Computer Communications: Government Regulation

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I. INTRODUCTION

Federal regulation of communications as it relates to the vendor of computer services and the organization with an in-house system is a timely topic: the subject is complex, the technology is dynamic, and the rules are evolving. Those potentially affected by such regulation must familiarize themselves with the issues so that they can participate in the development of these rules.

There are two proceedings which will have a significant impact on future government regulation: the Federal Communications Commission's Second Computer Inquiry\(^1\) and Congress' study of possible revisions of the Communications Act of 1934.\(^2\) The latter was triggered by the efforts of American Telephone and Telegraph Company (AT&T) and the telephone industry to secure passage of the Consumer Communications Reform Act of 1976.\(^3\) Before discussing these


\(^{3}\) A series of bills, inappropriately entitled the Consumer Communications Reform Act of 1976, were introduced in the 94th Congress. The primary bills were S. 3192, 94th Cong., 2d Sess., 122 CONG. REC. 3982-83 (1976), and H.R. 12323, 94th Cong., 2d Sess., 122 CONG. REC. 1676-77 (1976). For a complete list of all bills introduced, see Legislative Calendar of the Senate Comm. on Commerce, 94th Cong., 2d Sess. (final ed. Dec. 31, 1976); Legislative Calendar of the House Comm. on Interstate
proceedings, however, it is necessary to explore why these issues are presently under consideration.

Since the early 1960s, there has been a trend to make centrally located computers accessible from widely scattered geographic points, and to link geographically separated computers by utilizing common carrier telephone or telegraph facilities. In an advanced stage, a data processing company or end user may have an extensive communications network which is an integral, yet incidental, part of its computer system. In these networks, one or several computers may be used for tabulation, as a data base, and for other conventional “data processing” activities. The network may be based on a large central computer or combine central and minicomputers which share functions. However configured, the network operates as an integrated system.

Because the telephone companies for many years did not encourage the development of computer (data) communications systems or components, unregulated data processing organizations, service firms, and manufacturers were able to introduce numerous innovations into the computer market without substantial interference. Recently, however, the telephone industry, and particularly AT&T, has responded to this competition. The common carriers now apparently believe that the computer business has substantial growth potential and their interest in computer communications is accelerating: during the past few years, for example, AT&T has introduced the Dataspeed 40/4 terminal, the Model 208 (4800 bps) and Model 209 (9600 bps) modems, and a customer-premises multiplexer (4 channels) for use on its digital pri-

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4. A Dataspeed 40/4 terminal resembles a teletype machine; however, it provides for the introduction and retrieval of information from a computer.

5. Modems are devices that permit information to travel over a conventional telephone line to or from a computer. A computer signal is “digital” and the signal on a telephone line is “analog.” The modem converts a digital signal to analog, and vice versa. The higher the modem speed, expressed in bits-per-second, (a bit is the smallest unit of information representing a choice between two possible states), the more information is transferred in a given period of time. The historic trend has been to increase speed, without sacrificing quality.

6. A multiplexer is a device which can divide the signal on a telephone line
private lines. In transmission services, AT&T has introduced digital private lines, Dataphone Digital Service (DDS), and a packet-switched type offering, Transaction Network Service (TNS).

Carrier participation in the data processing industry, however, presents certain problems. As the sole suppliers of telephone or telegraph services, certain carriers have the market power to tie or compel the purchase of their data processing services; they can subsidize the cost of their data processing services with the revenue derived from their monopoly; and they are able to divert resources needed to provide basic telecommunications services to promote their competitive data processing business. The issues raised by such competition will ultimately affect the services and facilities available to all users of computers and communications components needed to link the computer to the user. At stake is the continuation of high level technological development and the competitive pressure to improve service and reduce prices.

II. THE REGULATORY FRAMEWORK

A. Scope of Regulation

The Communications Act of 1934 authorizes the Federal Communications Commission (FCC) to regulate radio or wire communications. The FCC, however, has no power to regulate data processing or private—as opposed to common—carriage for hire. The Act is so that a number of computer “conversations” can be conducted virtually simultaneously. This increases the effective capacity of a given line. Multiplexers can subdivide a regular line used for a single normal (voice) conversation to carry 10, 20, 30, or more computer conversations.

7. Telephone service has historically been an analog signal. For computer use, there must be a converter. See note 5 supra. Recently, carriers have been making available digital transmission services which do not require a modem. Data Transmission Company (DATRAN) initiated this service which is also offered by AT&T under the name Dataphone Digital Service, sometimes referred to as DDS.


9. Cf. Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities, 28 F.C.C.2d 267, 268 (1971). The FCC is authorized to regulate common carriers’ provisions of data processing services to ensure that common carriers provide “adequate and efficient communications services at reasonable and non-discriminatory rates and practices.” The FCC requires, therefore, “maximum separation of activities . . . subject to regulation from non-regulated activities involving data processing.” Id. at 269.

designed to assure the availability of adequate interstate communications services, and requires that the Commission meet a statutory "public interest" test in all licensing and tariff determinations. This test encompasses several factors including the public's communications needs, the costs and rate structure of the offered facility or service, and its effect on competition. An important consideration in establishing regulatory policies for computer communications is the effect on competition.

B. Data Processing v. Communications: Present Rules

The FCC's Computer Rules were adopted to preserve the integrity

13. See, e.g., General Tel. Co. of the Southwest v. United States, 449 F.2d 846, 856-857, 858 (5th Cir. 1971); Application of ITT Corporate Communications Services, Inc., FCC Docket No. 77-428 (July 6, 1977).
14. 47 C.F.R. § 64.702 (1976), provides:
   (a) For the purpose of this subpart—
   (1) "Data processing" is the use of a computer for the processing of information as distinguished from circuit or message-switching. "Processing" involves the use of the computer for operations which include, inter alia, the functions of storing, retrieving, sorting, merging, and calculating data, according to programmed instructions.
   (2) "Message-switching" is the computer-controlled transmission of messages, between two or more points, via communications facilities, wherein the content of the message remains unaltered.
   (3) "Local data processing service" is an offering of data processing wherein communications facilities are not involved in serving the customer.
   (4) "Remote access data processing service" is an offering of data processing wherein communications facilities, linking a central computer to remote customer terminals, provide a vehicle for the transmission of data between such computer and customer terminals.
   (5) "Hybrid service" is an offering of service which combines remote access data processing and message-switching to form a single integrated service.
   (i) "Hybrid data processing service" is a hybrid service offering wherein the message-switching capability is incidental to the data processing function or purpose.
   (ii) "Hybrid communication service" is a hybrid service offering wherein the data processing capability is incidental to the message-switching function or purpose.
   (b) Except as provided herein, no common carrier subject, in whole or in part, to the Communications Act shall engage directly or indirectly in furnishing data processing service to others except as expressly provided in paragraph (c) of this section. This prohibition shall apply to all communications common carriers, including section 2(b)(2) carriers, where any carrier itself has annual operating revenues exceeding $1 million or any such carrier
of common carrier facilities and prevent harm to customers of tariffed service by cross-subsidization. To achieve these goals, the FCC adopted a relatively simple approach: carriers may conduct a "data
processing” activity only through a separate corporate subsidiary.15 The separation of data processing and communications is particularly significant to AT&T. Because of the Consent Decree entered in United States v. Western Electric Co.,16 AT&T can only offer tariff regulated “communication” services; a determination that an activity is data processing, rather than communications, bars AT&T from offering that service.

In addition, an inexperienced observer sometimes finds it difficult to categorize an activity when elements of both are present in a particular service, as with remote access data processing. A key factor is whether the vendor of the service is performing communications services for itself or for others. If the vendor performs these services for itself, it is not providing communications common carriage within the meaning of the Communications Act; under existing tariffs, the

15. Id. § 64.702(c). See note 14 supra for the text of the regulation.
16. 1956 Trade Cas. 71,134 (D.N.J. 1956). The decree was entered in an antitrust action brought by the Department of Justice against AT&T, Western Electric, the 22 Bell Operating Companies, and their subsidiaries engaged in furnishing common carrier communications services. One of the decree's major functions was to prevent AT&T and the other defendants from entering new areas in the data processing field. To ensure this, the decree prohibited the manufacture, sale, or lease of equipment not used in the furnishing of common carrier communications, and enjoined the defendants from engaging in any kind of business not then characteristic of the companies. Id. at 71,137-38. Other sections of the decree concerned the acquisition of related companies, and the licensing of patents and furnishing of technical information. Id. at 71,138-42.
vendor would not be engaged in resale. Thus, a remote access data processing company does not offer communications when it sells remote access data processing or time sharing services, because its activities are communications for the data processing company alone. Remote access data processing is therefore "pure" data processing within the meaning of the Computer Rules.

The Commission, however, has recognized that there may be certain circumstances in which a combination of data processing and communications common carriage services should be permitted. The FCC has therefore created two "hybrid" categories:\footnote{17. 47 C.F.R. § 64.702(a)(5) (1976). See note 14 supra.}

A hybrid communications service consists of an integrated communications and data processing service in which the data processing is incidental to the communications activity. A hybrid data processing service, on the other hand, is an integrated offering in which the communications function is incidental to the data processing activity.

C. Dataspeed 40/4 and SICOM

Two recent FCC decisions illustrate the application of the Computer Rules to actual service offerings.\footnote{18. These are the only formal opinions issued by the Commission interpreting the old Computer Rules. \footnote{19. AT&T Revisions to Tariffs, FCC Nos. 260 & 267, Transmittal No. 12,449 (March 3, 1976).} \footnote{20. Id. at 6.}} In the Dataspeed 40/4 proceeding,\footnote{19. AT&T Revisions to Tariffs, FCC Nos. 260 & 267, Transmittal No. 12,449 (March 3, 1976).} the Common Carrier Bureau Chief rejected AT&T's tariff filing for a "smart" terminal device. In the Initial Decision, the Chief noted that the term "data processing," as used in the Computer Rules, applied not only to central computer data processing but also to services provided by devices such as the Dataspeed 40/4, which function as an integral part of a data processing service. The Initial Decision pointed out that the Dataspeed 40/4 terminal would not be used to communicate with another Dataspeed 40/4 terminal; it appeared incapable of such communication without the addition of external data processing equipment.\footnote{20. Id. at 6.} The Bureau Chief concluded, therefore, that AT&T was attempting to tariff a data processing unit. Since the Computer Rules prohibited the offering by common carriers of data processing services under tariff, the Chief rejected AT&T's Dataspeed 40/4 tariff. Because AT&T can only offer services under tariff, it was...
effectively precluded from marketing the Dataspeed 40/4.

The full Commission reversed the Bureau Chief's decision,\textsuperscript{21} and held that the original Computer Rules were aimed at processing carried on in large central computers. Consequently, it concluded that AT&T's Dataspeed 40/4 was a communications \textit{service} not within the ambit of the Rules.\textsuperscript{22} Questions concerning the offering of data processing \textit{equipment} were reserved for the Second Computer Inquiry.\textsuperscript{23}

The second recent Commission decision involved Western Union's SICOM service,\textsuperscript{24} and was the first formal interpretation of the Computer Rules. The issue was whether basic SICOM and its collateral services constituted a single integrated hybrid service and, if so, whether it was a hybrid communications or data processing service. Basic SICOM service included channel facilities and equipment for simultaneous two-way transmission of communications between stations on a customer's private network through a computer located on Western Union's premises. Western Union later amended its basic SICOM tariff to include certain optional features, several of which were admittedly data processing services.

The Commission's concern was whether four of these collateral data processing services\textsuperscript{25} were so integrated with the basic SICOM service that it was infeasible to offer them separately. Although the Commission recognized that the collateral services were transmitted over a customer's SICOM network, it found that this constituted merely the "close and intimate relationship between data processing and

\textsuperscript{22} \textit{Id.} at 29.
\textsuperscript{23} \textit{Id.} at 31.
\textsuperscript{24} Western Union Tel. Co., Tariff FCC No. 251 (SICOM Service), 59 F.C.C.2d 140 (1976), \textit{appeal dismissed sub nom.} Western Union Int'l Corp. v. F.C.C., No. 77-4065 (2d Cir. Aug. 30, 1977).
\textsuperscript{25} The services included:

1. \textit{Order Match} matched executed reports with orders entered into the computer center. The order-matching information was sent over the SICOM system to the customer station originating the trading orders.
2. \textit{Execution Recap} furnished the customer with a daily list, on magnetic tape, of all executed orders.
3. \textit{Data Collection} furnished the customer a magnetic tape of trading and accounting information on the customer's transactions; and
4. \textit{Microfilm Journal} furnished the customer with a monthly microfilm record of all messages entered into the computer center by the customer.
communications" referred to in the First Computer Inquiry. Such a relationship alone did not create a single integrated hybrid service. Because the only apparent reason to offer four collateral data processing services in connection with SICOM was to provide access by a file processing computer to the customer's basic SICOM information, the Commission found that the integration was insufficient to constitute a single integrated hybrid service. Thus, if it is technically and economically feasible to offer the data processing elements separate from the communications elements, an offering apparently cannot meet the integration test necessary to be classified as a hybrid service. The Commission concluded that the offering violated the Computer Rules, and directed Western Union to revise its SICOM tariff to delete the four collateral data processing service offerings.

Western Union petitioned for reconsideration, but the Commission reaffirmed its decision. Western Union subsequently revised its SICOM tariff and made the previously optional data processing elements "mandatory" by establishing usage sensitive charges which would apply if and when the customer used one of these services. The Commission rejected this revision on procedural grounds.

The Dataspeed 40/4 and the SICOM decisions, which required that equipment be classified and effectively limited the "hybrid" category, mandated the Commission's Second Computer Inquiry.

III. THE PROCEEDINGS

A. Docket 20828: FCC's Second Computer Inquiry

As a result of this situation, the FCC has instituted proceedings to consider possible changes of the present Computer Rules. On March 8, 1977, it enlarged that proceeding to analyze proposed language and to address the equipment issues raised in Dataspeed 40/4.31

27. Id. at 144-45.
30. Amendment of § 64.702, supra note 1; 61 F.C.C.2d 103 (1976).
The Commission's proposed new rules continue the separation of communications and data processing activities, eliminate the hybrid categories, and define data processing as "the electronically automated processing of information wherein: (a) [t]he information content, or meaning, of the input information is in any way transformed, or (b) where the output information constitutes a programmed response to input information." The Commission, although not as part of its rules, has stated that the following activities would be data processing under its proposed definition:

**Arithmetic processing.** Applications include: general commercial accounting, inventory control, banking and point-of-sale processing, financial and econometric modeling, scientific calculations, etc.;

**Word processing.** Applications include: interactive information retrieval systems, management information systems, text editing, translation, typesetting, etc.;

**Process control.** Applications include the use of electronic equipment to monitor and control some process which is occurring on a continuing basis—such as nuclear-powered generating stations, an electric power distribution grid, an automatic machine tool, or a fire detection and control system.

The Commission similarly detailed certain processing activities which would not in and of themselves constitute "data processing." This utilization in the course of providing either a communications or a data processing service would not necessarily change the nature of that service. These include:

**Network control and routing.** Applications include: message and circuit switching, speed and code conversion, pulse format conversion, transmission error detection and correction, analog to digital and digital to analog conversion, signal processing, and time division multiplexing.

**Input/output processing.** This category comprises the uses of processing capability resident in a carrier network facility for the purpose of making disparate information sources and receptors compatible with the transmission system and with each other. Such processing activities include those necessary for formatting, editing, and buffering of information to make it compatible with the electrical characteristics of different transmission media.

33. Id.
34. Id. at 13,030-31 (footnotes omitted).
Under the proposed rules, carriers apparently will be free to offer any services involving activities not included in the positive definition of data processing. As with the existing Computer Rules, the purpose of the proposed rules is to require common carriers who offer data processing services to use separate personnel and facilities. The Commission's recent decision in Docket 20097, however, indicates that waivers of the Computer Rules might be granted to resale carriers who do not own underlying facilities, i.e., cables, microwave towers, wire, etc. This ruling, as well as the decisions ultimately made in Docket 20828, may substantially affect the level of competition in the data processing services industry.

In addition to its concern with the effect of its proposed rules, the Commission solicited comments on two broader issues: under what conditions carriers should be permitted to offer customer-premises terminal equipment; and, whether there is a need for legislation to aid the Commission in its regulatory work.

The Commission summarized its concerns as follows:

(a) Whether the proposed definition of "data processing" correctly divides "communications" and "data processing" when applied to a carrier's processing activities, regardless of location within a service offering; and whether the proposed § 64.702 will be administratively enforceable and in the public interest;

(b) Whether the proposed amendment of § 64.702 will afford flexibility in the structuring of service offerings, and, at the same time, be conducive to innovation in the communications and data processing fields;

(c) Whether the offering of customer-premises equipment which performs any information processing activity, other than basic media conversion, should be considered a communications common carrier activity; and the proper institutional arrangements, terms, conditions, and regulations under which communications common carriers should be permitted to make such offerings.

(d) Specific legislative proposals or recommendations directed at remedying any inadequacies of the Communications Act of 1934, as

35. Amendment of § 64.702, supra note 1.
amended, in dealing with the confluence of data processing and communications.\textsuperscript{38}

B. Legislation

The regulation of computer communications is also being debated in Congress. The highly publicized Consumer Communications Reform Act (CCRA)\textsuperscript{39} has become the focus of the controversy. Its opponents have dubbed it the "Monopoly Protection Act of 1976," and charge that its title is "deceptive packaging." The bill, sponsored by about 180 members of the 94th Congress, would transfer jurisdiction over station equipment and terminal facilities to the states,\textsuperscript{40} giving them authority to set interconnection rules, define station equipment, and dictate the terms under which such equipment could be marketed. The legislation also would permit state control of the interconnection of interstate specialized common carriers to AT&T local distribution facilities. This would strip the FCC of its authority to assure an integrated nationwide switched telephone network. The resulting fragmentation of authority would cause havoc in multistate computer systems.

In addition, the legislation would preclude the authorization of additional common carriers, if existing carriers have facilities which could provide the services the applicant intends to offer.\textsuperscript{41} There is, however, no corresponding requirement that the existing carrier actually provide the service. This would affect all types of carriers whether terrestrial, microwave, satellite, value-added, or other. Since many of the new value-added carriers service computer users, such restrictions would undoubtedly affect the quality, cost, and variety of services available to such users.\textsuperscript{42}

These provisions would significantly change the Commission's philosophy of maximizing competition in the communications-data processing area. This legislation, which has been reintroduced in the 95th Cong-

\textsuperscript{38} Id.
\textsuperscript{39} See note 3 supra.
\textsuperscript{40} See, e.g., S. 3192, 94th Cong., 2d Sess. § 2(d) (1976).
\textsuperscript{41} Id. § 6.
\textsuperscript{42} Also of interest and concern to computer users, are the provisions which would extend antitrust immunity to certain acquisitions of one common carrier by another and preclude the FCC from striking down a rate as noncompensatory, if the rate were sufficient to cover the incremental costs of the carrier.

gress, therefore requires serious consideration, from both a substantive and procedural standpoint. It currently has about ninety-nine sponsors in the House and three in the Senate. It has provoked substantial controversy and thirty-two members of the House and Senate have sponsored a Pro-Competition Resolution.

In response to the CCRA and Pro-Competition Resolutions, the Subcommittees on Communications in both houses of Congress have commenced hearings to thoroughly review the 1934 Communications Act. The issues to be explored include limited regulation or deregulation of computer-regulated communications, and the complete separation of carrier organizations that offer monopoly services from those that offer competitive services.

This legislative effort is important because it focuses public attention on telecommunications and data processing services. There has been and will continue to be, a great deal of debate and, as a result, the role of these services in our economy will be better understood. Congress and the regulators will recognize that efficient remote access data processing systems affect the cost of goods and services to consumers which in turn affect employment and the balance of payments. These

43. The purpose of this Bill, introduced by Roncalio (D. Wyo.) in the House of Representatives, H.R. 8, 95th Cong., 1st Sess. (1977) and by Hansen (R. Wyo.) in the Senate, S. 530, 95th Cong., 1st Sess. (1977) is:

To reaffirm the intent of Congress with respect to the structure of the common carrier telecommunications industry rendering services in interstate and foreign commerce; to reaffirm the authority of the States to regulate terminal and station equipment used for telephone exchange service; to require the Federal Communications Commission to make certain findings in connection with Commission actions authorizing specialized carriers; and for other purposes.


44. As of July 25, 1977, there were 71 CCRA bills introduced in the House with 99 sponsors. Two bills were introduced in the Senate with nine sponsors. Two pro-competition resolutions with 28 sponsors were introduced in the House and one, with two sponsors, in the Senate. In addition, 35 Resolutions with 51 sponsors calling for congressional hearings were introduced in the House.


The resolution provides: “That competition is hereby reaffirmed as the best means of serving the American consumers’ diverse and rapidly changing telecommunication needs, except where there is clear and convincing evidence that such competition would produce unreasonably higher costs or poorer service for the American consuming public.” S.J. Res. 30, 95th Cong., 1st Sess. (1977).
systems are becoming an integral part of commercial, industrial, financial, governmental, health, and educational organizations. It is hoped that Congress will produce sound legislative remedies.