



Selling E-Mail to America: MCI Mail and the Commercialization of Computer-Based Electronic Communication

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This paper presents a new perspective on a communication technology that has come to be perceived as a universal commodity, electronic mail. In 1983, a development team at MCI Communications rolled out an electronic communication service that enabled subscribers to send typed messages instantly to other users on the MCI data network. MCI Mail offered a dramatic improvement over early email applications developed by computer scientists in the 1960s and 1970s. This paper highlights the contingent nature MCI Mail's technical and commercial development and popularization. It also draws important parallels between the commercialization of email and the development of commercial telegraphy during the 19th century. Managers of telegraph and cable firms, Western Union in particular, recognized that business users were their core customer base and were willing to pay high rates for rapid and reliable service. Similarly, MCI managers viewed their electronic mail service as a business tool. They saw no practical applications for it among the retail customers who were flocking to MCI in the 1980s to take advantage of the firm's low-cost, long-distance telephone services. By examining the commercialization of MCI Mail, the paper explores an alternate development path within the broader history of telecommunication and business during the nineteenth and twentieth centuries.

Introduction

In September 1983, approximately 20 months after AT&T signed a consent decree breaking up the Bell System, MCI Communication launched a new electronic text communication network, MCI Mail. MCI had played no small role in precipitating the AT&T divestiture through its efforts to construct a long-distance microwave voice and data communication network in the 1960s and 1970s and its insistence on the legality of selling long-distance, switched voice

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URL: <http://www.thebhc.org/sites/default/files/Schwantes%20BHC%202014%20Paper.pdf>

communication services to businesses beginning with its Execunet product in 1975. With the launch of MCI Mail, the firm once again took on a government-sanctioned monopoly, this time the United States Postal Service. With a brash advertising slogan proclaiming “The Nation’s New Post System,” MCI launched a service that allowed subscribers to dial into the MCI Mail network with their modem equipped computers via a toll-free number, compose messages, and then send them instantly to other subscribers on the computer network. Additionally, MCI Mail customers could have their messages laser printed at one of 15 MCI printing facilities and mailed to recipients anywhere in the United States via USPS first-class mail. Add-on services for subscribers included delivery of messages via telex circuits or hand delivery of printed messages overnight or within four-hours by couriers in select markets. The cost for the new electronic communication service included a yearly subscription fee of \$18 and a metered cost for sending electronic and print messages that ranged initially from one dollar for an electronic message of up to 7,500 characters to two dollars for a printed message of up to three pages. (Telex charges were based on the minute and depended on the destination country.) By comparison, USPS charged 20 cents for a first-class letter that might take upwards of a week to reach its destination and a coast-to-coast, long-distance AT&T call averaged just under fifty cents per minute.¹

Prior to 1983, electronic mail had largely been the realm of computer scientists and academics, hobbyists with access to dial-up bulletin board systems (BBS), and a small number of corporate intranet users utilizing systems such as IBM’s PROFS (Professional Office System) Notes. Unlike these other users, however, MCI’s prospective customers were not computer experts, or employees accessing shared computer terminals within a single firm, but rather private business users who were comfortable working with the personal computers that were becoming more common in the workplace in the early 1980s. MCI Mail’s key advantage over BBSs and local intranets was that it offered a national (later international) network that could be accessed from anywhere with a telephone line, and could be used simultaneously by a large number of subscribers. Users’ ability to send hardcopies of messages to non-subscribers by mail (a feature that MCI eventually dropped due to its high cost) provided an additional feature absent from these other systems. MCI Mail offered business users a unique tool for sending and receiving messages and work documents quickly and conveniently across the country, whether they were in the office, at home, or even on the road. For all users, MCI Mail offered a cost-effective means of for sending and receiving long-distance messages that rivaled the cost of USPS first-class service and long-distance telephone rates at the time.

¹ “MCI Plan to Deliver Messages,” *New York Times*, Sep 23, 1983, D4; *Prices and Service Guide for MIC Mail*, 1996, accessed through Archive.org, <http://web.archive.org/web/20030730064537/www.mcimail.com/binaries/prices.pdf> (accessed January 31, 2014); Gary Oppenheimer, *PEN Newsletter* no 1 (October 1985); Tracy Waldon and James Lande, *The Industry Analysis Division’s Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service*, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, March 1997 (Washington, D.C.: Federal Communications Commission, 1997), 67, accessed through <http://transition.fcc.gov/Bureaus/Common Carrier/Reports/FCC-State Link/IAD/ref97.pdf> (accessed February 13, 2014).

In many respects, the essential features of MCI Mail appear similar to modern, Internet-based email communication programs. However, one important element of MCI Mail is quite distinct from our present system of electronic messaging, the metered-rate approach to sending messages. Today, we treat email as a commodity that is “too cheap to meter” and aside from the occasional Internet hoax about the federal government imposing surcharges on individual emails to support the USPS, we hardly think about the cost of sending email messages.² During the service’s early years, however, observers noted that MCI Mail message rates compared favorably with the price of long-distance telephone calls and “Snail mail.”³ Why did MCI Mail’s metered rates fail to remain the dominant model for electronic mail, both within a business and a personal communication context? Why did users become accustomed to paying for subscription messaging services such as EasyLink and Telenet and later Internet access through Internet Service Providers (ISPs) but not paying message rates to send email communications? Can we identify parallels between the development and popularization of email messaging and earlier electrical communication services such as the telegraph and the telephone? This paper will explore these questions as it traces the development and popularization of commercial email services during the 1980s and 1990s and examines why MCI Mail failed to become the dominant model for electronic textual communications in the United States and across the globe.⁴

E-Mail vs. Hybrid Mail

Electronic messaging via data networks began as an academic experiment at the beginning of the 1970s but was gradually commercialized by a number of firms over the next decade. Two parallel forms of electronic mail emerged during this era, computer-based electronic mail systems and hybrid electronic mail systems in which messages were transmitted electronically and then printed and delivered like traditional mail. Both of these systems had advantages and disadvantages. Computerized mail was nearly instantaneous and had a minimal marginal cost for users, but early computer networks were closed worlds accessible to an elite few in academia and the business community. Hybrid electronic mail was slower and less elegant but accessible to any user willing and able to pay the rates charged by commercial providers. Thus, these concepts represented two very different evolutionary trajectories for electronic messaging in the United States.

The origins of electronic mail lay in the mainframe and mini-computers of the 1960s and 1970s. As hardware and software systems such as MIT’s Compatible Time-Sharing System (CTSS) were developed that allowed multiple remote users to access the system simultaneously, users began to exchange messages informally with each other. Programmers eventually developed formal email applications for these systems and by the late 1960s asynchronous electronic messaging programs became a common feature of many IBM mainframe and mini-

² “Bill 602P,” Snopes.com, <http://www.snopes.com/business/taxes/bill602p.asp> (accessed January 31, 2014).

³ Gary Oppenheimer, *PEN Newsletter* no 1 (October 1985).

⁴ For more on the broader historiography of computer networks and communication, see Richard R. John, “Rendezvous with Information? Computers and Communications Networks in the United States,” *Business History Review* 75, no. 1 (Spring 2001): 1-13 and Janet Abbate, “Government, Business, and the Making of the Internet,” *Business History Review* 75, no. 1 (Spring 2001): 147-176.

computer systems. The major restriction of these early email applications, however, was that users could only send messages to other people with access to the same host device.

Other pioneering computer programmers and users began to experiment with sending messages via ARPANET, the U.S. Department of Defense's experimental packet-switched computer network that initially linked academic research centers on the West Coast and later spread to the East Coast and Western Europe. Computer programmer Ray Tomlinson, at the time working for technology firm Bolt, Beranek and Newman (BBN) in Cambridge, Massachusetts, the first East Coast location to gain access to ARPANET, developed electronic messaging software for the new system in 1971 and introduced the @ symbol for email addressing. Tomlinson's colleagues were concerned that his experiment would draw negative attention to them since they were supposed to be working on other tasks, but within a couple of years email grew to become the major source of traffic on ARPANET.⁵ Like host-based email applications, though, Tomlinson's network-based messaging software had its restrictions. At the time, only those within the "military-industrial-academic complex" had access to the network.

Electronic mail continued to gain popularity over the course of the 1970s and early 1980s. The advent of personal computers and local area networks (LANs) permitted computer users to exchange email with other users on the same network via a central server. Most LAN-based systems were implemented by corporate clients for individual offices or to link clusters of offices together within the same firm. Other efforts to expand access to electronic mail included CSNET (Computer Science Network), a dial-up network developed as gateway to enable academic institutions without direct data links to ARPANET to connect into the network.

While CSNET and ARPANET were academic experiments and LAN-based, intranet email systems were largely operated by businesses for internal communication purposes, other firms saw profit potential in combining the electronic transfer of messages and documents with remote printing and physical delivery of the materials. While these hybrid services were not email, per se, they combined rapid transfer of textual data with near-universal delivery to recipients, two features that would become important elements of modern email. Instituted in 1970, Western Union's (WU) Mailgram service utilized WU's terrestrial data network to transfer electronic messages to WU printing equipment collocated in U.S. postal service facilities. The messages were printed and handed over to mail carriers for delivery to recipients. Users could telephone or visit Western Union offices with messages or documents to be transmitted, or they could communicate the material electronically to WU if they were subscribers to WU's Telex service. WU would handle transmission of the information and confirm that it had been delivered to the USPS. The Mailgram service offered time savings over postal delivery and while slower than a full-service telegram, offered significant price savings over WU's telegram rates. Mailgram quickly gained popularity with businesses, particularly firms that dealt with large documents and contracts and remained in use until Western Union ended all messaging services in 2006.⁶

Later, the USPS began marketing its own hybrid messaging system, E-COM or Electronic Computer Originated Mail. E-COM was developed by the postal service in the late 1970s and opened to the public in 1982. It functioned similarly to Mailgram. Users with modem-equipped personal computers could dial into a USPS data network and transmit messages of two pages or less to one of 25 printing facilities around the nation. The printed messages would then be routed

⁵ Sasha Cavender, "Legends," *Forbes*, October 4, 1998.

⁶ David Vienna, "'Mailgram' Could Benefit Post Office," *Washington Post*, January 13, 1970, D6.

and delivered through the USPS mail system with 48 hours. Subscribers had to pay an annual fee of \$50 and message rates were 26 cents for the first page and two cents for a second page. While the E-Com system proved popular with the public, it failed to turn a profit at the rates charged to customers and government regulators soon began to grow concerned about the long-term financial viability of the concept.⁷

During this period, two electronic-only mail services marketed to business users also emerged. In 1979, GTE acquired Telenet, a publicly-accessible, packet-switched network developed by BBN in the mid-1970s as a commercial alternative to ARPANET, and launched the GTE Telenet email service in 1980. The service offered subscribers dial-up access to the network and stored messages online so that users could retrieve them at any time. Subscribers paid a monthly service charge of \$100, a monthly fee for their online mailbox, and per-minute access charges for dialing into the network. However, they did not have to pay metered rates to send messages to online mailboxes; metered rates only applied if senders requested delivery via Telex circuits.⁸ Western Union also got into the electronic messaging game in the early 1980s with their EasyLink offering. Launched in 1982, the service allowed modem-equipped computer users to dial into the system and send electronic messages for \$1.35 each. Unlike Telenet, users did not have to pay an initial subscription fee to access EasyLink, but were required to make at least \$25 in purchases by their fourth month of use or WU would access them a monthly minimum service charge. While popular, the service struggled financially throughout the 1980s and racked up large losses for Western Union.⁹

Mailgram and E-Com demonstrated that a market existed for computer-based communication services that combined the speed of electronic messaging with the convenience of physical delivery of printed letters and documents. However, neither brand offered true email service to users. Conversely, Telenet and EasyLink highlighted the challenge of selling pure electronic mail products to consumers, as few individuals could afford subscription fees and metered-rate service and many larger businesses were wary about using external commercial email services, favoring in-house intranet systems instead.¹⁰ Nevertheless, in the early 1980s MCI executives saw an opportunity to develop a commercial product for home and business customers that would cut into Western Union and USPS's market for hybrid mail services but

⁷ Ultimately, the E-Com system was shut down in September 1985 after USPS attempted to privatize the service but failed to find a buyer. USPS Historian, "E-Com, Electronic Computer Originated Mail," USPS, <http://about.usps.com/who-we-are/postal-history/ecom.pdf> (accessed February 8, 2014); Postal Service Electronic Mail: The Price Isn't Right," Washington: House Government Operations Committee, October 1, 1982, 3.

⁸ Phil Hirsch, "Telenet Electronic Mail Service to Start July 14," *ComputerWorld*, April 7, 1980, p. 8. Accessed via <http://digitalcollections.library.cmu.edu/awweb/awarchive?type=file&item=352472> (accessed February 13, 2014).

⁹ In late 1984, analysts estimated that EasyLink controlled 25 percent of the market for electronic mail in the U.S. "Western Union Adds New Easylink Feature," *New York Times*, October 31, 1984, D17; "Debra Ann Hatten, Same-day Mail Services Scurrying in Long-Distance Business Market," *Christian Science Monitor*, September 7, 1984, p. 19; Eric N. Berg, "Western Union Sends Out an SOS," *New York Times*, December 2, 1984, F1.

¹⁰ Peggy Edersheim, "Electronic Mail Hasn't Delivered, But Backers Say It Is on the Way," *Wall Street Journal*, July 23, 1985, 35.

also offer electronic-only communication options like Telenet and EasyLink. Thus MCI Mail was conceived.

The Evolution of MCI Mail

MCI CEO William “Bill” McGowan and his senior executives faced a crowded but fractured environment for computer-based textual messaging when they began to devise their own unique metered computer messaging system that combined email and hybrid mail services. They aimed to develop a service that was fast and technology neutral, like Telenet and EasyLink, but, like Mailgram and E-Com, convenient for business and home users who required hard-copies of messages or who wished to send messages and documents to recipients without computers or data links. In order to develop their new system, MCI officials turned to two firms with experience in computer networking and software development, Digital Equipment Corporation (DEC) and BBN, and an individual with extensive first-hand knowledge of data networking to lead the team effort, Vinton Cerf. Together, DEC, BBN, and Cerf created a unique electronic mail platform that helped to popularize electronic mail among individual computer users and within the broader small and medium-sized business community. However, the metered-service model that the firm adopted failed to become the standard paradigm due to growing competition from alternate email service providers and the growing popularity of Internet-based messaging in the 1990s.

MCI began developing the MCI Mail concept in the early 1980s, partly as a means to better utilize MCI’s existing long-distance, terrestrial voice network. Users would be able to dial into the proprietary packet-switched data network developed for MCI Mail via local or long-distance, toll-free voice circuits operated by MCI. Consequently, MCI would not have to charge users per-minute access fees to dial into the system unlike services such as Telenet that used leased access lines. (Users, though, would still have to pay per-minute rates to their local telephone company.) This represented a significant cost savings for subscribers accessing the MCI service.

MCI officials hired computer scientist Vinton Cerf to serve as vice president of MCI’s Digital Information Services division. As a graduate student at UCLA and a professor at Stanford in the 1970s, Cerf had worked on hardware and software applications related to data networking and later developed the TCP/IP protocol for ARPANET with Robert E. Kahn. He had moved to the DOD’s DARPA in the late 1970s to work on network technology development and from there was hired by MCI. Cerf and his research team at MCI worked closely with DEC and BBN to develop the MCI Mail data network. DEC provided the software for the system and BBN, with its extensive engineering experience building ARPANET and Telenet, designed the network architecture. The new system was operated out of a central data facility in Naperville, Illinois.

The final product adopted elements of Mailgram and E-Com’s hybrid mail delivery model, and, like Telenet and EasyLink, it provided electronic mailbox access. To utilize either system, though, subscribers had to have a modem-equipped PC running DOS that could handle MCI Mail Access or one of the many commercial communication programs available, such as Mail-Com, AROUND, or P/C Privacy.¹¹ MCI marketed their product as the all-around solution to both electronic and print delivery requirements and was hardly subtle in their claim that MCI

¹¹ Gary Oppenheimer, *PEN Newsletter* no 2 (October 1985).

Mail would end the USPS's 208-year dominance of mail delivery in the United States.¹² Executives estimated that the new service would begin to turn a profit by its third year in operation.¹³

While MCI officials oversaw the network and developed national marketing campaigns for the new service, sales were largely handled by third-party agents who received commissions based on their customers' use of the service. Some agents marketed the service aggressively. Gary Oppenheimer, who ran Oppenheimer Software in New York City, used a monthly electronic newsletter to promote MCI Mail products and services to his customers. Between 1985 and 1996, Oppenheimer's PEN (Periodic Electronic Newsletter) appeared in the inbox of all MCI Mail subscribers who purchased the service from him. Each newsletter updated subscribers on technological changes to the MCI Mail system, offered them hacks and third-party software applications to improve their user experience, and provided them with general suggestions for utilizing the system more effectively.

Despite MCI's brash national rollout of MCI Mail in 1983, the service failed to generate anticipated levels of profit for the firm. After a year of operation, the firm had approximately 100,000 subscribers to MCI Mail, but only about 35,000 had registered for the service directly. The other 65 percent were enrolled automatically because they used one of a number of electronic database services that had partnered with MCI. Of the 35,000 "voluntary subscribers," only about 35 percent of them, roughly 12,000 subscribers, made use the service on a regular basis. The service generated approximately six million dollars in revenue for the firm during its first years in operation, approximately \$500 per active subscriber, but MCI executives estimated that the market for "time sensitive" hybrid and electronic mail was closer to eight billion dollars per year.¹⁴ This meant that MCI had a long way to go in order to reach this vast, untapped market. MCI's efforts to promote its email service to individual computer users also revealed the weakness of this market segment to executives and by mid-1984 the company was forced to retool its approach and focus more on business users at medium and large firms with corporate intranets that wanted to consolidate their internal and external electronic messaging under one platform.¹⁵

MCI faced two major challenges with as it tried to popularize MCI Mail with both individual users and business clients during the mid-1980s. First, its efforts to differentiate its hybrid and electronic mail products from services offered by EasyLink, Telenet, E-Com, and Mailgram based on price and convenience failed to attract customers in sufficient numbers to MCI. The telecom firm was forced to resort to gimmicks such as sweepstakes and "frequent-sender" programs to drive traffic to its network. These efforts proved effective, however, and volume rose on the network by 20 percent following new the marketing efforts.

The second challenge MCI faced was that its users, whether individual customers or businesses, had not yet adopted the "email habit." Many customers did not check their MCI Mail inboxes regularly and consequently were unaware of new electronic messages until days or

¹² MCI Television Advertising Script, http://bp0.blogger.com/_aNNZUmahg3M/R98wjKeXkBI/AAAAAAAAAJk/V_KQmITFSOI/s1600-h/1+-+TV+Ad+-+Building+a+New+Post+Office.jpg (accessed February 13, 2014).

¹³ Virginia Inman, "MCI Mail, Falling Short of Expectations, Begins Campaign to Increase Service's Use," *Wall Street Journal*, March 16, 1984, 29.

¹⁴ *Ibid.*

¹⁵ Edersheim, "Electronic Mail Hasn't Delivered," *Wall Street Journal*, July 23, 1985, 35.

sometimes even weeks had passed. Prominent tech writer, Harry Newton, complained in a 1984 *Wall Street Journal* article that an unsolicited letter had sat in his MCI Mail inbox for three weeks before he discovered it and the sender would have been better off simply sending the information through the mail. MCI responded by developing an optional service that alerted users by telephone when messages arrived in their inboxes and even offered the option of having a computerized voice service read the messages over the telephone.¹⁶

In addition to electronic and hybrid mail services, MCI officials devised new value-added products to further utilize their data network. The first of these was Advance Service, a product for power users of the system that provided them with convenient tools to search their inboxes and outboxes for specific names or subjects. Advance Service users could also forward electronic messages to other users' mailboxes and register letterheads and signatures that would appear on all of their print messages. In February 1986, the firm offered Advance Service customers the opportunity to create topical bulletin boards on which they and other users (both Advance Service and Basic Service) could post messages for wider distribution. Users were charged a minimum of 10 cents each time they accessed the bulletin board and each account holder with access to the board had to pay a monthly service fee of one dollar. The fees could be paid by the bulletin board owner or the individual users.¹⁷

The same year, MCI negotiated an agreement with CompuServe, the nation's first online service provider, that permitted users of the two services to exchange email. MCI marketed the service as a boon for both firms since MCI users paid the same price to send electronic messages to CompuServe users as they did to fellow MCI Mail account holders. The agreement also represented an early effort to link proprietary data networks, which provided users with a greater ability to connect electronically with mailbox owners on different networks.¹⁸

As part of their growing focus on business clients, MCI officials and their sales agents pushed MCI Mail's advantage over physical document carriers such as Purolator and Federal Express. In a 1987 newsletter to customers, Gary Oppenheimer highlighted the cost and inconvenience of sending letters and documents overnight via Federal Express. In addition to the extra work required to print documents, address envelopes, and arrange pickups, the delivery service cost six dollars more per document than using MCI Mail's overnight delivery option to send the message electronically from the user's computer to a print facility where it would be couriered to its final destination.¹⁹

Oppenheimer also pushed his clients to consolidate their email services and select MCI Mail over competing services such as Western Union's EasyLink and GTE's Telenet. While popular, Western Union's service was not earning enough revenue to ease the financial burdens of the firm and WU had been forced to increase prices for users. In February 1988, EasyLink discontinued the \$25 annual subscription fee option that it had implemented for small-time users. Instead, users would have to spend at least \$25 per month on EasyLink services or see that fee added to their monthly statements. In all, as Oppenheimer noted, subscribers of Easy Link now had to pay at least \$300 per year for the service compared to a \$25 annual fee for MCI Mail plus metered rates for mail services. MCI also lowered its rates in early 1989 in order to draw users from EasyLink, CompuServe, and various other email networks that had emerged in the mid-

¹⁶ Inman, "MCI Mail," *Wall Street Journal*, March 16, 1984, 29.

¹⁷ Gary Oppenheimer, *PEN Newsletter* no 4 (February 1986).

¹⁸ Gary Oppenheimer, *PEN Newsletter* no 6 (March 1986).

¹⁹ Gary Oppenheimer, *PEN Newsletter* no 11 (January 1987).

1980s. They also offered customers a new, nationwide toll-free number with which to dial into the MCI Mail system. The new service helped customers avoid per-minute charges from local telephone service providers and reduced the overall cost of using the MCI Mail service.²⁰

Despite MCI's efforts to grow its customer base, it remained a mid-tier player in the increasingly crowded market for electronic mail at the end of the 1980s. A 1988 survey found that EasyLink remained the dominant provider of email service with 175,000 active accounts and \$83 million dollars in revenue. MCI Mail ranked fourth in the survey with 100,000 active accounts and approximately \$20 million dollars in revenue. While MCI's service generated a quarter of the revenues earned by EasyLink's, the earnings represented a significant improvement over the \$6 million dollars in revenue that the service had generated in 1984. Furthermore, Western Union was in a downward financial spiral at the time and was eventually forced to sell its Business Services unit (which included EasyLink) in 1990 to AT&T in order to avoid Chapter 11 bankruptcy proceedings.²¹

Pressure from industry associations to streamline the process of sending emails across various data networks was also behind MCI's efforts to improve service and provide additional connections to EasyLink, CompuServe, AT&T, and others. In 1988, the Aerospace Industry Association warned email service providers that they must develop interconnections by March 1989 or the firms that comprised the association would find new email service providers. The pressure forced MCI and other network providers to implement the X.400 protocol for managing email message addressing and delivery. The protocol had first been published in 1984, but MCI and other network providers had only gradually begun to implement it on their networks. Eventually, MCI linked with 13 other data networks.²² In addition to implementing X.400 links to other commercial networks, MCI forged its first links with the nascent Internet in 1989 and provided MCI Mail users with detailed instructions for addressing messages to and from their new Internet domain (Mcimail.com).²³

The network continued to grow and expand during the 1990s and remained an important part of MCI's commercial communication portfolio throughout decade. However, with growing interconnections to other email service providers and the Internet, MCI's brand was gradually diluted and the firm found it harder to justify their metered approach to email. After the MCI and WorldCom merger in 1997, the firm devoted less attention to their increasingly anachronistic product and eventually decommissioned MCI Mail in 2003 during the fallout from the WorldCom bankruptcy.

Conclusion: The Success and Failure of MCI Mail and the Metered Email Paradigm

While MCI was a middle-tier electronic and hybrid mail service provider during the 1980s and 1990s, MCI Mail's convenience, longevity, and popularity among computer-savvy techies gave it a prominent place within the community of individual and business users. The subscription

²⁰ Gary Oppenheimer, *PEN Newsletter* no 21 (February 1989).

²¹ John Burgess, "Electronic Mail's Delivery Problems," *Washington Post*, April 21, 1989, F1; "Western Union Corp. Negotiates to See Business Services Unit," *Wall Street Journal*, June 27, 1990, C5.

²² Burges, "Electronic Mail's Delivery Problems," *Washington Post*, April 21, 1989, F1; Peter H. Lewis, "E-Mail Searches for a Missing Link," *New York Times*, March 12, 1989, F6; "MCI to Link Mail Networks With Phone Business Rival," *Wall Street Journal*, December 7, 1989, A4.

²³ Gary Oppenheimer, *PEN Newsletter* no 25 (November 1989).

service provided a gateway for both small and medium-sized business users and non-business users to acquire the “email habit.” While the scourge of forgotten and unchecked electronic inboxes plagued MCI Mail subscribers during the early years of the service, users gradually become more adept at managing both their electronic mailboxes. Even as Internet-based email became more popular during the 1990s, many users continued to maintain MCI Mail accounts since the service offered them unique products such as telex gateways to countries with limited email capacity.²⁴

Despite MCI Mail’s longevity and popularity, however, its metered rates for electronic mail failed to become the dominant model for email service, either in the United States or elsewhere in the world. The failure of the metered-rate model speaks to the dramatic changes that took place in data networking between 1983 and 2003. Private data networks could justify charging metered rates for electronic messages in the 1980s since the only other options available to users were letters sent via USPS or telephone calls. MCI Mail email rates compared favorably with these other options for users who valued timely communication. As data networks began to interconnect in the late 1980s, it became more difficult for individual service providers to maintain distinct product identities and pricing models. Electronic messages sent via MCI Mail looked much like messages sent via other commercial services that did not charge per-message rates. Increased Internet connectivity further highlighted the precarious nature of metered email services, since messages flowed between Internet mail domains at no direct cost to senders and receivers. Once the Internet was fully commercialized in the mid-1990s and free web email services such as Hotmail and Rocketmail appeared in 1996 and 1997, respectively, email became fully commodified. Internet users proved willing to pay per-minute access fees to get online, in some cases, but unwilling to pay per-message fees to send and receive electronic mail. Faced with this paradigm shift, MCI officials saw little choice but to phase out their email service.

Drawing parallels between the rise and fall of metered email and previous generations of communication services such as telegrams and telephone calls proves difficult. Western Union and other American telegraph firms maintained metered rates for telegrams from the introduction of the service in the 1840s through its discontinuation in 2006. Prices fluctuated and gradually declined over time, making the “Rich Man’s Mail” more affordable to individual users, but the service was never used widely for routine non-business communication purposes.²⁵ The Bell System introduced metered rates at the local level in the 1890s to combat overuse of telephone networks by callers, in some cases provoking boycotts. Nevertheless, metered telephone service for local and especially long-distance calls remained the standard in the U.S. until the 2000s when cell phone carriers began to offer unlimited long-distance calling plans. At no point did telephone service become too cheap to meter. Therefore, email is unique in its transition from a metered service to a commodified communication service.

In all, MCI Communication’s MCI Mail service provides a useful lens through which to view the broader popularization and commercialization of email and computer networking from the 1970s through the present. While the metered-rate paradigm could not compete in a business environment that encouraged widespread access to the Internet and freedom of communication, it did provide a relatively cost-effective means for introducing many individual and small-

²⁴ Carl Malamud, *Exploring the Internet. A Technical Travelogue* (Engelwood Cliffs, NJ: PTR Prentice Hall, 1993), 109.

²⁵ See Richard R. John, *Network Nation: Inventing American Telecommunications* (Cambridge: Harvard University Press, 2010).

business users to email and helped to instill the “email habit” in a generation of subscribers. The service itself only lasted twenty years, but the changes it helped to bring about continue to influence personal and business communication to this day.