AFIPS Washington Report

Pender M. McCarter
AFIPS Washington Office

Public policy aspects of electronic mail: An interview with the postmaster general

The postal monopoly extends to all aspects of hard copy delivery by the US Postal Service, even when a message is originally transmitted electronically and then converted into hard copy for delivery, according to US Postmaster General William F. Bolger.

The first career postal employee in 30 years to head the service, Bolger stated his views on public policy aspects of electronic message systems during a wide-ranging, hour-long interview in his office May 3.

"The only thing I know that is expressly excluded from our monopoly to transmit electronically is the telegram," Bolger said. However, he added that the Postal Service would not become involved in communications from business to business, business to home, or home to home "where no hard copy is involved and the two terminals are the sole communications points." The senior postal official said, "I don't see us in any way, shape, or form being a common carrier."

USPS monopoly/public interest. Bolger acknowledged that some people see the Postal Service in a predatory position.

"They think we want to gobble up the electronic message system or systems and exercise our letter monopoly," he said, "and that's not case at all. We're trying to clear the air on that."

According to Bolger, as long as hard copy for delivery by a third party is involved, the Postal Service should be the third party and its monopoly applies. The monopoly was originally established to provide a universal system at universal prices, and the Postal Service should be preserved in the public interest—to make sure that everyone is served, everywhere.

"I don't know of anybody [else] who is willing to set up a delivery service to Prudhoe Bay, Alaska," Bolger commented.

Utilizing EMS. The postal official defined three generations of electronic message systems. Generation I is something like the Mailgram. Generation II includes ECOM, an advanced electronic message system for large-volume mailers; Intelpost, a planned foreign service; and a possible domestic system also involving electronic transmission and hard copy delivery. While the latter might utilize facsimile and other terminals in post offices, common carrier service would be purchased from companies already in the field, Bolger said.

Bolger doesn't expect the Postal Service to participate in Generation III—the black box to black box system where no hard copy is involved and the two terminals are the sole communications points. Nor does he see the American consumer becoming involved in Generation III, "putting a black box in his home and paying monthly, recurring charges to receive his advertising and his bills faster."

"So they're going to have hard copy delivery... regardless of the transmission techniques," Bolger concluded. "They already have the system in place to provide that hard copy delivery, the United States Postal Service."

Market research, according to Bolger, has not yet shown a market for EMS, except for business to business use in financial transactions where instant communication is an advantage.

"Electronic systems are something where, to really prove the market, you have to put it up and let people see it before they start using it. I think that's true in Intelpost, particularly," he added.

EMS costs. Involvement in EMS might reduce the total communications costs of hard copy delivery and would certainly reduce Posta Service transmission and processing costs, according to Bolger. In the long run, he thinks USPS would be cheaper than anyone else.

Concern that current users of conventional mail service will subsidize ventures in electronics are unfound-
ed, he maintains. The expenditure on studies over the last three years—$17 or $18 million—is “miniscule” compared to the Postal Service’s total budget of over $17 billion. Any future electronic venture requiring a large capital investment would be treated as a new business, not financed at the expense of the conventional mail service.

Bolger also commented on the contractual arrangement negotiated with Western Union. He expects the current agreement, reached only after sessions with a dozen or more companies, to be opened to competitive bidding once the market is established.

“We are not committed to staying with Western Union after a period of time,” he said. “I don’t think it would be fair to the other common carriers. They just weren’t ready, but they could be ready soon to make the proper capital investments. If they knew definitely what the Postal Service was going to do in the long range,” Bolger continued, “they could be ready to participate with us on a long-range basis.”

News briefs

In what is described as a “tentative decision” in the three-year-old Computer Inquiry II, the Federal Communications Commission would allow regulated common carriers to file tariffs for services and equipment that are not easily defined as data processing or data communications, insofar as the services and/or equipment are provided through separate, resale subsidiaries. The Justice Department, however, challenged the offerings under the 1956 Consent Decree, if it considers them to be data processing. The FCC has asked for public comment by July 16 on how separate the resale subsidiaries should be.

In testimony to Congress on May 1, the Federal Reserve Board suggested a single liability limit for unauthorized use of an electronic funds transfer card, as provided for credit cards under the Truth in Lending Act. Also in May, the Federal Reserve proposed a change in its Regulation E implementing the Electronic Funds Transfer Act. The change would make notice of loss or theft of an EFT card effective at the time notice is given, not after receipt by the financial institution.

1980 slate of Governing Board, officer nominees announced

The IEEE Computer Society Board of Governors, meeting in New York City on June 8, approved the following slate of nominees for the 1980 Governing Board:

- George I. Davida
- K. S. Fu
- Paul L. Hazan
- Portia Isaacson
- Ned R. Kornfield
- Ted A. Laliotis
- S. F. Lundstrom
- E. A. Parrish
- Arthur V. Pohm
- Rex Rice
- James N. Snyder
- Robert G. Stewart

David Stomberg
Stanley Winkler
Raymond T. Yeh

Officer nominees were as follows:
- for first vice-president—Michael C. Mulder, Martha E. Sloan; for first vice-president—Oscar N. Garcia, Richard E. Merwin; for president—Tse-yun Feng.

Candidate statements and biographical data will appear in the September Computer.

Robert S. Barton is first recipient of new ACM/IEEE award

Robert S. Barton of Burroughs is the first recipient of a new joint award, the ACM/IEEE Eckert-Mauchly Computer Architecture Award. The presentation was made in Philadelphia on April 23, 1979, at the Annual International Symposium on Computer Architecture by J. Presper Eckert and John Mauchly, in whose honor the award is named. Eckert and Mauchly were the inventors and developers of the first American electronic computer system, the Eniac and the Univac 1, and are world famous for their pioneering effort in launching the computer era.

Barton, cited in the award for a 25-year record of accomplishment, is known primarily for his work since 1961 on the design and engineering of a series of Burroughs computer systems. In 1977, he received the IEEE Computer Society’s W. W. McDowell Award for innovative architectural computer concepts. The award cites Barton “for teaching, demonstrating, and persuading that effective information processing systems may be organized and engineered, as wholes and in their parts, in hardware and in software, using simplifying structuring principles inherent in the hierarchic nature of programs and their data, for demonstrating the practicality of this philosophy across a broad span of times in technological development, and for continuing to look ahead, lead, and stimulate his colleagues in the Burroughs Corporation and others in industry and universities, in ways to make computer systems simpler to understand, simpler to engineer and construct, and easier to use, for everyone’s benefit.”

Hamming receives Piore Award

Richard W. Hamming, adjunct professor at the US Naval Postgraduate School in Monterey, California, has been selected as the recipient of the 1979 Emanuel R. Piore Award, to be presented Sept. 5 at COMPCON 79 Fall.

Dr. Hamming will be cited “for introduction of error correcting codes, pioneering work in operating systems and programming languages, and the advancement of numerical computation.”

C. Lester Hogan, vice-chairman of the board of Fairchild Camera and Instrument Corporation and vice-president of IEEE technical activities, will present the award on behalf of J. J. Suran, IEEE president.

Richard W. Hamming will be honored at COMPCON 79 Fall.
Panel discusses threat to US lead in technology innovation

Shirley Radack
ICST, NBS

The US lead in technology innovation is threatened, and actions by government, industry, and academic organizations are needed to reverse the US technological decline. This was the view of the keynote panel that addressed the seventh annual Trends and Applications Symposium at the National Bureau of Standards.

Cosponsored by NBS and the IEEE Computer Society, the symposium was held May 17 at the bureau’s headquarters in Gaithersburg, Maryland. More than 400 participants attended the day-long technical meeting that focused on advances in systems technology. The symposium was chaired by Shirley Ward Watkins of NBS; Patrick V. McGregor of the Network Analysis Corporation was program chairman.

The keynote panelists were Gene Amdahl, chairman of the board, Amdahl Corporation; Erich Bloch, DSD vice-president and general manager, East Fishkill Facility, IBM; and George H. Heilmeier, vice president for research, development, and engineering, Texas Instruments. The panel was chaired by James H. Burrows, the new director of NBS’s Institute for Computer Sciences and Technology.

Gene Amdahl, introduced by Burrows as “one of the key innovators of this generation,” was the most pessimistic panelist, saying that the “US may already have lost its lead” in technology innovation.

Amdahl cited the “alarming erosion of competition” as the chief cause of the decline. “Small, young, entrepreneurial companies” that contribute “most effectively to our society, measured per dollar of investment,” are the victims of inflation, inhibitory taxation, and repression of competition, according to Amdahl. These companies are the ones that bring “newer and better products” to the world markets, he said.

“To reverse the trend in technological innovation leadership,” Amdahl called for changes to the government’s deficit spending practices, an overhaul of the antitrust laws, and new export policies to encourage competition.

Erich Bloch cited computers and semiconductors as one area of US pre-eminence in innovation. Pointing to the “phenomenal growth of these industries in technology evolution, manufacturing innovation, and marketing success,” Bloch predicted “continuing progress and innovation.”

According to Bloch, US success in the past has been based on five factors: wealth of theoretical knowledge; excellent working relationships between universities, industry, and the government; a mobile technical community; industrial support for technical education and publication of new work; and government use of new technology. To maintain the US lead, he called for improved technical training, industry support for research and development, and government action to equalize trade barriers and to use leading-edge technology.

George Heilmeier agreed that the US technological lead is threatened. “But,” he added, “I don’t believe it is too late.” He said that innovation is necessary to provide for “economic growth, personal rewards, and national well-being.” He saw government tax policies and regulation, unfair business practices, lack of educational infrastructure, and negative attitudes on the part of top management as barriers to innovation.

“New industries and economic growth are spawned by the new products R&D can generate,” Heilmeier said. “I favor incentives for companies to invest in R&D and lower tax rates to provide readily available capital in the private sector to provide for and encourage expansion.”

Papers delivered at the technical sessions dealt with network system design, routing and protocols, trends and applications, and distributed processing. These papers have been published in the Proceedings, Trends and Applications: 1979 (see The Bookshelf, p. 115).

US computer scientists speak at symposium in Monterrey, Mexico

A number of computer scientists from the US were afforded a rare view of computer science education in Mexico at the Fourth National Symposium on Computer Systems, held April 2-4 at the Technologico de Monterrey, the largest private technical university in Mexico. Most speakers at the three-day program on microcomputers, data bases, and distributed computing were invited guests from the US.

The symposium, organized by the students of the graduating class with the support and consul of the faculty, alumni, and industry, attracted an overflow crowd of more than 500 attendees. Talks were in both Spanish and English with simultaneous translation. According to the visiting speakers, there was ample opportunity for direct contact with both students and faculty.

The microcomputer program featured overview papers by Jorge Falcon of HYLSA Steel and Dennis Allison of Stanford, a discussion by John Henessey of Stanford of a methodology for distributed program-ming with applications to the case of multiple microcomputer systems, and a survey of microcomputer languages by Stanley Habib of the City University of New York.

The second day, devoted to data base systems, included a survey of management issues by Barry Bateman of the Southern Illinois University at Carbondale, an overview of a formal approach for data base design by Gio Wiederhold of Stanford, two talks on data structure choice by Frank Tampa of the University of Waterloo, and a presentation of algorithms for the duplicate update problem in a distributed data base by Hector Garcia-Molina of Stanford.

The last day concentrated on distributed processing. Philip Enslow, Georgia Institute of Technology, defined distributed systems; Liba Svorodoba, MIT, presented two papers on semantics and reliability issues in distributed systems; and Ted Lewis, Oregon State University, discussed a new loop network for distributed systems.
Industrial robot market to reach $438 million in 1985, F&S says

Observing that the industrial robot market has not exhibited the explosive growth once predicted for it, a new market study by Frost & Sullivan, Inc., refers to “changing circumstances” as the basis for an updated projection that the robot market will soon enjoy “solid growth.” Indeed, the 250-page study forecasts that the industrial robot market, at $26 million in 1977, will soar to $438 million by 1985, propelled by a rapidly enriching technology.

Here is how F&S projects market growth by user industry:

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<tr>
<th>Industry</th>
<th>1979 Purchases</th>
<th>1985 Estimate</th>
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<tr>
<td>Electrical</td>
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<td>Heavy</td>
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<td>Others</td>
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Industrial robots are broadly classified as to how they move—either point-to-point as in automotive spot welding or continuous-path as in automotive spray painting. Robots are also classified as to how their movements are controlled, either with or without servo mechanisms. In addition, the controls for continuous-path robots may be either tape or solid-state actuated.

Also, robots may be evaluated according to whether their programs can be interrupted and restarted from where the movement left off. “Inclusion of such features greatly increases control complexity, hence robot price,” says the study.

An F&S survey of industry plant managers provides insights into the robot marketplace. “Contrary to what industrial engineers and managers believe,” the study says, “only a small percentage of robots are used in lieu of humans to meet OSHA regulations.

“Most robots are purchased to reduce production costs or to aid in raising production.” Unless hazardous conditions exist, the F&S study concludes, “robots must be economically justifiable, offering a reasonable return on investment.”

That return, moreover, varies from industry to industry, with such ROI breakdowns presented in the report.

Inadequate ROIs, indeed, are a major reason why the big projected markets did not materialize in the past. Other market inhibiting factors included resistance to the concept, competition from other automation, user secrecy, and, most critical, technological limitations.

But now emerging technology should remove this last hurdle. Already mini and microcomputer power enables a robot controller to have extensive memory capability. Also, video techniques that enable automatic modification of robot programs are within the current state-of-the-art. Other improvements on the way include coupling between computer and robot, electronic sensors that recognize and locate parts, computer-controlled vision, reliable and simple-line tracking—in general, smarter robots overall.

The largest market for industrial robots will be in batch manufacturing, the study says. Here they will be used to assemble components into subassemblies. Robots will make noticeable headway in assembly lines that turn out small machines, small appliances, and other products where the parts to be handled weigh less than five pounds. For conveyor lines, robots that have multi-access tracking features will be especially useful, although this approach entails comprehensive software programming.

First computer journal distributed in China

The first issue of China Computer Monthly—the only specialist trade publication written for the People’s Republic of China—has been distributed.

Seven thousand copies were printed in Hong Kong and distributed throughout China to computer personnel, computer users and potential users, technicians, researchers, cadres in communications, finance and trading departments, professors and university students, and people in computer-related professions. Copies were also distributed to trading delegations from throughout China attending the Canton Trade Fair in April.

The new Chinese-language magazine is produced by Computer Publications, Ltd., in association with Wen Wei Po, one of Hong Kong’s leading pro-Peking daily.


Pascal update

At a meeting of the American National Standards Institute’s X3 Committee on February 13-14, 1979, the following agreement was approved:

The IEEE Computer Society Pascal Working Group and ANSI/X3J9 shall jointly develop a candidate American National Standard for Pascal programming language. This candidate is to be developed in the joint group under ANSI procedures, with a target date of June 1979.

“Subsequent to this, the candidate standard shall be further processed in parallel within the two organizations, with the requirement that resolution of any negative comments is to be considered by both organizations. It is the intent of the parties that the candidate standard is processed through ANSI by the committee method. Further, that these agreements shall be forwarded to ISMB for ratification.”

A joint meeting of X3J9 and the IEEE Pascal Committee was held in Boulder, Colorado, on April 25-26, 1979. Interested parties should contact one or both of the chairmen to obtain information on membership:

IEEE Pascal
Bruce W. Ravenel
Language Resources
1307 South Mary
Sunnyvale, CA 94087
(408) 737-2625

ANSI X3J9
Marius Troost
Sperry Univac MCO
2722 Michelson Drive
P.O. Box C-19054
Irvine, CA 92713

The draft document being considered by the committee is identical to the one submitted by the British Standards Institute to the ISO and is numbered ISO/TC 97/SC 6N 462.
Computer graphics software and services market to reach $1 billion by mid-80s

The market for computer graphics software and services, at $201 million in 1978, will climb to $247 million this year, reach $578 billion in 1983, and hit the $1 billion level by 1986 or 1987, according to a new market study by Frost & Sullivan, Inc.

The study also profiles major software packages on the market now, reporting that Disspla, IGDS, Picture Systems II, and Calma’s turnkey software are among the graphics packages top rated in an F&S user survey. Results are based on 174 completed mail questionnaires—a 10-percent response rate. According to that same survey, about half of all graphics software purchased necessitated modification by either vendor or user.

Certain applications will pace the market growth, especially computer-aided-design/computer-aided-manufacturing, engineering analysis, automated drafting, and business data representation. Applications will move away from traditional markets to encompass financial institutions and the like. Newspapers and magazines, for example, represent a major growth field.

In-depth analysis by sector reveals that the services market—time sharing and service bureau operations—accounts for as much as 40 percent of the total computer graphics non-hardware market. Services will become a $250 million market by the early 80’s, says the study, up from $83 million in 1978.

As for graphics software, the study focuses on packages supplied by independent vendors, noting that this market will increase more than fourfold over the next 10 years. However, the “captive” software market will do even better, increasing more than seven times and also from a much higher base.

Finally, in turnkey systems, software represents about 20 percent of the total cost, according to the study. Such an all-around robust market exists despite some severe difficulties. For one, graphics systems are “still complex and require considerable expertise. For example, the study points out, little has been done by the industry to develop a truly affordable system for the business user.

In addition, dozens of graphics languages are used without their having any common terminology. “Several major applications areas could profit from standardization,” the study suggests.

As a buyer’s guide to graphics software and services, the F&S report suggests an approach to the computer graphics marketplace. “Software should occupy a major part of the buying decision,” it advises. A potential user may do well to check out software first, and then obtain the guidance of a software vendor on the best hardware to go with that software.