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NAVIGATING THE GLOBAL INFORMATION SUPERHIGHWAY: A BUMPY ROAD LIES AHEAD

Ilene Knable Gotts[*] *and Alan D. Rutenberg*[**]

INTRODUCTION

We are witnessing what Federal Communications Commission Chairman Reed Hundt has labeled a "communications revolution."[1] Industry sources forecast that the commercial on-line computer services market will grow to become a $3 billion industry by 1998, up from the present estimated $530 million, as users move beyond talk and data sharing to buying goods and services.[2] Similarly, the Clinton Administration's White Paper predicts that the economy could grow by $100 billion in the next ten years due to the telecommunications and information services industry, creating 500,000 new jobs by 1996, with employment in the telecommunications and information sector increasing from 3.6 million to 5 million workers by the end of the next decade.[3] Increasingly, economic growth will be driven by the computer, software, and telecommunications industries, with the United States well-placed to play a lead role in this new global economy.[4]

While to date most consumer experience on the computer has been limited to stand-alone personal computer use as part of a closed system, or noncommercial use on the Internet, the future of the information superhighway will involve heavy usage for commercial and business

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* J.D., Georgetown University Law Center, 1984; B.A., University of Maryland, 1980. Ms. Gotts is a partner in the Washington, D.C. office of Foley & Lardner.

** J.D., Harvard Law School, 1994; B.A., Transylvania University, 1991. Mr. Rutenberg is an associate in the Washington, D.C. office of Foley & Lardner.

1. *Statement of Reed E. Hundt, Chairman Federal Communications Commission Before the Subcommittee on Telecommunications and Finance Committee on Energy and Commerce, United States House of Representatives on H.R. 3636, the "National Communications Competition and Information Infrastructure Act of 1993" and H.R. 3626, the "Antitrust Reform Act of 1993,"* FED. NEWS SERVICE, Jan. 27, 1994, *available in* WESTLAW, FNS database.

2. Timothy L. O'Brien, *Company Has Head Start in Electronic Computer Sales*, WALL ST. J., Mar. 10, 1994, at B2 (citing Forrester Research, Cambridge, Mass.).

3. *Communications: Clinton Communications Plans Would Add $100 Billion to Economy, CEA Officials Say*, Daily Executive Rep. (BNA) No. 113, at A-26 (June 15, 1994); *see also* Michael J. Mandel, *The Digital Juggernaut*, BUS. WK., June 6, 1994 (Special 1994 Bonus Issue), at 22, 22-31.

4. Mandel, *supra* note 3, at 23.

transactions. The commercial potential of on-line computer systems is staggering. The information superhighway may become the shopping mall of the future and a common forum for business transactions. Developments in telecommunications and information services already have begun transforming day-to-day life. There has been an explosion in the number of on-line systems and the introduction of innovations such as on-line banking,[5] advertising,[6] shopping,[7] and interactive television.[8] Numerous companies have big expectations for the information superhighway and are preparing to expend considerable resources to participate at the ground level.[9] For instance, Microsoft plans to enter the world of electronic commercial transfers with the launch of its own on-line system.[10]

The uses of the information superhighway are by no means exclusively commercial. For instance, the Clinton Administration has unveiled an on-line handbook of government which enables the user to do anything from getting a Medicare guide to taking a tour of the White House.[11] On-line services are even used for religion,[12] parenting,[13] and political campaigning.[14]

Many of the individual components—e.g., broadcast media, cable, television, telephones—exist today. Statements from government and industry officials, however, forecast that by the year 2000, the separate media of cable, telephone, and computer will converge to offer what is dubbed as "multimedia," "interactive," and "personalized media

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5. Saul Hansell, *Banks Going Interactive to Fend Off New Rivals*, N.Y. TIMES, Oct. 19, 1994, at D1.

6. Kevin Goldman, *McDonald's to Post Golden Arches Along the Information Superhighway*, WALL ST. J., July 21, 1994, at B7 [hereinafter Goldman, *McDonald's*].

7. Edmund C. Andrews, *MCI to Offer One-Stop Shopping on the Internet*, N.Y. TIMES, Nov. 21, 1994, at D2.

8. Paul Farhi & Elizabeth Corcoran, *Interactive in Orlando*, WASH. POST, Dec. 13, 1994, at A1.

9. Sandra Sugawara & John Mintz, *Racing to Build a Wireless World; Companies, Individuals Invest Millions to Launch Satellite Phone Systems*, WASH. POST, Mar. 25, 1994, at B1.

10. Brent Schlender, *What Bill Gates Really Wants*, FORTUNE, Jan. 16, 1995, at 35, 36.

11. John Schwartz, *White House Unveils Internet Web*, WASH. POST, Oct. 20, 1994, at A19.

12. David Gonzalez, *O'Connor Takes His Message to Cyberspace*, N.Y. TIMES, Jan. 4, 1995, at A1.

13. James Buie, *'The Virtual Dad': A Non-Custodial Parent Makes the E-Mail Connection*, WASH. POST, Jan. 10, 1995, at E5.

14. William F. Powers, *Virtual Politics: Campaigning in Cyberspace*, WASH. POST, Nov. 8, 1994, at E1.

services."[15] The infrastructure for this entire technological field is called the "National Information Infrastructure" ("NII") or, by Vice President Al Gore, the "Information Superhighway."[16]

This article will not attempt to predict whether these forecasts are correct. In the last two decades, we have seen some technologies quickly gain wide market acceptance (e.g., automatic teller machines and voice mail systems), others obtain only limited success (e.g., pay-per-view offerings), while some services have failed (e.g., videophones). How quickly and widespread the technology is utilized is to some extent a function of whether the market is ready to accept the new technological developments.

The legal and regulatory framework can also impact the development of the information superhighway. In many respects, the technological revolution now being forecast is of almost as great a magnitude and scale as the advent of the national telephone system or the computer industry. The approach taken by regulators in addressing the framework is similar to the approach taken by this country during the first three decades of the telecommunication industry. The same potential problems are likely to develop unless proactive government regulation and industry self-regulation occurs soon.

When Vice President Gore described the NII as the "Information Superhighway," he most likely contemplated the creation of a state-of-the-art "smart" highway system with no potholes or structural limitations.[17] Instead, federal communications regulation today resembles the condition of many urban highway systems in our country: crumbling and used beyond its intended capacity. Furthermore, what is being proposed currently is not starting anew and designing a comprehensive regulatory scheme from scratch which can fully address likely and forecasted needs; rather, regulators propose augmenting and "patching" the poorly designed existing infrastructure. However, like the highway system, federal regulators are finding it difficult to reconcile existing "entrance ramps to the highway," with the added traffic by users.

The current regulatory structure simply is inadequate to handle the traffic of the information superhighway. Reforms must be planned which

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15. *See* Andrew Grosso, *The National Information Infrastructure*, 41 FED. BAR NEWS & J. 481 (1994) (discussing the new services to be offered).

16. Daniel Pearl, *Colliding Cliches and Other Mishaps on the Term Pike*, WALL ST. J., Feb. 1, 1994, at A1.

17. Vice President Al Gore, Address Before the Academy of Television, Arts and Sciences (Jan. 11, 1994) (transcript on file with authors).

will ensure that the information superhighway will be less marred by potholes. This article will not attempt to address all of the issues raised by the NII. The objective of the authors is to identify some of the key and perhaps hidden issues existing in the NII so that drivers have ample time to react and steer clear of the worst potholes in the path to their respective destinations. We believe that such an exercise is worthwhile since, as one commentator recently indicated, "the future [of the NII] is coming and the government will be overtaken by it."[18] It is only by identifying problems in advance that the goals will be accomplished. Furthermore, just as the highway system requires driver obedience to avoid disaster, the successful operation of the information superhighway will require the cooperation and support of federal communications and antitrust officials and state regulators, and, perhaps most important of all, elements of self-regulation by industry.[19]

This article is divided into three parts. Part I deals with historical regulatory responses to legal issues raised in telecommunications, computers, and related fields. As part I demonstrates, the various components of the NII have been, and to a large extent still are, regulated as the separate entities they have always been perceived to be; no comprehensive regulatory framework has been developed. Part II gives an overview of current Congressional, administrative, and judicial initiatives relating to the NII. Part III identifies some of the new legal issues raised by the continuing integration of the NII, including the question of who will regulate, which becomes a trickier question as the NII takes on an international scope.

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18. Tim Jones, *Information Highway Hype Has Familiar Ring*, CHI. TRIB., Jan. 16, 1994, § 7, at 3.

19. The Internet serves as an example of self-regulation. To some extent, the Internet has been self-regulating. Some rules of etiquette, which have been informally adopted, are loosely termed "netiquette." *See* Grosso, *supra* note 15, at 482. Users violating these rules run the risk of getting "flamed," i.e., being subjected to a stream of undesirable messages by those whom they annoy. *Id.* Increased use of the Internet will likely make greater regulation necessary. Due to organizations' attempts to grab well-known names, InterNIC, the company that manages the Internet registry, has recently announced its intent to limit each organization to one address. *See* Elizabeth Corcoran, *Registry Rationing Internet Addresses*, WASH. POST, Sept. 27, 1994, at C3. A more official and comprehensive system of self-regulation is needed in the future for the NII to be successful.

I. HISTORICAL (AND CURRENT) RESPONSES TO LEGAL ISSUES IN THE COMPONENTS OF THE NATIONAL INFORMATION INFRASTRUCTURE

To date, the various technologies and services have differed to the extent that coordinated and comprehensive regulation has not been necessary to ensure that the marketplace functioned. Landline telecommunications, cable, cellular, and computer technology all co-exist in separate regimes with varying degrees of governmental intervention. Separate laws address issues of consumer fraud, privacy, and intellectual property rights. This section will highlight each of these regimes and provide a brief history of the regulatory framework.

A. Federal Communications Regulation

Telecommunications has had the mixed blessing of being both an experimental guinea pig for federal regulation of technology as well as an opportunity to develop fully an array of universally offered technology services. As such, its regulatory regime has evolved from early regulatory neglect to rigid regulation of presumed natural monopolies to today's environment in which competition is eliminating the need for some of the regulation. We will explore these stages and how they apply to the various services that loosely comprise "telecommunications."

1. Pre-1934 Act

The beginning of federal communications regulation was marked by disjointed authority and lack of direction, which adversely impacted the implementation of the new technologies and resulted in virtually no diversification of ownership. The Mann-Elkins Act of 1910 bestowed upon the Interstate Commerce Commission ("ICC") the regulation of interstate telecommunications.[20] This act characterized interstate telecommunications providers as "common carriers" without defining the obligations corresponding to such a designation. Meanwhile, the 1912 Radio Act gave jurisdiction over interstate radio broadcasting, but for

20. Mann-Elkins Act, ch. 309, 36 Stat. 539 (1910) (codified as amended in scattered sections of 49 U.S.C.).

only limited purposes, to the then-combined Department of Commerce and Labor.[21] The Dill-White Radio Act of 1927 reassigned jurisdiction over radio networks to a five-member Federal Radio Commission.[22] It forbade, among other things, cross-ownership of telephone and broadcast stations and rejected operation of radio stations as "common carriers."

It became apparent within a few decades that this fragmented approach to interstate communications was not working and a comprehensive federal legislative regime was needed to protect the public interest in the provision of these services. Congress responded with the Federal Communications Act in 1934.[23]

2. The 1934 Act and the Creation of the FCC

The goal of Congress when drafting and passing the Federal Communications Act (the "1934 Act") seemed to be to provide a flexible but comprehensive regulatory scheme that ensured users the benefits of the telecommunications spectrum. At that time, approximately two-thirds of the local phone business and all of the long-distance market were owned by the American Telephone and Telegraph Company ("AT&T" or "Bell System"). The 1934 Act waived the federal antitrust laws, instead delegating to the newly created Federal Communications Commission ("FCC") the responsibility of regulating and supervising the expansion of the Bell System, while at the same time ensuring the provision of universal service. The Act required telephone companies to provide services to all customers at "just and reasonable prices."[24] New firms were permitted to compete only if they demonstrated that the "public convenience and necessity" so required their entry into the arena. Similarly, the Act required the telephone companies to provide connections to the network for new providers only if the Commission found such connection "necessary or desirable in the public interest."[25]

The 1934 Act gave the FCC the power to regulate long-distance services and prices. Local phone service was left to state regulators. Congress and the FCC were more concerned with obtaining ubiquitous universal service than promoting competition. Indeed, given the state of

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21. Radio Act, ch. 287, 37 Stat. 302 (1912) (repealed 1927).

22. Dill-White Radio Act, ch. 169, 44 Stat. 1162 (1927) (repealed 1934).

23. Federal Communications Act of 1934, ch. 652, 48 Stat. 1064 (1934) (codified as amended at 47 U.S.C. §§ 151-613 (1988)).

24. 47 U.S.C. § 201.

25. *Id.*

technology, telecommunications appeared to require a "natural monopoly" in order to provide the service at all. In exchange for the companies promising service to every home at low costs, the states in turn outlawed competition. After all, a regulated monopoly can be ordered to provide public benefits that unregulated competitors have little incentive or means to provide.

3. Chiseling Away the Natural Monopoly Assumptions

The assumption by federal policy makers that the telephone market, with its need for interconnectivity and heavy capital investment in equipment, functioned best in a regulated monopoly framework began to erode in the 1950s, primarily due to technological advances. Basically, "landline" telephone service (as it was traditionally provided by AT&T) consists of four parts: (1) long-distance telecommunications service; (2) local telephone service (sometimes referred to as "Plain Old Telephone Service" or "POTS"); (3) enhanced or information services; and (4) provision or manufacture of telephone equipment. Through industry challenge and enforcement initiatives by both the FCC and the U.S. Department of Justice ("DOJ"), the legal boundaries of this natural monopoly slowly eroded. The penultimate demise to the linkage between these components and the ultimate linchpin to the introduction of competition occurred with the breakup of the Bell System in 1982 in the so-called "Modified Final Judgment" ("MFJ").[26]

4. Introduction of Competition into Long-Distance Service

The first major technological and legal challenge to AT&T's monopoly occurred in the long-distance arena. Microwave technology made competing with AT&T's long-distance service conceivable. Like any monopolist, AT&T did not yield to competition in this segment without a struggle. It took many years of effort and capital by companies such as MCI before the FCC and the courts mandated competition in the long-distance market.[27] The FCC responded to these technological and legal developments by permitting competition in the public service long-distance marketplace in 1971.

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26. United States v. American Tel. & Tel. Co., 552 F. Supp 131 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

27. Microwave Communications, Inc.,18 F.C.C.2d 953 (1969).

The FCC permitted long-distance competition against AT&T for private line service in *Microwave Communications, Inc.*[28] This FCC order authorized MCI to operate microwave radio services between Chicago and St. Louis to accommodate the interplant and interoffice needs of small businesses. It represented the first in a series of FCC opinions and court decisions that incrementally opened up the long-distance market to competitors.[29]

Furthermore, the FCC in 1985 promulgated rules to "detariff" long-distance rates for non-dominant providers (i.e., all long-distance companies other than AT&T).[30] However, section 203 of the 1934 Act requires carriers to file a schedule "showing all charges for itself and the connecting carriers."[31] Filed rates are binding on both the carrier and the public. In the *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.* decision issued on June 17, 1994, the U.S. Supreme Court held that the FCC could not waive the tariff provisions for any communications common carriers.[32] Justice Scalia, writing for the Court, indicated that while the Communications Act gave the FCC authority to "modify" tariff requirements, forbearance from regulation fell outside of that definition. The majority stated that the requirement for carriers to file tariffs is "the heart of the common carrier section of the Communications Act. . . . It is highly unlikely that Congress would leave the determination of whether an industry will be entirely, or even substantially, rate-regulated to agency discretion. . . . Detariffing . . . may well be a better regime, but is not the one that Congress established."[33] The Hollings bill discussed *infra* in part II.B.1. would have provided the FCC forbearance authority.[34] While there is nothing comparable in either of the House bills, also discussed *infra* in part II.B.1., Congress' 1993 Budget Act gave the FCC authority to forbear regulating mobile

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28. *Id.*

29. *See* Establishment of Policies and Procedures for Consideration of Application to Provide Specialized Common Carrier Services in the Domestic Point-to-Point Microwave Radio Service and Proposed Amendments to Parts 21, 43, and 61 of the Commission's Rules, 29 F.C.C.2d 870 (1971); MCI Telecommunications Corp. v. FCC, 561 F.2d 365 (D.C. Cir. 1977).

30. Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefor [sic], 99 F.C.C.2d 1020 (1985).

31. 47 U.S.C. § 203.

32. 114 S. Ct. 2223 (1994).

33. *Id.* at 2232-33. The dissenting opinion, written by Justice Stevens, attacked the Court's "rigid literalism." *Id.* at 2234.

34. S. 1822, 103d Cong., 2d Sess. § 230 (1994).

services,[35] and the House bills would have allowed for some FCC "pricing flexibility."[36]

a. Local Telephone Service Regulation

Federal jurisdiction over local telephone service derives from section 201 of the 1934 Act.[37] In 1992, the FCC issued an order requiring local telephone exchange companies ("LECs") to set aside a portion of their central offices for occupation and use by competitive access providers ("CAPs").[38] On June 10, 1994, the D.C. Circuit set aside this FCC order on the grounds that section 201(a) of the 1934 Act did not expressly authorize the rule.[39] At the same time, the D.C. Circuit remanded to the FCC for further consideration a possible virtual co-location rule that would not require the LEC to turn over space in its central office (thus enabling the CAP to install and operate the circuit terminating equipment), but would allow the CAP to interconnect close to the LEC central office. The FCC rules were in response to problems associated with providing transmission lines between large customers and long-distance interexchange carriers. The physical co-location rule also directly implicated the just compensation clause of the Fifth Amendment.[40]

b. Information Services

Information services were traditionally regulated as a part of the FCC's general regulatory authority over telephone carriers as common

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35. *See* 47 U.S.C. § 332(c)(1)(C) (Supp. V 1993).

36. H.R. 3626, 103d Cong., 1st Sess. § 302 (1993); H.R. 3636, 103d Cong., 1st Sess. § 102 (1993).

37. 47 U.S.C. § 201(a) (1988) ("It shall be the duty of every common carrier engaged in intrastate or foreign communication by wire or radio to furnish such communication service upon reasonable request therefor [sic]; and, in accordance with the orders of the Commission, in cases where the Commission, after opportunity for hearing, finds such action necessary or desirable in the public interest, to establish physical connections with other carriers, to establish through routes and charges applicable thereto and the divisions of such charges, and to establish and provide facilities and regulations for operating such through routes.").

38. Expanded Interconnection with Local Telephone Company Facilities; Amendment of the Part 69 Allocation of General Support Facility Costs, 7 F.C.C.R. 7369 (1992); Expanded Interconnection with Local Telephone Company Facilities, 8 F.C.C.R. 127 (1993).

39. Bell Atl. Tel. Co. v. FCC, 24 F.3d 1441 (D.C. Cir. 1994).

40. *Id.* at 1445.

carriers. In a significant reversal of policy, in *Second Computer Inquiry*, the FCC ruled that the provision of "enhanced information services" was not subject to Title II regulation (as a telecommunications common carrier) and that enforcement of the 1934 Act did not require the regulation of information services.[41]

The FCC subsequently modified the *Second Computer Inquiry* paradigm with *Third Computer Inquiry*, which removes the requirement that the provision of enhanced services be undertaken through structurally separate operations so long as the entities comply with so-called "Comparably Efficient Interconnection" requirements and "Open Network Architecture" requirements.[42] Comparably Efficient Interconnection requires the regional companies to offer to other providers of enhanced information services the same interconnection features that these companies use for their own services.

Open Network Architecture unbundles the components of exchange services and allows for the purchase of each "basic service element" on an "equal access" basis. Unbundling basic service, referred to as "building blocks" or "basic service elements" allows "competing enhanced service providers an opportunity to design offerings that utilize network services in a flexible and economical manner."[43] The competitors of the regional companies only pay for the basic service elements they use in providing enhanced information services to their customers.

c. Introduction of Competition in the Equipment Market

It was not too many years ago that all telephones used in this country were black rotary dial phones supplied by the phone company. Similarly, the phone company controlled the development and manufacture of all

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41. Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry), 77 F.C.C.2d 384, 419-20 (1980) ("A basic transmission service is one that is limited to the common carrier offering of transmission capacity for the movement of information. In offering this capacity, a communications path is provided for the analog or digital transmission of voice, data, video, etc. information. . . . In offering a basic transmission service, therefore, a carrier essentially offers a pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information. . . . An enhanced service is any offering over the telecommunications network which is more than a basic transmission service. In an enhanced service, for example, computer processing applications are used to act on the content, code, protocol, and other aspects of the subscriber's information . . . .").

42. Amendment of Section 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry), 104 F.C.C.2d 958 (1986).

43. *Id.* at 1019-20.

other customer premises equipment, as well as central office switching equipment, employed in telecommunications throughout the country. Both the FCC and the DOJ questioned the legitimate basis for telephone service providers to require rental of telephone company supplied equipment. Indeed, a major portion of the DOJ's 1956 antitrust action against AT&T concerned the linkage of Western Electric, the equipment manufacturing affiliate of AT&T, and Bell Laboratories, the research and development subsidiary of AT&T.[44]

In *Hush-A-Phone v. United States,* in one of the first of a series of decisions that finally opened up the telephone accessory equipment market to competition, the D.C. Circuit held that telephone subscribers have a right to use their phones in a manner that is not publicly detrimental.[45] The FCC endorsed the *Hush-A-Phone* reasoning in its 1968 *Carterphone* decision.[46] In *Carterphone*, the FCC eliminated the provisions in AT&T's tariff that forbade all "foreign attachments" to the telephone system, thereby permitting the development of the telephone equipment market. In 1975 the FCC struck down tariff provisions requiring customer use of carrier-supplied connecting arrangements.[47]

d. MFJ Seeks to Instill Competition into Telephony

Even after the federal regulatory obstacles were lifted, however, competition could not occur overnight. AT&T had a stranglehold on the telecommunications industry by virtue of its control of the local exchanges. It could use its access to the local exchange bottleneck as leverage in its dealings in other segments of the industry, including long-distance and information services. Furthermore, the regulated rate base from local telephone service and the shared facilities among the various components provided opportunities for cross-subsidization of the unregulated segments. The answer to this conduct seemed clear to federal antitrust officials: break up of the AT&T monopoly.

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44. United States v. Western Elec. Co., 1956 Trade Cas. (CCH) ¶ 68,246 (D.N.J. 1956).

45. 238 F.2d 266 (D.C. Cir. 1956).

46. Use of the Carterphone Device in Message Toll Telephone Service, 13 F.C.C.2d 420 (1968).

47. Proposals for New or Revised Classes of Interstate and Foreign Message Toll Telephone Service (MTS) and Wide Area Telephone Service (WATS), 56 F.C.C.2d 626 (1975) (ruling that terminal equipment can be directly attached to telecommunication systems if registered with the FCC; the registration system was designed to ensure no harm to the telephone system from foreign attachments).

By instituting the breakup of AT&T in 1982, Judge Harold H. Greene effectively restructured telephony in this country.[48] The design—referred to as the "MFJ"—in essence, separated out the "immutable monopolies" of local and long-distance to promote competition in telecommunications. The decree settled the DOJ's antitrust case by divesting AT&T of its local phone service and creating 22 local Bell companies, which were subsequently aggregated into seven Regional Bell Operating Companies ("RBOCs").

The consent decree carved telecommunications services into two pieces: it granted the RBOCs authority to provide local exchange "intraLATA" services and AT&T with long-distance "interLATA" service responsibility.[49] The RBOCs were prohibited from offering long-distance service, manufacturing telephone equipment, or providing information services, as long as they had no competition for local phone service.

A similar antitrust case and consent decree was entered into with the second largest long-distance and local-services provider, GTE Corporation.[50]

The breakup of AT&T has, along with technological developments, resulted in a competitive telephone industry. For instance, there are now over 100 companies in the long-distance market, AT&T's share of the long-distance market is down to 60%, and residential long-distance rates have fallen substantially when adjusted for inflation during the last decade.[51]

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48. United States v. American Tel. & Tel. Co., 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

49. In the MFJ and a subsequent decision, United States v. Western Elec. Co., 569 F. Supp. 990 (D.D.C. 1983), *aff'd sub nom.* California v. United States, 464 U.S. 1013 (1983), Judge Greene painstakingly delineated throughout the country 163 "local access and transport areas" ("LATAs") and the RBOC that could provide the service within each of the areas. Section IV(a) of the decree defines an "exchange area," later renamed a LATA, 569 F. Supp. at 993, as "one or more contiguous local exchanges serving common social, economic, and other purposes . . . ." 552 F. Supp. at 229. LATAs generally center upon a metropolitan area (i.e., a Standard Metropolitan Statistical Area) or a community of interest.

50. United States v. GTE Corp., 1985-1 Trade Cas. (CCH) ¶ 66,355 (D.D.C. 1985).

51. Deputy Assistant Attorney General Robert E. Litan, Antitrust Enforcement and the Telecommunications Revolution: Friends, Not Enemies, Address before the National Academy of Engineering 7 (Oct. 6, 1994) (transcript on file with authors).

B. Cable Regulatory History

Cable, too, has gone through varying degrees of regulation. From a technological standpoint, cable requires sufficient sunk capital investment with economies of scale to limit competitive alternatives in many rural areas of the country. Indeed, cable constitutes a classic natural monopoly in some areas. On the other hand, with the development of fiber optics for telecommunications, local telephone companies are technologically able to compete in the provision of information services and entertainment in their service regions. The legal environment has slowly begun to recognize this potential for competition, but the most recently enacted Cable Act actually increases the level of federal regulation, particularly relating to rate regulation. This section will discuss the ebbs and flows of cable regulation and the shifting responsibilities allocated to federal and state government.

1. Open Skies

Although cable television has been around since the 1940s, it was not until the 1970s that cable television systems began to grow exponentially. To some extent, FCC regulations in the 1970s and 1980s were helpful to the cable television industry. In the 1970s, the FCC adopted an "open skies" satellite policy to help cable programming services compete against the broadcasting networks, and encouraged new channels and services by eliminating state and municipal regulation of pay-per-view. Also, in 1976, Congress modified the copyright laws so that cable could more effectively compete in the video segment.[52] In a 1978 amendment to the 1934 Act, Congress prevented utility companies from charging cable operators unreasonable amounts for pole attachment rights.[53]

2. 1984 Cable Act

In 1984, Congress barred telephone company entry into the cable industry in order to provide cable companies the opportunity to grow without the threat of local telephone company domination. More specifically, section 613(b) of the 1984 Cable Communications Act codified rules on telephone/cable crossownership that had previously been

52. 17 U.S.C. § 111 (1988).
53. 47 U.S.C. § 224 (1988).

promulgated by the FCC in 1970.[54] These restrictions generally prohibited telephone companies from providing video programming over their own systems, either directly or through an affiliate, to subscribers within their telephone service areas.

3. 1992 Cable Act and Video Dialtone Rules

In 1992, Congress passed the latest major cable act, the Cable Television Consumer Protection and Competition Act of 1992 ("1992 Cable Act").[55] This act, passed over the veto of President Bush, subjected cable companies to price regulation. For years, "cable systems were able to expand the number of channels they offered virtually at will, passing the costs off to viewers by increasing monthly cable bills."[56] Under the 1992 Cable Act's mandate, the FCC ordered rate rollbacks it believes will amount to $3 billion.[57]

Also, as mandated by the 1992 Cable Act, in July 1992, the FCC modified its crossownership rules to permit, but not require, local telephone companies to provide "video dialtone."[58] Video dialtone is defined broadly by the FCC as the extension of the "carrier-user" relationship found in the dialtone concept presently offered for voice (telephone) service. Local telephone companies provide access to their infrastructure so that others can transmit a wide variety of video, as well as any future advanced telecommunications services. The local telephone company thereby provides the transmission link between the providers of video services and the subscribers. Any local telephone company that chooses to offer video dialtone must provide access to its network to all video programmers on a common carrier basis (i.e., without discrimination among users in terms or conditions and under regulated rates or tariffs).

The U.S. Supreme Court addressed the constitutionality of the so-called "must carry" provisions of the 1992 Cable Act, which require cable operators to carry local broadcast stations, in *Turner Broadcasting*

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54. The 1984 Cable Communications Act, Pub. L. No. 98-549, 98 Stat. 2779 (1984) (codified as amended in scattered sections of 47 U.S.C.).

55. The Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, 106 Stat. 1460 (1992) (codified as amended in scattered sections of 47 U.S.C.).

56. Bill Carter, *Cable TV Industry Shifts Approach as Growth Slows*, N.Y. TIMES, May 23, 1994, at A1.

57. *Id.*

58. 47 C.F.R. § 63.54 (1994).

Systems, Inc. v. FCC.[59] In *Turner*, the Supreme Court held that the 1992 Cable Act served important government interests by "preserving the benefits of free, over-the-air local broadcast television," "promoting the widespread dissemination of information from a multiplicity of sources," and "promoting fair competition in the market for television programming."[60] However, the Court remanded the case due to the existence of a genuine issue of material fact as to whether local broadcast television was truly in jeopardy and needed protection and to determine the availability of possibly less restrictive ways to meet the interests of the government.

4. RBOCs in Regional Cable

The 1984 Cable Act's crossownership provisions are now being challenged. In August 1993, Judge Ellis of the U.S. District Court for the Eastern District of Virginia ruled that the statutory provision barring telephone companies from providing video programming directly to their telephone subscribers was unconstitutional on First Amendment grounds.[61] In so ruling, the Judge indicated that legitimate reasons for the video prohibition can be addressed in ways far short of an outright ban on phone company involvement in telecommunications. A similar ruling was made in February 1995 by Judge Kessler of the U.S. District Court for the District of Columbia.[62]

On a somewhat related note, in July 1994, the FCC granted the first commercial video dialtone license to New Jersey Bell Telephone Company.[63] The license allowed New Jersey Bell to deliver video programming through its network, but not to regulate the content of the programming. The National Cable Television Association brought an

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59. 114 S. Ct. 2445 (1994).

60. *Id.* at 2469.

61. Chesapeake & Potomac Tel. Co. v. United States, 830 F. Supp. 909 (E.D. Va. 1993), *aff'd*, 42 F.3d 181 (4th Cir. 1994); *see also* U.S. West, Inc. v. United States, 855 F. Supp. 1184 (W.D. Wash.), *aff'd*, 48 F.3d 1092 (9th Cir. 1994). In *U.S. West*, Federal District Court Judge Barbara Rothstein made a similar ruling for U.S. West, the Washington Independent Telephone Association (consisting of smaller phone companies), and Pacific Telecom.

62. United States Tel. Ass'n v. United States, No. 94 Civ. 1961 (D.D.C. Feb. 14, 1995) (holding 47 U.S.C. § 533(b), which prevents telephone companies from providing cable TV service, as facially unconstitutional on First Amendment grounds). For a general discussion of this case, see *USTA in Dire Straits, Files Stinging Suit: 'We Want Our CATV,'* FIBER OPTIC NEWS, Sept. 19, 1994, *available in* WESTLAW, PTS-NEWS database.

63. *See* Mark McGarry, *Short Cuts*, NEWSDAY, July 7, 1994, at A48.

action in the Appellate Court to review the FCC's decision, claiming that any telephone company offering video telephone service should have a cable franchise and be regulated as a cable operator.[64] The FCC rejected this position on the grounds that the telephone company would not be producing "cable service" since it would not be "transmitting" the programming, i.e., actively participating in the selection and distribution of video programming.[65] On August 26, 1994, the D.C. Circuit upheld the FCC's decision.[66]

C. Wireless Regulatory History

The information superhighway is unlikely to be limited to grounded, hardwired systems; in fact, the preferred mode of transmission may be wireless. Traditionally, the airwaves have been deemed a national resource, with licenses being granted by the FCC in accordance with the so-called "public interest." Businesses, small and large alike, are lining up to get a foothold in what promises to be the next wave in the telecommunications revolution. For example, William Gates, Chairman of Microsoft, and Craig McCaw, Chairman of McCaw Cellular Communications, have each invested millions of dollars of their own money in one of the several companies attempting to raise capital to construct a multibillion dollar satellite communications system.[67] AT&T is attempting to enter the wireless market in a major way by buying McCaw Cellular, the nation's biggest cellular phone company.[68] Additionally, MCI has teamed up with Nextel Communications to take advantage of a new digital technology.[69] The wireless communications market is characterized by fierce competition and extraordinarily rapid technological change.

The growth and development in this area makes FCC regulation critically important. This section will focus on cellular systems, which represent the current, dominant technology in the field of wireless communications, and personal communications systems, a new form of

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64. *Communications: Appeals Court Upholds FCC's Decision to Allow Video Dialtone*, Daily Executive Rep. (BNA) No. 165, at A-10 (Aug. 29, 1994).

65. Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54-63.58, 7 F.C.C.R. 5069, 5071 (1992).

66. National Cable Television Ass'n, Inc. v. FCC, 33 F.3d 66 (D.C. Cir. 1994).

67. Sugawara & Mintz, *supra* note 9, at B1.

68. John J. Keller & Leslie Cauley, *Mad Scramble: Fear of Being Left Out of a Wireless Future Spurs Frantic Alliances*, WALL ST. J., Oct. 25, 1994, at A1.

69. *Id.*

digital technology that promises to take wireless communications to a new level.

1. Cellular Phones

The technological origins of cellular phones can be traced back to the 1920s when mobile radio communication was first introduced on a commercial basis. This early mobile technology more closely resembled the use of a radio than a telephone. The mobile unit operator could not initiate the telephone call, only a few frequency bands were available for mobile use, and the early equipment required the mobile unit user and the landline phone user to take turns talking.

Mobile telephone service was vastly transformed by the advent of cellular technology. Rather than covering a large service area with one or two transmitters, a cellular system uses a number of moderately powered radio transmitters and receivers centered in small hexagonal geographic areas, referred to as "cells." The cellular concept allows for the servicing of more subscribers, a larger service area, and better quality transmissions.

FCC regulation of mobile radio service dates back to the very creation of the FCC. The FCC's regulatory power was derived from the broad grant of authority given the FCC by the 1934 Act to regulate common carriers of interstate communications and radio transmissions. Provision of mobile radio service requires FCC approval. The FCC has promulgated regulations that cover areas such as the conditions under which the frequency bands allocated to public mobile services are to be awarded to individual radio common carriers.[70]

Although by the early 1970s cellular technology had developed to the point that it could be offered commercially, it was not until 1981 that the FCC issued its final rules specifically applicable to the licensing of this technology.[71] Cellular systems are authorized to use the 824-

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70. 47 C.F.R. § 22.000 (1994).

71. The FCC studied the offering of cellular radio services and the regulatory scheme under which such services should be provided for over a decade before issuing cellular regulations in 1981. *See* An Inquiry Relative to the Future Use of the Frequency Band 806-960 MHZ, Notice of Inquiry and Notice of Proposed Rulemaking, 14 F.C.C.2d 311 (1968); First Report and Order and Second Notice of Inquiry, 19 Rad. Reg.2d (P & F) ¶ 52,106, at 1663 (1970); Second Report and Order, 46 F.C.C.2d 752 (1974); Final Memorandum Opinion and Order, 51 F.C.C.2d 945 (1975). The 1975 Order was appealed to the D.C. Circuit by a number of radio common carriers and other interested parties in an action entitled National Ass'n of Regulatory Utils. Comm'rs v. FCC, 525 F.2d 630 (D.C. Cir.),

849 megahertz and the 869-894 megahertz bands.[72] The cellular markets are divided into Cellular Geographic Service Areas.[73] The FCC drafted its rules with the intention of promoting competition in the cellular market. With this goal in mind, two licenses are granted in each Service Area. Block A licenses are granted to common carriers *not engaged* in the provision of public landline telephone service. Block B licenses are granted to common carriers *engaged* in the provision of public landline telephone service.[74]

2. Personal Communications Services ("PCS")

PCS represents the next wave in the telecommunications revolution and promises to add even more competition to the already competitive wireless market. FCC expectations for this new digital technology are represented by its opening up of more than twice the radio frequency capacity than was allotted to the cellular industry. The competitive atmosphere is further fueled by the FCC's auction to distribute the frequencies. The FCC's expectations are matched by those of communication companies that have entered into alliances to bid for personal communication system licenses.[75]

PCS is defined by the FCC as "radio services that encompass a wide array of mobile and ancillary fixed communications services which could provide services to individuals and businesses, and be integrated with a variety of competing networks."[76] PCS' technology differs principally from the cellular system in that it combines an array of other digital technologies and operates at a lower power. PCS' advantages over the cellular system include a greater coverage area, increased mobility, and

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cert. denied, 425 U.S. 992 (1976). The Court of Appeals ultimately sustained the regulatory scheme. Despite the affirmance of the 1975 order, it was not until 1981 that a "final rule" was issued that permitted the FCC to allocate cellular radio licenses on a non-developmental basis. *See* Inquiry Into the Use of the Bands 825-845 MHZ and 870-890 MHZ for Cellular Communications Systems, 78 F.C.C.2d 984 (1980); 86 F.C.C.2d 469 (1981).

72. 47 C.F.R. § 22.900 (1994).

73. 47 C.F.R. § 22.903(a) (1994).

74. 47 C.F.R. § 22.902(b) (1994).

75. *See* Mike Mills, *Sprint, 3 Cable Firms Form Phone Alliance*, WASH. POST, Oct. 26, 1994, at F1; Keller & Cauley, *supra* note 68, at A1. The auction of broadband licenses was partially completed on March 13, 1995, with the remainder scheduled for completion later in 1995. *See infra* notes 77-78 and accompanying text.

76. 47 C.F.R. § 24.5 (1994).

more options. The equipment used by consumers is expected to be a small, light-weight handset that can be used almost anywhere.

PCS can be divided into narrowband and broadband. Broadband PCS will utilize the 1850-1990 megahertz band and provide frequencies for communications such as wireless voice and electronic mail transmissions.

The FCC has divided the frequency band intended for broadband PCS into three bands of 30 megahertz and three of 10 megahertz, with licenses corresponding to each of the allotted bands. Two of the larger band licenses have been allotted to each of 51 market regions identified as Major Trading Areas. The remaining licenses will be allotted to smaller areas of the nation referred to as Basic Trading Areas. Companies may purchase both a 30 megahertz license and a 10 megahertz license and operate it as a single 40 megahertz system. In order to promote competition in the wireless market, cellular companies with more than a 10% market share are forbidden from acquiring more than 10 megahertz within their operating areas.[77] Also, in furtherance of competition and diversity, the FCC has proposed to limit the Basic Trading Area auction to small, minority-owned, and woman-owned businesses.[78]

Narrowband PCS will be confined to the 901-902, 930-931, and 940-941 megahertz bands and will be primarily used for electronic paging. Narrowband PCS is being auctioned on nationwide, regional, and local levels.[79]

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77. *See* New Personal Communication Services, 59 Fed. Reg. 32830, 32831 (1994). The Major Trading Area auction was concluded on March 13, 1995. *See* Mike Mills, *Bidding Ends for Wireless Licenses*, WASH. POST, Mar. 14, 1995, at D1; Edmund L. Andrews, *Winners of Wireless Auction to Pay $7 Billion*, N.Y. TIMES, Mar. 14, 1995, at D1.

78. *See* 59 Fed. Reg. 37566 (1994) (to be codified at 47 C.F.R. pt. 24). This FCC proposal was temporarily halted when the D.C. Circuit postponed the Basic Trading Area auction from its originally-scheduled date of June 1995 after Telephone Electronics Corp. ("TEC"), a white-male-owned telephone company operating in rural Mississippi, filed suit to stop the auction after it was excluded from the auction. Also, the Senate threw a monkey wrench in this plan by threatening to eliminate tax breaks for minority owned-PCS enterprises. *See Minorities Hit by Senate Action, Ruling Postponing PCS Auction*, FCC REP., Mar. 23, 1995, at 6. However, a settlement between TEC and the FCC permitting TEC to participate in the auction is in the works; if TEC settles, the D.C. Circuit may permit the auction to go forward. *See Tax Certificates Killed, but Minorities See Auctions Back on Track*, FCC REP., Apr. 6, 1995, at 7.

79. *See* 59 Fed. Reg. 26741 (1994) (to be codified at 47 C.F.R. pts. 0, 24).

D. Electronics Consumer Protection Act and Computer Privacy Laws

In contrast to the federally regulated telecommunications and cable industries, electronics and computer technologies have been largely unregulated from a cost and ownership perspective. Rather, the focus has been on usage and safeguarding the user from potential abuse and invasion of privacy.

The Electronic Communications Privacy Act ("ECPA") of 1986,[80] for instance, provides protection for certain types of communication. However, there are limitations in the scope of the ECPA. Although users generally regard cellular communication, cordless communication, and traditional physically linked communication as substitutes, the ECPA treats them differently.[81]

Both cordless telephones and cellular phones use, in whole or in part, radio frequencies to transport the communication. In contrast to communication by wire or fiber optic cable, which requires an eavesdropper to go to a physical cable in order to tap into the communication, radio communication can be intercepted by merely tuning a receiver to the appropriate frequency. The ECPA protects cellular communication, but not cordless communication. The irony is that two access methods that are extremely similar (short-range radio waves and long-range radio waves) receive vastly different protection. Some commentators have treated this as an inadvertent loophole,[82] but Congress was explicit when it excluded cordless conversations from the definition of protected communications. The legislative history indicates that this distinction exists due to the ease with which cordless phone conversations can be intercepted without any wrongful intent.[83] In reality, though, it is almost as easy to intercept cellular communications inadvertently as it is to intercept cordless ones inadvertently.

Under the ECPA, cellular communication cannot be intercepted by law enforcement personnel or by private citizens. This protection covers the entire transmission path from cellular user to the recipient.[84] Yet cordless

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80. 18 U.S.C. §§ 2510 *et seq.*, 2701 *et seq.* (1988).

81. *See* Timothy Rabel, *The Electronic Communications and Privacy Act: Discriminatory Treatment for Similar Technology, Cutting the Cord of Privacy*, 23 J. MARSHALL L. REV. 661 (1990).

82. *See* Elinor P. Schroeder, *On Beyond Drug Testing: Employer Monitoring and the Quest for the Perfect Worker*, 36 KAN. L. REV. 869, 895 (1988).

83. *See* S. REP. NO. 541, 99th Cong., 1st Sess., *reprinted in* 1986 U.S.C.C.A.N. 3555, 3566.

84. This is a significant improvement over the earlier coverage of cellular phones under

telephone communication, whether voice or otherwise, can be intercepted by law enforcement personnel without any warrant or probable cause since it is not covered by the ECPA. Moreover, under current FCC rules, all cordless devices are labeled to inform consumers that communication on these devices is not secure.[85] Therefore, these consumers cannot claim a subjective reasonable expectation of privacy, which is the essence of the Fourth Amendment analysis.[86]

E. Computer Security Laws

To some extent, computer crimes are simply old crimes committed in new ways.[87] One glaring exception, however, is that interception, which is the theft of information by breaking into a computer network, may not be covered by the existing criminal law.[88] For example, in 1977, the Virginia Supreme Court overturned a grand larceny conviction of a defendant accused of stealing computer services on the grounds that the services were not physically carried away.[89]

The federal government tried to address some of these problems with the Counterfeit Access Device and Computer Fraud and Abuse Act of

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Title III of the Omnibus Crime Control and Safe Streets Act of 1968, 18 U.S.C. § 3501 (1988), which protected all "wire" communications, but only protected "oral" communication if the plaintiff could establish a reasonable expectation of privacy. This was a difficult burden to carry, and so the ECPA effects a significant substantive change.

85. Amendment of the Rules To Add New Interim Provisions for Cordless Telephones, 50 Fed. Reg. 24514 (1985).

86. *See, e.g.*, Wisconsin v. Smith, 438 N.W.2d 571, 577 (Wis. 1989) ("It would appear most unlikely under the present state of the law—statutory or by FCC Rule—that there can be any assertion that a cordless telephone conversation cannot be intercepted without a warrant."). A literal reading of the Fourth Amendment requires searches and seizures to be reasonable, and precludes warrants without probable cause. The Supreme Court has inferred a warrant "requirement," but has created frequent exceptions to that requirement. The Court has articulated a standard based on the "reasonable expectations of privacy" of the complaining citizen. *See, e.g.*, California v. Greenwood, 486 U.S. 35 (1988) (holding that the Fourth Amendment does not prohibit the warrantless search or seizure of garbage left for collection outside the curtilage of the home); O'Connor v. Ortega, 480 U.S. 709 (1987) (holding that warrantless searches by government officials not in law enforcement which are reasonable in inception and scope do not violate the Fourth Amendment).

87. *See* Scott Charney, *Computer Crime*, 41 FED. BAR NEWS & J. 489 (1994).

88. This problem has thwarted the prosecution of employees for "stealing" information from the computer systems of their employers. The state penal code defined terms like "property" and "theft" in reference to the removal of physical assets. Information is an intangible asset, and so it could not be "stolen" for purposes of criminal theft law. *See* Richard C. Hollinger & Lonn Lanza-Kaduce, *The Process of Criminalization: The Case of Computer Crime Laws*, 26 CRIMINOLOGY 101, 103 (1988) (discussing the loopholes in the criminal law created by narrow definitions of key terms).

89. Lund v. Commonwealth, 232 S.E.2d 745, 747-48 (Va. 1977).

1984.[90] The statute proscribes unauthorized use or access to computer systems *if* that conduct impacts certain federal interests. Unauthorized access to obtain classified information[91] or to impact the government's use of the computer[92] is prohibited. Beyond addressing these national security concerns, the statute proscribes unauthorized access to the records of financial institutions and consumer credit agencies.[93] In 1986, the Act was extended to criminalize interstate computer fraud.[94]

In practice, very few prosecutions have been brought under the 1984 Act, largely due to the difficulty of proving the elements of the crimes.[95] The recent case of *United States v. LaMacchia*[96] illustrates this point. On April 8, 1994, a federal grand jury in Boston, Massachusetts indicted David LaMacchia, an MIT student, for distributing more than $1 million worth of "pirated" software. LaMacchia allegedly set up a "library," i.e., an open file, on an Internet bulletin board, and invited others to upload copies of the software into the library. Since it remains unclear whether the copyright laws consider such transmissions as "copying" or "distributing," the government charged the defendant with conspiracy to commit wire fraud. Another obstacle to charging criminal infringement of the copyright laws was the requirement that the action be taken for some financial gain: LaMacchia did not appear to have pecuniary interests at stake when he pirated and disseminated the software.

However, in another recent case, the government chose to indict a person who ran a computer bulletin board, on which users traded software, with a violation of copyright laws in addition to wire fraud.[97]

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90. 18 U.S.C. § 1030 (1988).

91. 18 U.S.C. § 1030(a)(1) (1988).

92. 18 U.S.C. § 1030(a)(3) (1988).

93. 18 U.S.C. § 1030(a)(2) (1988).

94. This amendment to the Act was designed to address the jurisdictional problem posed by computer crime. Different jurisdictions might develop different definitions of the "location" of a computer crime. In addition, a plaintiff may not be able to carry her burden of establishing where a computer crime took place in a vast network of computing and communications equipment. Therefore, some acts of computer crime, information theft, and computer fraud could fall between the cracks of state protection. By federalizing the crime, the cracks are sealed. 18 U.S.C. § 1030(a)(4) (1988).

95. Prosecutors have identified these items as the most significant impediments to greater use of the Act: (1) proving specific intent; (2) proving that the defendant's conduct was not implicitly authorized; and (3) proving actual damages with certainty. *See* Note, *Addressing the New Hazards of the High Technology Workplace*, 104 HARV. L. REV. 1898, 1901 n.31 (1991) [hereinafter *Addressing the New Hazards*].

96. 871 F. Supp. 535 (1994).

97. Junda Woo, *Copyright Laws Enter the Fight Against Electronic Bulletin Boards*, WALL ST. J., Sept. 27, 1994, at B11.

The difference may be that the defendant ran his computer bulletin board for financial gain.

Existing federal computer crime legislation, however, may, in some instances, be effective in fighting abuses within the new infrastructure. The problem of proving specific intent can be addressed in part by the circumstantial evidence captured by the infrastructure itself; the systematic and deliberate behavior of a criminal can be monitored and recorded for future analysis in much more detail than prior computer crimes. The problem of defining the boundaries of authorized use may get easier as both the "gatekeepers" who run the network and the providers who infuse content do a better job with their policing of the network. To the extent that courts adopt the Second Circuit's approach of advocating a flexible interpretation of existing law to prevent unauthorized access to computers, less modification of the law will be required.[98] Similarly, proving actual damages may be facilitated as additional cost and performance information becomes more available. Nevertheless, without stronger and more effective intellectual property law, there will remain significant loopholes in protection against such abuses.

F. Dissemination of Consumer Credit, Financial, and Medical Information

There are several separate and independent provisions governing the dissemination of consumer credit and financial information. First, the Electronic Fund Transfer Act[99] seeks to inform consumers of the potential dissemination of financial information to third parties by requiring notification to the customer of the circumstances under which account information will be disclosed. Many states have separate legislation restricting disclosure of financial records to state agencies and officials or the private sector.

The Right to Financial Privacy Act[100] restricts the right of the federal government to obtain financial records from financial institutions, except when the financial institution believes the law or regulations have been violated. Under the Privacy Act of 1974,[101] information about individuals

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98. *See, e.g.*, United States v. Morris, 928 F.2d 504 (2d Cir. 1991) (holding that release of a "worm" or "virus" onto computer network by user with permission to use network is unauthorized use).

99. 15 U.S.C. § 1693 (1988).

100. 12 U.S.C. § 3401 *et seq.* (1988).

101. 5 U.S.C. § 552(a) (1988).

maintained by a federal agency, including financial transactions, medical histories, and employment histories, may not be disclosed by the federal government without the individual's consent. Many state statutes similarly limit the disclosure of information maintained by the government to usage in a manner consistent with the purpose for which the information was maintained; other statutes restrict only computer access or use of public records data.[102]

The Fair Credit Reporting Act[103] regulates the dissemination of consumer credit reports by consumer reporting agencies. Civil liability can be imposed for willful noncompliance with the Act, including actual and punitive damages, costs of such actions, and reasonable attorneys' fees. Unauthorized disclosures of consumer reports by consumer reporting agencies are also subject to criminal penalties, including fines up to $5,000, or one-year imprisonment, or both.

Many states also prohibit disclosure to third parties of medical records without the consent of the patients. For instance, Colorado has made it criminal knowingly to obtain medical information without authority and with the intent to appropriate it for one's own use or for use of another.[104]

G. Intellectual Property Law

Users and providers of services on the information superhighway will need to navigate the entire range of intellectual property rights—from trademarks to trade secrets and from copyrights to patents. At present, the most significant area of intellectual property law impacting the NII concerns copyright protection. Second in importance is the grant of patents to providers of the highway.

There are two requirements for copyright protection: (1) originality; and (2) fixation. There is no requirement, as under patent law, that the work be novel, unique, or ingenious—just original. In most settings, the originality requirement will not be problematic. However, under existing law services providing on-line fact-based data may have some difficulty in establishing the requisite "originality." These services derive their value from accessibility and timeliness. To the extent that they are

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102. *See, e.g.*, CAL. GOV'T CODE § 7470 (West 1994) (California); CONN. GEN. STAT. § 36-9k (1994) (Connecticut); ILL. REV. STAT. ch. 205, para. 110/49 (1994) (Illinois); LA. REV. STAT. ANN. § 9:3571 (West 1993) (Louisiana); ME. REV. STAT. ANN. tit. 9-B, § 162 (West 1994) (Maine).

103. 15 U.S.C. § 1681 *et seq.* (1988).

104. COLO. REV. STAT. § 18-4-412 (1994).

essentially electronic versions of hard copy counterparts, it is not clear that copyright protection will attach as an "original" work independent of the database.[105]

Fixation is the second element. It requires that the idea be expressed on a tangible medium, such as paper or magnetic tape. Copyright protection adheres automatically the moment the work is fixed. The form of fixation and manner, method, and medium used are virtually unlimited. It is unclear whether the current copyright laws are adequate for all works utilizing the network. In a digital format, a work is fixed in a series of zeroes and ones, which technically comports with the permissible manners of fixation under copyright law.

Copyright protection clearly attaches when the work is "fixed" on a floppy disk or in CD-ROM. Putting a work in the memory of a computer has also been held to be a "fixation" for copyright purposes.[106] The issue of fixation has also been resolved to protect interactive works (e.g., video games in which the user alters the sequence of the action).[107] The sufficiency of fixation prior to transmission and the protectability of works transmitted "live" via the network remain unclear.[108] The most uncertain areas as to copyright protection are e-mail and bulletin board postings, which may be fixed, if at all, only briefly in the computer's random access memory ("RAM"). Adding to the uncertainty regarding the rapidly changing on-line fact-based databases and electronic journals is that fixation in a specific form as a whole may be quite brief. When the user composes a message on the screen without saving to a disk, following transmission of the message, the data in both RAM and the mail spool are overwritten by other outgoing and incoming communications. Similarly, database or electronic journal entries may be overwritten by more current information. In one recent U.S. Court of Appeals

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105. Feist Publications v. Rural Tel. Serv. Co., 499 U.S. 340 (1991) (holding that there are no copyrightable elements in a standard, printed, white-pages telephone directory). The case did not address the transfer of a hard copy information resource to the electronic medium. *See also* Maureen O'Rourke, *Proprietary Rights in Digital Data*, 41 FED. BAR NEWS & J. 511, 512 (1994).

106. *See* Stern Elec., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982); Advanced Computer Servs. of Mich., Inc. v. Mai Sys. Corp., 845 F. Supp. 356, 363 (E.D. Va. 1994).

107. *See* Atari Games Corp. v. Oman, 888 F.2d 878, 884 (D.C. Cir. 1989).

108. *See generally* Baltimore Orioles, Inc. v. Major League Baseball Players, 805 F.2d 663, 668 (7th Cir. 1986) (holding live sports telecast copyrightable only if simultaneously recorded), *cert. denied*, 480 U.S. 941 (1987).

decision, *Mai Systems Corp. v. Peak Computer, Inc.*,[109] this was nevertheless held sufficient fixation for copyright protection.

Patents will also be sought by various providers of services and programs along the NII. The patent laws offer, as an incentive to inventors to disclose their inventions, the exclusive right to make, use, or sell the patented invention for 20 years. Patents are available for "any new and useful process, machine, manufacture, or composition of matter . . . ."[110] To qualify, an invention must be new, useful, and nonobvious. The novelty requirement is met if the invention has not been publicly disclosed more than one year prior to the filing date of the patent application.[111] The nonobviousness requirement involves establishing that a "person having ordinary skill in the art" would not have viewed the invention as obvious in light of the art in existence at the time the patent application was filed.[112]

Software patents will be of particular importance to the information superhighway. The state of the law concerning such patents is currently in flux, leaving uncertain the extent to which patents will dictate the direction of the information superhighway. The recent issuance of a patent to Compton's New Media and the subsequent re-examination of the patent by the U.S. Patent and Trademark Office ("PTO") illustrates the frustration both the PTO and software developers have experienced when dealing with software patents.[113]

Software patents present unique challenges to the PTO in determining patentability. The courts and the PTO have struggled with the extent to which software qualifies for patent protection as an invention of "a new and useful process, machine, manufacture, or composition of matter . . . ."[114] For many years, patent applications directed solely to software were rejected by the PTO for failing to qualify as patentable subject matter under the Patent Code. In particular, relying upon U.S. Supreme Court precedent,[115] the PTO rejected many applications involving software on the basis that such applications were merely

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109. 991 F.2d 511, 518 (9th Cir. 1993), *cert. denied*, 114 S. Ct. 671 (1994).

110. 35 U.S.C. § 101 (1988).

111. 35 U.S.C. § 102 (1988).

112. 35 U.S.C. § 103 (1988). In addition, the inventor must fully describe and disclose the invention so that a person of skill in the relevant art can understand and make use of the invention. 35 U.S.C. § 112.

113. See *infra* notes 120-122 and accompanying text.

114. 35 U.S.C. § 101 (1988).

115. *See* Gottschalk v. Benson, 409 U.S. 63 (1972); Diamond v. Diehr, 450 U.S. 175 (1981).

directed to "non-statutory subject matter," such as mathematical algorithms.[116]

These older cases properly have been criticized for drawing an artificial distinction between hardware and software implementations of inventions that are otherwise substantially equivalent.[117] Recently, an en banc panel of the Federal Circuit addressed the issue of statutory patentable subject matter for software patents. Judge Rich, writing for the majority, concluded that "a computer operating pursuant to software *may* represent patentable subject matter, provided, of course, that the claimed subject matter meets all other requirements of Title 35."[118] This statement reflects the recent trend in the Federal Circuit to include software, when operating on a computer, within the categories of statutory subject matter.

However, the fact that software operating on a computer *may* qualify as statutory subject matter does not complete the analysis. The other requirements of the Patent Code must also be met. The most significant of these are the novelty and nonobviousness requirements.[119] The recent outcry over the issuance of Compton's New Media multimedia patent[120] was partly due to assertions of many software companies that they had been providing the claimed system long before the issuance of the Compton patent.[121] According to many in the industry, Reed et al., the "inventors," had not invented anything novel and nonobvious as required under the Patent Code.

Compton's patent describes an information retrieval system underlying multimedia applications, using multiple interrelated text and graphics paths. Largely due to the outcry, the Commissioner took the unusual step

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116. *See, e.g., In re* Freeman, 573 F.2d 1237 (C.C.P.A. 1978); *In re* Walter, 618 F.2d 758 (C.C.P.A. 1980); *In re* Abele, 684 F.2d 902 (C.C.P.A. 1982).

117. Something which was originally software may be implemented as hardware, and vice versa.

118. *In re* Alappat, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (emphasis in original).

119. 35 U.S.C. §§ 102, 103 (1988).

120. Patent No. 5,241,671, filed October 26, 1989, by Reed et al., issued on August 31, 1993, recorded on October 12, 1992 at Reel 6743, Frame 0594, U.S. Patent and Trademark Office, *available in* LEXIS, Patent library, Pat93 file. Compton's New Media, Inc. has a joint interest assignment from the original assignee, Encyclopedia Britannica, Inc.

121. *See* G. Pascal Zachary, *Software Patent Given Tribune Co. is Overturned by U.S. in Wake of Protests*, WALL ST. J., Mar. 25, 1994, at B2; Gina Smith, *Lines Drawn in Patent Battle: Multimedia Firms Banding Together to Fight Compton's*, S.F. EXAMINER, Nov. 28, 1993, at E1; Victoria Slind-Flor, *Rethinking Protection: Software Patents, Copyright Issues Shaped to IP Landscape in '93*, NAT'L L. J., Jan. 24, 1994, at S1; Roger L. Cook, *The Software Industry Anticipates a Flood of Patent Litigation—The Compton Patent Reflects a New Direction and Suggests Strategies*, NAT'L L. J., Jan. 24, 1994, at S2.

of ordering reexamination of the patent, leading ultimately to its rejection in large part, having determined that certain patents and printed publications raised a substantial new question of patentability.[122]

Part of the unique problem that the PTO faces in examining software patents for compliance with these criteria is that the PTO typically confines its search for prior art to issued patents. Since software has not typically enjoyed patent protection in the past, the pool of prior art on which the examiner at the Patent Office may rely is extremely limited. Also, until recently, there were very few examiners in the PTO with computer software backgrounds. Commissioner Lehman recognized this shortcoming and hired new examiners in 1994 who have such prior training.[123]

Recognition of the importance of patent coverage by the software industry has led to increased pursuit of software patents.[124] As this trend continues, the PTO will gain a larger body of patents and publications to study in determining whether claimed inventions are obvious under the Patent Code. Meanwhile, as software developers become more sophisticated about patents, the industry will differentiate legal "obviousness" from the hind-sight view of obviousness currently taken by many developers, and will find software patents more acceptable.

Trade secret law may also impact the NII. Trade secret law creates a common law right of action for which most states follow either the *Restatement (Second) of Torts* or the Uniform Trade Secrets Act.[125] Unlike a patent, a trade secret can endure forever. Additionally, more than one party can have trade secret protection with regard to a product or process if each came up with the idea independently. Trade secret protection requires only that the secret not be generally known. If a party gets a patent on a process or product, then trade secret protection disappears. Some of the factors a court may consider to determine whether a trade secret exists include: (1) the extent to which the information is known within and outside of the claimant's business; (2) the amount of effort to protect the secret; (3) the resources spent

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122. Reexam Control No. 90/003,270 to the Compton patent was issued on January 11, 1994 in response to the Commissioner's order. *See* Patent No. 5,241,671, *supra* note 120.

123. George Leopold, *Patent Office Gains Computer Expertise*, ELECTRONIC ENGINEERING TIMES, Feb. 28, 1994, at 35; Leslie Helm, *Appeals Court Ruling Opens Door to Future Software Patents*, L.A. TIMES, Aug. 10, 1994, at 4.

124. Elisa Williams, *Some in the Software Industry Are Alarmed at Recent Broad-Based Claims of Ownership*, ORANGE COUNTY REG., May 8, 1994, at K-01.

125. 14 U.L.A. § 539 (1985).

developing the information; and (4) the ease with which others could acquire the information on their own.[126]

Use of a trade secret by others constitutes infringement only if the trade secret has been misappropriated. Misappropriation of a trade secret can occur from using improper means such as theft or industrial espionage to obtain a secret. Misappropriation can also occur if the party acquiring the trade secret *knew or should have known* that the secret was obtained from someone who used improper means to acquire the secret or was under a duty of confidentiality not to disclose the secret.[127]

II. CURRENT INITIATIVES REGULATING THE EMERGING NATIONAL INFORMATION INFRASTRUCTURE

The Working Group on Intellectual Property Rights recognized the need for change in the current legal environment with the following quotation from Thomas Jefferson:

> [L]aws and institutions must go hand and hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manner and opinions . . . advance also to keep pace with the times. We might as well as require a man to wear still the coat which fitted him when a boy.[128]

The same principle applies whether reviewing the existing federal communications laws, intellectual property laws, or privacy and consumer protections: new garments must be tailored to fit the expanding information superhighway.

Yet, as discussed above, the underlying thesis of this article is that the initiatives being offered at this time are too vague, disjointed, and

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126. *See, e.g.*, Forest Labs v. Pillsbury, 452 F.2d 621 (7th Cir. 1971).

127. *Id.*

128. Inscription on the Jefferson Memorial, *quoted in* Information Infrastructure Task Force, Preliminary Draft on Intellectual Property and the National Information Infrastructure 9 (July 1994) (unpublished manuscript, on file with authors). The Working Group on Intellectual Property Rights is a division of this Task Force, which was assembled as part of the Clinton Administration's NII initiative. For further discussion on the Working Group, see *infra* part II.D.

unfocused to address appropriately the issues raised by the information superhighway. Rather than fashioning new clothes, the federal government is merely proposing the addition of "cuffs and trim" to the existing wardrobe of regulations. This section will discuss the current status of the Clinton Administration proposal, other proposed legislation, and judicial decrees that impact on the development of the infrastructure.

A. National Information Infrastructure and the Gore/Brown Report

In September 1993, the Clinton Administration's NII initiative was formally launched by Vice President Al Gore and Secretary of Commerce Ron Brown. At that time, the Administration formed an interagency task force to examine the critical issues that must be resolved as the NII develops. The Administration has identified the basic goals of NII regulation: (1) promoting private investment; (2) providing and protecting competition; (3) securing open access; (4) formulating governmental action that flexibly adapts itself to new market conditions; and (5) preserving and enhancing universal service.[129]

Among other things, the Administration favors allowing the FCC to exempt any carrier lacking market power from complying with the price regulation provisions of Title II of the Communications Act and repealing the current crossownership restrictions of the 1984 Cable Act. It believes that the telephone companies should be allowed to provide video programming in their local exchange areas. The Administration would, however, initially prohibit local telephone companies from buying or entering into joint ventures with existing cable systems in their service areas. The Administration suggests that the FCC be authorized to reconsider such an ownership prohibition through rulemaking or case-by-case waivers five years after the reform package's enactment. Any acquisitions would still remain subject to antitrust scrutiny.[130]

Of particular note for the cable industry, under the Administration initiative the FCC would require cable operators to provide nondiscriminatory access to video programmers except when technology costs and market conditions make that offering inappropriate. Key to the Administration's proposal is the enactment of a new "Title VII" to the

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129. White House, Remarks Prepared for Delivery by Vice President Al Gore, Royce Hall, UCLA, Los Angeles, Cal. (Jan. 11, 1994) (unpublished manuscript, on file with authors).

130. *Id.*

Communications Act that would provide consistent regulatory treatment for interactive broadband digital services, regardless of whether the service is provided by a traditional telephone company, a cable company, or some other firm. Title VII would also aim to eliminate potential conflicting or duplicative regulatory obligations at the federal and state levels.[131]

B. Congressional Initiatives

Traditionally, members of Congress have avoided deciding telecommunications issues because siding with one segment of the telecommunications industry invariably meant voting against the interests of the other segments. For example, voting with a cable operator could upset the local television station in the member's district. Further, although the RBOCs sought congressional relief from the prohibitions of the MFJ decree almost immediately after the entering of the decree by the Court, the quest for such relief was blocked by former House Judiciary Committee Chairman Brooks, whose committee had jurisdiction over the antitrust laws.[132] However, in recent years, two events have been particularly useful in changing Congress' willingness to revamp the nation's telecommunications laws. First, due to technological developments in digital sound and image transmission, there need no longer be any difference in content among television, telephone, or computer transmissions. Voice, text, and full-motion video can all be delivered in the same way. Second, the expanding economic role and enormous capital requirements for the construction of the information superhighway have produced a wave of mergers and alliances[133] among cable, wireless, long-distance, local telephone, and software/information services companies, many of which pointedly illustrate the limitations in the currently existing regulatory regime.

The proposed business alliances made many members of Congress concerned that events would soon be beyond their control. In a "now or never" mind-set, the members of Congress with key roles on the Committees charged with antitrust and telecommunications regulation began in earnest to delineate where they believed telecommunications

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131. *Id.*

132. Jon Healey, *Information Network: Congress Tries to Merge Public Goals With Industry Interests*, CONG. Q., May 14, 1994, at 9, 11.

133. *See infra* note 222.

technology would be heading and what public interest goals should be promoted. Thus, the stage was set for comprehensive legislation to bring the telecommunications laws out of the dark ages.

Consistent with these goals, lawmakers are currently attempting to rewrite substantially the 1934 Act for the first time since it was implemented 60 years ago. The 1934 Act allowed AT&T to dominate the market in return for being regulated. Today, with new technologies redefining the field, the courts and regulators are relaxing the rules. Cable, telephone, and wireless companies are merging, confounding the bounds of the legal barriers which to date have existed between these media.

Major players in telecommunications, including the RBOCs, are pressuring Congress[134] to take away the remaining legal barriers to competition in the most lucrative fields—local phone service, long-distance calling, cable television, and manufacturing. Others continue to view the RBOCs with fear and skepticism.[135] The central issue at present appears to be not whether to remove the restraints, but, instead, how quickly to unleash the RBOCs. The RBOCs' wishes for freedom conflict with the 480 companies that offer long-distance services.[136] While the RBOCs have had allies on the House Energy and Commerce Committee, the long-distance industry has had powerful allies on the House Judiciary Committee and the Senate Commerce Committee, who argue that the public has an interest in guarding against market abuses by the RBOCs.[137] In the local phone service and cable television areas, the RBOCs and cable television companies also want to enter the other's turf.[138]

1. 103d Congressional Legislation

During the 103d Congress, there were three pieces of comprehensive legislation introduced to reform telecommunications: House Bills 3626[139] and 3636[140] and Senate Bill 1822.[141] The overriding issue in all three bills was whether the RBOCs should be allowed to compete in new areas such

134. Healey, *supra* note 132, at 9.
135. *Id.* at 10.
136. *Id.*
137. *Id.*
138. *Id.*
139. H.R. 3626, 103d Cong., 1st Sess. (1993).
140. H.R. 3636, 103d Cong., 1st Sess. (1993).
141. S. 1822, 103d Cong., 2d Sess. (1994).

as cable, long-distance, equipment manufacturing, and electronic publishing even if there is no competition within the local telephone exchange service. Most of the provisions in the legislation represented compromises among the RBOCs and other segments of the industry.[142]

On November 22, 1993, Representatives Jack Brooks (D-Tex., Chairman of the House Judiciary Committee) and John Dingell (D-Mich., Chairman of the House Energy and Commerce Committee) introduced House Bill 3626, the "Antitrust Reform Act of 1993"—a bill that would gradually remove the restraints imposed by the MFJ. A substituted version of this bill, reconciling the different versions of this legislation as passed by the Energy and Commerce Committee and the Judiciary Committee, passed the House overwhelmingly on June 28, 1994.[143] Under House Bill 3626, RBOCs could apply immediately upon enactment to provide long-distance service.[144] The RBOCs would not be permitted to enter the interstate long-distance market, however, unless (1) the Attorney General finds that there is "no substantial possibility" that the RBOC could use its monopoly power to impede competition and (2) the FCC finds that approving entry into the long-distance market is "consistent with the public interest."[145] These findings would not be necessary for RBOCs to enter the intrastate long-distance market, but the Department of Justice could sue to enjoin such entry after its review of state regulatory approval of RBOC-provided intrastate long-distance service.[146] The bill also conditioned RBOC-provided intrastate long-distance service on the RBOC charging its long-distance affiliates the same access charge as it charges its intrastate long-distance competitors.[147]

On November 22, 1993, Representative Ed Markey (D-Mass., Chairman of the Energy and Commerce Subcommittee on Telecommunications and Finance) and Representative Jack Fields (R-Tex., Ranking Republican Member of the Subcommittee on Energy and Commerce) also introduced their bill, House Bill 3636, the "National Communications Competition and Information Infrastructure Act of 1993,"[148] to, among other things: (1) preempt state regulation of local telephone

142. Healey, *supra* note 132, at 15.
143. 140 CONG. REC. H5246-02 (daily ed. June 28, 1994).
144. H.R. 3626, *supra* note 139, at 3.
145. *Id.* at 6.
146. *Id.* at 10.
147. *Id.* at 6.
148. H.R. 3636, *supra* note 140, at 1.

competition;[149] (2) open telephone network facilities to competitors;[150] and (3) permit video programming by telephone companies.[151] The major stated purpose of this bill was to open up and set the ground rules for competition in the marketplace while ensuring universal service.[152] This was partly accomplished through the repeal, with accompanying safeguards, of the telephone/cable ownership restrictions contained in the 1984 Cable Act.[153] As in House Bill 3626, under House Bill 3636 the RBOCs would have been required to charge themselves the same access fees they levy on other long-distance carriers.[154] House Bill 3636 passed the House with no amendments on June 28, 1994 following the vote on House Bill 3626.[155] Following votes on both bills, Chairman Brooks moved to consolidate the two bills into one. The new combined bill (which covered approximately the same issues as Senate Bill 1822, discussed *infra*) was designated House Bill 3626.[156]

On February 3, 1994, Senator Fritz Hollings (D-S.C.) and 12 other Senators introduced Senate Bill 1822,[157] which was similar in scope to the consolidated House Bill. The Hollings bill would have lifted the manufacturing and long-distance line of business restrictions contained in the MFJ. The Senate bill as introduced linked RBOC entry into the long-distance market to competition in the local telephone loop rather than adopting the MFJ (and House Bill 3626) test of a determination that such entry into long-distance would not hamper competition or harm consumers.[158] However, the Senate Commerce Committee dropped this requirement and adopted the MFJ entry test as part of a compromise with the RBOCs in which the RBOC-applicant must meet certain preconditions, such as unbundling, interconnection, and equal access, before it can apply to the FCC and the DOJ to enter a long-distance market.[159] This

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149. *Id.* at 9.
150. *Id.* at 5.
151. *Id.* at 26.
152. *Communications: Markey, Fields Propose Bill Setting New Rules for Phone Companies, Cable*, Daily Executive Rep. (BNA) No. 224, at A-28 (Nov. 23, 1993).
153. The 1984 Cable Communications Act, Pub. L. No. 98-549, 98 Stat. 2779 (1984) (codified as amended in scattered sections of 47 U.S.C.).
154. *Id.*
155. 140 CONG. REC. S5934 (daily ed. May 18, 1994).
156. *Id.*
157. S. 1822, *supra* note 141.
158. *Id.*
159. *Communications: Senate Telecommunications Bill Clears Committee By Wide Margin*, Daily Executive Rep. (BNA) No. 154, at A-21 (Aug. 12, 1994).

compromise version of Senate Bill 1822 passed the Commerce Committee on August 11, 1994 by a vote of 18 to 2.[160]

On September 23, 1994, Senator Hollings announced that he would not bring Senate Bill 1822 to the floor in the 103d Congress.[161] This decision was due to a variety of circumstances, including opposition to the legislation by the RBOCs and other Senators, and a limited amount of time left in the legislative session. Members of the U.S. Telephone Association ("USTA") expressed their concerns by proposing amendments in four areas: (1) elimination of restrictions on the RBOCs' provision of cable television services; (2) clarification of the universal service provisions; (3) reduction in the number of new regulations mandated by the legislation; and (4) amendments to move from rate of return regulation, which limits RBOC revenues, to price of phone service regulation.[162] Senate Bill 1822 was also opposed by certain key Senators, including Senator Howard Metzenbaum (D-Ohio), former Chairman of the Senate Judiciary Committee's Antitrust Subcommittee, who opposed the bill because the requirement that the RBOCs face active competition in their local telephone markets before they could enter the long-distance market was dropped from Senate Bill 1822 in committee.[163] In contrast, both Senate Minority Leader Bob Dole (R-Kan.) and Senator John McCain (R-Ariz.) vehemently opposed Senate Bill 1822 on the ground that it was too regulatory. In particular, Senator McCain objected to the domestic content provision of the bill, which would have required the RBOCs to make a good faith effort to manufacture telecommunications equipment in the U.S. and to use at least 60% U.S.-made parts.[164]

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160. *Id.* On May 12, 1994, Senators Breaux (D-La.) and Packwood (R-Or.) introduced S. 2111, entitled the "Telecommunications Services Enhancement Act of 1994." S. 2111, 103d Cong., 2d Sess. (1994). This bill would have allowed the RBOCs to enter the long-distance market one year after enactment. The legislation would have done away with the Hollings bill's entry test and would have removed all the MFJ restrictions. The sponsors' stated goal was to merge this legislation with the Hollings comprehensive telecommunications law rewrite bill. Some believe that its real purpose may have been to improve the RBOCs' negotiating position with respect to the entry provisions of S. 1822.

161. *Communications: Hollings Says Communications Bill Dead, Promises a Comeback Early Next Year*, Daily Executive Rep. (BNA) No. 184, at A-24 (Sept. 26, 1994) [hereinafter *Bill Dead*].

162. *From Hours of Discussions to Non-Negotiable Demands: The History of the Failed 1994 Telecommunications Bill*, Daily Executive Rep. (BNA) No. 226, at C-5, C-6 (Nov. 28, 1994) [hereinafter *Non-Negotiable*].

163. *Communications: Hearing on Communications Bill to Examine Antitrust, Technology Issues*, Daily Executive Rep. (BNA) No. 180, at A-18 (Sept. 20, 1994) [hereinafter *Antitrust, Technology*].

164. *Non-Negotiable*, *supra* note 162, at C-5.

In the end, it was Senator Dole's opposition to Senate Bill 1822 which killed the legislation. Reportedly, Senator Dole insisted on certain amendments, including many of the ones proposed by the RBOCs. Senator Hollings, labeling these amendments the "Dole Manifesto," declared the issues non-negotiable.[165] For example, Senator Hollings claimed that the first Dole amendment would have repudiated the compromise worked out between the Committee and the RBOCs by allowing them to negotiate their entry into the long-distance market.[166]

2. *Changes in the 104th Congress*

The 104th Congress has put federal telecommunications law reform at the top of its agenda. While the issues have not changed from the last Congress, the new Republican Congressional majority increases the chance that reform legislation will pass this session.

In most instances, the Congressional players have not changed, but only swapped places. For example, the House Energy & Commerce Committee Subcommittee on Telecommunications and Finance Chair passed from Representative Ed Markey to Representative Jack Fields. This is not a significant change because Markey and Fields worked very closely together on the last Congress' House Bill 3636.[167] Similarly, the Chair of the House Energy and Commerce Committee (now known as the Commerce Committee) has changed hands from Representative John Dingell to Representative Tom Bliley (R-Va.), who was involved in both pieces of telecommunications law reform legislation in the House in 1994. Representative Bliley favors industry resolution of contentious issues prior to introducing telecommunications law reform legislation in the 104th Congress.[168] One amendment that Bliley and Representative John Bryant (D-Tex.) offered to House Bill 3626 in 1994 may offer a glimpse of Bliley's approach. It would have required RBOCs to apply to both the DOJ and the FCC for long-distance service authorization to insure that they would not hinder competition with other long-distance companies by charging them higher access fees than the RBOCs charge themselves.[169]

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165. *Bill Dead, supra* note 161, at A-24.

166. *Id.*

167. Healey, *supra* note 132, at 15.

168. *Communications: Key Congressional Players Promise to Pass Communications Bill by July 4*, Daily Executive Rep. (BNA) No. 6, at A-26 (Jan. 10, 1995) [hereinafter *Key Congressional Players*].

169. Mike Mills, *Markup Winners and Losers*, CONG. Q., Mar. 19, 1994, at 661.

This amendment was rejected in favor of Representative Michael Oxley's (R-Ohio) amendment to require the RBOCs instead to charge themselves the same access fee they levy on other long-distance carriers.[170]

In the Senate, Senator Larry Pressler (R-S.D.), Chairman of the Senate Commerce, Science and Transportation Committee, was an original cosponsor of the Senate telecommunications law reform legislation (Senate Bill 1822) in the 103d Congress and has pledged to work with Senator Hollings, the former Chair, on telecommunications law reform legislation in the 104th Congress.[171] Senator Pressler, in the 103d Congress, was a member of a group of Senators from rural states interested in insuring universal telecommunication services. The group favored an amendment supported by the National Cable Television Association ("NCTA") that permitted cooperation between rural telephone companies and small cable companies to insure this universal service.[172]

Some influential players have departed. Representative Jack Brooks, Chairman of the House Judiciary Committee in the 103d Congress, was denied reelection in 1994. This is certain to have an impact on the scope of the debate over telecommunications law reform within the House of Representatives. Representative Brooks, deeply suspicious of monopolies and content to allow Judge Harold Greene to continue as de facto RBOC regulator, for years blocked relief for the RBOCs from the restrictions of Judge Greene's Modified Final Judgment (MFJ) in the AT&T antitrust case.[173] Senator Howard Metzenbaum, Chairman of the Senate Judiciary Committee Subcommittee on Antitrust, Monopolies and Business Rights in the 103d Congress, retired. In the 103d Congress, Senator Metzenbaum objected strenuously to the elimination of the requirement in Senate Bill 1822 that the RBOCs face competition in local telephone

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170. *Id.*

171. *Communications: Senate Commerce Committee Democrats Respond to Pressler Communications Bill*, Daily Executive Rep. (BNA) No. 32, at A-26 (Feb. 16, 1995) [hereinafter *Democrats Respond*]. However, Senator Pressler is receiving significant opposition from the Clinton Administration. In April, 1995, the Administration effectively blocked Senator Pressler's bill, The Telecommunications Competition and Deregulation Act of 1995, S. 652, 104th Cong., 1st Sess. (1995), from coming to the Senate floor because of fears that the bill would "deregulate blindly" without involving the DOJ as a mediator, and without antimerger provisions. *See Communications: Administration Official Defends Position on Telecommunications Bill*, Daily Executive Rep. (BNA) No. 67, at A-3 (Apr. 7, 1995) (quoting Assistant Commerce Secretary Clarence Irving); *Pressler Accuses Gore of Stalling Telecommunications Bill in Senate*, Daily Executive Rep. (BNA) No. 65, at A-36 (April 5, 1995).

172. *Senate Sponsors Reinforce Communications Bill*, CONG. Q., Aug. 13, 1994, at 2324; 140 CONG. REC. S5934 (daily ed. May 18, 1994).

173. Healey, *supra* note 132, at 11.

markets before being permitted to enter long-distance markets.[174] His departure makes it unlikely that there will be an ardent Senate advocate for this position.

As in the 103d Congress, the major interest groups playing a role in the telecommunications law reform debate are the USTA, representing the local telephone companies, the Competitive Long-Distance Coalition, representing long-distance companies, and the NCTA.[175] In addition, the RBOCs have recently announced that they will form a new group called the Alliance for Competitive Communications.[176] Replacing their previous organization, the MFJ Task Force, the Alliance will continue the Task Force's objective of lifting the restrictions in the MFJ, but will have broader goals, such as lobbying for the elimination of barriers to competition among all telecommunications providers, including long-distance carriers, local telephone companies, and cable television companies.[177] Other industries seeking to be included in the reform legislation include electric utilities and broadcasters who want to provide (either alone or as a part of alliances) telephone service in their regions.[178]

Of these groups, the NCTA has announced its major priorities in the 104th Congress, including principles that were largely reflected in the legislation passed by the House and the Senate Commerce Committee in the 103d Congress. These principles include: (1) removal of state barriers preventing cable operators from competing against local telephone companies; (2) elimination of the role of cities in regulating telecommunication services; (3) flexibility in mergers and joint ventures between cable companies and telephone companies; (4) conditions allowing the cable industry to compete with local telephone companies; and (5) rules that do not discriminate against cable operators in rural areas.[179] The NCTA is also focusing on changing the 1984 Cable Act's definition of "effective competition," the trigger for cable rate deregulation, from its current standard that effective competition is achieved when an alternative video provider reaches at least 50 percent of the homes in

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174. *Antitrust, Technology, supra* note 163, at A-18.

175. Also involved in the debate is the National Association of State Utility Consumer Advocates. *Democrats Respond, supra* note 171, at A-27.

176. *Communications: Dingell Introduces Communications Bill; Bell Companies Announce New Coalition*, Daily Executive Rep. (BNA) No. 4, at A-14 (Jan. 6, 1995).

177. *Id.*

178. *Communications: Industry, Consumer Groups React to Draft Telecommunications Bill*, Daily Executive Rep. (BNA) No. 23, at A-23 (Feb. 3, 1995).

179. *Communications: NCTA Outlines Agenda for 1995; Pushes for New Communications Bill*, Daily Executive Rep. (BNA) No. 241, at A-5 (Dec. 19, 1994).

an area and 15 percent of these homes subscribe. The NCTA believes that the "50-15 test" is arbitrary because it fails to consider varying levels of competition and resulting price restraints by powerful players.[180]

3. Reading the Tea Leaves: Possible Timetable For Congressional Action

The major Congressional and industry group players seem ready for significant telecommunications reform action in the 104th Congress—action that will free the telecommunications industry for greater competition and market access. Senator Pressler has pledged the Senate and House will pass telecommunications law reform legislation by July 4, 1995.[181] Chairman Fields pledged that legislation would reach the House floor early in 1995.[182] Chairman Bliley has stated that as a way of expediting consideration of telecommunications reform legislation, he has asked the RBOCs and the long-distance companies to resolve the issue of open competition among themselves.[183] Chairman Fields, however, announced on February 8, 1995, that the Committee would proceed with drafting reform legislation even though the RBOCs and long-distance companies have not resolved the issue of RBOC entry into long-distance markets.[184] He has not said how this issue will be resolved in the proposed legislation.[185]

In the Senate, Chairman Pressler released discussion draft telecommunications reform legislation on February 1, 1995,[186] and Senator Hollings issued a comprehensive response on February 16. The two drafts differ on RBOC long-distance entry, with the Hollings draft requiring prior demonstration by the RBOCs that there is no substantial possibility they could impede competition in their exchange area.[187]

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180. *Id.*

181. *Key Congressional Players*, supra note 168, at A-26.

182. *Id.*

183. *Id.*

184. *Communications: Congressmen to Draft Communications Bill as Industry Talks Break Down*, Daily Executive Rep. (BNA) No. 27, at A-26 (Feb. 9, 1995).

185. *Id.* at A-27.

186. *Discussion Draft of Telecommunications Bill Released Feb. 1 by Sen. Larry Pressler (R-SD)*, Daily Executive Rep. (BNA) No. 22, at A-32 (Feb. 2, 1995).

187. *Democrats Respond, supra* note 171, at A-26.

C. MFJ Modifications

The parties to the MFJ and Judge Greene recognized the need for periodic modifications to its provisions. Therefore, the MFJ permits Judge Greene to modify the restrictions if he determines that there is "no substantial possibility" of an RBOC wielding monopoly power. The MFJ provides, "[t]he restriction imposed upon the separated BOCs . . . shall be removed upon a showing by the petitioning BOC that there is no substantial possibility that it could use its monopoly power to impede competition in the market it seeks to enter."[188] The order also provides for an overall judicial review every three years.

Within a few years of the entry of the MFJ in 1982, certain factions began advocating the "freeing of the Bells" from the MFJ prohibitions on the basis that advances in communications technology constituted changed circumstances sufficient to ensure that the RBOCs will not be able to exert market power. At the triennial review of the MFJ, the RBOCs submitted extensive evidence in support of their arguments that the MFJ restrictions were no longer necessary.[189] Judge Greene rejected these arguments, and the RBOCs appealed to the D.C. Circuit. In 1990, the D.C. Circuit reversed and remanded the portion of Judge Greene's decision that dealt with information services, stating that the only basis for maintaining the restriction was if the RBOCs still had the ability to raise prices or restrict output in the information services market.[190]

One important example of the flexibility of the MFJ is Judge Greene's recent opinion granting AT&T's motion to modify section I(D) of the MFJ that prohibited AT&T from acquiring stock in any of the RBOCs.[191] This order allowed AT&T to merge with McCaw Cellular Communications, which owns a minority interest in several cellular companies controlled by the RBOCs. AT&T established that it was entitled to the modification under the Supreme Court's *Rufo*[192] test by showing

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188. United States v. American Tel. & Tel. Co., 552 F. Supp. 131, 225 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

189. United States v. Western Elec. Co., 673 F. Supp. 525 (D.D.C. 1987), *aff'd in part, rev'd in part*, 900 F.2d 283 (D.C. Cir. 1990), *cert. denied*, 498 U.S. 911 (1990).

190. *See* United States v. Western Elec. Co., 900 F.2d 283 (D.C. Cir. 1990), *cert. denied*, 498 U.S. 911 (1990).

191. United States v. Western Elec. Co., 158 F.R.D. 211 (D.D.C. Aug. 25, 1994).

192. Rufo v. Inmates of Suffolk County Jail, 502 U.S. 367 (1992) (endorsing the common law decree modification standard).

(1) changed circumstances and (2) that the proposed standard is "suitably tailored to the changed circumstances." [193]

In finding changed circumstances, Judge Greene noted that the decree never intended to keep AT&T from competing in the cellular market, and that the decree had not anticipated that the regional companies would acquire ownership interests in both Block A cellular licenses which were initially awarded to firms unrelated to the exchange carriers and Block B cellular licenses which were initially awarded to the regional companies.[194] The waiver is narrowly tailored in that it does not present a significant danger of a reemergence of the telecommunications monopoly.

Another attempt to eliminate the MFJ restrictions occurred on July 6, 1994 when Bell Atlantic, Bell South, Southwestern Bell and NYNEX filed a motion to vacate the decree as it applies to them. Judge Greene gave the DOJ 240 days to study this issue.[195] Once the DOJ issues its findings, the Judge will most likely hold hearings before taking any action. Therefore, it will still be several months—if not some years—before the court grants the RBOCs any overall relief from the MFJ's provisions.

D. Recommended Changes to Copyright Laws

In February 1993, the Clinton Administration formed a "Working Group on Intellectual Property Rights," chaired by Assistant Secretary of Commerce and Commissioner of Patent and Trademarks Bruce Lehman, to review the intellectual property implications of the NII. On July 7, 1994, the Working Group issued a draft paper containing several recommended changes to existing intellectual property laws.[196]

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193. 158 F.R.D. at 213.

194. *Id.* at 214.

195. Memorandum Order, United States v. Western Elec. Co., No. 82-0192 (D.D.C. Aug. 18, 1994). In April 1995, the DOJ recommended to Judge Greene that the RBOC Ameritech be allowed to sell long-distance service once Ameritech opens its local network to competitors. *Communications: Justice Approves Plan to Allow Bell Company into Long-Distance*, Daily Executive Rep. (BNA) No. 64, at A-17 (Apr. 4, 1995). The DOJ is taking this position in part to pressure Congress to enact telecommunications reform legislation which is acceptable to the Clinton Administration. *See Bingaman Sketches New Guides for RBOCs Seeking Waivers Under MFJ*, Antitrust & Trade Reg. Rep. (BNA) No. 68, at 287 (Mar. 2, 1995).

196. THE WORKING GROUP ON INTELLECTUAL PROPERTY RIGHTS, NATIONAL INFORMATION INFRASTRUCTURE TASK FORCE, INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE: A PRELIMINARY DRAFT OF THE REPORT OF THE WORKING GROUP ON INTELLECTUAL PROPERTY RIGHTS (1994) [hereinafter WORKING GROUP]. *See also Copyrights: Administration Issues Draft Report Recommending Protection for Works*

First, the Working Group recommends that the Copyright Act be amended to recognize that the transmissions relating to these new technologies are within the exclusive distribution rights of the copyright owner.[197] Generally, the Copyright Act grants a copyright owner the exclusive right to distribute *copies* or *phonorecords* of the copyrighted work to the public. A copy is a material object in which a copyrighted work is fixed, e.g., a compact disk or book. The NII, however, involves the high-speed transmission of information between computers. Following a transmission, the original copyrighted work remains on the host computer and a duplicate of the work resides in the memory of, or in a storage device of, another computer. This, for all intents and purposes, is a distribution of copies of the work. It is not clear, however, under current law whether such a transmission constitutes a distribution of copies of the work.

Second, the report suggests that transmissions which constitute both a communication of a performance and a distribution of that production (such as when a sound recording is distributed and the recipient may listen to it while it is being downloaded) be considered a distribution if the "*primary purpose or effect of the transmission is to distribute a copy or phonorecord of the work to the recipient of the transmission.*"[198]

Third, it recommends clarifying that the owner does not dispose of his copy of the work with transmission of the copy under the so-called "first sale doctrine."[199] This doctrine "allows the owner of a particular, lawfully made copy of a work to dispose of it in any manner, with certain exceptions, without infringing the copyright owner's exclusive right of distribution."[200]

Fourth, the report recommends prohibiting the "importation, manufacture, and distribution of devices" to avoid, bypass, remove, deactivate, or otherwise circumvent the copyright laws. It would create civil actions and remedies for violations of the proposed prohibition. Similarly, the Working Group recommends that fraudulent copyright management information or removal or alteration of copyright management information be prohibited.[201]

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on NII, Daily Executive Rep. (BNA) No. 129, at A-1 (July 8, 1994).

197. WORKING GROUP, *supra* note 196, at 120-21.

198. *Id.* at 122 (emphasis in original).

199. *Id* at 124-25.

200. *Id* at 124 (internal citations omitted).

201. *Id* at 125-30.

The Working Group also has expressed "significant concerns regarding the ability of the limitations on copyright owners' exclusive rights"—under fair use and similar exceptions—sufficiently "to provide the public with adequate access to copyrighted works transmitted via the NII."[202] With the increasing usage of on-line services to disseminate information, it will become critical that researchers, students, and other members of the public have opportunities *on-line* that are equivalent to their current *off-line* opportunities to browse through copyrighted works in their schools and public libraries. The Working Group planned to sponsor a conference later in 1994 to discuss possible "voluntary" guidelines for such usage.[203]

The Working Group merely has begun the task of identifying shortfalls in the current regulatory scheme. It remains unclear if, or when, such changes will be adopted, and it is unlikely that these changes alone will suffice. The report of the Working Group has been criticized by some in the telecommunications industry for what it does not cover.[204] These conduits of information are increasingly concerned about being contributorily liable for copyright infringement. The Working Group expects to hold further public hearings. Therefore, we will be well into 1995 or beyond before the Working Group recommends legislation to reform the copyright laws in these fundamental respects.

III. LEGAL ISSUES RAISED BY THE INTEGRATED NATIONAL INFORMATION INFRASTRUCTURE

The above sections have discussed the existing regulatory framework and some of the proposed changes to accommodate the development of the NII. This section will discuss what we believe to be the competing and potentially conflicting legal and social issues raised by the new services and technologies. Achieving the proper balance among these goals will be a difficult undertaking. The regulatory scheme should be flexible enough to permit adjustments in the intermediate term (i.e., 5 to 10 years). It is unclear, for instance, how to balance promoting diversity,

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202. *Id* at 133.

203. *Id.* at 133-34.

204. Sara B. Deutsch, *Superliability on the Superhighway? A Telecommunications Industry Perspective*, MULTIMEDIA LAW REP., Nov. 1994, at 4.

innovation and competition while at the same time ensuring universal service. The lack of any regulations attempting to address these difficulties could slow the development of the NII and result in an undesirable equilibrium among these goals.

A. Ownership Concerns: Innovation and Intellectual Property Rights

As suggested in the section above, intellectual property issues have arisen concerning both the network and the information conveyed via the network. The willingness of providers to make their data available at a reasonable price is fundamental to the success of the NII. Inventors will not innovate unless they can profit from their investments. Furthermore, while the options available to users in the creation, manipulation, reuse, and delivery of advertising content are likely to be virtually unlimited technologically, there could be significant legal limitations imposed under existing copyright and patent laws.

As discussed *supra*, the existing intellectual property laws are unsettled, and possibly insufficient, to ensure full copyright protection for content transmitted via the NII. The Copyright Act's eight fairly rigid statutory categories of "works of authorship"[205] do not neatly apply to mixed media works, i.e., works that combine data falling into different statutory categories. For example, multimedia works may include both text (i.e., "literary works") and audio and visual content (i.e., "audiovisual works"). It is unclear to what extent such mixed works are protected under existing law.

Furthermore, e-mail, bulletin board postings, and electronic journals raise other issues. For instance, if e-mail is treated as equivalent to a letter for copyright purposes, as one commentator recently suggested, then does the "addition" or "interspersing" reply remarks by the recipient violate the copyright owner's exclusive right to prepare derivative works based upon the copyrighted work?[206] Perhaps, as that same commentator suggests, the conduct might be permitted under the doctrine of fair use.[207] More specifically, this conduct might be permitted as transformative

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205. 17 U.S.C. § 102(a) (1988).
206. *See* O'Rourke, *supra* note 105, at 514.
207. *Id.*

use.[208] Yet, if this is correct, what would constitute copyright infringement of e-mail?

The copyright laws could also discourage operators from granting access to the network on the one hand, and users from transmitting content on the other. For instance, should the owner of a system be liable for contributory infringement when an authorized transmission occurs over its facility? The *Playboy Enterprises Inc. v. Frena* case suggests this is more than a theoretical possibility.[209] Operators of bulletin boards may be left with no choice but to require users to place their content into the public domain before being granted access to the service. This could cause authors to think twice before utilizing the NII.[210]

Similarly, if electronic journals are not protected against editing or unauthorized forwarding to non-subscribers, then authors and publishers are likely to hesitate before using the network. The problem is exacerbated by the speed with which copies can be disseminated, the ease by which pieces of the text can be incorporated into other documents, and the difficulties of discovering and halting such pirating of works. Perhaps a fee mechanism, such as BMI and ASCAP perform for musical recordings, could be designed to provide remuneration to copyright owners. Such a fee mechanism, however, would not provide the owner of the copyright the opportunity to decline permission for usage of the work. Furthermore, ensuring that users pay for the works would be difficult absent active industry policing.

As technology develops, it will become increasingly difficult to determine when a work is a copy. What should be the outcome when the image of a famous deceased person, such as Humphrey Bogart, is used by a major soft drink producer, or preexisting art work is included in a database such as Compton's Encyclopedia? These issues are likely to arise repeatedly given the ability to create, manipulate, reuse, and deliver content in the multimedia environment. The clarification of some of these issues in a manner that permits the intellectual property laws to achieve

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208. *Cf.* Campbell v. Acuff-Rose Music, Inc., 114 S. Ct. 1164, 1171 (1994) (discussing the transformative use doctrine in the context of sampling in musical recordings).

209. 839 F. Supp 1552 (M.D. Fla. 1993).

210. There could also be liability under criminal laws for the transmission of pornography, and under common law doctrines, such as libel. *But see* Auvill v. CBS "60 Minutes", 800 F. Supp. 928 (E.D. Wash. 1992) (holding a network affiliate which exercised no editorial control over the broadcast not liable for republishing defamatory statements); Cubby, Inc. v. CompuServe Inc., 776 F. Supp. 135 (S.D.N.Y. 1991) (holding libelous material transmitted via bulletin board system by subscriber not grounds for libel).

the appropriate balance between innovation and ownership is a lofty goal, but one which will be essential to the future of the NII.

B. Ownership Considerations: Competition and Efficiency

The potential for significant innovations in both the content provided on the NII and the technologies that will comprise the NII promise to provide significant business opportunities. As with any industry in its formative stages, a careful balance must be struck between encouraging both the development of new technologies and competition among providers of these services in the short term and ensuring that, through alliances and acquisitions, impediments to entry are not created which will stifle competition in the long run. Anne K. Bingaman, Assistant Attorney General of the U.S. Department of Justice's Antitrust Division, has noted the need for increased competition in three particular markets: (1) cable television and local telephone; (2) long-distance telephone; and (3) telephone equipment.[211]

Intellectual property rights must be tailored to provide the appropriate level of incentives to encourage innovation. At the same time, however, the intellectual property rights can act as an obstacle to others who wish to enter the market and offer competing services.

Perhaps the most controversial regulatory issue involved in the birth of the NII is that of government-dictated compatibility standards for interface technology. By ensuring universal access to the information superhighway, the government hopes to maximize the value of the NII by making the infrastructure available to as many operators and consumers as possible.

Government-set interface standards, however, would lead to a decrease in innovation in interface technology because investment in interface research and development ("R&D") would not be profitable if new interface technologies were to be proscribed from the highway by government regulation. Standards would also inhibit R&D because pioneering firms would bear the brunt of the costs of developing the interfaces to match government standards, while the firms waiting on the sidelines could enter after the interfaces had been developed. This holds true if the government does not allow for the patenting of interface

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211. Anne K. Bingaman, Competition Policy and the Telecommunications Revolution, Address Before the Networked Economy Conference USA (Sept. 26, 1994) (transcript on file with authors).

technology, which would seem to be necessary to ensure equal access (via interfaces) to the NII.

While there may be no perfect policy solution to the innovation/universal-access trade-off, some compromise policies could include: (1) the mandatory licensing of innovative interface technology at prices reasonably close to marginal costs; (2) government production of the interfaces and the changing of the products periodically using technology bought from innovative firms (this would reward innovation not with patent-originated market power but with royalties or bonuses paid by the government); and (3) setting time limits on the interface regulations, with the understanding that new conformity standards may or may not be executed in the future.

Federal antitrust officials have expressed heightened interest in the antitrust implications of arrangements involving intellectual property rights, particularly in the high technology area.[212] The DOJ recently entered into a consent decree with Ashton Tate/Borland, approving the transaction between the two personal computer relational database management systems manufacturers only after the parties agreed never to assert copyright infringement claims for certain intellectual property.[213] The DOJ also entered into a consent decree with Microsoft concerning its business practices for personal computer operating software; in a controversial decision, however, Judge Stanley Sporkin refused to approve the decree, finding it was "not in the public interest."[214] The DOJ blocked a deal between MECA Software, Inc. and ChipSoft, two producers of consumer tax preparation software for personal computers.[215] The Federal Trade Commission ("FTC") similarly obtained a consent

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212. For a detailed exposition of the balancing of intellectual property rights with antitrust, and current enforcement trends, see, e.g., Howard W. Fogt, Jr. & Ilene Knable Gotts, *The Antitrust and Technology Transfer Licensing Interface: A Comparative Analysis of Current Evolutionary or Revolutionary Developments*, 13 INT'L TAX & BUS. L.J. (forthcoming 1995); Ilene Knable Gotts & Howard W. Fogt, Jr., *Clinton Administration Expresses More than Intellectual Curiosity in Antitrust Issues Raised by Intellectual Property Licensing*, 22 AIPLA Q.J. 1 (1994); Ilene Knable Gotts, *Regulators Focusing on Antitrust Issues: Intellectual Property Transfers Are Receiving Increased Scrutiny*, NAT'L L.J., Jan. 24, 1994, at S12; Ilene Knable Gotts & Alan Rutenberg, *New Antitrust Intellectual Property Guidelines Set Out Enforcement Policy for Clinton Administration*, LAW WORKS, Jan. 1995, at 10.

213. G. Pascal Zachery, *Borland Gains Aston-Tate, Loses dBase*, WALL ST. J., Oct. 14, 1991, at B6.

214. United States v. Microsoft Corp., 159 F.R.D. 318, 329 (D.D.C. 1995). *See also* Elizabeth Corcoran, *Sporkin Defends Decision on Microsoft*, WASH. POST, Mar. 15, 1995, at C3.

215. *DOJ Faces Down Software Merger*, FTC WATCH, July 5, 1993, at 12.

decree in connection with the Adobe Systems, Inc./Aldus Corp. merger; Adobe and Aldus each produced graphic software for the Apple Macintosh computer.[216]

Antitrust concerns have also arisen concerning arrangements among other players on the information superhighway. Robert E. Litan, Deputy Assistant Attorney General for the U.S. Department of Justice's Antitrust Division, espouses several concerns as "paramount."[217] The first of these are "cross-subsidization concerns," i.e., the DOJ does not want owners of any technology that has a regulated monopoly to cross-subsidize costs with regulated revenues in order to get a toe-hold in emerging fields.[218] Second are concerns of consolidation among alternative providers of network services; the government wants to prevent the combination of area cable firms with local telephone companies.[219] Third, Mr. Litan is concerned with vertical integration (mergers between owners of highways and owners of content), which could raise entry barriers and foreclose entry by competing owners of networks or content.[220] Given that some alliances and coordination is desirable to the achievement of the NII's potential, the activities of federal antitrust officials must be coordinated with other governmental factions and industry so as not to lose site of the overall public interest.

There is no doubt that the building of the NII and the development of the basic services that will be offered via the network will be a costly enterprise. The Clinton Administration has indicated that much of the funding will need to originate from the private sector.[221] In recent months, the news has been replete with alliances among telephone, cable, and computer software companies, increasing the economic viability and attractiveness of offering such new technologies.[222] Much of this activity

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216. Stephen Yoder, *Merger of Adobe, Aldus Nears Approval by FTC; Terms are Modified Slightly*, WALL ST. J., July 28, 1994, at B11.

217. Robert E. Litan, Antitrust Enforcement and Telecommunications Revolution: Friends, not Enemies, Address Before the National Academy of Engineering 19 (Oct. 6, 1994) [hereinafter Litan] (transcript available from U.S. Department of Justice).

218. *Id.*

219. *Id.*

220. *Id.*

221. Vice President Al Gore, Address Before the Academy of Television Arts and Sciences 4 (Jan. 11, 1994) (transcript available from the Office of the Vice President).

222. There have been a number of recent alliances in the telecommunications industry. For example, AT&T recently purchased McCaw Cellular Communications. Leslie Cauley, *The Urge to Merge*, WALL ST. J., Mar. 20, 1995, at R16. Additionally, Microsoft Corp. has made investments in Mobile Telecommunications Technologies Corp. and in Metricom, Inc. There are also several alliances of companies teaming up to build satellite communications systems. Sugawara & Mintz, *supra* note 9, at B1.

consists of RBOCs forming alliances to compete against cable television companies, and cable television companies likewise positioning themselves for competition from the RBOCs.[223] Utility companies, which are already wired into virtually every home, are also attempting to position themselves to compete directly with cable and telephone companies.[224] Additionally, companies that fear being left out of the next generation of wireless services have also been entering into alliances to bid for licenses to provide personal communication systems.[225] Concentration and cooperation create the danger of collusion among participants which would prevent any cost savings from being passed on to consumers.

Potential providers urge, as stated by one telephone equipment manufacturer's association, for the creation of a national policy that promotes competition, especially in the area of local service.[226] These alternative providers fear that control of the network will create the equivalent of the ubiquitous black telephones the country was forced to rent from the telephone company prior to the AT&T divestiture. Regulations may also be needed to ensure that services are unbundled and offered on reasonable terms and conditions.

Competition ensures that companies will bring new products and services to the market priced at reasonable levels. However, a *competitive* market that is also an *efficient* market may require fewer, not more, participants. Redundancy in services may be difficult to justify for certain segments of the NII (e.g., cable systems), but achievable in others (e.g., bulletin boards). The capital costs of some portions of the NII are simply unrecoverable unless they are spread over a wide user base. For such aspects of the NII, economies of scale must be permitted, even if it means fewer competitors. Alliances eliminate some competition, but at the same time promise to allow the service to be offered sooner and potentially at a lower cost. Regulators will have the task of ensuring that the savings from such efficiencies are passed on to consumers in the form of innovative services and/or lower prices.

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223. Mike Mills, *Sprint, 3 Cable Firms Form Phone Alliances*, WASH. POST, Oct. 26, 1994, at F1; Bernard Weinraub, *Ovitz + 3 Baby Bells = That's Entertainment!*, N.Y. TIMES, Oct. 26, 1994, at D1.

224. Agis Salpukas, *Big Hopes Put On Electric Wires*, N.Y. TIMES, July 6, 1994, at D1; *Communications: FCC, FERC, SEC Advise House Panel on Utilities Entering Telecom Field*, Daily Executive Rep. (BNA) No. 145, at A-11 (Aug. 1, 1994).

225. Keller & Cauley, *supra* note 68, at A1.

226. *Hearings on H.R. 3636 and 3626 Before the Subcomm. on Telecommunications and Finance of the House Comm. on Energy and Commerce*, 103d Cong., 2d Sess. 11 (1994) (statement of John Major, Chairman of Telecommunications Industry Association).

The general trend among political and industry leaders has been to espouse the benefits of cooperative R&D. Without question, economies of scale and scope are sometimes achieved through R&D collaboration between rival companies. The successful deployment of the NII may require an accommodation under the antitrust laws regarding mergers, similar to the National Cooperative Research Act ("NCRA") of 1984,[227] which relaxed antitrust enforcement of R&D joint ventures between competing firms. As with all R&D efforts, the risks a firm faces in investing in NII technology include: (1) *technical uncertainty*—not knowing for sure whether the R&D investment will pay off in the form of a novel, functioning product; and (2) *market uncertainty*—the danger that rivals will develop a better product.[228]

The government could increase R&D investment by relaxing enforcement standards. The creation of an R&D conglomerate with a wider range of expertise would decrease technical uncertainty, and the proportion of socially optimal returns captured by each firm would increase, reducing market uncertainty.[229] In addition, R&D investment might increase because conglomerates could internalize positive technological spillovers—the beneficial effects a firm's innovation has on its competitors—which would act as a deterrent to a firm operating by itself. Even without an increase in R&D investment, a permissive view toward mergers and R&D alliances might result in more efficient innovative output from R&D efforts because of economies of scale and scope captured by the purposive diversification, while reducing wasteful R&D duplication.[230]

One researcher, however, is pessimistic about the possible R&D-enhancing effects of mergers and R&D joint ventures, fearing that R&D collaboration could lead to a reduction in desirable competitive pressures in the innovation markets. Professor John T. Scott of Dartmouth College has suggested that the NCRA may actually reduce the level of R&D investment by American firms, because the law could be used by U.S. corporations to reduce negative technological spillovers, the phenomenon

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227. 15 U.S.C. §§ 4301-4305 (1988). The statute was amended to cover production joint ventures by the National Cooperative Production Amendments Act of 1993, Pub. L. No. 103-42, 107 Stat. 117 (codified as amended in scattered sections of 15 U.S.C.).

228. JOHN T. SCOTT, PURPOSIVE DIVERSIFICATION AND ECONOMIC PERFORMANCE 94, 115 (1993).

229. *Id.* at 115.

230. *Id.* at 225.

of innovation making existing products obsolete or inefficient.[231] Professor Scott advises restructuring legislation to provide for antitrust exemptions only for those research ventures that are "generic and precompetitive."[232] The reasoning behind this argument is that the firms within a Japanese *keiretsu*, which have out-developed their American competitors in many areas over the past decade, may effect desirable purposive diversification and thus, in this regard, mimic a single purposively diversified firm. The *keiretsu* benefit from cooperative "precompetitive" research supported by the government and other firms; later, the mature companies compete across the *keiretsu* groups and on world markets.

Another major disadvantage of relaxing merger enforcement is that having a collection of firms developing the NII which are similarly diversified may decrease both price and R&D competition through multimarket contact. In other words, the companies may intuitively conclude that profits can be maximized by letting each competitor dominate those particular markets in which it is strongest. Firms might permit each other to have "spheres of influence" in their respective home markets, resulting in a potential increase in market power in the NII markets and a decrease in R&D competition.[233]

Thus at first glance, R&D alliances would appear to be more socially beneficial than mergers in obtaining innovation without compromising competition. Antitrust exemptions for joint R&D ventures (such as those found in the 1993 amendment to the NCRA) allow for all of the benefits of purposive diversification—increased R&D investment through internalization of positive technological spillovers and decreased technical and market uncertainty, and increased efficiency through economies of scale and scope and the avoidance of wasteful duplication. Unlike purposive diversification that takes place via mergers and reduces the number of competitors or the internal expansion of diversified firms into new markets, joint R&D ventures will not have a tendency to lead to any undesirable increased multimarket contact because the government can allow only those R&D alliances focusing on generic and precompetitive technology, thereby eliminating the temptation to use the alliance to internalize negative technological spillovers.

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231. *Id.*
232. *Id.*
233. *Id.* at 224-26.

C. Ownership Considerations: Ubiquity, Diversity, and Choice

Universal service, similar to that currently found in telephone service in this country, is a fundamental goal of the Clinton administration. A key question remains regarding who will pay for such service. One approach being considered is a general tax, but this is a politically expensive answer, which is perhaps not needed to obtain affordable access by the public.[234]

The current disparity in accessibility between urban and rural areas based on the cost of access to on-line services illustrates the problems created by the lack of universal service. Most urban and suburban areas can access on-line services by using local telephone numbers. In contrast, many rural users must use expensive long-distance service to reach the nearest access site for on-line services. Approximately 20% of the United States' population cannot access most commercial on-line services with a local call.[235] The effect of the cost differential can be seen in homes, public libraries, and schools across the nation. For example, 79% of the libraries in cities of 250,000 or more people have a connection to the Internet, compared to 17% of rural libraries.[236]

Cooperation and consolidation of potential network providers increases the likelihood that universal service will be available to schools, hospitals, public broadcasters, libraries, and other public entities. Some of these providers "voluntarily" offer such services to public institutions, although their motives are not totally altruistic. Value exists in being able to advertise ubiquity in coverage for enticing the full-paying users to subscribe to the service. Private on-line systems are already making an effort to expand access to information. For example, Prodigy Services Company has unveiled a system to allow subscribers to connect to the Internet services referred to as the World Wide Web.[237]

Also, if the networks do not voluntarily provide such services, there remains the possible imposition of more burdensome requirements by the government. Robert E. Litan, Deputy Assistant Attorney General of the

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234. *See Communications: NII Council Continues Examination of Issues Vital to Superhighway*, Daily Executive Rep. (BNA) No. 150, at A-9 (Aug. 8, 1994).

235. Rajiv Chandrasekaran, *On-Line Highway a Costly Toll Road for Rural Users*, WASH. POST, Nov. 7, 1994, at A1, A14.

236. *Id.*

237. Peter H. Lewis, *Prodigy Testing Link to World Wide Web*, N.Y. TIMES, Dec. 1, 1994, at D5.

U.S. Department of Justice's Antitrust Division, indicates that the most important government policy goals are encouraging innovation and ensuring that services are widely available.[238] Litan suggests that the most efficient way to fill gaps in service "is to provide subsidies to those who would otherwise not be able to purchase competitively priced telecommunications services, funded by all common carriers of telecommunications services."[239] Not only are there these concerns regarding providing access to all possible users, but there are similar concerns that centralized provision of services will deter racial, ethnic, religious, and other social diversity among providers and limit choices for the consumer. As with PCS licenses and interactive licenses, one approach would be to give preferences to minorities.

D. Privacy and Security

Several specific privacy issues are at stake in the construction and operation of the information superhighway. This section will feature merely a few of these issues as they relate to the use of the network at the workplace and home.

1. Privacy at Work

The threat of employee monitoring grows more ominous as more activities are merged onto a single infrastructure.[240] Once sporadic, monitoring can now be virtually continuous. Once covering only certain activities, monitoring can now cover all activities. And where it was once easily detectable by employees, monitoring can now be done in absolute secrecy. In short, an employer can now electronically account for all of the activities performed by the employees in the course of the day. This monitoring imposes significant pressure on the employees.

The threat of monitoring includes surveillance of data entry speed, accuracy, and total productive time. In addition, employers can monitor the use of electronic mail, telephone, research, and other services. The employer can compare employees and can track the changes in an individual employee's performance over time. While employers argue

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238. Litan, *supra* note 217, at 3.

239. *Id.* at 23.

240. *Addressing the New Hazards*, *supra* note 95, at 1903. *See also* Schroeder, *supra* note 82, at 883.

that this kind of monitoring gives them objective evaluations of their employees and helps them to maintain high-quality customer service, employees argue that it is demeaning and intrusive.[241] These invasions of privacy can impact both the dignity and the health of employees; by abusing new technology, employers can turn the workplace into a modern-day sweatshop with unfair and unsafe standards.[242]

Both the federal wiretapping statutes and state common law fail to protect workers from this type of abuse.[243] The federal wiretapping laws apply only to government eavesdropping, not to employer eavesdropping.[244] State statutes generally include exceptions for monitoring within the ordinary course of business.[245] The tort of invasion of privacy is often analyzed under the constitutional "reasonable expectation of privacy" rubric which has grown out of Fourth Amendment jurisprudence.[246] Since employees expect their work to be subject to the review of their employer, they cannot contend that they had a reasonable expectation of privacy at work. This cause of action has, therefore, been unhelpful.

The Privacy for Consumers and Workers Act, sponsored by Sen. Paul Simon (D-Ill.) in the 103d Congress, would have provided some protection for workers from electronic performance monitoring.[247] The Act required that monitoring be reasonably calculated to evaluate and improve work performance, not merely to monitor the worker. Senator Simon's legislation would have forbade employers from unfairly targeting individual employees; a monitoring program would have had to be imposed upon the entire staff. In addition, feedback would have been required for monitored employees. Workers would have had to be informed of the method of monitoring and of the times at which they

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241. *See Simon Introduces Bill to Prevent Employers From Monitoring Workers' Private Phone Calls*, Daily Lab. Rep. (BNA) No. 38, at A-8 (Feb. 26, 1990).

242. *See* Larry O. Natt Gantt, *An Affront to Human Dignity: Electronic Mail Monitoring in the Private Sector Workplace*, 8 HARV. J.L. & TECH. 345 (1995); *See generally* THE ELECTRONIC SUPERVISOR: NEW TECHNOLOGY, NEW TENSIONS (Office of Technology Assessment ed., 1987).

243. *Addressing the New Hazards*, *supra* note 95, at 1898.

244. *See* Electronic Communications Privacy Act of 1986, 18 U.S.C. §§ 2510 *et seq.*, 2701 *et seq.* (1988).

245. *Addressing the New Hazards*, *supra* note 95, at 1906.

246. *See, e.g.*, Pearson v. Dodd, 410 F.2d 701, 704 (D.C. Cir. 1968) (newspaper publication of U.S. Senator's relationship with foreign lobbyists), *cert. denied*, 395 U.S. 947 (1969).

247. Mitchell Locin, *Simon Casts His Shadow Over Surveillance Lurking in Stores*, CHI. TRIB., July 3, 1994, at 2.

were subject to monitoring. Third parties such as customers who were at the other end of monitored communications would also have had to be informed of the potential for monitoring since their privacy interests were also at stake.[248]

While the information superhighway magnifies problems of privacy and security, the problems are fundamentally similar to those that have existed historically. The paradigm for protecting the privacy interests of the American public remains valid; the scope of the statutory scheme must be broadened to mirror the expansion of the technological infrastructure in which it works.

The use of electronic mail in the workplace has created additional privacy problems. Employees often use electronic mail for personal affairs. When employers intercept and monitor messages for business purposes, they find personal information interspersed among the business information. Employers argue that employees have assumed the risk of personal information being monitored by using business equipment for personal use, and they should not have expected the same level of privacy as they would have expected on home equipment. The potential for conflict between managers and employees over this "invasion of privacy" will be exacerbated as a greater percentage of communication shifts from telephone and mail to electronic form.[249] The Electronic Communications Privacy Act, which prevents government agencies and private parties from intercepting electronic mail without authorization, does not apply to the interception of business electronic mail systems.[250] Electronic mail, functionally analogous to first-class mail, has received third-class protection from Congress and the courts.[251] Telephone voice-mail also may not be protected in the workplace; a suit against McDonald's by former employees alleging a violation of privacy in this medium is currently pending.[252]

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248. *Id.*

249. By 1990, more than 1.5 billion electronic mail messages were transmitted annually. Michael Stroud, *Rise of Electronic Mail Raises Sticky Privacy Issues*, INVESTOR'S DAILY, June 22, 1990, at 13.

250. Alice LaPlante, *Is Big Brother Watching?*, INFOWORLD, Oct. 22, 1990, at 58; Laurie Flynn, *Spamming on the Internet*, N.Y. TIMES, Oct. 16, 1994, at F9.

251. *Privacy Issue Comes of Age in the Networked World*, PC WEEK, June 28, 1993, at 203.

252. Ben Dobbin, *Love Affair Was Anything But Private*, WASH. POST, Jan. 30, 1995, at 15, 19.

2. Privacy at Home

At home, the privacy issues relate both to financial and personal information. The information that will be transmitted by the typical user as part of his or her business and personal dealings range from electronic mail messages to commercial bank transactions. Maintaining the integrity of this information and safeguarding its confidential nature should be of utmost concern, as users of the network will create a wealth of electronic information about their interests, hobbies, purchases, and finances. Thus, these users should be protected from the inevitable attempts at unauthorized usage of this sensitive, private information.

The information superhighway will concentrate a great deal of information about the personal activities and habits of individual users in the hands of the local access company. For instance, providers will be able to determine the movies selected, the information services accessed, and the mail and phone services used by an individual subscriber. Databases containing such information will allow commercial users to more effectively target their solicitation efforts.[253] Consumers may benefit by receiving more information concerning topics of interest and, hopefully, less "junk mail." On the other hand, consumers are not likely to find all access and usage of this information desirable.

Congress has previously dealt with some privacy issues in the cable setting. Cable TV operators must provide subscribers with the opportunity to limit disclosure of their names and addresses for mail solicitation purposes. Cable operators are not allowed to release subscriber information relating to viewing choices, retail transactions, or other personally identified information without subscriber permission.[254] Perhaps a similar approach should be mandated for all subscribed services on the highway. According to a survey by Representative Edward Markey (D-Mass.), on-line services have informally adopted a similar position. Most of the on-line services will not sell subscriber information without asking subscribers first. However, only Prodigy Services Company has explicitly ruled out using subscriber information outside of its network.[255]

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253. Barbara P. Noble, *Tracking Big Brother in the Office*, N.Y. TIMES, Oct. 30, 1994, at F23.

254. *See* 47 U.S.C. § 551 (1988).

255. Elizabeth Corcoran, *They Sell Your Good Name, and More*, WASH. POST, Oct. 26, 1994, at F1.

Nevertheless, consumers may receive unwanted or undesired messages from advertisers and other commercial interests. In April 1994, for instance, the Internet was used by a small Arizona law firm, Canter & Siegel, to solicit immigration law business.[256] The law firm posted a message on five to six thousand news groups existing on the Internet, i.e., literally to millions of users. Other users on the network, upset with the unsolicited advertisement, bombarded the law firm's mailbox, posted the lawyers' home addresses, and vaguely suggested retaliation as well.[257] Similar undesired uses of the superhighway will most likely occur no matter how many safeguards and limitations are created. For example, advertising on computer services may well be the trend of the future. McDonald's has introduced a full-motion video advertisement on America Online, a computer network with about 900,000 subscribers.[258] While the intrusiveness of the McDonald's commercial is limited since subscribers have to call up the advertisement, it can well be imagined that one day computer users will have to sit through commercials just to log onto a network.

Consumers have also expressed concern, and at times outrage, regarding access to personal information about their charities, credit histories, financial well being, the books they borrow from the library, or the cable movies or services they order. Additionally, new regulations have been passed by the FCC that may increase access to telephone callers' phone numbers.[259]

The law is unclear as to what information is safeguarded from government eyes and as to what commercial use can be made of this data. Perhaps the closest analogy to the kind of information stored on information superhighway "electronic ledgers" is the information that banks have about their customers. This information includes transactional information and credit information. In *United States v. Miller*, the Supreme Court held that the police need not obtain a search warrant prior to obtaining customers' bank records since they have voluntarily disclosed this information to third parties, and therefore have no expectation of

256. Flynn, *supra* note 250, at F9.

257. Peter H. Lewis, *An Ad (Gasp!) in Cyberspace*, N.Y. TIMES, Apr. 19, 1994, at D1.

258. Goldman, *McDonald's*, *supra* note 6, at B7.

259. Jeffrey D. Knowles, *Marketers will Benefit from Caller-ID Regulations*, ELECTRONIC RETAILING, Oct. 1994, at 48.

privacy in these records.[260] By analogy, this may cover usage records on the information superhighway.

Another possible analogy to usage records is telephone companies' acquiescence in providing a list of all local and long-distance numbers dialed from a suspect's phone. The phone companies have traditionally done this for law enforcement personnel upon request and without a search warrant. The Supreme Court has held that this is not a search, so Fourth Amendment protections against unreasonable searches and seizures do not come into play.[261]

3. Security

As communications systems evolve from analog technology using mechanical switches and copper wires to computer operated digital technology, interception and manipulation become increasingly likely. As stated by the National Research Council:

> We are at risk. Increasingly, America depends on computers. They control power delivery, and financial services. They are used to store vital information, from medical records to business plans to criminal records. Although we trust them, they are vulnerable to the effects of poor design and insufficient quality control, to accident, and perhaps most alarmingly, to deliberate attack. The modern thief can steal more with a computer than with a gun. Tomorrow's terrorist may be able to do more damage with a keyboard than with a bomb.[262]

Computer users are replete with stories of "hackers" who tie up the Internet, monitor transmissions for access-codes, and introduce viruses into networks to wreak havoc with users.[263]

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260. 425 U.S. 435, 442 (1976).

261. Smith v. Maryland, 442 U.S. 735 (1979).

262. NATIONAL RESEARCH COUNCIL, COMPUTERS AT RISK: SAFE COMPUTING IN THE INFORMATION AGE (1991), *quoted in* David Banisar, *Roadblocks on the Information Superhighway*, 41 FED. BAR NEWS & J. 495, 496 (1994).

263. Computer viruses are prevalent in the United States and abroad. For example, in Mexico's recent Presidential election, held in August 1994, there were reports of an attempt to introduce a computer virus into the election commission's central computer. Mark Fineman, *Zedillo Awaits Confirmation of Presidential Victory in Mexico Election*, L.A. TIMES, Aug. 25, 1994, at A6.

The potential for fraud and abuse also exists for products or services purchased through the superhighway, much akin to the unauthorized usage of credit cards and 900 numbers. Effective security measures must be adopted to ensure that both user privacy is protected and financial fraud is prevented. The use of so-called "personal identification numbers" ("PINs"), such as utilized with automatic teller machines, may be of some use in addressing these issues. However, a professional thief could most likely thwart any of the minor safeguards in use. One technological way to address the interception problem in voice and computer communications is through encryption. Most voice and data communications are transmitted in digital form. Modern encryption schemes[264] involving two keys can provide security that would take many months and supercomputing power to defeat.[265]

The use of encryption raises social questions regarding who should develop the encryption method and whether law enforcement agencies should be provided a universal decoding key. In 1993, the National Security Agency introduced a key escrow chip, also referred to as "Clipper," as a "voluntary" encryption technology. It is used to scramble or encode digital data to prevent it from being deciphered by computer and telephone hackers. In its present form, the Clipper Chip is contemplated for use on telephones, fax machines, and low-speed data communications such as modems. A more advanced version, referred to as "Capstone" will be developed for computer communications. The Clipper would arguably give the public the industrial-strength protection of modern encryption without thwarting law enforcement efforts.[266]

However, the government's position poses several problems. Privacy rights activists object to the underlying "Big Brother" concept of the

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264. Two-key encryption schemes, based on the RSA algorithm disclosed in U.S. Patent No. 4,405,829 (Rivest, Shamir, and Adelman, *Cryptographic Communication System and Method*, 1983), are now publicly available. RSA Data Security Inc. markets security systems based on this technology to sophisticated clients like Apple and Microsoft. David Bank, THE RECORD, July 18, 1994, at B2. In addition, a computer scientist named Phillip Zimmerman developed a shareware implementation of RSA called PGP (Pretty Good Privacy) and has made it available on the Internet. *Computer Privacy Hero Faces Jail*, TORONTO STAR, Aug. 2, 1994, at B3.

265. Bellcore scientists broke RSA 129, an encryption scheme based on a 129-digit prime number, in eight months by distributing pieces of the puzzle across the Internet to thousands of people, each of whom solved a small part of the problem. Gary H. Anthes, *People Processing*, COMPUTERWORLD, May 9, 1994, at 59.

266. Steven Levy, *Battle of the Clipper Chip*, N.Y. TIMES, June 12, 1994, § 6 (Magazine), at 44.

Clipper Chip.[267] Furthermore, there is a long history and debate over government encryption policy and the degree of Congressional oversight existing over intelligence agencies.[268]

At present, the Clipper system's key holder will be the National Institute of Standards and Technology ("NIST"). It is not unreasonable to expect that the Justice Department and other law enforcement agencies will be granted access to the encrypted information by NIST. The announcement of the Chip in April 1993, received much public opposition as evidenced by a *Time* poll of 1,000 people in which 80% were opposed to the Chip.[269] A group called "Computer Professionals for Social Responsibility" obtained almost 50,000 signatures on a petition to President Clinton for withdrawal of the proposal. Furthermore, surveys of industry and security experts showed nearly unanimous opposition to the Clipper Chip's adoption.[270] As Representative Dana Rohrbacher (R-Cal.) stated, "the Cold War is over. . . . This proposal threatens the privacy and security of every American and American company."[271] Michael Nelson, the head of the White House Office of Science and Technology Policy, described the proposal as "the Bosnia of telecommunications policy."[272]

However, not all commentary has been negative.[273] From 1982 to 1992, electronic surveillance orders (mostly utilizing wiretaps) resulted in more than 22,000 felony convictions.[274] A majority of such wiretaps have been used to detect and prosecute drug trafficking organizations.[275] Wiretaps are also used to investigate white collar crimes such as the Pentagon procurement investigation known as "Ill Wind."[276]

Without measures such as the Clipper Chip, technological developments will impede effective use of lawfully authorized wiretaps. Law

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267. Grosso, *supra* note 15, at 486.

268. Banisar, *supra* note 262, at 496.

269. Philip E. Dewitt, *Who Should Keep the Keys?*, TIME, Mar. 14, 1994, at 90.

270. Banisar, *supra* note 262, at 498.

271. *Id.*

272. *Id.* at 499.

273. *See generally* Geoffrey R. Greiveldinger, *Digital Telephony and Key-Escrow Encryption Initiatives*, 41 FED. BAR NEWS & J. 505 (1994).

274. *See* Louis Freeh, Director, Fed. Bureau of Investigation, Statement Before the Subcomm. on Technology and the Law of the Comm. on the Judiciary, United States Senate, and the Subcomm. on Civil and Constitutional Rights of the Comm. on the Judiciary, House of Representatives (Mar. 18, 1994) (transcript on file with authors) [hereinafter Freeh].

275. Greiveldinger, *supra* note 273, at 505.

276. *Id.* at 506.

enforcement proponents, therefore, argue that the key-escrow encryption initiatives are designed to help ensure that the benefits associated with those technological changes do not operate to the detriment of society. Despite the public outcry, the White House has proceeded with promoting the usage of the Clipper Chip.[277]

The FBI is not content with the access granted by the Clipper Chip. In early 1994, FBI officials lobbied Congress to require that all communication networks be designed with built-in surveillance capabilities. In February 1994, the FBI forwarded a proposed bill—the Digital Telephone Act of 1994[278]—for this purpose. This Act, among other things, requires that: (1) common carriers modify switches and computers to ensure that all communications are interceptable; (2) manufacturers and support companies assist carriers in designing such systems; and (3) systems be designed to collect and make immediately available to law enforcement agencies, all transactional information that users generate. Violations of the Act would result in fines of $10,000 per day and possible restraining orders.[279]

Opposition to this agency recommendation has been voiced by a wide range of individuals and groups, including civil liberties and privacy organizations. Roy Neel, President of the United States Telephone Association, an association of 1,100 large and small telephone companies, summed up these concerns in his Congressional testimony: "[t]his legislation would make the Attorney General the arbiter of whatever technologies and equipment can be deployed in the public telecommunications network. . . . [O]ur nation cannot be held hostage to inexpert analysis of telecommunications technology in the information age."[280]

There is probably truth to the belief that providing the Attorney General with veto power over all new communication systems will serve as a bottleneck to technological innovation.[281] Equally as damaging to innovation, however, is the perception that technology will be stymied. Also, the question arises as to whether foreign markets will be receptive to an encryption system or transparent communication system that allows the U.S. government access to the information. These issues are

277. Banisar, *supra* note 262, at 499.

278. S. 2375, 103d Cong., 2d Sess. (1994).

279. *See* Freeh, *supra* note 274.

280. Roy Neel, President, the United States Tel. Ass'n, Testimony Before the Subcomm. on Technology and the Law of the Comm. on the Judiciary, United States Senate (Mar. 18, 1994) (transcript on file with authors).

281. Banisar, *supra* note 262, at 501.

appropriately being debated at the outset, but it is unclear whether officials will listen to industry or merely acknowledge the controversy.

Furthermore, government control over access and security is not the only debate surrounding the Clipper's use. Questions as to who will police the system, and how it will be done remain unresolved. Additionally, concerns about the Chip's compatibility with existing systems raise legitimate doubts as to the feasibility of its implementation on an all-encompassing scale.

The scientific community is skeptical of the effectiveness of the Clipper technology and suspects that it has many flaws. For instance, Dr. Batt Blaze of Bell Labs, has discovered a way of modifying messages with the Capstone Chip to prevent law enforcement officials from decrypting the messages.[282] Second, the business community is concerned that foreign customers will not buy technology that includes a back-door for the U.S. government.[283] Third, sophisticated criminals will either forgo Clipper-based products in favor of custom products based on other two-key encryption systems, or they will use another layer of encryption to defeat government eavesdroppers.[284]

D. Social Concerns: Morality and First Amendment Issues

Limitations on minors' access to mature material and the ability to purchase products through interactive technology are obvious examples of some of the concerns raised by the new technologies. While "blocking" 900 number calls for households requesting such treatment was a feasible remedy in that setting, the fix for the new interactive technologies will not be as easy to design. The issue of regulating content for adults also raises constitutional and social concerns. Regulation of the information superhighway could include limitations on

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282. John Markoff, *At AT&T, No Joy on Clipper Flaw*, N.Y. TIMES, June 3, 1994, at D1.

283. Banisar, *supra* note 262, at 500.

284. Neither the government nor the opponents of the Clipper Chip have paid much attention to the most likely method by which sophisticated criminals will use Clipper-based equipment without fear of eavesdropping. A criminal could simply encrypt his message with PGP, creating an unintelligible message. The Clipper Chip built into the telephone or modem would then encrypt and decrypt the unintelligible message. The receiver would use PGP technology to turn the unintelligible message back into the original message. A government agency using its Clipper keys would be able to hear the unintelligible message, but would not be able to hear the intelligible message. This is much like the government demanding a key to every briefcase manufactured in America; the criminal would simply add a second lock, making the government's key worthless.

broadcasting graphic sexual activities and violence, possibly using the same standards applied to pornography generally.[285] First Amendment considerations must be balanced against undesirable and immoral content.

New technologies can exacerbate these old concerns. In January 1994, a husband and wife were indicted for distributing obscene materials via a computer bulletin board system.[286] While the couple operated in the San Francisco, California area, the case was venued in federal court in Memphis, Tennessee. As one commentator noted, the "contemporary community standard" applied to determine obscenity could differ significantly between San Francisco and Memphis.[287] Could the information superhighway provide new opportunities for forum shopping by prosecutors? What law and jurisdiction should apply to providers of content on the highway? Also, assuming that the restrictions could be policed and enforced, could communities impose greater restrictions on the availability of materials in their jurisdictions if contrary to what federal law or other communities might mandate?

Computer networks raise many of the same concerns for parents as does television. Just as children watching television are constantly bombarded by shows with violence and sex and by commercial advertisements, children using an on-line computer network may encounter the same experience. While parents have traditionally regarded computers as safe toys, this assumption may be naive. For example, children are exposed to very sexually explicit material on the Internet.[288] Additionally, advertisers are branching out into the on-line services. Coors and TGI Friday's sponsor on-line video games.[289] McDonald's introduction of a full motion on-line video advertisement raises on-line advertising to a new level.[290]

While the risk from some advertisements may be minor, what will protect children from possibly more dangerous advertisements, such as tobacco advertisements? One possible solution might lie in legislation for computers such as the Children's Television Act of 1990, which limits

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285. Tim Jones, *Information Highway Hype has Familiar Ring*, CHI. TRIB., Jan. 16, 1994, at 3.

286. United States v. Thomas, No. 94-20019-G (M.D. Tenn. filed Jan. 27, 1994).

287. Grosso, *supra* note 15, at 484.

288. Daniel Pearl, *Government Tackles a Surge of Smut on the Internet*, WALL ST. J., Feb. 8, 1995, at B5.

289. Kevin Goldman, *Coors Turns to Computer Screen, Hoping Customers Get Keyed Up*, WALL ST. J., Sept. 21, 1993, at B10 [hereinafter Goldman, *Coors*]. *See also* Fara Warner, *Cheers! It's Happy Hour in Cyberspace*, WALL ST. J., Mar. 15, 1995, at B1.

290. Goldman, *McDonald's*, *supra* note 6, at B7.

advertising in children's programming.[291] Another possible solution is one that is being implemented by Prodigy, an on-line computer service. Prodigy features advertisements for Coors beer but those under 21 years old cannot view them.[292] Prodigy knows the age of its users from voluntary user profile forms and simply locks out those under age from the commercials.[293] The presence of advertising on the on-line services is still in its infancy but promises to grow in the future. On-line advertising offers companies numerous advantages such as an ability to cut overhead costs, act quickly, and target very specific audiences.[294] While on-line services offer an exciting new frontier for advertisers, the risks for consumers must be recognized as well.

A number of questions remain unanswerable at present. For instance, it is unclear whether the FTC's ban on cigarette advertising on television extends to the on-line computer services. It is unlawful to advertise cigarettes "on any medium of electronic communications subject to the jurisdiction of the Federal Communications Commission."[295] However, FCC jurisdiction may not extend to the various on-line computer services. The FTC has exerted jurisdiction over on-line services with regard to false advertising. In its first false advertising suit on the information superhighway, the FTC brought an action against a person alleging an ability to legally fix credit records for $99. Several of the suggestions for repairing credit records were in fact illegal.[296]

Additional questions are raised, such as where should the line be drawn for usage of the highway by hate-oriented groups (such as racial supremacists)? While it may be neither practical nor desirable to regulate every aspect of content, the legislation should provide the framework for the services providers (and ultimately the courts) to decide where the line should or must be drawn on usage.

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291. 47 U.S.C. § 303(a) (Supp. V 1993).

292. Goldman, *Coors*, *supra* note 289, at B10.

293. *Id.*

294. Leslie Laredo, Director of Advertising Development at Ziff-Davis Interactive, Advertising in the Online Marketplace (1994) (unpublished position paper, available from Ziff-Davis Interactive, Cambridge, Mass.).

295. 15 U.S.C. § 1335 (1988).

296. *First 'Information Superhighway' Case Catches Credit Repair Rep*, FTC WATCH, Sept. 26, 1994, at 2.

E. Regulation and Enforcement of the NII: Public or Private?

The authors are not advocating that all regulation be vested with the government—much less the federal government. The issues of preemption and the role of the states in the regulation of the information superhighway are unresolved at present. At least five states have recently authorized the deregulation and introduction of competition in the provision of local exchange telephone services on an intrastate basis.[297] However, pending federal legislation supports local exchange competition as a national policy goal and largely preempts any state laws or regulations that prohibit competitive entry. Thus the only issue that is clear is that the law is in flux, and the question of who will regulate is largely in dispute.

The role of state laws recently surfaced in connection with the usage of modern technology to diagnose a patient who had undergone heart surgery and started to experience pain. His physician—who was physically located on an Indian Reservation in North Dakota—obtained a second opinion from a cardiologist at the Mayo Clinic of Rochester, Minnesota through the use of a satellite uplink to check vital signs. While the technology "worked flawlessly," if the Mayo physician had sought compensation for the consultation, the session would have "probably . . . been illegal" because the Mayo Clinic physician was not licensed to practice medicine in North Dakota.[298] Insurance companies and Medicare apparently object to such long-distance reviews at present. Representative Pat Schroeder (D-Colo.) has proposed establishing a committee "to study the barriers to implementing telemedicine and propose comprehensive legislation to eliminate them."[299] These same types of issues are likely to arise in other territories along the highway.

The 1934 Act and the federal/state boundaries recognized by courts under that act may provide some limited guidance for the future regime. The 1934 Act created a dual regulatory scheme in which state and federal regulators were to share responsibility for formulating domestic communications policy. Generally, the states were allowed to regulate intrastate

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297. New York (with respect to Rochester); Iowa; Arkansas; Connecticut; and Washington. A similar measure recently died in the Tennessee legislature. Notably, as of this writing, Wisconsin is on the verge of enacting sweeping telecommunications reform legislation.

298. *See* Elizabeth Corcoran, *Laws Stall Diagnosis on the Data Highway*, WASH. POST, Sept. 21, 1994, at F1.

299. *Id.* at F3.

commerce, and the FCC interstate commerce.[300] This seemingly neat division between interstate and intrastate communications has not been easy to apply to the modern telecommunications field. On the contrary, it has been a major point of contention between the FCC and the states, especially over the past 25 years.

Up until 1986, both the FCC's and the courts' preemption analysis favored an expansive reading of the FCC's regulatory power. The courts' major concern was to prevent states from frustrating legitimate federal policy objectives, such as increasing competition in the service markets. The FCC adopted policies and rules that it believed would stimulate competition in the customer premises equipment ("CPE") market,[301] the computer services market, and in the basic interstate MTS-WATS market. These new policies jeopardized the ability of state regulators to maintain low rates for local service and set off a round of litigation over the jurisdictional authority reserved to the states in the 1934 Act.[302]

In 1986, however, the Supreme Court restricted the FCC's seemingly limitless ability to override conflicting state law in *Louisiana Public Services Commission v. FCC*.[303] In interpreting this decision, appellate courts have, on the whole, followed the Supreme Court's call for a "dual regulatory system" in telecommunications.[304] While it is likely that a

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300. The 1934 Act expressly protects state jurisdiction over intrastate communications. States can operate free of FCC regulation with respect to "charges, classifications, practices, services, facilities, or regulations for or in connection with intrastate communication service by wire or radio of any carrier . . . ." 47 U.S.C. § 152(b). In addition, Section 221(b) of the 1934 Act reserves to the states jurisdiction with respect to "charges, classifications, practices, services, facilities, or regulations for . . . telephone exchange service . . . even though a portion of such exchange service constitutes interstate or foreign communication . . . ." 47 U.S.C. § 221(b).

301. CPE is home or business telecommunications equipment located in a residence or office.

302. *See, e.g.*, North Carolina Util. Comm'n v. FCC, 537 F.2d 787 (4th Cir. 1976) (upholding the FCC's preemption of state regulations which conflicted with its decision to permit subscribers to connect customer-provided CPE to the public switched network through protective coupling devices).

303. 476 U.S. 355 (1986). State regulatory commissioners challenged an FCC order stating that the FCC had the exclusive right to regulate depreciation practices and schedules in the setting of intrastate rates. The Supreme Court ruled that Section 152(b) of the 1934 Act barred the FCC from preempting state regulation of depreciation of dual jurisdiction property for intrastate rate-making purposes, *id.* at 373, and rejected the proposition that FCC preemption is barred only when the matter to be regulated is purely local, *id.* at 374, and further held that a federal agency may not preempt state law when the federal agency is acting outside the scope of its Congressionally-delegated authority, *id.*

304. *See, e.g.*, National Ass'n of Regulatory Util. Comm'rs v. FCC, 880 F.2d 422 (D.C. Cir. 1989) (FCC order preempting state regulation of the installation and maintenance

similar dual scheme will be developed for the NII, it would be helpful if Congress provided clear and express boundaries in the enabling legislation itself rather than awaiting judicial intervention and construction.

The authors believe that government alone cannot create the optimal regulatory scheme.[305] Indeed, industry must play a role in ensuring that the social goals and objectives of regulating the NII are accomplished. Industry should take the initiative and decide: (1) how to offer access to the broad array of users and providers; (2) how to ensure that the intellectual property rights of providers are not violated so as to provide the appropriate incentives for innovation; (3) how to safeguard the privacy of users; and (4) how to police the network to combat fraud and improper utilization of the system.

There is precedent for industry initiatives involving self-regulation. The advertising industry, for instance, has been actively involved in self-regulation through the National Advertising Division of the Council of Better Business Bureaus ("NAD"). NAD has promulgated guidelines for the voluntary self-regulation of advertising, with NAD becoming apprised of false or misleading advertisements through complaints by competitors or NAD's own system for monitoring advertisements. Some of NAD's recent successes include an agreement by Kraft General Foods to discontinue its current advertising practices for Bull's-Eye Barbecue Sauce,[306] an agreement by Discover Card Services to modify ads for the SmartRate Program,[307] and an agreement by Sterling Winthrop to use a clearer statement to compare Extra Strength Bayer Plus with Extra Strength Tylenol.[308] Another example of self-regulation is the way in

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of the "inside wiring" within customers' premises not permitted even though *facilities* are physically inseparable into intrastate and interstate components, since the costs of wiring could go through the separations process); Illinois Bell Tel. Co. v. FCC, 883 F.2d 104 (D.C. Cir. 1989) (FCC successfully preempted state regulation of the marketing of Centrex and other arguably intrastate services because Centrex was marketed as a package with interstate services that was not capable of severance into discrete interstate and intrastate components); California v. FCC, 905 F.2d 1217 (9th Cir. 1990) (FCC was unsuccessful in preempting state regulation of "enhanced services" by communications common carriers; to the extent services are provided by communications carriers over the intrastate telephone network, they are placed within the regulatory domain of the states).

305. In at least one way, the government may be particularly ill-suited to regulate the technologically-advanced information superhighway. Parts of the government are lagging far behind the private sector in implementing the new technologies. *See* Mark Lewyn, *Washington Bogs Down in Booting Up*, BUS. WEEK, May 1, 1994, at 116.

306. *Kraft Agrees to Withdraw Ads for Bull's-Eye Barbecue Sauce*, NAD NEWS, July 13, 1994.

307. *Discover Card Services Agrees to Modify Its Advertising for the Discover Card Smart Rate Program*, NAD NEWS, May 4, 1994.

308. *Sterling Winthrop Inc. Will Reconsider One of Its Comparative Advertising Claims*

which Prodigy, an on-line computer service, has limited access to computer beer commercials to those 21 years old or older.[309]

The credit association industry has similarly taken an interest in self-regulation. For example, Associated Credit Bureaus, Inc., a trade association for more than 1400 credit reporting, collection service, and mortgage reporting companies, has implemented policies to enable consumers to obtain their credit reports more rapidly and to guarantee that credit reports are only sent to people who are legally entitled to get them.[310]

The computer industry has also adopted industry standards to facilitate the offering of complementary products and services. Access to the "standard" through the grant of royalty-free or nominal royalty licenses are not atypical in those situations and may be appropriate for the infrastructure of the NII. To leave the development of the regulatory scheme and structure to the government would be a grave mistake and would deprive the public of the opportunity to have some of the most knowledgeable and forward-looking experts on the services and needs of the NII involved in the process.

F. Global Travel on the NII: Planning Today to Ensure Coordinated Worldwide Regulation

This article focuses on the information superhighway to some extent as though it were a land-locked highway limited to the United States. In actuality, the NII is not limited by such boundaries; it is likely to be global in coverage. For instance, the European Commission is studying the development of the European Information Highway and has announced that it will publish a green paper that could lead to specific legislative initiatives in early 1995.[311]

There will also be problems that will best be addressed internationally. A prologue of what lies ahead occurred in the Spring of 1994 when a federal grand jury sitting in San Jose, California considered whether to charge cryptographer Philip Zimmerman with violating laws against the

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for Extra Strength Bayer Plus, NAD NEWS, Mar. 8, 1994.

309. Goldman, *Coors*, *supra* note 289, at B10.

310. Associated Credit Bureaus Inc., Credit Bureaus Adopt New Consumer Policies 1 (May 17, 1993) (news release from Associated Credit Bureaus Inc., Wash., D.C.).

311. *EU Says It is Taking Next Steps On Information Highway Development*, 8 WORLD INTELL. PROP. REP 247 (1994).

exportation of encryption codes.[312] Apparently, in 1990, Mr. Zimmerman began drafting an encryption software package known as "Pretty Good Privacy" or "PGP." When completed, Mr. Zimmerman made the package available, at no cost, to U.S. computer users. In mid-1991, a recipient placed the package on the Internet. Users throughout the world began downloading it. The encryption package is effective enough that it falls within the prohibitions against the exportation of encryption codes.[313]

Transnational fraud and abuse are increasing. Heavily computerized countries are frequently subject to computer-related crimes, such as viruses, introduced from outside their borders. Computer viruses have been spread throughout the U.S., Bulgaria, Italy, Sweden, and Russia. Hackers are not limited to traditional national boundaries since content can be shipped via telephone and data networks. Coordinated efforts, such as the recent arrest of hackers who attacked U.S. computers, by Denmark, England, and Australia, are needed before the system goes into full operation. Similarly, the Organization for Economic Cooperation Development ("OECD"), which comprises member nations including the United States, recently established a network and is constructing a database to increase knowledge about sellers and marketing abuses in the international marketplace. The OECD also released Guidelines for the Security of Information Systems, which require prompt assistance by all members when information security has been breached. Similarly, OECD members are discussing adapting more uniform consumer protection measures on issues such as warranties and cooling-off periods for purchases on the NII, but consensus is still a long way off.[314]

The global scope of the information infrastructure is well recognized by U.S. trade and communication officials. The U.S. recently signed a memorandum of understanding on the development of the so-called "Global Information Infrastructure" with Russia and agreed to cooperate on telecommunications policy and technical assistance.[315] The U.S. also participated in the World Telecommunications Development Conference

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312. William M. Bulkeley, *Cipher Probe: Popularity Overseas of Encryption Code Has the U.S. Worried*, WALL ST. J., Apr. 28, 1994, at A1. *See also* Steven Levy, *The Encryption Wars: Is Privacy Good or Bad?*, NEWSWEEK, Apr. 24, 1995, at 55. The Arms Export Control Act, codified at 22 U.S.C. §§ 2751-2796 (1988), restricts the export of certain software absent an export license.

313. Bulkeley, *supra* note 312, at A1.

314. Scott Charney, *Computer Crime*, 41 FED. BAR NEWS & J. 489, 493-94 (1994).

315. *U.S. Signs Understanding with Russia on Global Information Infrastructure*, DAILY EXECUTIVE REP., Aug. 8, 1994.

in Buenos Aires in March 1994. What may be appropriate to facilitate national enforcement are laws similar in nature to amendments added in 1990 and 1993 to the Securities Exchange Act of 1934,[316] and which are being proposed for antitrust enforcement[317] to facilitate cooperation with foreign authorities. Those laws permit officials to assist foreign law enforcement agencies in their investigations.

However, acknowledgement of the global exchange of information and services does not guarantee attainment of these lofty goals. While implementation of the U.S. information superhighway may be within eyesight, the global infrastructure has not even been fully conceptualized. It will take careful planning and implementation to realize the potential of the highway in the decades to follow.

CONCLUSION

The public is enthusiastically awaiting the opportunity to travel along the information superhighway. International, federal, and state officials, working with industry, have the great challenge and potential to design this newest frontier. It is a highway which knows no borders. However, inertia and delay in designing and implementing a new comprehensive regulatory scheme will not help the providers to navigate successfully on the NII, nor the public to avoid the bumps in the road of usage.

This article has attempted to identify how in the past the various components of the NII have been perceived and regulated as separate components, and how the regulatory atmosphere is changing. As the technology rapidly advances, the legal problems associated with this new technology will multiply. Privacy, ownership, and jurisdictional considerations are of particular concern. Users should be advised that the regulatory response is not likely to keep up with advancing technology. Therefore, users should carefully weigh their actions when venturing onto the superhighway, and seek advice to avoid hitting potential potholes.

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316. *See* 15 U.S.C. § 78(u)-(x) (Supp. V 1993).

317. The International Antitrust Enforcement Assistance Act, S. 2297, was introduced by Senators Howard M. Metzenbaum (D-Ohio) and Strom Thurmond (R-S.C.) in July 1994. S. 2297, 103d Cong., 2d Sess. (1994).