U.S. Postal Service: Systems Integrator for Internet Dissemination of Federal, State and Local Information?

We Summarize Librarian Interaction with USPS & Present Interview with Manager of USPS Kiosk Program

Introduction:

For the past year we have been seeing signs of the emergence of the US Postal Service into the realm of the Internet. The biggest noise was made last fall with the announcement of Internet kiosks for post offices. While the import of the program was a bit vague, most people assumed that USPS was go- ing to offer some sort of general Internet access. Gradually it became clearer that the intent was to give citizens a tool to access information, and that the USPS had done much of its early planning without communication with the profes- sional library community. Librarians did become involved in January of this year. A reader strongly urged us to take a look at the results. What we found out is that USPS is trying to position itself as a critical fulcrum for the dissemination of most Federal state and even local government information on the Inter- net. Many of the people with whom we talked in gathering information for this article were highly skeptical that USPS understood what it was getting into.

After our interview with Susan Smoter, Manager of the Kiosk Program, we conclude that there is a well defined very ambitious program that does make reasonable sense. One major unknown however is that by potentially linking Federal, State and local data bases it has enormous privacy ramifications. We predict how these shake out will have a major impact on the success of failure of the USPS role in shaping in- formation infrastructure.

Action Moves to NAPs as Net Heads Toward Transition at End of Month

A Short Guide to the New Territory & New Players

Some major infrastructure building is go- ing on among the National Service Pro- viders. Network Interexchange points (known as NAPs) are now just as impor- tant as national backbone now that multi- ple players are in the picture. We survey the highlights of a rapidly changing land- scape.

At the NAPs Sprint wisely did not bet its future on ATM. As a result its Pennsauk- en NAP opened early in December while the Chicago and California NAPs are still not fully open and functional. Sprint had planned to go from FDDI to ATM. But they are now seeing some very large spikes in traffic. According to the March 31 NSFnet Transition Report: As of March 1995, PacBell has been in the process of establishing a contingen- cy FDDI NAP. The FDDI NAP at Pac- Bell is being offered to all customers of the PacBell NAP until the ATM NAP is robust. As of March 31 according to government sources, the ATM NAP is working. "There is, however, some dis- comfort by some players about connect- ing at the ATM NAP. The addition of the FDDI is a security blanket/lower cost/short term expedient for providers who are uncomfortable (for either tech- nical or cost reasons) with an ATM connection initially."

MCInet and NSFNET/ANSnet have been physically present at the Ameri-

Part I: USPS in Search of Its Electronic Future

According to statements it made at a January 13th meeting with librarians the United States Postal Service is faced with the loss of 30% of its business over the past five years. From the events of the past year outlined below it is apparent that the United States Postal service has begun to look to the technology of the Internet as one means to its salvation. Roxanne Hiltz and Murray Turoff in their classic book Network Nation published in 1978 speculated that electronic mail would become a far more cost effective way of communication than what the network now derisively calls "snail mail." The Hiltz Turoff prediction is beginning to have an impact and the Postal Service is looking at a grab bag of programs to stop the decline in its market share of the communications pie.

The first is by going onto the Internet in a big way. In March 1994 at the Tele-Strategies spring Internet conference a USPS representative was asking technical questions about establishing domain names for its Internet connection which would include every post office and might include network addresses for every intelligent device within every post office.

Then in the May 16, 1994 issue of Digital Media Mitch Ratcliffe wrote at US Postal Service presentation at the April 1994 Card Tech/Secure Tech Conference where the USPS "presented a proposal for a 'general purpose US services smart card,' which individuals and companies would use to authenticate their identities when sending and receiving electronic mail, transferring funds and interacting with government agencies such as IRS. . ." Later in the same article Ratcliffe wrote: "In a slide presentation at the conference, Postal Service representative Chuck Chamberlain outlined how an individual's US Card would be automatically connected with the Department of Health and Human Services, the US Treasury, the IRS, the banking system and a central database of digital signatures for use in authenticating electronic mail and transactions. The US Card is only a proposal Chamberlain insists. Yet the Postal Service is prepared to put more than 100 million of the cards in citizens' pockets within

Wondering about the USPS economic model we asked Saunders if USPS customers would be charged a fee for use of the kiosks. He said that the kiosk business plan was not finalized. Therefore the answer wasn't known. He added that by the spring of next year (1996) the USPS wanted to have 12 kiosks in operation in the Washington DC area and 100 others spread around the country. According to the USPS web site: "Should market testing prove successful, more than 10,000 units will be deployed by late 1996.

months of administration approval, he said."

Later Ratcliffe continued: 'Though he did not name the US Card at the time Post Master General Marvin Runyon suggested that the Postal Service offer electronic mail certification services during testimony before the Senate Governmental Affairs Subcommittee in March. The proposal is clearly intended as a way to sustain the postal service's national role in the information age, since it would give the agency a role in virtually every legally binding electronic transaction made by US citizens." Mark Saunders, USPS public relations staffer told us on March 15 1995 that Chamberlain had meant only that USPS could send out in the sense of physically deliver 100 million US Cards if other agencies of the US government decided that was desired. What Ratcliffe writes however belies this assertion. Chamberlain, he says, stated that the USPS had "been working for 'a couple of years' on the information system to back up the US Card." (**Editor's Note**: Ratcliffe did either not have or did not use Chamberlain' title of Manager Technology Policy, USPS - a title that certainly gives more weight to his remarks. However we must also note that we were informed by a USPS spokesman that Chamberlain stated shortly after the publication of Ratcliffe's article that he was speaking for himself and not for the USPS at this conference. We sent Chamberlain a draft of this article inviting comment and received no reply.)

We are left wondering why when there are several vendors (Smart Valley to name just one) of digital signature and

authentication mechanisms anyone would want to use a Postal Service delivered mechanism for this given the long lines and poor service prevalent at most post offices. No one would we think unless the US government made postal service time stamping and certification mandatory for certain types of transactions.

Perhaps the USPS will come up with satisfactory answers for these questions. Even if it does do so the question of the interface to these services remains. This is where we suspect the Kiosks may come in. Sole cost justification of them as resource centers for government information according to the issues brought out in the librarian discussion below would seem to be a difficult proposition. However if they are used for US Card interaction and digital certification of other transactions, they have reasons for being other than serving as poorly conceived electronic reference desks.

Wondering about the USPS economic model we asked Saunders if USPS customers would be charged a fee for use of the kiosks. He said that the kiosk business plan was not finalized. Therefore the answer wasn't known. He added that by the spring of next year (1996) the USPS wanted to have 12 kiosks in operation in the Washington DC area and 100 others spread around the country. According to the USPS web site: "Should market testing prove successful, more than 10,000 units will be deployed by late 1996. The Postal Service is now soliciting bids from contractors to create prototypes that will be used in market testing."

When we asked a key US government source if he had any insight into what USPS was doing, he replied that he wished he did -- citing a visit last summer from a USPS official to whom he demoed the Internet. The official went away talking about how the USPS could itself become a major provider of electronic mail services to the American people! When the breadth of the ideas expressed by the USPS is juxtaposed with the apparent lack of follow through in planning and sophistication as shown in the librarian discussion below, we begin to conclude that what we are seeing is a top down view of technology tools in search of problems to solve. This will not work.

As Ken Klingenstein of the University of Colorado Boulder reminded us in December, even his shop had discovered that it was not profitable to say: here's this cool technology, let us lay it on you. Rather the key to success lies entirely in going to a target audience and seeing that it has an unsatisfied problem. Use technology as a means of satisfying that problem before anyone else beats you to the punch and you will gain a long line of satisfied customers. To be successful in its ventures the USPS must offer something that the competition does not rather than keep running in a never ending game of catch up. We are very unsure if it understands these limitations. We intend the notes below on the USPS - librarian interaction of January to illustrate this point.

Part II
The Librarians

Introduction and Points of Contact

We publish below (with permission of Karen Schneider) summaries of the first United States Postal Service - Librarian Seminar, held in Baltimore, Maryland on January 13, 1995, and attended by representatives from the USPS Kiosk Project and by a variety of librarians from public and academic libraries and network services.

These summaries were originally posted in four parts to PUBLIB, the electronic discussion group for public librarians. They were written by Karen G. Schnei-

The director of Technology Integration for the USPS, discussed the rationale for their technology initiatives; We might "think of the Postal Service an organization that moves mail, but it goes much deeper than that. The USPS is actually the basic substrata for commerce.... the post office has been formed to bind people together through the correspondence of its people." He also reported that "we're losing business... business decreased thirty percent over a five-year period... they [the USPS leadership] said we want you to develop new technologies."

der, a freelance librarian and Internet trainer, with assistance from Lee Ratzan, a doctoral candidate at the Rutgers School of Communication, Information and Library Science. Additional source notes are available (primarily transcripts of the January 13 seminar); contact Karen Schneider at kgs@intac.com. Wilson Library Bulletin will also publish a report on the USPS-Library seminar, again coauthored by Ratzan and Schneider. Watch for the March 1995 issue.

Interested in communicating with the USPS on this or other issues? Here are some points of contact:
Susan Smoter, ssmoter@email.usps.gov
Kiosk Program Manager, USPS
Harold (Pete) Stark,
hstark@email.usps.gov Facility Activation Specialist, USPS
Chuck Chamberlain, cchamber@email.usps.gov Manager, Technology Policy, USPS

Librarian involvement originated on October 21, 1994 when Sue Davidsen of U Mich emailed librarians in her area to report that on Headline News the previous evening she had heard that the USPS was planning to place information kiosks in post offices. She followed up with phone calls to Washington to confirm that this was so, then posted a message to Michigan librarians that PUBLI-Ber Robert Bocher forwarded to library-oriented discussion lists, including this one. Many of us followed up with intense electronic discussion on this issue; we asked why libraries had been excluded from this project, and pointed to our capabilities working with the public, our excellent depository collections and our familarity (to some extent) with Internet-related services.

The activism of such librarians as Sue Davidsen, Mary Lou Caskey, and Jean Armour Polly--just three of several dozen names mentioned in related messages in the PUBLIB archives--directly resulted in the government claiming it would modify its course of action and include libraries in the plan to pilot-test government-information kiosks throughout the country. We earned a place at the table, but if we want to keep it, we need to stay active.

Postal Service Exploring Many Options Besides Kiosks

Highlights of the day included discussions by the USPS about its general

plans, which include not only government-information kiosks but also direct involvement with electronic commercial transactions and management of personal encryption devices known as public keys, as well as seven more "discrete initiatives" designed to modernize the USPS and ensure it a mission for the next century.

Key speakers from the USPS were Susan Smoter, Chuck Chamberlain, and Dick Rothwell. Also present were several USPS librarians, including their "Internet librarian," Pete Stark. Smoter largely led the events of the day, and set a conciliatory tone by explaining that the USPS had been attemtping to "bring the government to the people on the people's terms," and that the federal government was trying to avoid the "arcade effect" of dozens of duplicated efforts around the country; Smoter ponted out that there are already 38 separate kiosk projects. Other speakers discussed the history and future of the USPS plans.

Chamberlain provided interesting historical context by describing how the kiosk issue began during the excitement surrounding the emergence of Vice President Al Gore as a national leader of management reform and electronic innovation. (A must-read background document is called Reengineering Through Information Technology, a supporting monograph for the National Performance Review; it's available wherever the NPR is organized, including http://www.npr.gov.)

Dick Rothwell, director of Technology Integration for the USPS, discussed the rationale for their technology initiatives; We might "think of the Postal Service an organization that moves mail, but it goes much deeper than that. The USPS is actually the basic substrata for commerce.... the post office has been formed to bind people together through the correspondence of its people." He also reported that "we're losing business... business decreased thirty percent over a five-year period... they [the USPS leadership] said we want you to develop new technologies." In other words, the kiosk project was part of their marching orders to keep themselves in business.

Members of the library community

included those mentioned above as well as many others, including Patrick Grace from Seattle Public, Lee Ratzan of UMDNJ, and Wilson T. Plunkett of University of Maryland, UMCP, Government Documents. It was a representative spread from the public service sector--with the difference, perhaps, taht every one present had one thing in common: they had all made clear, constructive comments about the USPS kiosk project posted to discussion groups and/or individual agencies and representatives.

Anne Heanue from ALA Headquarters was the first librarian to speak. She began by commenting that the USPS has always been a "trusted service," then went on to provide background and statistics on libraries and illustrations of how libaries help minority groups keep pace with automation, interlibrary loan as an example of resource sharing, and the role of libraries in disseminating government information. She pointed to three examples of libraries serving as electornic gateways to government information: Georgia Southern University, Seattle PL and COIN in Columbia Missouri.

An hour-long (unscheduled) discussion followed Heanue's comments, in which it became clear that the USPS was, on the one hand, largely ignorant of the nature of public service, but on the other hand was willing to listen. Chamberlain, for example, asked whether the "physical plant" [the library] would survive automation, and whether the definition of the library is changing, and whether libraries were committed to electronic privacy issues. Librarians responded by discussing their role with the public, the nature of librarianship (as more than a depository of information) and our historical role in protecting intellectual freedom. Some of the responses were emotionally charged; as one librarian said, "the anger in this room is the [result of the government] bypassing our expertise."

Librarians also questioned the value of the kiosks. "What is the kiosk going to give us that isn't already there?" asked one. (The response was not articulate; the USPS is clearly not aware of what libraries do.) Another librarian, after Smoter described the kiosk's "intelligent searching," asked what the USPS is using for Artificial Intelligence software, and who is designing their search engine--questions never answered that day.

The morning section culminated in a discussion of potential test sites for information kiosks. Librarians asked whether they could have input for where the sites would be. Smoter responded by discussing market testing and in an offhand remark asked if there were any volunteers. Hands around the room shot up. Tensions in the room visibly eased.

The Kiosks

Susan Smoter of the USPS then discussed the kiosks themselves.

Smoter began her presentation by describing DC Dream Catcher, a teen program. They had asked teens what kinds of information services they wanted from kiosks. "This is serious stuff," the teens had told her. "We don't have time for rap music... we want to know where we can get [information]." As a former youth service librarian, this intrigued me; the teens I had worked with had homework and recreation as equal priorities. But perhaps I misunderstood the nature of DC's youth.

Librarians began an impassioned discussion of the importance of library services. A member of ALA's executive board asked, "what is the kiosk goign to give us that isn't already there?" USPS representatives blinked. Smoter tried to discuss the "user-friendly" interfaces. Another librarian cut in to ask, angrily, whether the USPS was aware of the importance of librarians and the information services they provide. Steve Cisler gave a low-key analogy of ATMs and tellers: sometimes you use one, sometimes the other.

The response from Chamberlain to all this was that "a kiosk can be in many places... they can be convenient... they can dispense food stamps... they can provide intelligent searches that aren't available on the Internet... a kiosk is user-friendly... you don't have to wait on line for a kiosk." This prompted the sotto voce observation from one librarian that the USPS was exhibiting optimism uninformed by experience.

After a surprised moment, when we all attempted to digest these statements, a librarian from the gov-docs section of NYPL asked, "what is the USPS using for artificial-intelligence software? Who is designing their search engine?" USPS representatives attempted to change the subject, saying, "my personal feeling is that there is not a lot of overlap here... the kiosk... is bringing federal, state and local services together... [to] build upon the existing systems that are out there."

The NYPL librarian persisted, asking just what kind of search engine could make the intelligent searches the USPS was promising.

Smoter put up slides to show work in progress for the USPS kiosks. The screen listed ten agencies, including the VA and the IRS. Smoter talked about "services around life events" (a topic echoed in the supporting NPR documents), which the kiosks are presumably organized to address. First, jobs: "do you need a job because you lost a job?" Then, moving: "you may want to find out from the census bureau what the location is like... you want to register to vote, find out about their municipal environments..." Smoter also referred to the "life event" frequently invoked that day: registering for a campsite.

I will discuss these examples at length in the conclusion, but take note that the USPS is attempting to condense a panoply of complex situations into a small hierarchy of closed questions.

Caskey then asked, "who will keep it up to date?"

Smoter responded, "the onus is on [local agencies] to keep this information up todate...how do you decide what people need? [Perhaps through] frequently-asked questions... it may not be perfect the first time, but we're going to try our darndest... the beauty of this system is that it is based on a system [the Internet] that already works."

Steve Cisler asked, "do you see the kiosks also as servers?" Smoter responded, "personally, I do not."

The gist of this exchange is that the USPS kiosk is a PC in a strengthened box that provides government information repackaged in subject categories the USPS kiosk project determines appropriate, and uninformed by the input of public service librarians.

Information Content or Information Delivery

There was a lively audience discussion preceding lunch. The librarians focused on issues of information content. The USPS responded with the channels of information delivery.

The librarians repeatedly referred to the sharp distinction between very basic closed questions that could *potentially* be mediated by automated information and referral services, versus complex reference queries requiring human interpretation and assistance. It was not clear if the USPS representatives understood the distinction.

Nevertheless, this hour went far to break down barriers between the USPS and the library community, or so it appeared to us. The critical moment was when the USPS not only acknowledged that libraries were good sites for kiosks but spontaneously asked for volunteer sites, at which point both representatives of Oklahoma State Library immediately raised their hands high, and other attendees straightened up, lifted their heads and began scribbling furiously in their notebooks.

The Librarians Three Sue Davidsen of the University of Michigan led the afternoon's presentations with a vivid discussion of MLink, the Michigan project connecting university and public libraries (URL gopher://mlink.hh.lib.umich.edu). She talked about developing an information resource during a time when it was virtually impossible to actually locate information on the Internet, and how they were one of the first gopher sites that used this new protocol to provide subject access to information, extending the library's traditional role to a new medium. She also brought up the labor and expense (as well as the benefits) of taking the state census data and placing it on the gopher, pointing out that the government does not always provide information in a format that makes it easily accessible (the USPS never clearly addressed how, for example, they would acquire, organize and maintain the local information that was at the heart of the majority of their examples).

Sue Davidsen also discussed the need to look at online resources with a "critical eye" (an issue that the USPS, again, failed to address). "Who's the authority?" she asked, "what's the standard?" She said that in Michigan a statewide group would be dealing with these issues, and pointed out that in doing this librarians are "taking what they know and putting it on top of what we're doing now."

Patrick Grace of Seattle Public Library (URL telnet://spl.lib.wa.us) followed with a discussion of a demonstration kiosk in place at Seattle Public Library (kiosks are also in place at other key sites in Seattle). Grace carefully empha-

sized that "the technology is there, but the content isn't," and that there is a "reference desk near" the kiosk because "we understand what [the public's] needs are." He also addressed the development and distribution of information to the kiosks, pointing out that the library already "has GPO access" (SPL recently became the first public library in the U.S. to offer GPO databases through its dialup catalog). Grace added, "we have a history of providing information, and the style with which we do it is far different than federal agencies"; he illustrated this with an example of a retired person using a federal regulation and getting to a 40-page document. "They need a broker here," said Grace.

Barbara Smith concluded with a discussion of the Sailor Project in Maryland (gopher://sailor.lib.md.us), a gopher-based statewide information access project. She emphasized Sailor's partnership with the University of Maryland system, and gave many examples of local libraries, such as Carroll County Public Library, using Sailor to organize and provide electronic government information.

Summary

It has taken me a while to conclude this summary because I wasn't sure what to say. Following the librarians' presentations, the seminar ended on a low-key note, with general agreement that this seminar was (we believed, at any rate) the first of many coordinated and collaborative efforts between federal information projects and the library community.

Rather than attempt to pull together my thoughts into a unified piece, I'll simply state what has been running through my head for almost a month:

it is remarkable that the federal government could completely overlook the existence of a major information resource, right under their noses. On the list of kiosk program advisors, I saw the name of one representative from the Library of Congress--the only library name on that list. Imagine instead that the list had 10 names from the library community, most from public-service backgrounds. I cannot see the project as designed eminating from a committee made up even partly of active-duty librarians; it is too uninformed by the realities of information services, in which, we know, there is really no such thing as a closed question or pushbut-

ton answer, and in which there is no seamless automatic flow of information from local databases to our desks.

The first reality of true public information services is that the more high-tech the resource, the more high-touch our mediation must be. The USPS, in repeatedly presenting sample questions ranging wildly from campsite reservations to job searching. displayed a fundamental ignorance with the nature of reference queries, and their "solutions" were naively based on rigidly closed questions that experienced librarians know cannot be easily mediated by highly-skilled humans, let alone a machine limited to following a predetermined path to a narrow range of information. The second reality is that the processes of acquiring, storing and displaying wide varieties of local information are highly demanding of time and resources. The USPS never adequately explained how they planned to acquire the local information that was at the heart of these kiosks. To again quote a conference attendee, the USPS displayed "optimism uninformed by experience."

2. Our collective passivity gets us in trouble, and our activism saves us. There are many forces at work in our invisibility at the national level; we need more lobbyists--forcing me to grudgingly support an ALA dues increase--and we have the problem typical of any feminized profession (hey, if women can do it, how hard can it be?).

Nevertheless, the outcome is that we are not a well-marketed service, and we must change that outcome. I had a major grievance with the "customer satisfaction" survey spearheaded last year by the ALA: it didn't tell us who we aren't reaching--it was a gratuitous self-congratulatory pat on the back that overlooked the fact that we still

The second reality is that the processes of acquiring, storing and displaying wide varieties of local information are highly demanding of time and resources. The USPS never adequately explained how they planned to acquire the local information that was at the heart of these kiosks. To again quote a conference attendee, the USPS displayed "optimism uninformed by experience."

do not adequately serve the publics we represent, and our most signficant omission is not in the services we can, could and want to provide, but in our inability to effectively reach out to these communities so that they DO use our services. In other words, it never phrased the question "where are we?" in terms of, "and where should we be?"

The history of the USPS-Library seminar talks to us about the powers of activism. We convinced a government agency that they can and must work with us on a critical issue with far reaching consequences. If we continue to remain visible and active, we can, presumably, continue to influence the outcomes of their actions. If we believe that libraries and librarians are important, if we see ourselves as answering a calling, if we think in terms of mission and duty, we have an obligation to translate our commitments and beliefs into continued, visible action. This means additional demands on our stretched resources and the willingness to be challenged, to be defeated, and even to be wrong. It means risk-taking and late evenings and juggling ever-expanding lists of priorities. But it also means growth, and professional knowledge: through defining ourselves professionally, we can learn who we are, what we do, and where we want to be--not in definitive answers, but in a process that will help us continue to exist, and thus continue to serve.

According to minutes provided by Susan Smoter of the USPS: "The agency needs to start gathering experience. She pointed out that the Postal Service is meeting with representatives from the states of North Carolina and Washington to discuss prototyping kiosks. Ms Smoter met with representatives from the state of Delaware before Christmas to discuss a change of address kiosk. Ms Smoter suggested another follow-up meeting with a steering committee of Librarians at the Academy in order to put together a Vision Statement. Sue Davidsen raised some final concerns, or thinking points. Most of them were issues to keep in mind for the future, but Susan Smoter was able to provide answers for some of the more immediate issues

Content: Who decides, who organlzes it?

A government consontia will determine content. Input will be received from planning and advisory committees, in which we hope libraries will be active. Focus groups and market research will drive application developments; the cus-

tomer is the key to content.

High level of public mistrust of any government agency.

The government sees the kiosk project as one way to revitalize the Government's image. By providing services that the public needs when they need it, we expect to turn this liability into an asset.

What about information not found?

Pointers to other information will be provided. The kiosk is not meant to be a research tool but to provide short, straight-forward answers and services.

Confidentiality between agencies, especially concerning personal information.

USPS acts as a guardian of public trust. This role is backed by law (e.g. the Postal Inspection Service). The USPS plans to act as a facilitator and to manage navigation (via home pages/menus) through the system.

Delivery mechanism still seems to be "Vaporware"

It is dangerous to "close the lid" when any project is in the development stage. Even so, the technology to create the kiosk network described in the report exists today.

How does kiosk project relate to the Library of Congress? Why didn't they participate?

Chuck Gialloretto of the Library of Congress was a member of the Interagency Kiosk Committee and helped draft the report. We will continue to work with Library of Congress throughout the project.

If the kiosk project fails, can libraries expect later funds for similar efforts?

The Government is committed to electronic delivery of customer services. Potential funding solutions for innovative customer service programs have been identified.

If the project privatizes and physical locations have to pay for kiosks, how can public libraries compete with the Barnes & Nobles?

It is not in the public interest to have a privately funded and operated system. Libraries, unlike private chains, provide universal service across demographic and geographic regions.

There can never be enough stations.

Kiosks are intended to be one of many delivery mechanisms. Other user interfaces could include home PC, interactive cable and Internet.

Can we justify the amount of money being spent on T1 connections for such limited information?

Individual kiosks will not be interconnected with T1s. ISDN links are being examined, as are other alternatives. However, bandwidth prices should not sideline the larger issue, especially as communications costs are dropping steadily."

Part III
COOK Report
Interviews Susan Smoter

Editor's Note: On March 16, 1995 we were able to interview Susan Smoter, Manager of the USPS Kiosk Program by telephone. We found out that the kiosk program has evolved in directions that were not at all clear from the meeting that UPS had held with librarians two months before. From its inceptions a year ago, the program has had the intent of tying together citizen-government interactions at the Federal, state, and local level. If the USPS ever seriously were considering using the kiosks as a general reference window onto the Internet, after the librarian intervention, it has certainly scaled down these intentions to the vanishing point. While Internet links will clearly be involved in the services that Smoter describes, general citizen access to the Internet does not seem to be a part of the picture. What is involved is the linking of data bases and electronic records on a massive level with serious implications for citizen privacy.

COOK Report:: How do you describe the kiosk program. As a public service? Who will pay for the kiosks?

Smoter: Let's start at the beginning. The objective of the entire service to the citizen program government wide is to decrease the complexity of dealing with the government for our customers at federal, state, and local levels.

COOK Report:: So this is a part of the Vice President's Reinventing Government Program?

Smoter: Yes. Absolutely. The Postal Service was asked in March of 1994 to lead an inter-governmental task force and do a study on whether kiosks were a viable technology for disseminating electronic government service applications. In other words for the distribution of information as well as transactions such as ordering stamps or birth certificates. We want to integrate federal, state, and local programs in many areas to reduce the complexity of transacting one's business with the government.

We pulled together 50 volunteers from 18 different agencies. We surveyed all 50 states including 5100 local city administrators. We used written surveys and were in touch with people who had approximately 15 kiosk pilot programs on an international basis. We also found that 38 states were in some involved with kiosks - either at the early conceptual stages or with actual pilot programs - as of the late spring of 1994.

COOK Report:: Do you have some means of staying updated?

Smoter: Yes. On April 2, 1995 I have someone coming on to the project whose job it will be both to keep the information that we have compiled updated and to make it accessible from the Internet on a postal kiosk program web site that we shall have up shortly.

Back to the program objectives, which for the intergovernmental committee, were to find out whether kiosks were the right thing. That is whether it made business sense for the government to put kiosks out there. We are in the final stages of publishing a report called The Kiosk Network Solution - an Electronic Gateway to Government. Response from the 18 agencies have been incorporated and it is being typeset for publication by National Performance Review within the next month.

The Postal Service has been one participating agency but it has also taken a lead role in defining how the government should use information technology in general and kiosks in particular to disseminate electronic services to the public. Our overall goal is one-stop shopping which means integrating all these local, state, and federal services in order to make it easier to find out what people need.

COOK Report: A gargantuan task!

Smoter: I think once we get to the point where we have an organization that is being run not by the postal service but by volunteers from these other places, then there may not even be a need for a facilitator anymore. However someone who can control the linkages from the application point of view will always be needed.

Smoter: We think its is doable. We have identified three applications where we feel we can successfully integrate federal state and local services in such a way that it will touch a large enough number of people to tell us whether we are on the right track. These three are (1) moving - change of residence; (2) jobs - first time job seeker and job changes (voluntary or involuntary) and (3) family status changes - birth, death, marriage or divorce. These are all life change situations that for you to have interact with government at the federal, state and local level. Now because everything is segregated, citizens have to interact with each separately. Under this medium we can bring everything together into a single place so that at the very least you can get a check list of the places that you have to go. But we are also convinced that we can complete some of the actual processes from the kiosk.

We intend to story board the applications. We have quite a few state and some local governments working with us.

COOK Report:: When you say storyboard do you mean flow chart?

Smoter: Yes. We will put the whole application together on paper so that we know what agencies or service providers are needed to make this thing a totally integrated success. People are signing on to work with us. Our goal is to bring government to the people on the people's terms.

The Postal Service is involved because it feels that this kind of integration needs to be directed and orchestrated because it won't happen on its own. Now a lot of agencies know that they need to automate their service delivery. But what we are going to get, if we just let it go its natural route, is electronic, but segregated, service delivery that is still just as confusing or perhaps even worse that what we have now.

COOK Report: So the post office is positioning itself as systems integrator for government agency information and would assist these other agencies for a fee?

Smoter: That is one possible scenario. At this point we believe that the integration won't happen on its own. Therefore we are willing to serve as a facilitator for this to happen. We are establishing an electronic national consortia so that if one state develops a successful customer service application like voter registration, it can be shared with other states which can take it and modify it as they need. This will give these people a way to start working with each other and building cooperative relationships.

I think once we get to the point where we have an organization that is being run not by the postal service but by volunteers from these other places, then there may not even be a need for a facilitator anymore. However someone who can control the linkages from the application point of view will always be needed. Whether the consortia creates a staff to do that or whether the postal service continues to do it is an unknown at this point.

You may ask why are we willing to continue to facilitate this process? One reason is that our research last summer showed that anyone who put up kiosk pilots found that their business increased. You have more customers aware of your services and of things that they are entitled to.

COOK Report:: So will these kiosks be in post offices or libraries?

Smoter: The location will be determined by the local government that knows where to best service the target population. It may be the post office. It may be the library, the grocery store or wherever.

COOK Report:: Who pays for the placement? How are the economics shaping up?

Smoter: Well we are not 100% sure what costs the market will bear. Consequently we are putting together a test bed so that we can start running some controlled experiments to find how much people are willing to pay. We also hope to

find out what the public thinks about integrated services. Whether they really work or not. Whether access by PC or cable TV will work just as well as a kiosk. Whether we can mix advertising and government information. And whether this will detract from the official nature of what is going on. Because of course, if it doesn't detract, it then becomes a revenue stream.

The testbed is being built right now. It is a network - client web server based configuration where we will set up dial in connections from focus group meetings. Proposals are being evaluated for the 112 kiosk units - those will be built starting in May and the input from this test bed will go to the contractor or contractors selected.

COOK Report:: How do you get the test bed in front of the public?

Smoter: We will run focus groups in the libraries. The whole purpose of this is for all of the participating agencies to learn how to work together. While on the other hand we are going to run these controlled experiments with the focus groups to get some answers that we just don't have.

For example we have always assumed that there will have to be a fee based structure on the agency's part. Note that every electronic transaction save that agency the expense of having to process a manual order. We'd like to know if they'd be willing to set aside a portion of this savings for the support of the infrastructure that made it possible.

You made a comment in email to me that you thought top down implementation of this would be difficult at best. We really don't think that it is turning out to be that hard. The reason is that everyone out there is agreeing that there needs to be integration and collaboration. They are very happy to see someone step forward who is willing to orchestrate.

COOK Report: Are budget figures for the kiosk program for FY 96 available?

Smoter: Soon but not quite yet.

COOK Report: How about figures for FY 95?

Smoter: Not really either. The department that I am in is so new that we had one number for the whole department.

COOK Report: Is any congressional ac-

> We are finding that, in some of the states that are fairly far along, they have found that when their internal agencies start to collaborate, they can do things much more efficiently. They can streamline operations and do away with redundancies between the agencies. We will find the same thing at the Federal level.

tion needed from a fiscal or organizational point of view to allow you to accomplish your goals?

Smoter: We always answer queries from the Hill. Also National Performance Review and NII does have some money that it has earmarked for innovative customer service projects and they are looking in the direction of the kiosk project. They haven't mailed us the check yet but signs are encouraging for some GITS money.

We are finding that, in some of the states that are fairly far along, they have found that when their internal agencies start to collaborate, they can do things much more efficiently. They can streamline operations and do away with redundancies between the agencies. We will find the same thing at the Federal level. There is a lot of information held within agencies that has to be recollected by other agencies because the previous ones don't know how to share. The real reinventing government payoff will be when agencies learn that it doesn't hurt to work together.

COOK Report: Speaking of sharing, what about plans for a US Card talked about last April by Chuck Chamberlain and reported in Digital Media May 16 1994?

Smoter: What he was talking about was somewhat misconstrued. The Postal Service is committed to seeing that people's privacy is preserved. This is in the very nature of what we do for a living. We have the definitive database of addresses in the United States and it does not match the people who live at the addresses with the addresses themselves.

We do have a whole series of electronic commerce services in pilot right now - electronic postmark, certification and the bonded document. The kiosks would of course offer these services. We also need a means of verifying the

identities of Kiosk users the certification authority. This will enable individuals who can prove they are who they say they are to pull down all sorts of sensitive information like tax records. This certification is a means of electronically validating the identity of our customers. These are the kind of value added services that people are really willing to pay for.

It is my opinion that the USPS technology in this area has been far in advance of any of the technology offered commercially elsewhere. (But please note that Dick Rothwell 202/268-2683 or Paul Raines 202/268-4472 could validate this better than I.) Because the Postal Service entered into this arena three years ago, it has had a product in pilot with the FAA for some time.

I think that the commercial industry is catching up because we have shown that there is a need for these devices. We are using DES as a signature encryption standard. For the FAA mechanics, electronic certificates attesting to their competence, can be validated and kept on the Internet. So, if someone sends in a digital signature that a plane is ready to go, they can validate that the sender is not only who he says he is but also that he has the necessary competence certificate fore the plane he is certifying.

We are not trying to turn these into technologies that would be proprietary to the Postal Service. What we are trying to do is act as a catalyst in enabling new technologies.

COOK Report: What would be a reasonable characterization of any plans anywhere in these 18 federal agencies for any individual card that citizens would be required to use in their interactions with the government?

Smoter: The only time that you would actually be required by the Federal government to use a card is in the area of electronic benefits transfer. Now in areas other than benefits, if people want to get the convenience of electronic service, they will need a means of validating their identity. But this will always be an option for them. There is no mandatory intention. Also very few people in the smart card industry believe that there will ever be just one standard card because the banks now have to much invested in their own proprietary versions.

Continued from bottom p. 1

tech ATM NAP since early January 1995. As of March 1995 Ameritech is installing a FDDI contingency NAP to facilitate the transition from the NSFNET service to MCInet and Sprint-link's service. Ameritech will also permit the Routing Arbiter's route server to be homed on the FDDI NAP.

The FDDI topology is a ring structure. Connected networks place their routers on the ring with packets addressed to a particular router leaving the ring when they hit the router. They will shortly add giga switches to the MAE East and Sprint FDDI rings. These sit on incoming lines and pull traffic for preselected users such as all traffic being exchanged between Sprint and MCI and vice-versa without ever having it hit the FDDI ring. You achieve thereby a traffic exchange between the biggest players leaving the smaller ones to use the FDDI ring. Ameritech will be installing a giga switch in Chicago while Pac Bell will rely on the SMDS cloud in San Francisco.

Now in California there are some Federal agencies that seem to believe that the NAPs should be brought to them rather than their having to come to the NAPs as everyone else is. In California Milo Medin is saying that everyone can connect to MAE- West which is the new name for a commercialized FIX West. This point of view however ignores a limitation of physical space. He is proposing to get around this by setting MFS up in such a way that they gain a large advantage over Pac Bell. MFS will install a FDDI ring running through the FIX/MAE- West facilities at NASA Ames. The ring will allow attachments not directly located at the NASA Ames facilities.

Cutting PAC Bell out of the picture is very consistent with what MCI and Sprint would like to see happen, so observers feel that it is highly likely that they will cooperate. Right now MAE West will be the MCI - Sprint major West coast interconnect point - not the California NAP where some are claiming that a T-1 interconnect is the minimum bandwidth required for Sprint and MCI to fulfill the interregional grant requirements from NSF. (We note that the National Science Foundation disagrees that T-1 is adequate in this instance.) On the other hand, given the security sensitive nature of Milo's major clients, some are wondering if every Tom, Dick, and Harry will be allowed

to connect to MAE West. Looking at NSInet, Esnet and MILnet, we find that with the MAE-West commercialization of the FIX West exchange, the commercial infrastructure of the NAP is being brought to the mission agencies on their terms. Some are concerned that they are avoiding having to connect to the commercial infrastructure on its terms.

Meanwhile the official NSFnet Transition Status Report declared on March 31: Sprintlink has no firm date for when it will connect to the PacBell and Ameritech NAPs. Sprintlink presumably needs to connect to both to be able to fulfill the terms of its agreement with NSF for the receipt of Inter-regional moneys. We are trying to ascertain why Sprint is dragging its feet.

On March 31 we received the following statement from a knowledgeable source: "In discussions with and written communications from Sprint, we have been assured that they will be connected to *all* NSF priority NAPs as quickly as possible once the NAPs are operational (which they now are)."

MCI has been chosen as backbone provider by the lions share of regional networks. The networks that Sprint is serving according to the following list are primarily state networks (New York, Missouri, Texas, Nevada). Westnet was a multi-state network, but according to recent reports has disintegrated into independent state networks.

Argonne	CICnet
BARRnet	MCInet
CA*net	MCInet
CERFnet	CERFnet
CICnet	MCInet
Cornell Theory Ctr.	NYSERnet
CSUnet	MCInet
DARPA	ANSnet
JvNCnet	MCInet
Michnet	MCInet
MOREnet	Sprintlink
NEARnet	MCInet
NevadaNet	Sprintlink
NYSERnet	Sprintlink
SESQUINET	MCInet
SURAnet	MCInet
THEnet	Sprintlink
Westnet	Sprintlink

Connecting to a NAP

In terms of volume of traffic exchanged MAE East (including MAE East Plus) and the Sprint NAP are the major exchange points. While procedures for attaching to both are similar, we shall talk

about MAE East with which we are more familiar. The process of connection involves three steps. First is the physical connection of the routers to the FDDI ring. This costs $25,000 a year. This step however buys a network nothing useful. What makes the NAP actually function are the exchange of routes (software) between the routers of connected networks.

The big 6 (MCI, Sprint, ANS, PSI, UUNET, and Net99) we are told have agreed to complete peering (routing table exchanges) with each other without additional charges. Additional connecting networks mustnegotiate peering on a member by member basis. UUNET has stated that its policy is generally to grant peering without extra charge. A European provider substantiated this saying that it was peering with everyone except PSI who had simply never answered its request.

Peering however leads to the third decision point - transit. Large players like BBN or Netcom with POPs on both coasts might like to plug into a NAP and point default routes at a backbone like MCI's or ANS's in order to use that infrastructure for cross country transit. Not surprisingly one of the first things a newcomer will be asked is whether he is connected to multiple NAPs. If so the assumption is that these connections are bridged by his own backbone. Then the routing tables he exchanges are like to be for customers of other networks, since he has other means of reaching his own customers.

If however a network wanted to get by with interconnecting at only one NAP, the chances are very good that it would have to pay transit fees to other connected networks in order to get its packets to their necessary destination. The question then becomes one of whether transit fees paid to multiple other providers will wind up being more or less of the sum it would have cost to connect at multiple NAPs.

When on the MAE East mail list we asked UUNET's Andrew Partain to describe a hypothetical transit agreement, he replied:

"If you are a customer of AlterNet's, we will offer you transit to every place that we connect to (presuming that you want this and our peers want you).

You send us your routes (Hi, here are the places that I can reach), we then send your routes to all of our peers (Hi, here are all of the places that we & our customers can reach). Our peers than look at these routes and can then use them to send you traffic. [Some peer may decide not to use our offered route to you - maybe they have a better route to you, maybe they don't want to talk to you for some reason.] We are thus offering you transit to every place that we connect to.

Now lets suppose that I am peering with someone who is not a customer of mine - say ISP XX over MAE-East. I will still send them all of my routes (and my customer's routes) - after all, my customers are paying me to do this. They will send me all of their routes (and their customers' routes). Thus my customers can talk to their customers.

However I will not send ISP XX routes that I learn from ISP YY - after all, neither XX or YY is paying me to do this. Thus I am not providing transit between XX and YY. Note that it takes just one side to pay - if ISP XX decided to pay me for transit, then I would offer transit between XX and YY." Under this arrangement, we note that by paying for transit, a service provider could achieve connectivity to another service provider with whom he had no peering arrangement.

The Commercial Internet Exchange (CIX) had existed as the major solution for the problem of obtaining universal routing for a small provider until at the end of 1994 with complaints of a clogged router, controversy over route filtering, and the emergence of NAPs as alternative exchange points, it receded to a peripheral role.

If a new service provider comes onto the scene it must either be prepared to go to considerable time and expense to connect to one or more NAPs, get multiple peering arrangements and any necessary transit agreements. Or it had better establish that its upstream provider is committed to and able to get the packets of it and its customers to the rest of the Internet.

While internet MCI was coming out of the starting blocs the last week of March, Sprint had a major backbone crash in the early hours of March 31. It begins to look as though Kansas City hasn't a clue and is forfeiting the Internet to MCI.

Sprint, MCI and BBN - Compared and Contrasted

SprintLink started some time ago as a guerrilla organization far from the sight and attention of corporate bean counters in Sprint's Kansas city Headquarters. Because the folk at corporate headquarters don't understand data networking, they scoffed at SprintLink's projection of 700% growth a year ago. As a result SprintLink had considerable trouble getting the resources necessary to expand its backbone from T-1 to T-3. Reports are that the folk at corporate headquarters remain skeptical or 800% growth predicted for 1995. Sprint having built up its efforts over a period of time, has the critical issue of skilled TCP/IP technical staff under adequate control.

Bob Collet is no longer Director of Engineering and Operations for Sprint Business Service Group (BSG) Network Systems and Internet Services (SprintLink and Managed Network Services). Ollet's new position is: Director of Sales Engineering for Sprint's Government Systems Division (GSD). Larry Kraft is the new SprintLink product manager (larry.a.kraft@sprint.sprint .com).

While SprintLink has grown bottom up without adequate support at the highest reaches of the company Internet MCI has from the beginnings (18-24 months ago) been planned from the top down with support at the highest levels of the company. MCI has hired a key nucleus of all stars (Cerf, Gross, Ferguson, Waters, Hussain). MCI however has had two high profile projects standing in the way of direct competition with Sprint for IP resellers. These are of course the vBNS and the necessity to ramp up its own national T-3 backbone and connect it to the NAPs to give service to the Coren regionals. As a result the commercial connectivity services and web services announced in late November as being ready for launch in mid January haven't left the starting gate. The mid-level switch over has taken considerably longer than planed with Suranet becoming the first to switch completely in the third week in March.

While MCI may have top down support potential partners report that it is hobbled by its lawyers in such a way as to have actually cost it business. The technical people promise one set of

conditions, but when the contract comes after the legal department has vetted it, one major client found the result to be unrecognizable and went elsewhere. Also MCI in several instances with unusually tight purse strings is having problems recruiting good TCP/IP talent for its middle and lower ranks at the pay levels these folk can demand. Until it finds an answer for this problem, some competitors think that its national level services will be slow to roll out and build.

Nevertheless, on the 31t of March at the National Science Foundation, the final agreement cementing the MCI win of the vBNS cooperative agreement was signed. And at Interop the week of March 27, 1995 internet MCI launched two months late but with much fanfare and extremely impressive pricing. For $39.95 a user gets a TCP/IP stack tailored by FTP for internet MCI and Netscape with secure socket layer encryption. Much more impressive is its nationally available 800 number accessible shell accounts for $19.95 a month for the months of April, May, and June.

Starting in July 800 number access becomes $6.50 an hour and local dial access $2.50 an hour. Even at $6.50 an hour the 800 number access is extremely impressive. However in areas with good local ISP service, $2.50 will be too much. Still, MCI will make a major impact among first time network users, and for the next 90 days there should be nothing better going nationwide. The big question becomes what kind of service MCI will be able to give if a million people sign up wihin the next 30 days. Also how many attracted at the 19.95 a month for unlimited usage will find out how to migrate to local ISPs when the price goes up July 1?

While both MCI and Sprint would very much like to start charging by the megabyte, reliable sources state that BBN would disconnect from them if they did. BBN meanwhile is compensating for the shortage in TCP/IP talent by buying key mid-level networks. With its acquisition of Suranet complete, Northwestnet may be next on its shopping list. Few viable regionals are left. We are told that many of CERFnet's academic customers are leaving. Westnet has essentially disintegrated into a series of state networks. And while Midnet has been bought, it remains in a shakey condition. BBN (now calling itself BBN Planet) mean-

NYSERNet's Contract with NYNEX and Sprint for Statewide Expansion & T3 Backbone Appears Successful

New York State ISP's Complain about NYNEX

Introduction

Having first heard about the reorganization of NYSERNet from Richard Mandelbaum last summer, we decided to find out how it had all turned out. We interviewed Bill Russell a New York University member of NYSERNet's extended technical committee. What we found out is that the transition seems to be working well for the R&E community and that the commercial community of small ISPs, while totally dissatisfied with NYNEX service really have no complaints against NYSERNet.

COOK Report: Why Nynex?

Russell: Of all the local access providers for basic Internet transport, NYNEX was by far the easiest to deal with since they are everywhere. The largest problem is that NYNEX is constrained by regulatory pressure and is a little uncertain of what they can and can't do as far as crossing LATA boundaries is concerned. The basic point of our contract with NYNEX is that they must provide a dial up point of presence in every LATA for local aggregation throughout New York state while Sprint provides a T-3 backbone across the state.

Our original purpose was to have multiple providers for each of the levels of service that we wanted. We realized that we'd end up dealing with one of the larger ISP's and the local phone company. NYNEX was in all three of the finalist proposals as the local service provider. Our contract with Sprint is between Sprint and NYSERNet, not between Sprintlink and NYSERNet. Sprintlink services may be used in some areas. However the intent is that everything inside the state of New York at the IP level is a NYSERNet service provided by Sprint for us. Sprint, as far as we know hired people to work exclusively on handling NYSERNet questions and doing installations and so on.

COOK Report: Well previous to this you had been getting the actual TCP/IP service from PSI and ANS. They ran the NOCs and did the hands on technical work and your actual staff was very small. Correct? How does this new arrangement change things?

Russell: Sprint is now providing the TCP/IP service, however NYSERNet some technical people to watch over those folks and to run a help desk. I and other technical folk are helping to develop some standards so that we know we are getting what we are paying for.

COOK Report: How would you describe your objectives for the "new" NYSERNet?

Russell: The intent was to provide a high speed, highly reliable Internet in the state of New York. When we analyzed traffic between PSI and ANS connected sites the majority of the traffic leaving NYU or Columbia or one of the other large institutions was basically in state traffic. Thus the intent was for a high performance state network. The state now has a T-3 backbone except for two legs that have multiple T-1s.

The other objective was to connect the T-3 state network to the Internet twice. First to the Pennsauken NAP and second to the Chicago NAP. Since the Chicago one isn't operational our second connection goes down to Washington DC to MAE East. When Chicago goes live we will move there.

NYSERNet is paying for these links to the NAPs and is not using NSF inter regional connectivity money. Most of our complaints before switching to Sprint were connectivity problems to and from the super computer centers or to various large research institutions like Stanford or MIT. Once we all switched over to the new connections our connectivity to them improved dramatically.

COOK Report: We understand that NYSERNet now has quite competitive rates for T-1 and fractional T-1 and 56 kb. Further more that you will connect resellers. How does this fit into your overall program?

Russell: For example since NYU has a T-3 that we are not yet completely filling, we could absorb other NYSERNet customers. The way that this works is that the entity joining has to be an R&E organization. They can't be a commercial reseller of services. Now small ISPs organized as non profits (Dorsai here in New York City is one such) would probably be eligible for a connection. But the intent is not to connect small ISPs to NYU and then to NYSERNet.

The intent was to get the spin off companies that leave NYU or Columbia and want to gain their own Internet connections for R&E purposes. Since New York is still the nation's media capital there will be a media emphasis to many of these. New York state has centers for advanced technology. Columbia has one funded by the state for medical informatics. NYU has one funded for digital and multi-media. The intent is for us to help migrate this technology of multimedia and the In-

Russell: For example since NYU has a T-3 that we are not yet completely filling, we could absorb other NYSERNet customers. The way that this works is that the entity joining has to be an R&E organization. They can't be a commercial reseller of services. Now small ISPs organized as non profits (Dorsai here in New York City is one such) would probably be eligible for a connection. But the intent is not to connect small ISPs to NYU and then to NYSERNet.

ternet to small businesses. Some of these new businesses many also have alliances emerging with SONY or CBS. Now our Center for Digital Multi-media has already helped get a couple of small companies launched. The goal was to get them connected to the net with a web page. And when they have their own office, the intent there is for us to provide them with an Internet connection. However in doing this they would also have to join NYSERNet. In short we don't believe that NYSERNet is really competing in the commercial Internet market place. Instead it continues to be faithful to its R&E origins.

NYNEX Still Learning its Role as IP Transport Provider

On March 6, 1995 we asked on the list frequented by independent ISPs (inet-access@earth.com): how do private ISPs in New York state feel about recent changes there with NYNEX moving into the market? Any signs that NYNEX is getting ready to go into commercial ISP provision region wide? Is New York state building the I-way right or wrong? Any moves afoot to put state government info on line?

Paul Guzyk responded: "I doubt this [NYNEX moves] will hurt anyone. NYNEX can't properly support customers with a few POTS lines, they are clueless with it comes to ISDN, and even more clueless about the Internet. Besides, the Internet moves too fast for them - all the union people will fall asleep during their two and a half hour."

Nicholas Merril then replied: no, Paul, it's not just you. NYNEX is clueless in general, though there are good people in their organization. Unfortunately, having good people isn't enough when their entire system is wacked.

I've been having trouble with them being really slack in their installation of my T1 and they bumbled the number of lines on both of my orders, t1 and POTS. Both times their mistake was in their favor, having me get in one case two times the number of lines that I had actually ordered, and in the other, over three times as many! I guess they're hot for me to expand..

They also take way too long, leave whole day gaps in the middle of jobs, don't give notice of when they're going to come on the first visit, nor on subse-

quent visits. The people you deal with are nice, but what consolation is that? When Internet time is flying by in nanoseconds, dealing with people on the level of business days is killing me.

Then **Jim Toro** added: I have been trying 3 weeks to get ISDN. So far I have called 23 times, spoken to 12 different people. Called the Presidents Help Line 6 times. Each time they tell me they are going to have someone call me back. Today I called the public service commission and they filed an "executive order" with NYNEX. NYNEX in Albany (I am on Long Island) called me back in one hour and profusely apologized and said someone would get on it right away. I'll believe it when I see it.

Bill Earle: I too went through a similar encounter with NYNEX, my only choice for public Telephony Connection in my area. I live in a rural town and I ordered three phone lines to my house. I took me four weeks of being on the phone with NYNEX two or three times a day and I even called their President's Help line. I was just about to call the Federal Trade Commission or whoever I could because I had talked to so many different so-called "supervisors" that refused to give me a number I could reach them at directly without getting that pot-luck 890-7100 number that is answered in any of 14 different location across New York state and I was even told by one "supervisor" a Mrs. Migliore in Uttica that I was a lower priority customer and that they did not have phone lines to sell me.

Needless to say even after I had dial-tones and working lines these people did not even know that. I was to the point that I was going to get info from the town to see if I could make them dig those underground cables out of my yard and tear those boxes off of the side of my house and just go cellular!

I have seen the installers, etc. in a hole in my front yard now on three separate occasions, they where there all day yesterday and left about 8:30 just before I got home from work. I have no idea what they were doing there yesterday, I hope they plan on fixing my yard this spring.

Matthew Zahorik: Seriously. I've had the pleasure of working with their senior linemen, and they do know their trade well. But the senior techs from

the combined NYNEX/AT&T era are nearing retirement. In my opinion the junior techs don't have a grasp on the basics of TelCo technology, and that hampers their ability to solve the problems that arise.

For example, I had the (mis)opportunity to watch them repair a malfunctioning T1 line. The junior techs, seeing no-framing from the office but seeing battery, concluded it was a bad field amplifier. So they proceed to go down into the hole closest to the CO, finding that amplifier okay, they proceed BACK to the demarc location. Now, you know that you're not getting signal there. What would you do? Me, I'd go onto the next hole closer to the customer, narrowing the problem down.

Throughout all of this, the thing that scared me most was the junior tech's arrogance towards the senior tech they called in. They had the audacity to tell the senior tech that things should be x, and why weren't they x. It was plain as day to me and the senior tech that it should be y, and I am by no means a telephony expert. All the senior tech could do was shake his head and say "I'm glad I'm retiring soon". All told, a simple bridge tap in the T1 not 100 feet from the premises took them over 30 hours to find. I have serious doubts about the future of NYNEX.

Michael Reilly: Jim and I both know about NYNEX troubles... Jim ordered a T-1 from me to him, for 3 weeks NYNEX "designed the network", then

For example, I had the (mis)opportunity to watch them repair a malfunctioning T1 line. The junior techs, seeing no-framing from the office but seeing battery, concluded it was a bad field amplifier. So they proceed to go down into the hole closest to the CO, finding that amplifier okay, they proceed BACK to the demarc location. Now, you know that you're not getting signal there. What would you do? Me, I'd go onto the next hole closer to the customer, narrowing the problem down.

for another three weeks NYNEX "checked and repaired the facilities", then they installed the line, then for 3 weeks they "tested the line", but wait, it needs a repeater, so they added the repeater, then they decided (over another 2 weeks) that the repeat "just wont work", and they deemed this order as "an unreasonable request" Nice job Guys. Jim cant get his T-1 Internet access, I lost a T-1 Customer, and NYNEX just doesn't care. I could tell you other stories.. like dropping whole hunt groups at 5:00 p.m. to reprogram the last line - months of delays for lines and so on and on. As someone else said.. They are killing me.. and clients only want to hear "it's NYNEX's fault" so many times..

Dmitri Vorona: I think we should all file a petition and mail it to someone in the top ranks of the baby bell - since our stories fit well with all of yours. We asked the phone company weeks ago to fix some problems with hunt groups we were having, and after 3-4 weeks of getting told, oh, the phone man was supposed to be there when? and its not our problem, etc. they finally decided to pay us the visit, at which point they exclaimed that they wired everything wrong, and spent the next two days rewiring.

NYSERNet's Market Impact

According to New York city based consultant Gordon Jacobson: "NYSERNet is completely independent - other than a few small and very specific state grants for designated projects. Some New York State govern-

ment offices and departments purchase their connectivity from NYSERNet on a competitive basis.

NYSERNet is selling retail access to the Internet on a 28.8 dial-up and leased line basis in NY and is planning to launch Frame Relay based Internet service as well in the next six months. It also sells to resellers who take a minimum 256k feed and agree to resell only to dial-up users. [Editor's Note: When we asked NYERNet's Jim Lucket to explain how this reselling process worked and tell us who the resellers were, he replied that there was no further information because this was all in negotiation.]

Their backbone is T-3 over fiber as are their links to the NAP and MAE East. Their pricing is very competitive - 256k resellable feed for $1,050 per month (plus the cost of the local loop and $50 per month for a news feed). 28.8 end user Dial up service is in the $50 per month range. It appears that Empire Net (owned by the Newhouse publishing family) offers some kind of connectivity around the state in competition to NYSERNet and is selling Internet access as well - but it is primarily an alternative NYNEX leased line/frame relay reseller.

It is critical to distinguish between an operation like NYSERNet (which is the same as that of a traditional ISP like say - Pannix, MCS or GES) and an operation like the one you described as the Ameritech model. In the latter case, Ameritech provides the customer with access to the Internet and charges the customer a usage based fee for connecting the customer to Ameritech's LDIP who also charges the customer a fee.

NYNEX is a passive player here. They are not offering Internet connectivity. They are offering the traditional Telco services. In some cases, you need traditional telco services to make an Internet connection is many cases you do not. For an end user who signs up with Pannix or MCS or Interport or PCS they usually make a phone call to connect their modem to the ISP's modem - a traditional telco service that may be free, flat rate or usage based, depending on where the call is made and what the tariff allows.

Although the end user doesn't see it,

they also pay a component for LD service. That component is masked by the ISP monthly charge. The ISP has an Internet service vendor that it pays for a monthly link to the Internet Backbone. The ISP also pays the local Telco or a CAP for access to the Internet Service Vendor. If the Internet Service Vendor happens to be located Inter-lata, the ISP must also pay an IXC carrier to provide an Inter-lata circuit between the ISP's local Telco loop and the Internet Service Vendor.

The Internet service vendor of course, has a similar set of costs. It has to transit all of its traffic from its hub points to the points at which it peers with other vendors and that may require both Telco/CAP circuits and IXC circuits.

Is the real issue is that SprintLink is supplying NYSERNet with expertise that NYSERNet lacks in designing, linking, ordering, maintaining the NYSERNet backbone and its links to the Internet Backbone and that is what everyone is afraid of SprintLink pulling - well then I have one word for everyone - Tough! [**Editor's Note:** Jim Lucket commented that expertise was really flowing in the other direction - from NYSERNet to Sprint.]

Look, the bottom line is this. The Universities chose of their own free will to continue their relationship to and support of their NYSERNet network. If the administration is sub par - whose fault is that? Let the members fix it - they certainly have the talent. NYSERNet is a competitor in a hot market. If they drop the ball, five vendors will instantly pick up the reins."

SprintLink is supplying NYSERNet with expertise that NYSERNet lacks in designing, linking, ordering, maintaining the NYSERNet backbone and its links to the Internet Backbone and that is what everyone is afraid of SprintLink pulling - well then I have one word for everyone - Tough! [**Editor's Note:** Jim Lucket commented that expertise was really flowing in the other direction - from NYSERNet to Sprint.] Look, the bottom line is this. The Universities chose of their own free will to continue their relationship to and support of their NYSERNet network.

Internet and Data Charging Models: New Debate Flairs with MIT Conference and Colorado Legislative Action

Introduction:

At the end of this month (April 95) with the termination of the NSFnet Backbone Service and the transition to commercial backbones interconnected by network access points, the privatization and commercialization of the American Internet will be effectively complete. From a technical point of view the next critical stage in the development will be the transition to IP version 6. This transition is expected to begin within about a year an last for two or three years. Among other things it will solve the problems of IP addressing resulting according to an article in this month's *Conexxions* in a minimum of 2,000 IP usable addresses for every square meter of the earth's surface. In the headers it will also allow for reservation of bandwidth on demand to be used for real time audio and video implementation. This usage will not be flat rate. Charges for the amount of data sent will be implemented. How precisely will it work? No one knows just yet.

Against this background and the background of the Republican inspired deregulatory push on Capitol Hill, the measured use debate that we have tracked in one or more issues for each of the past three years flared up again in several guises during the month of March. While we do not oppose measured charges for real time audio and video, we remain adamantly opposed to charges by the megabyte or packet for non real time data services. In early March MIT hosted a meeting to discuss pricing models. Jamie Love, Director of Taxpayer Assets asked to attend and was refused. This ignited a debate. We print the highlights below. While we can believe that there was probably nothing too sinister in his exclusion, we also point out that it as an areas worth watching very closely. We have recently been told by additional sources that Sprint and MCI would dearly love to implement usage charging. Signs are that RBOCs feel the same way. Meanwhile at the state level the phone companies in many cases are at work toward the same end.

Our article summarizes the debate between Love and the people involved in the MIT conference. It also includes reporting from Dave Hughes on the details maneuvers by the telecom giants at the state level in Colorado.

TAP Complains

On Friday March 10 Jamie Love posted the following note to com-priv and several other mail lists:

On March 9 and 10, 1995, MIT is hosting a workshop to examine new pricing models for the Internet. Attendance in the workshop is limited, and TAP was not allowed to attend. The focus of the workshop is the new Internet Protocol 6. The program is under the auspices of the Research Program on Communications Policy, Center for Technology, Policy, and Industrial Development, Massachusetts Institute of Technology. Among the organizers are Lee McKnight and Joe Bailey (617/253-4138, iecon@far.mit.edu).

According to conference organizers, the goals of the workshop are as follows:

1) develop a framework for understanding the Internet as a self-sustaining economic system through panels and facilitated discussion, 2) reach consensus on recommendations for industry and government action, and 3) identify critical issues for future research on Internet economics.

More specifically, the workshop is looking at Internet pricing models, and in particular, at proposals for protocol support for new "levels" of service, which would be priced based upon usage. Although some conference organizers say this will be targeted at video usage, it is quite unclear what might be involved.

I asked Joe Bailey, one of the workshop organizers, if TAP could participate in the workshop. I emphasized the fact that TAP had been the most active consumer group to focus on In-

ternet pricing issues, having helped to organize two workshops on Internet pricing in the Spring of 1994, and having presented the National Science Foundation a petition with about 6,000 signatures asking for a number of changes in the recently negotiated NSF contracts for the new Internet Network Access Points (NAPs). TAP also supported an amendment to a telecommunications bill (HR 3626, 103rd Congress) which passed the House of Representatives which would have required the FCC and NTIA to create a public online forum to discuss Internet pricing issues.

I prepared a summary of a paper for presentation at the workshop, but was turned down. When asked which other consumer interests would be present, Mr. Bailey said that Coralie Whitcomb, a member of Computer Professionals for Social Responsibility (CPSR), would be present, as an observer. Most of the participants, Mr. Bailey said, were either academics, many from MIT, or from the Internet Engineering Task Force (IETF), which is made up mostly of engineers from the nation's largest telecommunications and computer firms. While the IETF is a relatively open organization, few persons without a corporate sponsor can afford to travel around the county and the world to attend key meetings.

I told Mr. Bailey that we were quite surprised and put off by the decision to exclude TAP from the gathering, given the fact that the announcement for the conference spoke of a need to develop a consensus on Internet pricing issues, and I believed that TAP represented an important point of view that should be heard. At one point the conference organizers said the list of attendees itself might be confidential, but after some pointed discussion TAP was promised a list by mail, which has yet to arrive.

The workshop itself was largely funded by the taxpayers, through the National Science Foundation grant #NCR-9509244, and the Advanced Research Projects Agency grant #N00174-93-C-0036. The proposed TAP paper, which was rejected, fol-

lows:

Internet Economics

James Love, Taxpayer Assets Project
February 17, 1995

Today's Internet is based upon a particular economic model which does not require surveillance of usage or charges based upon usage. The "no settlements" policy currently in effect by the CIX has offered a continuity from the regime that existed since the network's inception as a government funded research network, and it has facilitated a vast explosion of communications and non-commercial publishing.

Recently, several persons have suggested that the Internet adopt a system of charges that would be based upon usage or congestion. There are important differences between pricing schemes based upon usage and those based upon congestion, and any departure from the current "no settlements" policy may result in significant changes in the way the Internet is used.

Contrary to frequent assertions by persons with little formal training in economics (and by some who should know better), a pricing model for the Internet based upon usage rather than capacity is by no means a more efficient means of financing the Internet, even using neo-classical models based upon willingness to pay, since the operation of the Internet requires high fixed costs and little if any variable costs (aside from congestion) for Internet traffic.

Models based upon congestion pricing could potentially lead to more efficient Internet usage than models based upon usage only, but they are likely to require significant transaction costs and incur many difficulties in protecting users from excessive or unnecessary charges.

The Internet has become a profoundly important element of our nation's telecommunications infrastructure, providing access to vast amounts of information and providing the mechanism for national dialogues on an enormous range of topics. It is extremely important that proposals for changes in pricing Internet services explicitly consider the impact of those changes on the current systems of Internet communication and non-commercial publishing, including such issues as the impact of pricing systems on Internet newsgroups, electronic mail discussions lists, and free publishing of information via ftp, gopher, and World Wide Web (WWW) servers.

The NSF's new Internet architecture encourages the use of several Network Access Points (NAPs). Some observers have suggested that the NAPs would provide convenient "choke holds" that would be used implement new systems of metered usage of the Internet. In some cases, NAP owners (Sprint, Ameritech, Pac- Bell and MSF) may have interests which would be threatened by the development of new Internet services, particularly multimedia services that will become more popular and feasible as users obtain faster connections to the Internet and ATM switching technologies are deployed. Traditionally, long distance and local exchange carriers for telephony have preferred rate structures based upon metered usage, and thoserate structures may be undermined by the "capacity" pricing systems now used by the Internet, particularly as the Internet begins to deliver services now offered principally over telephone networks.

There is a second area of conflicts of interest that concerns content markets. The current pricing structure of the Internet has facilitated an enormous amount of non-commercial publishing. Many of the "free" information resources available on the Internet today might not survive if network usage is metered (particularly if per packet charges are implemented). In some cases providers might perceive the existence of the free services as an unwelcome competitor to their own fee based transactions. For example, Ameritech's recent entry into the market as a commercial vendor of government information runs counter to the growing movement toward free Internet access to government databases. Microsoft's purchase of a stake in UU-NET and its partnership with TCI and other companies, and the explosion of commercial WWW sites is another indication that companies are increasingly interested in the potential of the Internet as a mechanisms to deliver new fee based information services. For a variety of reasons, pricing models that work best for fee based services may be in conflict with those which are best for non-commercial uses.

The unique characteristics of the Inter-

So where are the 'experts' of this 'T-1 and below' carrier-level meeting? Who are their institutional champions? What national organization represents them? Who sponsors their gatherings, funded by the NSF? Where are their engineering studies? To back economic analyses? Even before we get to the public policies you so ably champion. Help stimulate that, Jamie, and I think we will getsomewhere.

Dave Hughes

net suggest that economic models should not be limited to traditional pricing models from telephony. In our view, a simple charge by the packet models should be rejected as a system that would adversely impact usage levels (and potentially destroy many non-commercial information services), without any intelligent mechanism to address network congestion. Research on Internet economics should consider a wide range of mechanisms to address network congestion, including solutions that make priority routing systems optionalfor both requesters and publishers of information. We also need a better understanding of the market incentives facing service providers to provide adequate peak capacity for their users, including better empirical analysis of the sustainability of markets for services that provide both high and low levels of congestion.

Research on Internet economics should be focused on both the pricing models and the incentives facing particular actors. For example, should one expect the large local exchange and long distance telephone companies to favor a metered pricing model that only charges for congestion or one that is based upon packet charges? Models for Internet pricing should also consider the experience in long distance telephony markets, which have been open to entry for a decade, and still largelyrely upon per minute charges, rather than congestion only models.

We also need to consider how current pricing models value the very popular non-commercial uses of the Internet, particularly in view of the fact that the current Internet model seems to be far more popular (in terms of numbers of users, growth rates and levels of enthu-

siasm among users) than the competing commercial models first developed by Prodigy, Compuserve and other commercial network providers.

Replies from MacKie-Mason and Varian

On March 11 1994 Jeffrey K. MacKie-Mason of the University of Michigan replied:

Jamie,

Sorry you weren't invited to the MIT workshop. However, space and time were quite constrained, and choices had to be made.

This was essentially a pure academic conference. The only exceptions to that were a couple of talks by practitioners who are actually implementing systems or dealing with systems problems, who were there to inform the academics about facts (rather than opinions or political agendas).

The conference did not focus on IPv6, as you believe. It was mostly at a much more abstract level; the discussion did not concern implementing specific methods in specific protocols.

In your paper you advocate: "In our view, a simple charge by the packet models should be rejected." You should be happy to know, then, that not a single participant at the conference recommended a simple charge by the packet model. In fact, I can't think of any serious participant in research on this topic who does. As you recognize, many people take seriously the idea of some sort of congestion pricing, but this, as you noted in your paper, is a different creature.

On March 12 Hal Varian (also of the University of Michigan) added: Actually, Jamie, almost all the points made in your paper were raised at the meeting.

I'm pretty up on what's going on in this area and as far as I know no one has ever seriously proposed a flat per-byte charge for Internet traffic. The kinds of congestion and quality of service mechanism proposed at the meeting were

 -putting an "I am dropable" bit in the packet header
 -prioritized routing
 -bidding for network access

Each of these has a built in option for providing traditional zero-cost best-efforts service. All of them are designed to deal with multimedia and would have essentially no effect on traditional services like email, telnet, ftp, etc. Everyone in networking is interested in video and the first thing you learn about video is that if you build a network that supports video, everything else is free.

What I am worried about is the converse: if you have a network that is built for data, video could be very expensive (in terms of the costs imposed on current users.)

A Critique of Congestion Pricing

Editor's Note - This issue is a complex one that has been debated at length for the past several years. Some views of congestion pricing have been quite simplistic as the following statement from Vernon Schryver (vjs@calcite.rhyolite.com) that appeared on com-priv last November 25 shows.

Several people have written things like the following: E-mail can take 10 minutes to get through with little loss of perceived quality.

It seems that that the problem that people think needs to be solved, the commodity that needs to be priced or conserved or rationed, is the timeliness of traffic. Somehow, the idea is that multimedia traffic would be labelled high-priority or "express" and get through faster while other traffic such as email would be labelled "1st class" or "bulk" and only take longer. That is crazy, in the sense of being disconnected from reality.

In real life, the choice is not email "delivered now versus delivered later" but email "delivered now versus TCP connection dropped now." Unless you propose practically infinite buffers in every router in the Internet, traffic that cannot be carried now, practically this instant, must discarded. When the wire to the next hop is saturated and a packet arrives, a router cannot and does not save the packet for 10 minutes. Instead, the router must and will drop a packet (not necessarily the one that just arrrived). (Of course, "saturated" is defined in part by the buffering in the router.)

A T1 line carries about 115 Mbyte in 10 minutes. A router that delays email for 10 minutes because high priority traffic is hogging the out-bound bandwidth might not have 115MByte of output buffering, but it would have a lot more than 1 or 2MB. Never mind the real life economics of many MB's of buffering per port. (But recall the universal hassles of ATM switches that do not have bandwidth*delay*active connections buffering.) Think about the implications on TCP RTT measurements, bandwidth-delay products, and a host of other not so minor technical details when you have MB's of buffering on each of 20 or 30 routers between two Internet hosts, and when the raw bandwidth is only T1.

Consider 10 minutes of buffering at T3 speeds.

Think about TCP timeouts and MSL's. 10 minutes is a long time to expect hosts to wait for an ACK, without trying a few retransmissions and then dropping the connection. Sheesh!--many people run sendmail with 5 minute retry timers. Think about the router congestion implications of that.

Maybe "10 minutes" was only a rhetorical overstatement. Pick the delay you think is plausible and relevant to such charging schemes, and make it work. You won't be able to. This charging scheme is necessarily not about "delay" but about "packet loss." You are not talking about delaying Aunt Minnie's fruit cake to let UPS-Red packages go through first--or however the analogies work. Instead, you are talking about throwing away fruit cakes because they don't fit on the truck. But remember that Aunt Minnie will bake and mail more fruit cakes, making things worse.

Yes, given enough CPU cycles and state (not just packet buffering) in routers, there are ways to trick the low priority hosts into delaying their own traffic. Routers could adjust ack sequence numbers of passing packets to fool the hosts into thinking windows are closed. The routers could later, when there is available bandwidth, forge ACK's opening the windows. (I don't think you could rely on closed window probing. Just delaying ack's would not help, since the hosts would just infer a larger RTT and pump some more bytes into the pipe--how do you spell congestion collapse?) I doubt anyone with a clue is seriously proposing such computationally expensive kludges; big name router vendors think that something as trivial as IP fragmentation is too hard to do at full speed.

Maybe you could replace TCP/IP on all hosts with a new protocol that can be told explicitly by the network to delay traffic because the price for email has gone up. Maybe so, in 20 or 30 years, but it beats me what such a thing would have to do with the Internet.

As many people have said, bandwidth is not like money or the fuel to generate electricity. The same applies to its dual, network traffic. You either forward traffic now, within a few milliseconds, or you throw it away. You can save neither bandwidth nor (low priority) network traffic for a rainy (or sunny) day.

There have been several statements to the effect that the Internet is going to collapse under the weight of the MBONE and similar traffic unless such charging schemes are introduced. That is silly. Whenever there is too much high-priority, interactive traffic for all or any part of the Internet, then email, FTP, and so forth continue to work just fine, albeit a little slower, but the MBONE and similar traffic cease working and are turned off. People notice when the pictures and sounds get jerky and have lots of drop-outs. They stop over-using the links, and the problem corrects itself. People do not correct the problem out of altruism, but because interactive video and sound are just plain boring and useless over links that are too slow. Try the MBONE over a PPP/v.32bis link without using the most aggressive audio compressions. MBONE traffic is not a threat to the Internet. The Internet (e.g. WWW) may be a threat to the MBONE, but charging more for interactive traffic doesn't sound like a good way for inter-

There have been several statements to the effect that the Internet is going to collapse under the weight of the MBONE and similar traffic unless such charging schemes are introduced. That is silly. Whenever there is too much high-priority, interactive traffic for all or any part of the Internet, then email, FTP, and so forth continue to work just fine, albeit a little slower, but the MBONE and similar traffic cease working and are turned off. People notice when the pictures and sounds get jerky and have lots of drop-outs. They stop over-using the links, and the problem corrects itself.

active traffic to fight back.

Measured Pricing Debate Flares in Colorado

Finally Dave Hughes' March 9 post showed the political reality at the state level. Hughes wrote: "All the Telcos and Cable companies are, of course, mounting one-two punch assaults on Federal and State telecommunications regulatory laws. Trying to get all the de-regulation they can get away with. Yesterday, Republicans in the Colorado House and Senate introduced sweeping and historic De-Regulation legislation which text was approved by MCI, US West, AT&T, TCI sitting with the awfully compliant Governor (who did not invite any of the state telecom policy players to the mano-mano deal-making meeting in which the draft was approved).

Of course the media has only commented on its effect on residential 'voice' consumer matters. Nobody has even thought about its effect on 'data' users/producers. So I posed this set of questions/assertions to the Denver media.

Are there any provisions in the Foster-Norton Colorado Communications De-Regulation Bill that insures that the public policy principle of Universal Access for Data, and not just Voice, Services will be within the power of the PUC to guarantee.?

There is substantial evidence at the national level that it is the intent of communications companies, from regional bell operating systems (RBOCS) to national carriers like MCI, Sprint, and AT&T, that they differentiate data from voice - which can mean as little as small business fax machines, or simple modem dial-up access to services, to the resale of Internet access services, either through US West or other carriers. And commence, as soon as they can under deregulation to differentiate 'data' from 'voice' and charge, not only or just by 'time' online, or by the capacity of data 'pipes' they sell, but also 'by the packet' i.e. by the 'volume' of communications.

This is not to be confused with the delivery or pricing of commercial entertainment 'content' via data, whether by voice or cable lines. I am talking

about interactive e-mail, for example. If exploitive metered data pricing occurs - charging by the volume of data by carriers - without proper public-interest safeguards in Colorado, - it will be the death of 'public' as distinct from 'commercial' 'Information Highway' services. Such as educational - from 'home schooling' and K-12, to higher and continuing education, public library access (Colorado's excellent. ACLIN system), access to local, state and national government data bases. Free computer bulletin-boards (of which there are over 3,000 in Colorado, including sponsored 'free-nets' and 60,000 nationally), connected to business rate voice lines - whether operated by offices, schools, government agencies, non-profit organizations, or hobbiests and youths who have been doing more technological invention, and learn more about Cyberspace than all the schools put together on now 'free' local BBSs. Small businesses, part time, and self-employed - a huge portion and the most promising growth sector of Colorado's 'knowledge worker-provider' who today can use *or provide* flat rate Internet services will be affected.

Why? Because 'metered by the packet' services, measured at the *provider* end of things (which the new technologies being adopted by the phone companies getting into data, such as ATM, will make possible) will make it virtually impossible for 'providers' to offer flat rate commercial services, and for 'public' agencies to offer 'free' dial up services, when they will be charged for the 'volume' of data the consumer takes over the lines. No school will let students have nightime access to their systems if they do not know the exact cost of their access lines.

Is that in the Public Interest?

Telcos can't wait until they can set 'usage' and 'metered' prices for data. They all want to cash in on the gold mine of the sheer volume of data which is flowing between, even today, the 4.3 million Internet hosts.

Competition prevent this? I doubt it. The telcos and cable companies intend cartels, not true competition. Once it becomes 'the thing' to meter by the packet, led by the giants, everyone will do it. And if *anyone* in the 'food chain' of data services (national backbones, regional interconnects, T3 to 56KB providers) charges by the packet for those transiting their circuits, it will have to cascade down. Until every kid running a free BBS will have to shut

down. And providers, whether commerical or public, will have only choices between them. Or does anybody on this maillist have any real answer to the destructive effect metered pricing will have on grass roots and public datacom, besides the libertarian mantra of 'oh, competition will take care of everything.'

Does anybody even care?

Over the next few days a somewhat abstract discussion between Love and some of the network economists followed. On March 15 Dave Hughes replied:

What's Really Missing

Hey Jamie - don't beat this dead horse too much longer. Save your energy for what is really missing. Serious and systematic analysis of the downstream 'economics' and efficiencies of providing IP services and connectivity (from T1 carriers down through local IP's to user SLIP, lan, or interactive access).

The MIT gathering was - like everyone I read about - focused on the 'important' high-end networking. The problem is, in making or recommending public policy (as is occuring in State Houses making new laws govering Utility Commission's regulatory powers and all across the country as well as Washington during this 'deregulation' epidemic addling the brain of the polity) is that 'efficiencies' and 'economics' affecting the big carriers - like MCI, Sprint, AT&T, and the RBOCs - which lawmakers can understand when high-paid corporate lobbiest 'educate them' - there are few representatives for 'the rest of us' who are affected by the sweeping decisions made under their influence.

Networking is too important to be left to the CEOs. Or the engineers who advise only them. Remember this is the list where some suggested that, unless an IP 'could afford' a $10,000 annual fee to join the CIX, it couldn't be 'serious' about running an IP business. While I advise entrepenuers how to set up a business with less than $10k total capitalization, 'serious' enough to net the owner-operator $30k a year the first year. The 'economics' of IP services at the bottom end is not what a lot of people think. There is nothing inherently 'virtuous' about being, or growing into, a huge business. In fact, in an era of rapid future-shock change, it might be a positive disadvantage. And believe you me I see the DIS-economies of 'scale' in this

IP business, as well as the advantages. As overhead, user support, redundancy-requirements, R&D, investment costs, depreciation and upgrading - and end-user-costs or requirements go up.

The marvelous thing about the cost-effectiveness of microcomputers, modems, public telecom standard - i.e. the whole impact of the 'miniaturization' of technology, is that, it once again, like the one-man-640-acres homesteading opportunity that America gave its citizens 100 years ago - which developed the one family farmer, which fueled our agricultural revolution - processor, and telecom technologies have opened up 'information family farmer' entrepenurial opportunities galore at the very time it is the *big* companies who always seem to be in trouble, and whose spasms screw up lots of peoples lives at once, and who try to dictate - while professing competition - the rules by which all communicate.

Preoccupation with the needs of 'big' telecom while ignoring 'small' telecom - or making them only a downstream-dependency organizations, without general techno-economic models of their own - backed up by respectible engineering, economic, public policy analyses, is not in the broadest public interest, I think. It is only a repitition of the paradigm of the 'scale' required of the Industrial Age, to gain efficiency. I am not convinced the Information Age works best that way.

I can't think of a worse state for the US Telecommunications industry to be in, if it becomes dominated by just a few giants - no matter how 'price' efficient. Any more than the monopoly of AT&T was an absolute good. But, since universal 'access' is the prerequisite for a really healthy America in an Information-knowledge-worker Age - it is important that some of that 'MIT respectable' study be focused on the grass-roots end of this game as much as higher ends. So that the public policy debates, national, state, and local, is balanced.

I see little of it - and whether it be the IETF, MIT, Harvard School of Public Policy, or Colorado University here who just held a 'Colorado Information Summit' - which purported to deal with public-interest telcom in Colorado, but in fact paraded ONLY the high-end engineering, commercial (like TCI is going to solve all our connectivity problems, right?), political (both Colorado Senators) substance before the attendees. Creating a self-fulfilling prophecy -

The marvelous thing about the cost-effectiveness of micro-computers, modems, public telecom standard - i.e. the whole impact of the 'miniaturization' of technology, is that, it once again, like the one-man-640-acres homesteading opportunity that America gave its citizens 100 years ago - which developed the one family farmer, which fueled our agricultural revolution - processor, and telecom technologies have opened up 'information family farmer' entrepenurial opportunities galore at the very time it is the *big* companies who always seem to be in trouble, and whose spasms screw up lots of peoples lives at once, and who try to dictate - while professing competition - the rules by which all communicate.

what is good for US West is good for Colorado. Bah. Humbug. I stayed away.

But here we are, a few months later, in Colorado, fighting a new partial-deregulation state law in the making (HB1335) in which only the large carriers, sitting across from the Governor, wrote it, in their interests - while chanting the mantra of 'competition' which newly-conservative Americans take on blind faith, and locking up their own profitibility by regulatory mandates that favor only their view of techno-telecom-economics.

So, while it has been uphill - and done almost entirely online - we have an amendment agreed to by the sponsors, to be sure that 'metered' pricing of data services will get at least as much PUC oversight, in the interest of 'universal access' by data as the law continues to provide for oversight to insure 'universal service' by voice for all Coloradoans, even in a sweepingly de-regulatory environment. Even the Republicans of Colorado - many of whom live in the most rural of areas, are not willing to let just 'the market-place' insure their affordable voice connectivity.

But with hearings starting on March 21st at the State House there is no

guarantee that the data-voice of the small data carriers/users will be heard when the engineering as well as MBA 'experts' of big telecom testify. Especially since the first draft of the amendment by the House Legislative staff revealed almost total ignorance in the General Assembly, or the staff that supports it, of how networking works, or its essential economics. (and the PUC is not a hell of a lot better. And the 'consumer interest' group that was represented at the Governor's meeting - which was tokenism at its worst - didn't have a digital clue)

So where are the 'experts' of this 'T-1 and below' carrier-level meeting? Who are their institutional champions? What national organization represents them? Who sponsors their gatherings, funded by the NSF? Where are their engineering studies? To back economic analyses? Even before we get to the public policies you so ably champion. Help stimulate that, Jamie, and I think we will getsomewhere.

Dave Hughes
Old Colorado City Communications

"Official" Summary of the MIT Conference

Then on March 16 conference organizer Lee McKnight posted the following summary:

To remind everyone what we hoped to address at the Internet Economics workshop, the call for papers is attached at the end of this note. First, a couple points. We did intend (or rather hoped) to draft a summary consensus statement at the end of the workshop, but people were tired by then so we didn't, I now recognize I should have pushed harder to get a statement done which we could have posted to the net and perhaps reduced the degree of suspicion, my mistake. Also, since the summary notes of various individuals presentations have not yet been sent back to the speakers for them to make sure our students didn't misunderstand them etc, I don't want to talk specifically about other people's presentations.

Our goals were: The goals of this workshop are: 1) develop a framework for understanding the Internet as a self-sustaining economic system through panels and facilitated discussion, 2) reach consensus on recommendations for industry and government action,

and 3) identify critical issues for future research on Internet economics.

On the first goal, I'd say we increased our collective understanding of how the Internet works today both technically and economically through statistical sharing, though a solid framework is yet to be constructed. Maybe the papers by April will do that better.

On the second goal, we may have reached consensus (or we reached exhaustion - when I put up the slides copied below I didn't hear loud objections). But until we have a couple more weeks to think over the meeting and the papers I won't be sure if attendees will agree that they agreed. So in this note I'm speaking for myself and not claiming 100% group endorsement.

On the third goal, I think we did pretty well, ie clarified what we don't know much about, and what people would like to understand better, about Internet economics.

To a certain extent the whole meeting was intended to teach net engineers to speak economics 101, and economists net engineering 101, and see if that helped both understand the other better. What was interesting was the degree to which, at the end of the meeting, all seemed to agree that what was most important was to develop a shared understanding of Internet Engineering, Economics, and Culture. So Jamie may have a point that we invited the wrong people/addressed the wrong topics...but hey, someone else can do a workshop on net engineering, economics, and culture, this workshop was on net economics.

The discussons in a nutshell boiled down to this:

Some argued that: "If it ain't broke, don't fix it;" ie the Internet is fine as it is, don't mess it up.

Others argued that: "Net incentives are broken. We need to break down old barriers for electronic commerce."

The consensus recommendation was to prototype models and technology and learn, develop/refine a Rough Model and Framework for varying quality of service. Ie, don't do anything rash to muck up the net by changing net protocols without understanding what impact they may have. As real-time (video/audio) traffic grows, as info security

measures for electronic commerce grow, net traffic will change and that may require protocol refinements. Exactly what we just don't know yet.

The recommendation for government was "watchful waiting" (regulatory forebearance) ie don't do anything rash to muck up the net, if you don't understand how it works. Government could also support Open Data Network R & D as suggested by the National Research Council, including pricing experiments on their own nets (ie NASA can charge themselves if they want).

Business was advised to "follow the money, but respect the culture." That is business should recognize that what is attracting business to the net is the net culture, which makes it an attractive place for people (in business eyes, potential customers) to gather and interact. But if the culture is not preserved, it won't be a fun place to be, so they could kill the market if they're not careful to respect net norms.

For academics, it goes without saying that we agreed "Further research is necessary."

For net users, we also recommended that they/we work to preserve the culture, but also respect change - the net's been nothing if not rapidly evolving, we can't expect time (and change) to stop now...

To reiterate, the "we recommend" should only be read as "Lee McKnight suggested that the group might recommend," until a fuller summary is distributed and the other participants have had a chance to say they did or didn't agree.

In sum, we had a workshop, we think we made some progress, decide for yourself if you're still interested when the summary and later the papers are on-line (or when you watch the video or MBONE).

Lee McKnight

Editor's Note: On March 30 a 164 kilobyte summary of the presentations made was posted to the network. There were indeed multiple points of view. It is clear that IPv6 will make measuring mechanisms feasible that are not practical now. This meeting was an important one. The outcome warrants continued careful scrutiny.

As We Go to Press: Dave Hughes Moves Forward in Wireless Applications in the San Luis Valley

On March 31 Dave Hughes sent to us with permission to publish a note he had just written to a public official in the San Luis Valley of Colorado.

I hope your technology plan keeps the wireless options open wherever they are more cost-effective than conventional links, or where there simply is no wired choice. I just returned from the giant industry INTEROP (60,000 attendees and over 1,000 corporate vendors) in Las Vegas, where I was a speaker on 'Internet to the Home.' I tracked down a number of new wireless possibilities - and was able to pursuade some of the outfits there (including IBM's Internet folks) to make modifications or provide software drivers they hadn't thought of that we can integrate into grass-roots OS2-level servers for schools, very small businesses, and rural places.

I also, (apparently from my online 'spreading the word' about the magical San Luis Valley and its fledgling connectivity efforts) seem to be attracting attention by those 'wanting to help.' (Ha!) So I am flattered when I get a call from Ron Nessen (remember him? Jerry Ford's Press Secretary) who is high up in the Cellular Industry Association - who wanted me to present at a new second-conference they are having this fall for that giant, heavy-lobbying Washington centered organization, about cellular 'applications' as in 'education.' BUT after I explained to him I do Part 15 FCC wireless, which is not commercial cellular, AND my interests in the valley are wider than 'just' formal education (more about 'community' telecom - in which life-long learning is a key component) he shifted gears, raised the ante on what he wants me to do, explained that the association is as much manufacturers as commercial service providers - i.e. includes companies who make Part 15 devices, and is putting me in touch with a Foundation which makes grants for worthy wireless projects.

When the town Administrator of San Luis asked me to come there a couple weeks ago, and want to pursue a 'total community' system, that will link schools, businesses, local government and its visitor center, local artists and culture, as well as their local citizens to the Internet (an easy thing to do with one small system cause the town is only 850 population - and one wireless connection, bypassing the phone company and costing nothing for the link, the 30 miles line-of-sight to Alamosa which I

think we can do for less than $3500, I told them I probably could find a grant for the 'wireless' component to it. They are interested.

I must comment when you mention trying to get an ambitious NSF grant to connect 'all the SLV' schools wireless, that that is a big bit to bite off for starters. Fourteen school districts at once? Wow. Them's big bucks and a big learning curve. (I think small - high connectivity for the lowest possible cost for one local school or district at a time, for which grants can be landed from interesting 'other' sources. Grass roots up, doing 'proof of concept' as well as showing potential other grantors that, if they make the grant, the locals have their technical act together. As a matter of fact, I think I have already landed $5,000 for Noel Dunne's La Cocina, which will provide him a year's wired Internet connectivity, from MCI, which they seem willing to take out of their marketting budget - and not even refer me to their Foundation!)

So yes, I suppose it would be in your interest for us to talk a bit when I come to Alamosa next. Which I will be doing no later than the week of the 18th of April, when, among other reasons for my visit, I agreed to guide a party of Belgian European Commission telecommunications regulators who want to see projects that help reach the rural and 'disadvantaged' populations. They will interview Noel and see La Cocina.

Yes, I know the new service in Alamosa, Rocky Mountain Internet. From its top guy, Colorado Springs, to bottom. I have not met their Alamosa rep. (They really want me to connect some of my customers up with them. But with our wireless techniques, we may compete with them - not for indivdiual dial up, but 56kbs and above. In the valley we can do that for a lot less than they, or CSN, wired, can. :-)

As for Romer, I gave up on him long ago to do the right thing with telecom to deal with the problems of the state. Even though a Democrat and one who supports small business, and reflects the Colorado concern for growth, he just has totally failed to connect up the potential of telecom for a state of educated, information-intensive people, businesses, and organizations, with going to the heart of Colorado's problems and possibilities. He still has a kind of big operation 'DIA mindset' which says that what is good for US West is good for

Colorado. So he ignored the advice of his own Lt. Gov Cassidy, did not permit key advisors on telecom to review or comment on the Foster dereg legislation, and did nothing at the negotiating table to *really* carry out what he said, as Administration policy in his State of the State speech the key paragraphs which were:

Romer, verbatim:

"We face tremendous opportunities in telecommunications. The changes we are witnessing in telecommunications will impact every aspect of our lives.

Rapidly advancing technology has let to competition that will revolutionize telecommunications, information and entertainment. If we are smart, this competition can greatly benefit Colorado, as Senator Feeley has pointed out.

Of particular importance is the convergence between telephone, cable, wireless and computer services. We must carefully examine the impacts of this convergence to ensure that changes benefit all the citizens of Colorado. We must not allow the State to become divided into information haves and have nots, and we must not allow rural Colorado to be left behind.

This should be a collaborative process between telecommunication providers and users of their services. We have made a good start. Last year we held a Statewide summit and the Cassidy Report has been completed.

With these efforts we now know that telecommunication linkages throughout the State are vital to our economic future - and now is the time to turn our attention to the hard questions of how to get there.

I propose we direct the Colorado Public Utilities Commission to take three specific steps to make that happen: First they should define what constitutes basis telephone service. Second they should identify how that service will be made affordable for every Coloradan. And Third, they should identify the best way we can make access to service universal, so that every Coloradan has the opportunity to access the full range of services and technology."

Well, he took no steps to make 'access to service' (except voice) 'universal' - which not only means technical, but economic.
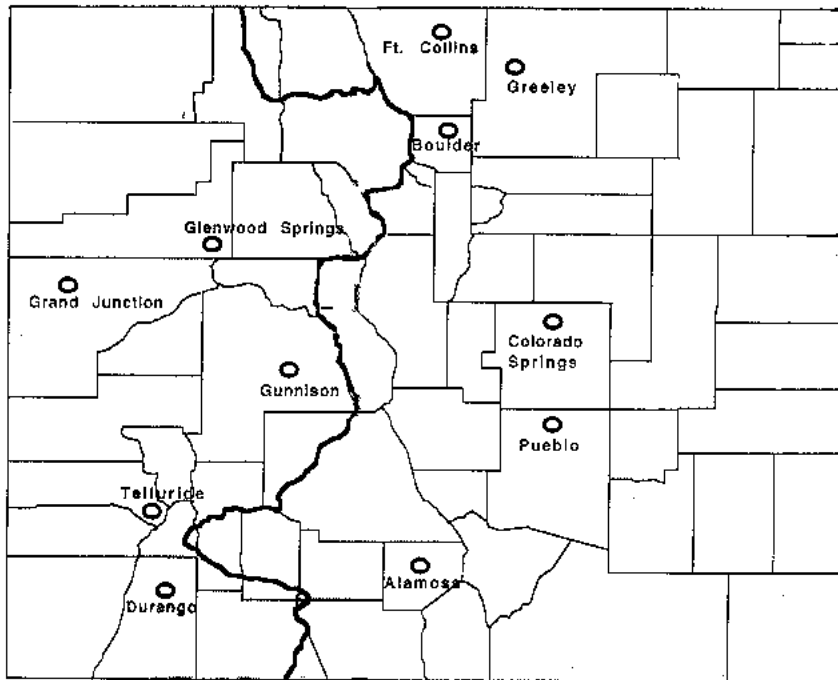
Access Colorado Library and Information Network - Local Dial Up Nodes are co-located with Colrado Supernet POPs, while 15 of the 16 contributing librar-ies are found along the front range from Fort Collins to Pueblo.

The initial purpose for ACLIN was to take the CARL databases which were available either only in a CARL library or by dialing into either Denver, Colorado Springs or Grand Junction, and make them available every where in the state for the cost of a local phone call. The second thing we wanted to do was to add non CARL Libraries, many of which used different access technologies for their on-line catalogues. But the only way to do this was via the common denominator of ASCII text over the Internet. While we initially connected 5 or 6 systems, we are now up to 16 computer systems - all connected via the Internet. We have no single main computer. ACLIN is a connection right now to the network made up of these 16. Finally our third goal was to add state government databases.

What could cause us difficulty? There is a tendency among our patrons to want regular Internet based services. We have been experimenting with giving access to Denver Freenet in four communities. One of the problems of this is that it increases the amount of time people spend on line and therefore the amount of time that our infrastructure like ports and modems are tied up. This then forces us to spend additional money on our infrastructure to support these new usage patterns.

Is there a positive side to these activi-ties? To me the positive aspect of this is the public private partnerships that can emerge. There is a lot of competition in this area and we don't want to be closed out of it because we are offering a great deal of information for free to the citizen. Therefore the position that we take is that we are a public private partnership and that, while we offer a certain amount of information for free to everyone, there is a lot of room for bells and whistles which can be fee-based.

For example the Colorado Legislative da-tabase is provided by a private, for profit, company called Capitol Connection. They sell their service to groups like the Municipal League and the county com-missioners. What we buy from them is full text of bills, daily status sheet and daily schedule - period. What they sell to theses other groups is a whole lobbying package where you can enter a list of bills that can be automatically tracked for you. You can send out a message that says call your legislator and tell him to vote no on House Bill 1231. This is a whole range of added value that we will never do. So part of this is again a philo-sophical point of where does ACLIN end and these kinds of commercial services begin? By law we are not supposed to compete with commercial services in this area. But in some case we can do it bet-ter than the commercial vendor so I push this window quite a bit. The motto I use is that public access to public informa-tion ought to be free. If your taxes have paid for it once, you ought not to have to pay for it again. The con-nection to the ACLIN resource is free. Now some of the stuff on ACLIN costs. You can go into the Uncover database for free but, be-cause of the copyright charge and handling fee, a full article is not free, not from Uncover, not from ACLIN, not from anyone.

So we are certainly open to that kind of commercialism in what we do. In fact we are getting ready to cut a deal with OCLC for their product called First Search which is 47 dif-ferent commercial databases that you get access to all on one menu. We are going to put this up as a pi-lot project for certain libraries. Of course all this data immediately leads to capacity issue. We are re-cruiting 120 supertrainers. We have a part of the program called State Link. Those without computers can go into their local libraries where they will find public access termi-nals.

So we have a mandate from the grants to provide: equal access to information for all Colorado resi-dents no matter how much money they make or where they live. We are not going to have a network that excludes part of the state. We must be able to connect with any type of state wide infrastructure that is de-veloped. Finally we must expand ACLIN access and content so that it can be sustained after the grant is concluded. We must try to build both content and infrastructure to be sure that we will be used as widely as possible. We want a balanced de-velopment of content and capacity.

Future Directions

We look at ACLIN in the long run as being supported in part by state agencies that would pay part of the distribution costs to make their in-formation available on line. Then we are looking at the community networks. Fort Collins has some-thing called Fort Net their model is they provide a certain amount of in-formation about Fort Collins for free, and a connection to ACLIN. Of course they will also sell a con-nection to the Internet at prices gen-erally less than one would have to pay Supernet.

When we wondered whether people

Nancy Bolt Colrado State Librarian

in a community might be willing to pay their local ACLIN library node a small fee to put up commercial web pages for them, Bolt responded: One of our opportunities with the US Department of Education $2.5 million grant is to do a Mosaic interface for ACLIN and run all of ACLIN from that interface. But one of our questions then has to be who is our audience and what kind of equipment do they have? Well they seem to be at the gopher level - not at the more bandwidth intensive Mosaic web page level. For example as State Librarian I don't even have access to Mosaic and web pages here in the Department of Education. The Department of Education of which the State Library is a part is debating whether it even wants to give us that access. As far as we are concerned gopher is going to be around for a long time. Now I know no one wants to demonstrate it because it is considered boring. But by God the people out there, who have these old computers that they bought in Radio Shack, dial in, see a Gopher menu and they get where they want to go. If we were to create something that only a handful of our audience can get into we'd have a really big problem.

I do suspect however that we will eventually migrate to Mosaic with low end ascii access via LYNX, a World Wide Web reader that is solely text based and does not require the user to be doing the more sophisticated and sometimes more expensive SLIP form of access. She added that, one of our concerns in running ACLIN has always been how we would pay the telecommunications costs. One of the models that we have come up with is that it be totally distributed and

that we offer a product that is valuable enough that local communities will tie into it voluntarily. Under this scenario we would be just a menu item on their community network. People would dial into community networks to connect to us. The problem with this model is that our commitment is to statewide distribution and not having a product that has to be "bought" in order to be obtained. But we have also talked about having a service that is statewide and saying to communities if you want to allow better and more convenient access by people, then you add on what you have on your network to our network, or expand your community network based on what we are offering provide better materials for your people than our statewide menu of basic services.

These are the models that we have discussed. We have a sense of responsibility for the fact that we want to use state funds and that we therefore have to carefully consider what it is appropriate to spend such moneys for. We have taken a strong position that we are not in the Internet business in the sense of giving people private Internet email accounts. As a result of our partnership with Supernet we give people full access to a limited number of resources but the access is free.

Evolution of Our Relationship with Supernet

Our three year contract with Supernet runs out on June 15th. We have asked for money from the legislature to extend the Supernet contract for 6 months while we issue an RFP and renegotiate with Supernet, with another vendor who is now interested or if there is a state network by then we could give them the business. The first dilemma is because the $2.5 million we have to spend is not to cover current costs of operation unless we get the money from the legislature for ongoing operation, we have a problem. So assuming we get the operating funds we then have about $600,000 in project money that we can use to expand and enhance the network.

Another dilemma is when should we make the investment? Should we invest it with Supernet now, but if they don't get the contract renewal, have we then wasted the investment? Do we invest it with another vendor and then find out that the state has put together

an network that we would like to be on. We could try to get flexibility by telling Cook if we bought new nodes that we'd own the equipment but then who would maintain it? We didn't want to get into this area of responsibility preferring to contract only for a service. So I have gone to the Lieutenant Governor's office and let them know that I have $600,000 to invest in a network. But that we can't wait two or three years because we have responsibilities for providing now for an operational network. The more it grows in content the more capacity we will need. The net result is that there is a limited time window in which we must carry out our investment decision.

So the question for investment in state plans hangs largely on what Romer does to carry on the momentum after Sam Cassidy leaves office on January 9. Without concrete state plans, you will not be putting your money on any state table, we asked? Precisely Bolt replied.

Our other choices appear to be to work something out with Supernet or another commercial vendor. The current costs of $60,000 a year represent telecom network management alone. Administrative and staff costs are being borne by the libraries and their associated databases. Nancy explained that Supernet and other vendors are quoting ACLIN a price of about $240,000 a year to continue and somewhat expand the current telecom arrangements.

What Guy Cook says to me now is that we are eating him alive. That he is living up to his contract with us but that he has said we are looking at 225 to 240,000 dollars a year. If we install more dial in nodes as he has suggested we do by actually funding the opening of more Supernet points of presence we lower the 800 number costs that we must bear.

But wait we asked Bolt. You say he wants you to fund the development of 3 to 5 new pops for him but that your renewal will still be almost a quarter of a million dollars a year whether you do that or not!? She laughed and said that was the same question that she had asked Supernet's Guy Cook who simply said this is the price, take it or leave it.

You see this is the difference in philosophy.

To be continued next month.

22

Executive Summary

USPS Actions pp. 1-8

For the past year we have been seeing signs of the emergence of the US Postal Service into the realm of the Internet. The announcement of the Kiosk program last October 30 left the impression that the intent was to provide general information windows onto the Internet. Gradually it became clearer that the goal was to give citizens a tool to access only governmental information, and that the USPS had done much of its early planning without communication with the professional library community. Our investigation led us to the conclusion that USPS is trying to position itself as a critical fulcrum for the dissemination of most Federal, state and even local government information on the Internet.

The USPS met with librarians in mid January to discuss the kiosk program which was seen as a means of connecting the kiosks to the Internet to answer general purpose reference questions. Among the conclusions of the librarians: "the USPS kiosk is a PC in a strengthened box that provides government information repackaged in subject categories the USPS kiosk project determines appropriate. The USPS is uninformed by the input of public service librarians."

On March 16 we had a long interview with Susan Smoter the Manager of the USPS Kiosk Program. Among the things she told us: "The Postal Service was asked in March of 1994 to lead an inter-governmental task force and do a study on whether kiosks were a viable technology for disseminating electronic government service applications. In other words for the distribution of information as well as transactions such as ordering stamps or birth certificates. We want to integrate federal, state, and local programs in many areas to reduce the complexity of transacting one's business with the government. We pulled together 50 volunteers from 18 different agencies. "

Later in the interview Smoter said: The Postal Service is involved because it feels that this kind of integration needs to be directed and orchestrated because it won't happen on its own. Now a lot of agencies know that they need to automate their service delivery. But what we are going to get, if we just let it go its natural route, is electronic, but segregated, service delivery that is still just as confusing or perhaps even worse that what we have now.

COOK Report: So the Post Office is positioning itself as systems integrator for government agency information and would assist these other agencies for a fee?

Smoter: That is one possible scenario. At this point we believe that the integration won't happen on its own. Therefore we are willing to serve as a facilitator for this to happen."

While the USPS denies that it is seeking to be the main agency for distribution of a single "smart card" for interaction with all government services, it is heavily involved with what it call electronic post-marking services, electronic certification and bonded documents. It seeks to be able to certify the electronic identity of customers for transaction with agencies such as IRS. For three years it has been running a test certication program with the Federal Aviation Administation.

The USPS program apparently needs no statutory authorization. Funding for it apparently is small and vigorous efforts are underway to find ways to be self supporting - in other words what will kiosk user be willing to pay and will advertising on kiosk screen be successful?

After our interview with Susan Smoter, Manager of the Kiosk Program, we conclude that there is a well defined very ambitious program that from the USPS point o view at least makes reasonable sense. One major unknown however is that by potentially linking Federal, State and local data bases it has enormous privacy ramifications. We predict that how these shake out will have a major impact on the success of failure of the USPS role in shaping national information infrastructure.

Action Moves to NAPs pp. 1, 9-10, 24

Some major infrastructure building is going on among the National Service Providers. Network Interexchange points (known as NAPs) are now just as important as national backbone now that multiple players are in the picture. We survey the highlights of a rapidly changing landscape.
MAE-West is ramping up as the major west coast interchange as an FDDI ring with its central point at NASA Ames. MCI and print are focusing most efforts there leaving PAC Bell's ATM NAP a bit out in the cold. The California and Chicago NAPs having bet on ATM have had to construct FDDI rings as back stops for the uncertain ATM technology. However we are told that as of the last few days ATM has become functional at

both NAPs. We discuss connection, transport and peering issues at MAE-East + which NSF is also using as the non priority Washington DC NAP.

We compare the recent evolution of Sprint, MCI, and BBN. While we admire the role that Sprint has played up to this point, we are concerned that Kansas City still doesn't understand the significance of the Internet and is allowing MCI to overwhelm Sprint's earlier investment. MCI leads Sprint 9 to 5 in the number of regionals signed up for backbone service according to the March network transition report. The MCI nets moreover are by far the largest of the regionals.

At Interop MCI announced nationally available 800 number accessible shell accounts for $19.95 a month (unlimited usage) for the months of April, May, and June. MCI will certainly make a major impact among first time network users, and for the next 90 days there should be nothing better going nationwide. The big question becomes what kind of service MCI will be able to give if a million people sign up wihin the next 30 days. Also how many attracted at the 19.95 a month for unlimited usage will find out how to migrate to local ISPs when the price goes up July 1?

NYNEX, Sprint & NYSERNet, pp. 11-13

Having first heard about the reorganization of NYSERNet from Richard Mandelbaum last summer, we decided to find out how it had all turned out. We interviewed Bill Russell a New York University member of NYSERNet's extended technical committee. What we found out is that the transition seems to be working well for the R&E community and that the commercial community of small ISPs, while totally dissatisfied with NYNEX service really have no complaints against NYSERNet.

Network Charging Models, pp. 15-19

On March 9-10 at MIT an important conference was held to discuss technical and economic issues in internet charging models. We present a summary of the interexchange between Taxpayer Assets and the conference organizers and the unofficial and short conference summary. We also present Dave Hughes' critique of US Wests actions in the Colorado legislature.

Wireless in the San Luis Valley p.20

A private update from Dave Hughes on his progress towards wireless by pass of the local loop in the San Luis Valley.

Part 2 of Colorado Study pp.21-22

We have room for only two pages this month. 72 pages left to publish. We shall publish very likely less than 20 more pages in regular issues of the *Cook Report*.

while has just inked an alliance to provide additional backbone services for AOL with the interesting ability to resell unused dial up connectivity for its own purposes nationwide.

Domain Names and CIDR

While some of the key players involved are beginning to look at the question of charging for commercial domain names, another central figure said that the imposition of such measures would be far more easily done under IP Version 6 in one to two years than right now. He suggested that the bureaucracy to administer the billing for numbers already in existence would be cumbersome. He added that taking back numbers that weren't paid for would impose a cumbersome burden on local and regional service providers.

CIDR blocks continue to be an area of contention for some network dissidents. However it is unlikely that DOD will release much class A address space when the military is itself beginning to gobble up large numbers of IP addresses.

Some key players are saying that the window for solving the address problem without major upheavals is only about a year wide. When we pointed out that we thought IP Version 6 was the answer they generally replied that this was by no means certain because there were many critical components that were not yet nailed down and there were also key technical players who hadn't gotten what they wanted. The disputes were characterized as tantamount to religious wars.

The question could also become one of how long the Internet's informal collegial mechanisms can survive. For example in 1993 CIDR never went all the way through the formal IETF IESG approval process in advance of implementation. Instead it was quietly implemented informally as an experiment and accepted and ratified after the fact as a reasonable process by the community. Despite the complaints of some dissidents, the gamble seems to have paid off with most large and small providers saying that CIDR is the only thing prevent a major crunch in the routing ability of the Internet.

The COOK Report on Internet - NREN
COOK Network Consultants
431 Greenway Ave.
Ewing, NJ 08618