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Seizing the Infosphere: An Alternative Vision for National Computer Networking*

INTRODUCTION

What I'd like to try to do this evening is cover a broad range of topics. I know that some of the people in the audience probably don't quite know what a community computer is, some do know and want to find out more, and some are actively involved in putting community computer systems together here in the Champaign-Urbana area or in other places.

So what I'd like to try to do first, so people don't get left out of the conversation, is to describe what community computer systems are and talk a little bit about how they work. I want to do that partially because there are people who need that introduction, but also because when I start talking about policy and so forth, I'd like you to think of those statements in the context of community computing. For that reason alone, I think we should cover a little bit of background.

The concept behind community computing is not particularly new. James Madison, I think, said it best when he wrote in an 1822 letter: "A popular government without popular information, or the means of acquiring it, is but a prologue to a farce or a tragedy; or, perhaps, both. Knowledge will forever govern ignorance; and a people who mean to be their own governors must arm themselves with the power which knowledge gives."

Now, when Madison wrote those words, he couldn't possibly have envisioned the kind of computerized information networks that we deal with today. Indeed, I doubt that he could have visualized the idea of radio or television, but he certainly knew what the printing press was about because that was the dominant medium of his day. He and his colleagues knew enough about it to be able to utilize that medium as an essential linchpin in the development of the American Revolution.

We've come a long way since those days. We have developed the radio. We have developed television. We have refined the print medium. And we have

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integrated these media into a force that affects our daily lives. One of the points that I'd like to make tonight is the fact that what we're looking at now is literally the development of a fourth medium. We're talking about telecomputing systems. These things are not radio; they are not television; they are not print. Yet, they've got characteristics of all three, plus a whole lot of characteristics that are all their own. What we've been doing with community computing is trying to find a way to take this new medium, channel it, harness it, and find some way to make it work for the general public. That's the basic idea behind community computing.

HOW A FREE-NET WORKS

In a more direct sense, the way a Free-Net community computer system works is essentially this. A multiuser computer is established at a central location in a given city. These systems are, in turn, linked to the Internet. They are accessed by community members via regular voice-grade phone lines connected to modems. Community users include anyone in the community who can get access to a home computer, a school computer, or a library machine to dial in to the Free-Net and access the range and array of information and communication services that are available there.

One of the things that makes this concept a little bit different is the notion of system operators or "sysops." These are people from within the community who volunteer their time and effort to operate their little piece of the system. Yet, the net effect is a kind of collective whole that's greater than the sum of its parts. Sysops are doctors, lawyers, veterinarians, space scientists, hobbyists of all kinds—people from all walks of life who operate Free-Net SIGs, or Special Interest Groups—who receive information, ask questions, whatever. It's like a common fountain of information to which anybody can contribute, and from which anybody can draw. These community systems in turn are connected to the Internet (which we'll be talking about in some detail in a little while) which provides, basically, international connectivity. A person on any Free-Net can send electronic mail to any Internet location anywhere in the world. And, indeed, it's the way that we Free-Net administrators connect ourselves to our various affiliates.

Probably the easiest way to describe a community computer or a Free-Net system is to ask you to think of a continuum. At one end of the continuum, think of something like CompuServe, or GEnie, or Prodigy, or one of the other commercial services. At the other end of the continuum, think of something like a bulletin board system (BBS) that hobbyists would run in their basements or as a part of their organizations. What we're trying to do here is to occupy a new middle ground between those two extremes. Multiuser systems that have, hopefully, some of the power and sophistication of CompuServe or GEnie or Prodigy; yet, each system is locally owned, locally operated, and designed to wrap itself around the information needs of a given community.

NATIONAL PUBLIC TELECOMPUTING NETWORK (NPTN)

Now, what the National Public Telecomputing Network (NPTN) tries to do is to develop and support this growing network of community computer systems. We do that in three different ways. First of all, we do it by helping

these systems to come online just as, for example, we're working with the Prairienet organizing committee here in the Champaign-Urbana area. Second, after the systems come online, we tie them together into a common organization, a common network. And the third thing that we try to do is to provide what we call "cybercasting services."

The word I wanted to use here was "broadcasting," but it has already been taken, so I had to invent another one—"cybercasting." Basically, it's the same service you find in radio or television networks. You might have, let's say, a local radio station here in Urbana and you might have your own radio talk show hosts or disk jockeys. But you might also be taking feeds from ABC Radio. Similarly, we have independent affiliates who operate their community computer systems, drawing upon local people, local information resources, and so forth. Then we try to supplement that with high-quality feeds from the network level—information services and features that supplement what they're able to do locally.

For example, we have a fully developed K-12 program called Academy One that can be put in when Prairienet starts up. In other words, on day one of Prairienet, there's going to be a very mature, fully developed program for the K-12 schools. We also have a program called the Teledemocracy program, in which we're trying to develop this medium as a way to bring people closer to the democratic process. We carry things like the full text of all U.S. Supreme Court decisions, within minutes of their release. This past election, we carried the full text of all of the position papers, press releases, fact sheets, etc., from the major candidates for the presidency. And these things stay online. So if you want to find out exactly what President Clinton promised during his campaign, you can log into any one of our systems and see exactly what was promised and when. These kinds of things are the sort of information features we try to keep flowing out to the affiliates.

BENEFITS OF COMMUNITY COMPUTING

In general, who benefits from all this? Basically, the entire range of people living in the community. First of all, the citizens of a given community benefit because they have access to information-age services that many people would not otherwise be able to afford or might not otherwise be able to obtain. These are people—both male and female—from all walks of life and all socioeconomic groups.

Elementary and secondary schools also benefit. Free-Nets give K-12 schools the opportunity to teach telecomputing, which, by and large, they've never really had a chance to do in the past. It's very difficult to go into a principal's office and say, "We'd like 30 CompuServe accounts because we want to teach kids about electronic mail and searching information bases." Free-Nets, on the other hand, can be used for exactly this purpose, but at a lower cost.

Government benefits because it's a new medium that allows people to communicate with their government and allows their government to communicate with their constituents in a whole new way.

Small- and medium-sized businesses also wind up benefiting from community computer systems. If you are a major corporation, you've got corporate electronic mail. You've got worldwide information resources. If you

are a small- or medium-sized business, however, you can't afford that kind of thing. One of the things Free-Nets do is allow small- and medium-sized businesses to use electronic mail to keep in contact with their branch offices and suppliers and distributors and so forth.

The agricultural community benefits. Indeed, one of our areas of emphasis this year will be to reach out into the agricultural community by establishing these systems in county seats in rural areas throughout the United States. The basic model of a rural county in America is that it is big and square, it has a county seat somewhere in the middle, and it's a local phone call from anywhere in the county to the county seat. By placing just one of these systems in a county seat, you can suddenly bring information-age services to all of those rural consolidated schools, give farmers access to agricultural information and to the county agent, etc. And all of it can be done right now with existing technology.

Surprisingly, the telecommunications industry benefits. When you look at the demographics of who uses commercial telecomputing services in this country, what you're looking at is basically people with $65,000 to $70,000 a year household incomes, overwhelmingly white, male, upscale, well-educated, etc. Now, there's nothing wrong with those demographics, but if the telecommunications industry is going to survive, it has to find a way to penetrate the middle class with these kinds of services, just like the VCR industry did. And that's exactly what community computer systems do. They penetrate the heck out of the blue-collar neighborhoods of their urban areas. They penetrate the heck out of the lower socioeconomic areas and introduce this technology to a group of people who have never had the opportunity to get to it in the past.

Finally, community organizations will benefit. Because these systems are community driven, you now have a new voice for community organizations. On the Cleveland Free-Net, which is the system that I'm most familiar with, we have community organizations ranging from Alcoholics Anonymous to United Way—all using this new medium as a way of getting their message out, answering people's questions, getting people more involved with what their organizations are all about. The whole thing becomes a win-win situation for everybody.

I know that just talking about this stuff is not all that useful. Unless you are already a community computer system user, it's very difficult to envision. To help solve that problem, we developed a videotape about the Heartland Free-Net in Peoria that is intended to show you the kind of impact that community computing can have on a community. Now, Peoria is not the largest Free-Net. It doesn't have the most users. It doesn't have the most modems. It doesn't have the most services. But it *is* located in Peoria, and, as the saying goes, if it plays in Peoria . . . can Champaign-Urbana be far behind?

[VIDEOTAPE SHOWN HERE]

IMPLICATIONS OF COMMUNITY COMPUTING

When we were putting together the Free-Net tape, we spent a lot of time thinking about what it was going to be about and what kind of message we

were trying to convey. I started thinking in terms of what should come across as the most important part. Who's the most important person on that tape? I've got to tell you that the most important person on the tape was not me. It was not the county commissioner. It was not the librarian—with apologies to all librarians here tonight. It wasn't even the schoolteacher. As far as I was concerned, the most important person on that tape was the guy who worked in the gas station—because if we can't find a way to bring the information age to people who work in gas stations, and who work in factories, and who work in other kinds of blue-collar jobs, then what the heck are we doing? What's all this about if we can't do that? If we can't find a way to bring these people into the information age, then, as far as I'm concerned, NPTN will have failed as an organization. And, as far as I'm concerned, you will have failed as librarians, as people who are a part of this information age in a big way. We've got to find a way to do this. We've got to find a way to do it in an economically sound way. We have to find a way to do it with equity.

What I can say is that it is NOT going to happen the way things are going now. I spend a lot of time going around giving talks in various places, at conventions and conferences and so forth, and one of the things that I see happening is what I refer to as the "balkanization of the information age." I go to conventions of librarians, and librarians are all talking about library networks and the great things that can be done with them. I'll give a talk at a convention of K-12 people, and everyone is talking about K-12 education networks. Or I'll talk to a group of government officials, and they are all talking about government information networks, and so forth.

We can't keep doing this, folks! We can't keep having all of these groups creating independent networks, all diving after the same minuscule amounts of funding. You wind up pitting K-12 versus librarians versus teledemocracy people versus health educators versus community computer types versus government information providers versus senior citizen networks versus rural networks versus urban networks, and on, and on, and on. We've got to find a way to have something with enough "conceptual bandwidth" to include everybody, as opposed to people elbowing each other out of the way trying to get to what very limited kinds of funds there are out there.

COMMUNITY COMPUTING AND THE NREN

A lot people have put a lot of hope in the development of the NREN, the National Research and Education Network, which is currently being considered in Washington. I'm not convinced that there is hope there, because nowhere in the development of the NREN legislation is anything being mentioned about the community—about making access available to the people who, after all, are paying for a large part of the NREN—the taxpayers. (You recall them?) The National Research and Education Network would not pass if it were just the NRN—the National Research Network. I don't think it would have gotten past Congress at all. I think the days of very expensive projects, like supercolliders, that are designed to benefit only a handful of scientists are pretty much over, at least for the time being.

The thing that makes the NREN work, that makes it sellable, is the E—the Education part of NREN, particularly when you start including K-12 schools in the mix. But, I'm wondering if even here the NREN makes a lot of sense. Look at it this way. Let's say you are working with a kid in a K-12 situation, or, for that matter, even in a college situation. This person, for four years, has had access to electronic mail and has telnetted all over the Internet and has had access to all these incredible information resources. OK. Now, on a given day, he graduates. After that, he or she comes back in and says, "Hi. I'd like to use my electronic mail account now. I've got something that I'd like to ftp from California." What do you say to him? You say, "No, you can't use it." He asks, "Why?" You say, "Because you are not a student anymore." He asks, "Then what was the point of training me on it in the first place?" A good question. Indeed, what's the point of training them on something like that if the day after they graduate they no longer have access to it because they are no longer students? It's like having mandatory driver's education in a world without automobiles. What is the point of creating a national education network that cuts you off the instant you graduate?

Is the NREN something that we should be developing? As it currently stands, I don't think so. But maybe it *would* make sense if parallel to the development of the NREN we were also developing community computer systems. Maybe the proper word here should not be NREN, maybe it should be NCON—the National Community Network—something that has enough conceptual bandwidth to include researchers, and K-12 educators, and librarians, and medical information people, and government information people.

FUNDING COMMUNITY COMPUTING

How are we going to do that? What mechanisms exist to do that? Right now there are none. There is no consistent mechanism to fund the development of community computer systems, as people who are developing Prairienet here are finding out. It is very difficult to get community systems funded because we don't fit anybody's existing priority. When you go to a corporation, or a foundation, or whatever, they look down the list of "things that they fund," and community computing just isn't on it. Consequently, you have a very difficult time trying to get the support you need to develop these systems and get them into place.

Is there a mechanism? Is there a model out there that we could use, that we could develop, perhaps, that would help us to draw up these systems? I think there is. Most of you are familiar with a really interesting corporation called the Corporation for Public Broadcasting. First of all, it's a nonprofit corporation that was created by federal law. It receives its core funding from Congress, but it's not a government agency. It has a board of directors that is appointed each year by the president of the United States. You can't have more than 50% of the board of CPB from any one political party. A very interesting kind of notion—a nonprofit corporation that is created by law and funded by government, but is not an agency of government. Maybe what we need to do, maybe the direction we should be going in, is to form the Corporation

for Public Cybercasting. Why not? Think about it. What about the notion of creating an entity that will do for this medium what the Corporation for Public Broadcasting did for National Public Radio and public television. Does not this new and emerging medium deserve at least the same kind of consideration that was given to radio and television when they created CPB? I think it does. I think it's time for this. I think that if we plan to enter the information age in this country with any semblance of equity, I think this is the kind of thing that needs to be created.

What would such an entity do? First of all, a Corporation for Public Cybercasting would help to establish and operate free, public access computerized information and communications systems in cities and towns throughout the United States and it would link them together into a common national network via the NREN. This would supply initial and ongoing core funding for equipment and personnel costs—just as the CPB and NTIA, which is another agency, do for public television and for NPR. Second, it would develop and deliver across the network high-quality information services of national scope to supplement what each community is able to develop on its own—just as the CPB does now for PBS and NPR. Third, it would develop special programs to introduce telecomputing to the general public with special emphasis on K-12 students and teachers, senior citizens, handicapped, and minority populations. It would develop this medium with special regard to community service applications and government connectivity—just as the CPB does now (more or less) for PBS and NPR. Essentially it would be an analog, a parallel, to the Corporation for Public Broadcasting only its intent would be to develop telecomputing, to develop community computing in the cities and towns throughout this country.

What would that cost? That is going to be the first question that anybody asks in Washington, DC—how much is it going to cost and where are we going to get the money for it? What I see developing is basically a series of two-to-one grant proposals, whereby if you were putting up a system in a given area, you could receive core support up to a limit of $100,000 from the federal government . . . if and only if the state were to match it two-to-one and put up $50,000. The state puts up $50,000 if and only if the local city or county puts up $25,000. So it's a cascading series of two-to-one funding proposals. No one branch of government is tasked with the entire burden of putting together these systems.

With regard to special programs, these would be programs that would be developed and targeted towards special populations, such as K-12 or library programs, women and minority programs, etc. Again, the federal government would put up $50,000 if and only if the state puts up $25,000 if and only if the local area puts up $12,500 for the development of these programs on these systems. In effect, then, the total exposure that the federal government would have on a given system in a given city would be $150,000. The state's total exposure would be $75,000, and maximum local exposure would be $37,500. But the combined effect produces enough money to provide core funding in perpetuity to keep these systems going.

To put it into a little bit of a larger context, if the federal government wanted to put up community computer systems in 100 cities in the United

States—you can pick which ones you want: the 50 largest cities plus the 50 state capitals, maybe the 100 largest cities, maybe some mixture of urban and rural, whatever—a network of 100 cities would cost about $15 million. Now to you or me this is a healthy chunk of change, but in the grand scope of these kinds of programs, this is a tiny fraction of what the Corporation for Public Broadcasting receives each year. A tiny fraction.

For a similar scenario, let's use Ohio as an example. Ohio has basically seven major cities. The maximum exposure of the state of Ohio would be about $525,000 a year, but for that, you would be placing information-age services in the hands of over 50% of the population of the state. Locally, the city of Columbus (or Cleveland or whatever) would have to raise about $37,500. I think it would work. I genuinely think it would work.

THE FUTURE OF COMMUNITY COMPUTING

What I am worried about is the alternative. Where are we going to wind up if we *don't* do it? How exactly are we going to get information-age services into the hands of the people? Frankly, I don't know. I really don't. And this is not rocket science here, folks. I mean, we're not talking about technology that has yet to be developed. We're not talking about some huge effort to put a man on the moon. We're talking about technology that is here now, that is available now. Moreover, we've done this before.

Several generations ago in this country we put together a railroad system that stretched from one end of this country to the other, and, for the first time, this country was linked together from coast to coast. The sons and daughters of the people who put together that railway system put together the great public library systems in this country. The sons and daughters of those people put together the great radio networks. The sons and daughters of those people put together the great television networks.

What I'm saying is that maybe it's our turn! Maybe it's our turn to develop something for our children and our children's children as great as the legacy that's been left to us. A lot of people don't realize that 100 years ago there was no such thing as a free public library, at least in the sense that we know it today. They didn't exist. But we got to a point in this country where literacy got high enough and the cost of printing books got cheap enough that public libraries became feasible. We got to a point where people started coming together around a concept. They started coming together around a concept of free public access to the printed word. They not only came together, they came together in groups as small as a few people sitting around a kitchen table and in groups as large as this one. But they came together around that common idea and they made it happen.

What I'm suggesting to you is that we've gotten to the point in this country where computer literacy has gotten high enough and the cost of the equipment has gotten cheap enough, that we can now start looking at the similar development of free public access to computerized information and communications services. There are simply no barriers to that happening. The fortunate thing is that we still have a choice. We're at a point where we can

choose to make this thing work—it is still something that's within our grasp. As individuals, you can talk about this kind of thing. You can write about it. You can think about it. You can, in a lot of ways, promote the idea that maybe we should have a way of opening the information age to everyone. You can come together in groups and start working towards the development of this Corporation for Public Cybercasting idea. We're going to start work on that coming up this spring. We need to develop some model legislation at both the federal level and the state level. And we need to start the process of getting this legislation passed, of getting something like the Corporation for Public Cybercasting, and the ideas it stands for, into place. It's in our hands now, or, more specifically, it's in *your* hands to make it all work.