note 21, at 368–71 (noting that comments suggested focusing “on defining monopoly and competitive services” rather than “the distinction between data processing and communications”); *see also* Comments of S. Pac. Commc’ns Co. at 1–2, Computer II, No. 20828 (F.C.C. Oct. 2, 1979) (arguing against restrictions on nondominant carriers); Comments of ISA Commc’n Servs. at 10–11, Computer II, No. 20828 (F.C.C. June 6, 1977) (arguing that maximum separation should not apply to nonmonopoly resale carriers); Comments of S. Pac. Commc’ns Co. at 4–6, Computer II, No. 20828 (F.C.C. June 6, 1977) (arguing maximum separation should not apply to nonmonopoly carriers); Comments of W. Union at 11–13, Computer II, No. 20828 (F.C.C. June 6, 1977) (arguing it should be subject to less regulation because it did not provide monopoly services).

361. *See supra* text accompanying notes 226–29.

362. Jon Brodtkin, *FCC Votes for Net Neutrality, a Ban on Paid Fast Lanes, and Title II*, ARS TECHNICA (Feb. 26, 2015, 12:59 PM), <http://arstechnica.com/business/2015/02/fcc-votes-for-net-neutrality-a-ban-on-paid-fast-lanes-and-title-ii/> [<https://perma.cc/76T7-VYJK>].

363. *See supra* text accompanying notes 286–87.

364. *See supra* note 287 and accompanying text.

government action per se, but upon a diverse set of interrelated proceedings.<sup>365</sup> For similar reasons, creating an open and competitive environment today will depend on several interrelated policy levers—and the political will to enforce them. In this respect, the pre-Internet history illustrates the diverse toolkit that the FCC possesses to achieve the goals of better, faster, and cheaper broadband service.

Network neutrality is one important component of that toolkit, but it is not the only one. For instance, even with strong network neutrality rules, low-income and rural areas would still need greater access to high-speed broadband.<sup>366</sup> New video applications could also be strangled by data caps, discriminatory peering agreements, or simply a lack of capacity. Wireless broadband would still need greater spectrum allocations (particularly of unlicensed spectrum) and more affordable special access services.<sup>367</sup> In short, network neutrality—like Computer Inquiries before it—is not the only game in town.

In this respect, perhaps the most specific policy lesson is the importance of creating competition—or at least credible competitive *threats*—at the physical layer. Liberalizing entry for new competitive carriers was arguably the FCC’s most important contribution to early data networks. These carriers threatened AT&T’s overpriced private and business line services. And even if the new carriers did not always survive, the credible threat of competition led AT&T to improve its network and reform its services in ways that ultimately benefited data services and facilitated the Internet’s rise. In this sense, competition created significant spillover benefits for everyone that relied on the telephone network for data services.<sup>368</sup>

Competitive entry in today’s broadband access markets could create similar positive externalities. Competition, however, is notoriously difficult to create because of the significant barriers to entry that competitive access providers must overcome.<sup>369</sup> Broadband networks exhibit natural monopoly characteristics, and cable broadband enjoys a functional monopoly for higher-speed broadband service.<sup>370</sup> As a result, cable broadband is both too expensive and too slow relative to the broadband services enjoyed in several other countries.<sup>371</sup>

One potential candidate, then, for competitive entry today is municipal broadband networks. Given the high barriers of entry, city and state governments have

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365. I thank Harold Feld for clarifying this point through email correspondence.

366. See, e.g., Lee Rainie, *The State of Digital Divides*, PEW RES. CENTER (Nov. 5, 2013), <http://www.pewinternet.org/2013/11/05/the-state-of-digital-divides-video-slides/> [<https://perma.cc/T8GB-VUXX>].

367. For an example of the need for innovative spectrum policies, see Jessica Rosenworcel, Comm’r, Fed. Comm’ns Comm’n, Remarks at 4G Americas Technology Briefing (Oct. 14, 2014), available at [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-329909A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-329909A1.pdf) [<https://perma.cc/45RN-EUAP>].

368. On the concept of spillovers, see generally Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257 (2007).

369. See Whitt, *supra* note 77, at 432–36.

370. SUSAN P. CRAWFORD, CAPTIVE AUDIENCE: THE TELECOM INDUSTRY AND MONOPOLY POWER IN THE NEW GILDED AGE 113 (2013).

371. John Aziz, *Why Is American Internet So Slow?*, WEEK (Mar. 5, 2014), <http://theweek.com/article/index/257404/why-is-american-internet-so-slow> [<https://perma.cc/UC9U-2SBK>].

significant financial advantages over private companies in constructing new networks. In addition to being able to raise money through taxes or bonds, government networks would not necessarily have to earn a profit as quickly—or at all. Many states, however, have recently passed laws that prevent municipalities from developing broadband networks.<sup>372</sup> These incumbent protection statutes are harmful not merely because they prevent the rise of new networks, but because they eliminate the *threat* of competitive entry. With these statutes in place, municipalities cannot threaten to develop their own networks if cable providers refuse to lower prices or enhance service offerings. The FCC, however, could help municipal networks grow by preempting these protectionist statutes.

Another policy lesson that the pre-Internet history provides is that public disclosure and transparency can be an effective check on network owners. Indeed, this Article contends that the most important legacy of Computer Inquiries was not its rules, but its role as a source of information for contemporary tariff proceedings. The proceedings not only “shamed” AT&T to make changes, but they also provided an institutional forum for the public to organize and air grievances about the current state of network services.

Disclosure could serve a similar function for broadband access regulation today.<sup>373</sup> While not sufficient on its own, disclosure could provide an important check on access providers regardless of the statutory authority the FCC ultimately chooses for network neutrality rules. In fact, disclosure would be even more effective in the age of social media where concerns can be publicized quickly and at little cost. In this respect, disclosure allows the FCC to crowdsource its oversight of access providers. The very existence of the disclosure requirement would also deter access providers from engaging in misconduct in the first place, much like the warrant requirement preemptively deters police misconduct.

A separate lesson that the pre-Internet history provides is the importance of public engagement to opening the telephone network to new advanced services. Admittedly, this transition had several sources. Technological innovation played an important role, as did the FCC’s legal choices that accelerated those developments. However, one important motivation for the FCC’s discretionary actions was the public pressure and engagement from a diverse range of stakeholders.

Public engagement will be especially important to facilitate municipal broadband projects and other competitive private entrants such as Google Fiber.<sup>374</sup> In Georgia, for instance, a coalition of public interest groups, municipal governments, and tech companies resisted efforts of the state legislature to limit municipalities’ ability to

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372. Jon Brodtkin, *ISP Lobby Has Already Won Limits on Public Broadband in 20 States*, ARS TECHNICA (Feb. 12, 2014, 7:00 AM), <http://arstechnica.com/tech-policy/2014/02/isp-lobby-has-already-won-limits-on-public-broadband-in-20-states/> [https://perma.cc/X424-ENRT].

373. The FCC’s 2010 open Internet rules included a requirement that access providers publicly disclose their network management policies. The D.C. Circuit upheld this requirement. *Verizon v. FCC*, 740 F.3d 623, 659 (D.C. Cir. 2014). The FCC included disclosure requirements in its newer proposed rules. *Protecting and Promoting the Open Internet*, 29 FCC Rcd. 5561, 5584–93 (2014).

374. *A Different Kind of Internet and TV*, *supra* note 19.

establish public broadband networks.<sup>375</sup> These efforts required local communities to realize the benefits that competition could provide in terms of quality and pricing. In this respect, the Georgia coalition could provide a blueprint for future organizing efforts.

One particularly important stakeholder is the business community. Indeed, American businesses played an important role in the pre-Internet's rise by publicizing the problems with AT&T's networks and advocating for tariff reforms.<sup>376</sup> This community included a diverse coalition that included airlines, banks, energy companies, transportation companies, equipment manufacturers, retail manufacturing companies, and newspaper organizations to name a few. These parties recognized their interest in cheaper and better networks that would allow them to offer and benefit from new types of data services and terminal equipment. Further, the FCC's tariff reforms had a dynamic effect upon this coalition. By reducing the costs of competitive entry, public pressure helped create entirely new companies and industries that could, in turn, exert even more pressure upon policymakers.<sup>377</sup> This pressure provided an important balance to the weight of AT&T, which had both considerable resources and long experience influencing policymakers.

The implication for today is that the business community could play a similarly important role in modern broadband access debates. Much like the companies participating in Computer Inquiries, the business community would benefit from open networks that are as fast and cheap as possible. Unlike that time, however, the business community has greater ideological aversion to regulation than existed in the era of Computer Inquiries. Although tech companies such as Google and Netflix have actively supported open Internet protections,<sup>378</sup> much of the general business community has stayed on the sidelines or actively opposed regulations through representatives such as the Chamber of Commerce.<sup>379</sup> Indeed, until recently, even many tech companies that more clearly depend on nondiscriminatory access have often been silent or offered only half-hearted support through ad hoc organizations. The modern debate thus lacks the adversarial relationship between business customers and carriers that was so vital in the Computer Inquiries and tariff proceedings.

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375. Timothy B. Lee, *Georgia House Rejects Bill To Ban Municipal Fiber Networks*, ARS TECHNICA (Mar. 8, 2013, 12:33 PM), <http://arstechnica.com/tech-policy/2013/03/georgia-house-rejects-bill-to-ban-municipal-fiber-networks/> [<https://perma.cc/3TC3-D2S8>]; Baily McCann, *Google Joins Opposition to Georgia Bill Limiting Municipal Broadband*, CIVSOURCE (Feb. 9, 2012), <https://civsourceonline.com/2012/02/09/google-joins-opposition-to-georgia-bill-limiting-municipal-broadband> [<https://perma.cc/NX95-D9WQ>].

376. Nolan, *supra* note 108, at 12–13 (listing businesses and industries supporting competitive policies).

377. BROCK, *supra* note 2, at 20.

378. Brian Fung, *Google, Netflix Lead Nearly 150 Tech Companies in Protest of FCC Net Neutrality Plan*, WASH. POST: THE SWITCH (May 7, 2014), <http://www.washingtonpost.com/blogs/the-switch/wp/2014/05/07/google-netflix-lead-nearly-150-tech-companies-in-protest-of-fcc-net-neutrality-plan/> [<https://perma.cc/KTK4-E7M2>].

379. See Comments of U.S. Chamber of Commerce at 1–3, Protecting & Promoting the Open Internet, No. 14-28 (F.C.C. July 15, 2014) (opposing Title II reclassification); Reply Comments of U.S. Chamber of Commerce at 1–2, Preserving the Open Internet, No. 09-191 (F.C.C. Apr. 26, 2010).

A final lesson the pre-Internet history provides is the importance of the FCC's discretionary enforcement. During the 1960s and 1970s, the specific *content* of the governing statutes and regulations was arguably less important than the FCC's discretionary commitment to policy goals—and the public's willingness to demand oversight. For instance, telephone carriers discriminated against competitors for years despite being subject to extensive Title II regulation. Similarly, the celebrated *Computer I* and *Computer II* rules alone would have provided only limited protection against restrictions relating to interconnection, equipment attachment, resale and line sharing. Change occurred only when the FCC decided to use its statutory authority in a new way. Indeed, the FCC's mere opening of these proceedings protected data services by generating information, creating pressure for reforms, and imposing checks on the carriers.

The larger point is that the content of the FCC's statutory authority may prove less important ultimately than its enforcement priorities.<sup>380</sup> Even if courts ultimately reject reclassification, the FCC's alternative source of statutory authority (Section 706<sup>381</sup>) provides substantive authority to make credible enforcement threats for a wide range of actions. Using this authority, the FCC could not only implement rules, it could initiate investigations and enforcement actions for several types of harmful conduct that potentially threatens innovation such as discriminatory data caps, interconnection and peering agreements, municipal broadband restrictions, and overbroad congestion management practices. Indeed, merely initiating the proceedings—and drawing public attention to these practices—would itself be an important political check and a reinforcement of nondiscriminatory norms. The flipside of this lesson is that reclassification will provide little protection without the FCC's political willingness to enforce its rules.

### C. Addressing Objections

The rise of data networks and the Internet had many causes. Computer Inquiries is part of that story, but overemphasizing its role can obscure the contributions of other forces that helped make these changes possible. One potential objection, however, is that this Article focuses too heavily on the developments that led to Computer Inquiries rather than looking at what followed. For instance, one might argue that Computer Inquiries was important for the Internet's subsequent development in the 1980s and 1990s. Further, to the extent Computer Inquiries reflected preexisting norms, it nonetheless played an important role in reinforcing and solidifying those norms in ways that further facilitated the Internet's growth.

To be clear, Computer Inquiries' rules were not irrelevant to the growth of the Internet. This Article, however, provides a corrective to modern assessments of its relative causal effects. The broader history illustrates that the key legal choices and the market growth that led to the Internet were largely in place prior to the final

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380. Kevin Werbach & Phil Weiser, *The Perfect and the Good on Network Neutrality*, HUFFINGTON POST (Apr. 27, 2014, 6:03 PM), [http://www.huffingtonpost.com/kevin-werbach/network-neutrality\\_b\\_5221780.html](http://www.huffingtonpost.com/kevin-werbach/network-neutrality_b_5221780.html) [<https://perma.cc/W8GV-CQWP>] (“The effectiveness of the FCC proposal in protecting the open Internet thus depends on how it’s enforced . . .”).

381. Telecommunications Act of 1996, § 706 (codified as amended at 47 U.S.C. § 1302 (2012)).

*Computer II* rules in 1980. While Computer Inquiries may well have reinforced those developments, they were not the germinating *source* of the change as the literature often implies. The rules alone would have been ineffective without the sustained oversight and enforcement proceedings that the FCC imposed during this time.

Further, it is difficult to isolate the subsequent effects of Computer Inquiries from other contemporary developments. Most importantly, the divestiture of AT&T occurred at approximately the same time the *Computer II* rules were intended to go into effect. This action resulted in a structural separation of the local Bell companies from the more competitive long-distance and terminal equipment divisions, which retained the name "AT&T." Under the modified final judgment (MFJ), the local Bell monopolies were forbidden from offering information services (an updated term for "enhanced" services) and were subject to various nondiscrimination requirements.<sup>382</sup> The protections were far more extensive and lasting than *Computer II*, which had actually attempted to *relax* regulation in important respects. In this respect, the MFJ altered and amplified the Computer Inquiries regime that preceded it.

Finally, space limitations prevent pursuing other important factors that should be addressed in future research. For instance, the growing ideological embrace of competition played an important role in the history of data networks. Relatedly, the contingent choices of reform-minded FCC officials, such as Bernard Strassburg at the Common Carrier Bureau, also deserve more attention than they received here. Finally, more should also be said about the third proceeding in the mid-1980s—*Computer III*.<sup>383</sup> The influence of this proceeding is more difficult to measure. For one, federal courts invalidated much of the *Computer III* rules, and the complex proceedings dragged on for many years.<sup>384</sup> In addition, *Computer III* takes place in the shadow of the AT&T divestiture as the FCC tried to relax structural separation requirements.<sup>385</sup> While the influence of *Computer III* on the Internet's development deserves more attention, the first two proceedings are generally seen as creating the foundation for data networks' growth.

#### CONCLUSION

This Article's primary argument is that the FCC played a critical role in building the pre-Internet in ways the current literature overlooks. Although Computer Inquiries gets much of the credit, the FCC's more important contribution was its regulatory interventions in the pre-Internet proceedings. It is difficult to square this history with modern claims that the Internet's growth depended on "light touch" deregulatory measures. As the pre-Internet history illustrates, this latter claim is true only with respect to *higher-layer* markets and services. These same markets, however, simultaneously depended upon aggressive regulation at the noncompetitive

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382. United States v. Am. Tel. & Tel. Co., 552 F. Supp. 131, 142–43 (D.D.C. 1982).

383. Amendment of Sections 64.702 of the Commc'ns Rules & Regulations (Third Computer Inquiry), 104 F.C.C.2d 958 (1986) (report and order).

384. See Werbach, *supra* note 84, at 24–26.

385. Rebecca Arbogast, *FCC's Broadband Quartet: A State-Federal Fugue or Feud?*, 2 J. TELECOMM. & HIGH TECH. L. 245, 269–70 (2003); Marcellus S. Snow, *Trade in Information Services in Asia, ASEAN, and the Pacific: Conceptual Issues and Policy Examples*, 28 CAL. W. L. REV. 329, 338 (1992).

physical layer. In this respect, the history of the pre-Internet lends normative support not only for network neutrality rules in general, but for reclassification approaches specifically.

The history of the FCC and the pre-Internet also illustrates the diverse toolkit of policy levers that the agency possesses to protect an open and competitive environment. Network neutrality rules—like the *Computer II* rules before them—are only one part of that toolkit. While network neutrality is both important and necessary, its dominance can obscure the importance—and availability—of these other tools. For instance, efforts to create competitive pressures (e.g., municipal broadband and Google Fiber) are particularly effective ways to increase speeds, fuel innovation, and expand deployment. In any event, the future of the open Internet will depend upon the FCC's willingness to use a broad and interrelated set of policy levers to enforce its priorities regardless of the rules it ultimately adopts.