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Assessment and Evolution of Community Networking

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The Morino Institute

Preface

Seventeen months ago the Morino Foundation began a journey to learn how we could best use our resources, knowledge, and time to help others. Our goal was then — and still is now — to make a difference, and most importantly, to drive positive, sustaining social change. In our journey, we met over 500 individuals from over 300 organizations, learned of valuable programs and services, had the opportunity to benefit from innovative visions and ideas, and found truly imaginative and committed people making contributions to help their communities, their country, and the world.

In most cases, the people we met for the first time opened up to us, many even reaching out to help. We owe so much to these people for, in many ways, they helped us shape the views expressed here. We take this opportunity to express our thanks and appreciation for the courtesy, for the knowledge and the advice, but most of all, for the encouragement you provided.

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- Kaye Gapen of Case Western Reserve University
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Introduction

"Every time I do get on Free-Net, I need some kind of help, and when I leave I have truly received the help I need. . . . I want you to know that without Free-Net I would be lost . . . I don't worry, I am not afraid, I have Free-Net and my Computer Family of loving and caring friends. These resources, together with God, will get me through, and I know that I will be able to provide my wife with the best care possible."

—Excerpts from a letter published in the newsletter of the Cleveland chapter of the Alzheimer's Association

These words speak volumes about the Alzheimer's Disease Support Center that was implemented on the Cleveland Free-Net. The letter[1] comes from a man whose wife was suffering terribly; as her caregiver, he was having difficulty coping. He was able to turn to the Support Center and work through his problems with the help of other caregivers like himself. The emotion and feelings this person expresses, and the importance he places on electronic communications as a tool to help him reach out to others, to communicate, and to share and receive, helps us all understand the potential that electronic communications offers our people, our communities, and our society for effecting positive social change.

This remarkable potential sets the stage for our discussion of community networking.

A New Way to Serve the Community

In January of 1993, we began our year of discovery with no predisposed notions of the importance of electronic communications. Through the course of our journey, we came across a fascinating phenomenon — community networking facilitated by electronic communications. It has become known by many names — community computing, community telecomputing, community bulletin boards, civic networking, telecommunity systems, and community information systems. Whatever the name, we see community networking as a process to serve the local geographical community — to respond to the needs of that community and build solutions to its problems. Community networking in the social sense is not a new concept, but using electronic communications to extend and amplify it certainly is.

We consider community networking a process, facilitated by the tools of electronic communications and information, that improves and magnifies human communication and interaction in a community by:

- Bringing together people within local communities and focusing their attention on key issues within the community for debate, deliberation and resolution
- Organizing human communication and information relevant to the communities' needs and problems on a timely basis
- Requiring, engaging, and involving — on an ongoing basis — the participation of a broad base of citizens, including community activists, leaders, sponsors, and service providers
- Striving to include people in low-income neighborhoods, those with disabilities or limited mobility, and the struggling middle class

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[1] The complete letter is reprinted in Appendix A.

- Making basic services available at a fair and reasonable cost — or, as many espouse, at no cost — for broad-based access within the community
- Most importantly, doing what commercial providers find difficult to do well: represent local culture, local relevance, local pride, and a strong sense of community ownership

Over the past year and a half, we have explored the emergence of, and impediments to, community networking. The philosophy and principles behind the community networking movement closely align with our own values; we believe that the local community is where our toughest social problems — crime, inadequate education, underemployment — will be solved, by the grass-roots efforts of the people who have the most personal stake in their solution. It is here that community networking takes on such relevance in helping people solve problems and addressing the needs of their day-to-day lives. Clearly, community networking is an emerging phenomenon with the potential to effect profound societal transformation.

An Opportunity for Action

The community networking movement, growing on its own merits in community after community, is highly consistent with the importance we place on "grass-roots" innovation, solving problems and satisfying needs within the local community, and instilling or strengthening the sense of ownership and belonging for the members of local communities. As we learned about community networking, we were also following the activity surrounding the introduction of the National Information Infrastructure by the Clinton-Gore administration, and the industry's and media's fascination with the "information highway." Ironically, there has been little mention of the community-based movement within these national and industry programs and debates.

This dichotomy between the emergence of community networking at the local level and its underrecognition and underappreciation at the national level is a major impediment to community networking. It is a formidable challenge, but also an exciting opportunity. We see community networking as an important movement that can help our society better understand the promise of electronic communications and help communities work toward positive social change — particularly over the next several years where, as many predict, there will be a difficult "shake down" period among the national information highway players. Community networking is a movement that will not only benefit localities, but in the long run contribute greatly to the realization of national and global information infrastructure initiatives. We will support efforts to advance community networking and to strengthen its acceptance, funding, and social and technical innovation.

We wish to share with you some of our findings and observations by:

- discussing the emergence and evolution of community networking
- providing a time-line of major events in this evolution
- proposing for your consideration a series of suggestions we believe are important to advancing the community networking movement, and
- concluding with a challenge to help us all make our actions more relevant to our communities and to the positive application and advancement of electronic communications for social good

Emergence and Evolution of Community Networking

Some say it all began with the creation of ARPANET in the 1960s, which evolved into what we now know as the Internet. Subsequent advances in technology and standards made it possible for something called a "computer" to act more like a "communicator." The military and scientific worlds were making great progress, working better and perhaps more efficiently — but throughout the 1970s, the computer network was still very far removed from everyday people in their communities. One well-known exception was the Berkeley Community Memory system, where curious people could carry on basic conversations over "dumb" public terminals. But as the medium grew, we saw commercial services like The Source — which was eventually absorbed into CompuServe — and the emergence of local bulletin board systems — BBS's. Some people — the pioneers of community networking — began to see the potential of real communications systems for effecting change in their communities.

The Pioneers

Dave Hughes, already a folklore hero, was, and still is, a trailblazer for community networking. By setting up inexpensive community bulletin boards, he showed people the power of electronic communications. And, through his tireless activism on behalf of community networking causes, he showed them what they could do with that power. Howard Rheingold put it well in his book *The Virtual Community*: "Dave's modus operandi is straightforward and uncomplicated: First, he brags shamelessly about what he is going to do, then he does it, and then he shows everyone else how to duplicate his feats."[2]

Tom Grundner has been called the "father of community networking" — with good reason. He helped people view community networking as a *process* more than as a technology. The medical BBS he called "St. Silicon's Hospital" grew into the Cleveland Free-Net — the model for a generation of community networks. And Tom, of course, founded NPTN, the National Public Telecomputing Network, which has 34 affiliated community systems today, and over 100 more in the organizing stages.

Frank Odasz saw the potential this networking held for rural communities, in particular for rural education. Frank's work in Montana education — where the schools, often the one-room schoolhouse that many of us only know from our history books, are few and far between — is setting a standard for rural community networking. He has taken this experience and, with the initial guidance of Dave Hughes, established a renowned community network called Big Sky Telegraph. Telegraph has emerged as a national example of the great things communities — especially rural communities — can accomplish with truly basic resources.
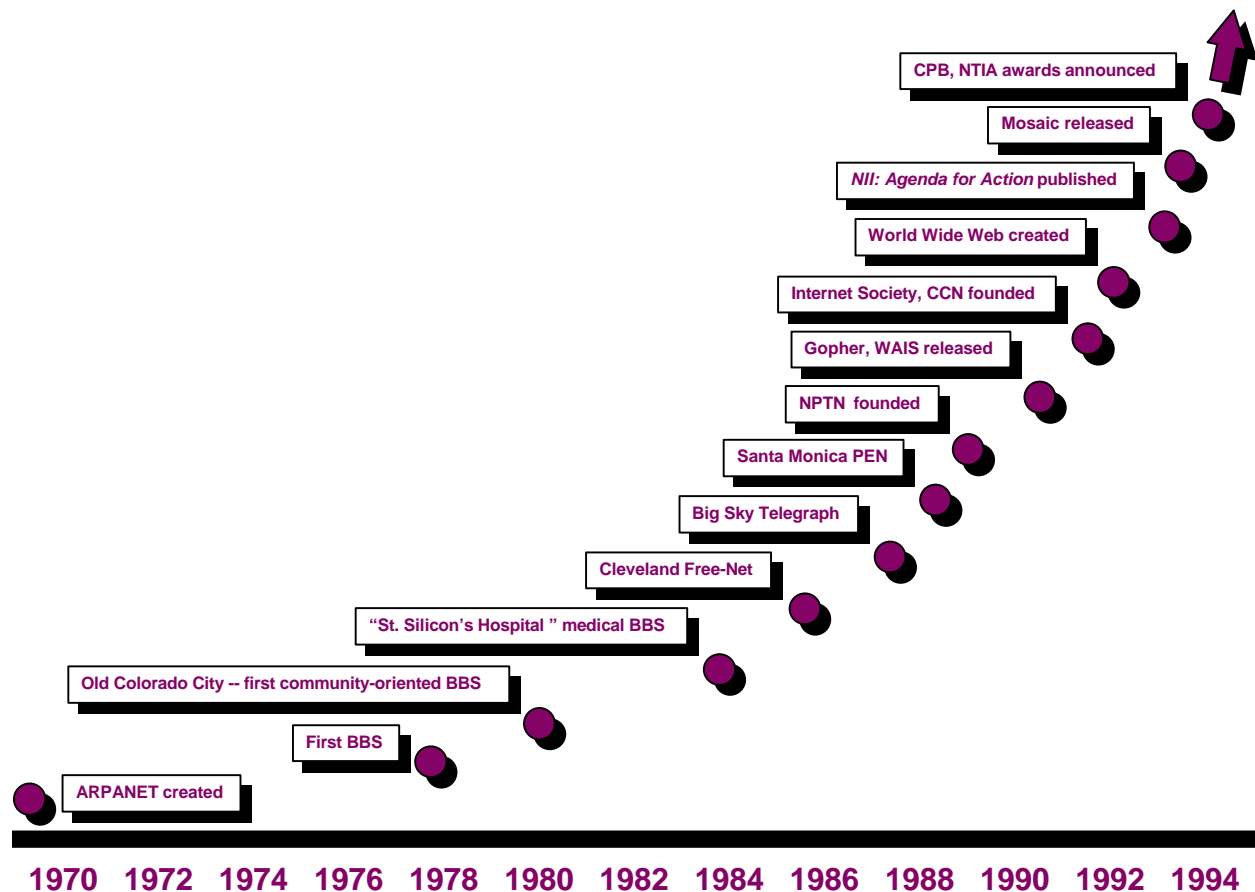
Ken Phillips brought the community network into even sharper focus, with his groundbreaking work on the Santa Monica Public Electronic Network (PEN). Santa Monica PEN advanced our understanding of how the physical, geographical community can be successfully mirrored and improved upon in an

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[2] Rheingold, Howard, *The Virtual Community*. Addison-Wesley, 1993.

electronic community. It also gave us new models for public access to community resources and the possibility of community networks producing real social benefit.

Richard Civille, of the Center for Civic Networking, has advanced the concept of civic networking among national policymakers. The mention of civic networks in the *NII: Agenda for Action* document, for example, is directly attributable to his efforts.[3] Jack Rickard and his *Boardwatch* magazine have been a tremendous force in advancing the growth, maturation, and internetworking of bulletin board systems — to the point where the old distinctions between BBS's and larger networks have fallen by the wayside. And Steve Cisler, our host here at Apple, has provided a tremendous base of support, research, and knowledge for the community networking movement as a whole.

An Historical Time-Line

CPB, NTIA awards announced

Mosaic released

NII: Agenda for Action published

World Wide Web created

Internet Society, CCN founded

Gopher, WAIS released

NPTN founded

Santa Monica PEN

Big Sky Telegraph

Cleveland Free-Net

"St. Silicon's Hospital " medical BBS

Old Colorado City -- first community-oriented BBS

First BBS

ARPANET created

1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994

The chart above depicts some of the major events in the evolution of community networking. Appendix B offers a more detailed time-line of specific events.

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[3] *The National Information Infrastructure: Agenda for Action*. Information Infrastructure Task Force, September 1993.

By the end of 1991, the first generation of the community networking phenomenon had truly begun. In addition to Big Sky Telegraph and Santa Monica PEN, five other communities in Ohio and Illinois had followed the Cleveland Free-Net model and set up their own local systems — and over a dozen more were in the planning stages. Bulletin boards and computer conferencing systems like the Well in San Francisco took on a greater scope, often moving beyond the hobbyist roots of BBS's to focus more on the communities around them, as well as the virtual communities their members enjoyed. At the same time, the first wave of commercial network providers moved through the country, as the online services looked beyond their business customers to home users.

The Surge in Interest

Clearly, the momentum was building in 1991 and 1992. We would suggest, however, that a major acceleration has occurred over the past 12-18 months, in which we have seen a dramatic surge in interest in these systems — the beginnings of what could be a second generation of community networking. Important events like this conference are proliferating —the first half of 1994 alone has seen half a dozen such gatherings. The Free-Net phenomenon has grown significantly. And the evolving model of the community network continues to challenge our previous notions and technologies, encompassing diverse paradigms such as the planned LaPlaza Telecommunity in New Mexico; Cupertino's CityNet; the Smart Valley Project; the recent CommerceNet; new community network cooperative models in San Francisco and Seattle; the South Bristol Learning Network in South Bristol, England; the community environment built around Pipeline in New York City . . . the list goes on and on.

Our own observations over this time — the course of our discovery period at the Morino Foundation — certainly confirm this incredible movement and we suggest four main underlying forces:

1. Clinton-Gore and NII

The Clinton-Gore administration's interest in and introduction of the National Information Infrastructure initiative has had the most significant impact. Regardless of one's position on the NII, and partisan considerations aside, it is undeniable that the initiative has raised the consciousness of people across the United States, and the world. We believe this increased awareness has drawn many, new individuals into the community networking movement, onto the Internet, and other online commercial services. More importantly, it has attracted a diverse group of people who will work to complement those already involved.

Additionally, grant programs from federal groups such as the National Telecommunications and Information Administration, the National Science Foundation, Defense Conversion Funding, USDA's Rural Electrification Administration, the Environmental Protection Agency, the Department of Education, and other federal and state initiatives will create interest and activity in these areas. There is no denying that the promise of what Al Gore called the "information superhighway" just a few years ago has captured the public's attention and imagination.

2.   The Internet

There has been an amazing surge in new usage of the Internet. According to the Internet Society, there were 4,000 networks connected to the Internet at the end of 1991. By May of 1993, that number had tripled — and in the past 12 months, it has more than doubled again, to over 29,000 connected networks. Reachable hosts on the Net have increased from 700,000 at the end of 1991 — to 1.5 million in May of 1993, to over 2.2 million today — with users of all hosts potentially numbering over 10 million! A new network is connected to the Internet every 20 minutes, and new Internet services and service providers are everywhere. Adding to this explosion is an ever-increasing stream of improved software interfaces and services — including new internetworked services, powerful search tools, friendlier graphical front-end interfaces, and new information products.

We strongly believe that the desire to gain local access to the Internet has been one of the driving forces behind the growing interest and involvement with community networking. We have seen clear evidence, in online discussions and elsewhere, that users seeking access are increasingly being directed by word of mouth to community networks as Internet service providers.

3.   Information Highway Promotion

The financial commitment by major industry to developing the "information highway" is generating a great deal of the interest as well. The telephone and cable companies, publishers, traditional software and hardware providers, and venture investment firms are already focusing their attention — if not large investments — to capitalize on the information highway opportunity. This entrepreneurial excitement is also being manifested in thousands of small emerging businesses such as publishers O'Reilly and Associates, and creative non-profits such as Internet Multicasting Services. The perceived and actual progress continues to fuel an interest in community networking.

4.   Community Networking Movement

Finally, the community networking movement has gained tremendous momentum within its own cultural roots. The positive "word of mouth" surrounding grass-roots community networkers has been amplified by the three previously discussed forces to help create a surge in interest and engagement. There has been a marked increase in the internal support this community provides itself — in terms of electronic listserves and newsgroups, as well as the marked increase in meetings and conferences on community networking. An even greater indicator is the emergence of new technological approaches such as First Class, the OS/2-based HiCom, Pipeline, and Internet cooperative systems. Finally, and most indicatively, we point to four substantive actions that begin to truly legitimize the community networking activity:

- The Ameritech grant won by the National Public Telecomputing Network for collaboration to develop and deliver the Ameritech Learning Village

- The Annenberg, Corporation for Public Broadcasting, and U.S. West grant won by Frank Odasz and Cynthia Denton of Big Sky Telegraph for rural education

- The CPB/U.S. West CWEIS grant program that recently awarded $1.4 million to 12 communities for public education and information online services

- The NTIA TIIAP grant program which is making $26 million in funding available toward the development of public interest telecommunications applications and services

While these programs will provide funding, they will barely scratch the surface of what is really needed. Yet compared to the amount of funding available even a year ago, it is more than just a significant increase — all four of these events have taken place within the last twelve months.

It is striking, in looking back at this period of emergence, how much of the history of the community networking movement is defined in technological terms, rather than in "human" language of actual community building. This is one of many challenges that community networkers will have to address in moving toward long-term survival and prosperity.

Clearly, the stage is set. The opportunity is directly in our sights. There is no assurance, however, that we will be able to marshal the resources, support, ingenuity, and collaboration that will allow us to collectively capitalize on this unique, historic opportunity. We will offer the first stage of a strategy to accomplish this goal, but each community must evolve its own plan to truly accomplish the broad goals we establish today.

Assessment and Future of Community Networking

Community networking entrepreneurs face a formidable challenge: Are they part of a social phenomenon that is destined to stall or implode . . . or do they represent a vibrant force, capable of building on the knowledge they have accumulated, adapting to a rapidly changing world and community needs, and ultimately achieving positive, lasting social change in their communities? In 20 years, when we look back on the 1990s, we want to recognize this period as one of historical significance — as the time when we were able to achieve positive social change in our communities by using electronic communications as a vital enabler to bring people together, to share, learn, and work together to solve their problems.

In all candor, though, we suggest that the first option — a stalling or implosion — is quite likely and, for some, already predictable. The surge in interest must be matched with an influx of significant funding and a step-increase in the functionality and quality of the underlying technology; otherwise, an implosion is likely. There are few worse situations than an enormous build-up in interest that goes unsatisfied or, worse, is ineffectively addressed.

There is a window of opportunity in which the community networking movement must establish itself in a sustaining manner. This window of opportunity will not remain open for long, as major non-profit organizations and a raft of commercial interest parties have picked up on the importance and relevance of this emerging marketplace. This is not a time for community networkers to maintain the status quo.

Hope for the Future

The second option — in which community networking lays claim to an accomplishment of historical significance — *is possible.* It *can be accomplished* — but the same visionaries and social innovators who have evolved community networking to its current status must recognize that the process has just begun. The real test lies in their ability to adapt to a dramatically changed and changing world. Those coming into the movement in this second phase must step back and see the broad vision of what can be, and work in concert with those who have gone before.

The visionaries and practitioners of community networking have an opportunity of historical proportions within their reach.   The process of community networking as it is now commonly understood must move itself to a higher plane, to a role of greater significance in communities and society at large. We strongly urge that these visionaries and practitioners recognize the enormous significance their contributions could have, and that they consider the steps necessary to position themselves to capitalize on this opportunity.

To this end, we present ten suggestions which we believe are critical to making the transition to a higher role and significance. These suggestions are based on the general observation we conducted, our learning of the successes and impediments community networkers have encountered, and on our own experience in interpreting similar trends in technology and organizational dynamics.

1. Aim High: Work Toward Positive Social Change

We suggest that the ultimate goals of community networking should address *positive social change* — in as many areas and disciplines within our society as possible. To this end, we suggest that you consider how you, through your community networks, can enable the following:

- Helping people understand the relevance, and harness the power, of information and electronic communications to improve their lives
- Stimulating economic growth by helping individuals and businesses become more adaptive
- Improving the quality and availability of education for all ages and levels of society
- Helping people engage and improve their government
- Assisting the public and social sectors to reach and engage the people they serve more effectively
- Improving access to, and the quality of, health care information and services
- Advancing the state of environmental awareness, monitoring, and protection

Most community networking efforts have included similar goals in their charters, but often these goals have been sublimated to mere words and not the primary focus of their efforts. Those responsible for community networking must maintain constant vigilance on these ultimate goals to guide every decision and action. The community network will not produce results on its own, of course; rather, as Dave Hughes has suggested, the online discussion should be "the *springboard* for local action."[4] The action itself will take place on the streets, in the neighborhoods, in City Hall or the courtrooms. Our communities need help, and it is the responsibility of the community networking movement to *enable and facilitate* the work of those in their community capable of introducing social change — not simply maintaining the status quo.

We have an opportunity of enormous significance and a window of opportunity to succeed. True success will be achieved only if community networking sets its vision high enough and stays tightly focused on supporting and enabling positive social change in our communities.

2. Serve the Needs of Your Community

The community networking process must be based on a thorough and comprehensive understanding of the *needs* of the community to be served. Certainly that has been the ideal of community networking, but we suggest that there is much room for improvement here for most active community networks.

For example, economic development — the creation of jobs — is a compelling need in most communities. More focus must be placed on cultivating broad-based economic development and career retraining, and on teaching aspiring micro-enterprises and entrepreneurs how to benefit from electronic

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[4] Personal conversation with David Hughes, April 26, 1994.

communications. We suggest this involves a great deal more than connecting to the Chamber of Commerce or the Small Business Administration's Bulletin Board.

We urge you to consider *relevance.* Gain a better understanding of the people and institutions to be served and of the institutions and services involved. Gain an understanding of what needs are going unmet — at home, in families, in the workplace, for the unemployed, in the government, social services, and so on. The well-worn cliché, "if you build it, they will come," is ineffective relative to the needs of community.

Consider the single mother who worries about her child getting shot in the locker room . . . and never getting to play on a "Field of Dreams" at all. That mother could care less about information infrastructure or community networking. Chances are, no one asked her what *she* might need from a network, how she could use this powerful tool to better *her* life — and with this inadvertent omission, another exclusive club is created to which she will never belong. Watch how vacant the "information highway" will become if this situation is allowed to spread.

Reach out into the community, talk to people, make a concerted effort to understand their needs — and then help them understand how the services of the community network can help. Such outreach and engagement will ensure a buy-in among the people of the community and an ongoing relevance to their needs.

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3. Engage the Broader Community

The community network needs to represent the interests of the community it serves. Many of today's groups must make a concerted effort to move beyond their current scope, which often represents only the interests and views of the people who organized and built the network. The community networking programs that will succeed in the long run will be those that have maintained a focus on the multiplicity of needs in the community and have effectively engaged the full spectrum of their neighbors.

The key to answering this question is to focus on those using the network to help effect positive social change. People are looking for results, solutions to their problems — not network access. Or, as Frank Odasz of Big Sky Telegraph likes to say, "real benefit for real people." That means, in building community networks, we should seek out and involve those individuals in the communities *most capable of making things happen and ushering in changes.* We need people who are willing to question the status quo, to ask what is needed, and to get good things done right now. The buy-in from these people in the community is the best insurance that the community network can address the broad range of challenges posed by the community.

We suggest two ideas to better engage and involve the community, whether you are just starting a community network or if your network is already up and running:

- Expand and/or recompose your Boards of Directors. Many people take this for granted, but a good Board of Directors is crucial. By "good," we mean composed of active, engaged agents of community change — people from diverse backgrounds, with a range of relevant opinions and

experiences. Your Boards should be selected to include: those who will connect you to key bases of support; those who can help you raise funding; those who will contribute management know-how; and, most importantly, those who believe in the potential of community networking and who will work to help sell and engage the people and institutions of the community. The Board should be composed of people who will *continually challenge* the community network to grow, to develop, and to improve — to question its own status quo.

- Actively engage the community. This is a process of marketing and, hence, to many an unknown. We suggest that you proactively reach out to the community, with a formal and informal marketing communications program. Establish ongoing relations with the local media to provide occasional press coverage; conduct regular meetings to provide status and collect input and requirements from various population groups; conduct programs to educate people in awareness, competencies, and application of electronic communications; establish programs to promote what is happening on the network — relating the success stories, how people have been helped, where benefit has been realized, and when lives have been changed. More importantly, collaborate with parties who can serve as distribution channels to promote the services — the computer stores in the region, the public library, the chamber of commerce, the interfaith religious associations, and the like. In this way, you can maintain a constant presence and seamlessly become part of the fabric of the community.

> *Make it a top priority to compose a Board of Directors that will challenge you, represent all the people you serve, and, in turn, strengthen your ties to the community. Establish a marketing communications program to proactively and deliberately reach out and engage community members . . . to enable the community network to become an integral part of the community and an important part of people's daily lives.*

4.   Broadly Redefine Support

Community networks, once they achieve certain levels of success or critical mass, must have a formal "infrastructure" and full-time staff. The pioneers of community networking have done incredible, absolutely unbelievable work —by and large, in their spare time, around the edges, maintaining systems at 2:00 in the morning from computers in the basements of their homes. This model will continue to work for small systems that remain satisfied with a relatively narrow focus — but it clearly will not hold for most community networks and the demands they will face.

The staffing requirement is much more than hiring someone to administer the network. Certainly, network administration is an important responsibility, but it is far less relevant to long-term success than staff to provide community engagement, promotional seminars, fund raising, periodic community needs assessment, education and training, telephone support, and even consulting services.

Ironically, the more successful a community network becomes, the greater the demand will be for more services, improved access, and better reliability. The community network that does not respond to these increasing demands is only creating an opportunity for another not-for-profit or commercial service to capture its clientele.

Another important point to bear in mind is that the skills to manage a growing community network are very different than those required to create the network. Actually, these skills must change as the community network evolves and grows.

> *Plan a well-defined infrastructure, and staff it with full-time people who can be augmented by professional volunteers. Seek good staff, with a desire to help, possessing great people skills, communication skills and facilitation skills — along with the technical orientation essential to the nature of the system.*

5.   Establish a Sustaining Economic Model

Community networks, large or small, *absolutely must establish an economic model for their sustained operation.* It is a question of economic viability, really of survival — not a debate over "free access." Clearly this is an area of heated debate and concern to existing community networks. Recent discussions in the COMMUNET and FREENET conferences, where pieces of such economic models are starting to come together, have been most encouraging on this front.

To be sure, individual communities can make their own determinations about what sort of access they want to subsidize for what groups of people. Tom Grundner and others have passionately and convincingly argued for no-cost availability of basic services; indeed, this question is being debated on a national scale in the federal Information Infrastructure Task Force, among other places. Bear in mind that free access to networks will almost always be structured around off-peak times and functions, riding in the "electronic empty spaces," as it were.

Community networks must establish a sustainable funding base from fee-based services and *sustained* funding sources, which are most often locally-based. Government and other grant monies can be used to supplement this base, but a sustaining economic model must not be dependent on grant funding. This requires a more creative approach to earning revenues. Here is a list of possible considerations:

- Basic subscription charge of a nominal amount to all subscribers to the service
- Subscription charges that are tied to specific types of services
- Provider charges that are applied to organizations that wish to use the community network and/or post information on it
- Local subsidies that may be directly linked to jurisdictional taxation or levies
- Usage fees for education, support and consulting
- Sustained grant funders that commit to long-term funding

We must keep in mind that "free" public libraries, to which an analogy has often been made, have always had a taxation-based economic model to ensure their continued operation.

> *To serve the needs of the community, the community network must first survive. To survive and expand to meet current and future demand, it is absolutely essential that an economic model for self-sufficiency be defined and implemented. Anything short of this imperative represents a disservice to the community being served.*

6.   Build A Strong and Open Technological Base

Community networks must work toward building a stronger, more accessible, and more functional base of technology and telecommunications. To be sure, this is first a problem of funding, but equally imperative are vision and experience once funding is available. It is, moreover, a fundamental challenge to the long-term survival of the communication medium that community networking represents. Questions of growth and scale are more than just adding more staff, modems, and disk space.   Here, then are five basic areas for building a stronger technological base:

- **Telecommunications**
  It is critical to build a telecommunications capacity to be able to handle a high percentage of peak load activity.   Systems epitomized by a perpetual busy signal will discourage use and eventually lose their clientele to an alternative service — this is the undeniable rule of online services.

- **Community Networking Software**
  The core community networking systems, Free-Port, Big Sky Telegraph, First Class, and others are good technologies, but in current forms lack the robustness, scalability, network interoperability, and user friendliness that community networkers will demand. Community networking leaders should collaborate to help advance the state of technical functionality . . . or watch as alternative technologies rapidly pass by the capabilities of community networking systems — again with the net result of discouraging use and eventually losing clientele.

- **Systems Management**
  Few organizations recognize the need for industrial-strength systems management. Functions such as backup/recovery, disaster preparedness, security access and encryption, capacity and performance management, problem diagnosis, license servers, and a host of other considerations should be considered, again on a scalable basis. These may seem like far away issues to the person in a small town trying to bring up a First Class rural network, but to many growing community networks this will be an issue of increasing relevance and concern.

- **Network Gateways and Interfaces**
  Community networks should serve as the local hub for the larger networked services, as well as support cross-communication with other community networks — allowing interoperability, and filtering and structuring information into a local community context. In addition to the technical function, moreover, community networks should act as a cultural connection to the larger networks as well. By "larger networks," we mean nonprofit networks such as Handsnet and the various nets under the Institute for Global Communications; corporate and governmental networks that want to share certain information with the community; even a commercial service. It is not at all beyond possibility that the major online service providers would consider establishing inexpensive gateways to community networks — just as they do to Internet electronic mail today.

- **Distributed Systems Interoperability**
  There is no one technical solution that is right for all communities — or even for all communities within a local community. In a very real sense, we are all re-learning the lessons of how organizations have to adapt their thinking . . . away from the centralized model for information systems to a much more distributed approach, where the functionality is vested in each department

or user. Centralized systems fall short when the key is local ownership of information, interconnection, and seamless interoperability. You must move beyond the one-system approach, and act as the integrator of community services, rather than the controller. The community network may provide one central system, but more important is providing the enabling technology to interconnect — thereby allowing networks run by schools, churches, libraries and the like to work with the clients of these networks. It is this core system, as well as internetworked connections and information integration capability, that we believe will typify the successful community networks of the future.

> *Work to build your technical capacity and functionality to ensure openness and interoperability — it will be a key differential on which people judge the community network in comparison to other not-for-profit and commercial services. The importance of this factor grows disproportionately as the community places a greater dependence on the services provided by the network.*

7.   Make Information Relevant to Your Community

Local relevance. That is where the community network can make its mark and distinguish itself from the commercial services and other players. Since community networks are locally owned and operated, you can organize the vast amount of local, statewide, national, and international information services and resources . . . *around the local needs that you uniquely understand.*

That could mean taking the reams of federal housing information and putting it in a usable context for a local homeless shelter. Or organizing scholarship information to fit the needs of disadvantaged local students. Or coordinating the efforts of the multitude of homes for battered women that might exist within a single community, whose staff are unaware of each other's existence. The key is that the information, from financial data to the oral traditions of an Indian tribe, is placed in a context people can use toward the fulfillment of community needs.

Kevin Thomas Sullivan, a communications consultant in Minneapolis, put it well on the COMMUNET list: "I believe that we can consciously choose to use information technology to help facilitate community. Community networks will continue to thrive if they help to facilitate community. They will perish if they view themselves simply as alternative information providers. Let the commercial companies provide all the information they want; they will not be able to facilitate community because community is by definition *local.*"[5]

> *Increase the relevance of your networks by adding value to the oceans of unfiltered information that are out there — be more than a posting service or pass-through service. Gather information from outside sources and place it in a local context, making it relevant to the day-to-day lives of the people in the community you serve.*

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[5] Kevin Thomas Sullivan, in "Communet: Community and Civic Network Discussion List," April 8, 1994.

8.　　Ensure Broad-based Access

We are here today because of our deeply held belief that communities must focus on improving the *ease of access* to relevant information and knowledge. The word "access" means many different things to different people. We would offer three basic points for discussion:

- **Points of Access**
  There must be much greater *physical* access through points of entry to community networks. We do not subscribe to the theory that every home will have the capacity — or desire — to have a network connection, at least during this decade. Consider that even today as much as 10% of the people in the United States have no telephone service, and 35% manage to exist without cable TV. We applaud the Clinton-Gore administration's charge to connect all the nation's schools, hospitals, clinics, and libraries by the year 2000 and appreciate the fact that more and more homes and offices are equipped with computers and modems — but there is still an enormous percentage of our population that will remain unaffected. We must take action to ensure access for working parents, isolated rural workers — farmers, teachers, and nurses — the elderly, the youth we strive to keep safe and off the streets at night, and the social intermediaries who are dealing with our communities' most difficult and threatening problems.

  Encourage the provision of points of access throughout the community, placing the access where it has the chance of engendering the greatest good — probably not public offices and shopping malls, as is so often espoused. Instead, focus on those outposts that are already in the community, where the local heroes have the gained the respect of their neighbors — locations like churches, the Salvation Army, Boys' and Girls' clubs, community youth centers, unemployment offices, Head Start centers, shelters, and wherever you can find social intermediaries who are making a difference, who are truly committed. It is these individuals that will make the difference in training and education, *putting a human face* on the community networking technology.

  We encourage community networks to encompass the funding, technical support, equipment, and related training for points of access as part of the network's charter. Consider this requirement within your economic models and support infrastructures.

- **Ease of Use**
  For many would-be users, a blank computer screen is as formidable a barrier as a deadbolt. Certainly, computer interfaces have improved markedly in the past few years, especially for Internet use, but we have inched up to 1, perhaps 2, on a scale of 1 to 10. It is still a chore for most people and a barrier to many.

  The ease of use question goes beyond the human/computer interface and the reliability and support of the system. Ease of use must also consider the needs of multilingual communities. Therefore, what is more important for such a community — a graphical user interface or multilingual support? Some networks must support cultures that rely on the spoken word far more than written communication. These cultural minorities certainly do not always fit our definition of economically or socially disadvantaged — but they lack access just the same. And what about individuals with disabilities who cannot see or hear the system? How many community networks today make provisions for the blind, deaf, or non-mobile? These are all questions that we must incorporate into

our grand schema of community networking. Dr. C. Everett Koop, speaking at the Public Interest Summit sponsored by the Benton Foundation in March of this year, estimated that over 30% of our general population is restricted from accessing these technologies in some manner.

- **Access to Knowledge**
  The final consideration is one of filtering and context. Many say it is the difference between information and knowledge. Our society is already drowning in information, unfiltered chaos whose worth or value we often have no way to judge. Even more disconcerting is that we are rapidly adding to this base of information at an increasing rate. In a given week, we may hear of half a dozen studies on the effects of alcohol on the human body — does it eat our livers, or does it fortify our hearts? How does the citizen sort this all out? Network access must synthesize information for the benefit of the community and structure it to solve community problems and satisfy community needs. Equally importantly, it should encourage all providers of information to think in like terms. Being able to access the "right" or "relevant" information may, in the end, be the most important facet of access.

Work with local institutions, governmental, not-for-profit organizations, socially conscious businesses to provide multiple points of access. Develop your systems with an emphasis on ease-of-use and multiple-interface solutions for the full spectrum of your clientele. Make the deliverables in your network worth accessing in the first place — by filtering and organizing information and knowledge in such a way that it is relevant to the people you serve.

9.   Prepare for Competitive Times Ahead

It may seem strange to speak of competition to individuals who have in many cases volunteered their time and effort to help build local community networks. But competition is inevitable. Consider the dialogue in the listserves and newsgroups, such as this observation made in the COMMUNET list by Ed Schwartz of the Institute for the Study of Civic Values: "The average citizen could care less whether a service is commercial or community-driven . . . If a community network lacks the resources to offer services that commercial services can, it will lose."[6]

Even more relevant is that the commercial sector and its supporting venture investment firms are beginning to take note of the potential of the local community. Community networking practitioners should, at a minimum, pay attention to the likes of America Online, E-World, and the Imagination Network — for they could well provide relevant community-based services. Not to mention interests such as Ziff Publishing, a combined AT&T/Lotus Notes service, the expected entry into commercial online services by Microsoft, the various cable programmers, and a host of other initiatives. No threat or opportunity, however, is as great as that posed by the newspapers, local television and radio stations — and, to a lesser degree, the public television and radio stations in the local communities. The newspaper business and television networks, in particular, possess a vast amount of local information

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[6] Ed Schwartz, in "Communet: Community and Civic Network Discussion List," April 8, 1994.

about the community — probably much more than other services could amass without great expense and effort. Clearly, should the newspapers, television, or radio stations consider providing community networking services, they could pose a formidable — if not dominating — competitor to current community networks. Of course, in a more positive sense, these institutions could be your greatest collaborators, as several of the recent CWEIS grantees may soon discover. The local news media in particular can be valuable partners, given their understanding of how to frame local issues and concerns and their vast repositories of locally relevant knowledge and experience.

The challenge to those in community networking is to recognize that they are in an extremely dynamic and fluid situation — politically, economically, socially, and technologically. Competition for access to the local community will be real. As in all other walks of life today, the community network should be looking at the local and external collaborations that will enable it to continue to serve its community.

10.   Collaborate to Represent a Powerful Movement

We have many times referred to the community networking movement. We do believe that there is such a movement underway, although highly unstructured at this time. To truly succeed, however, community networking needs a more unified voice and presence. Issues such as federal funding, foundation support, communications legislation and other public policy matters are being strongly influenced by industry, global networks such as the Internet, and even national not-for-profit services. Community networking has had a small voice, but even that was highly fragmented — and at times, the voices speaking for the movement were inconsistent or in conflict with each other.

We are not proposing that all of the various factions join together into a unified organization, for that would not work, nor would it be productive. Today, there are a host of parties representing community networking — the National Public Telecomputing Network, the Center for Civic Networking, Big Sky Telegraph, Computer Professionals for Social Responsibility, the Community Learning Information Network (CLIN), and Learning and Information Networks for Community Telecomputing . . . to name but a few. Additionally, there are scores of individual parties aspiring to reach national prominence such as CityNet, CapAccess, and La Plaza Telecommunity.

Our request is simple — practice what you have preached on the merits of collaboration and networking *to this community*. You certainly have one common interest — the advancement of community networking.

Put aside your special interests and join forces — for the first time — for the advancement of community networking and your constituents. It is time to reach out to one another, to work together, to share information, and to help each other. Just as the business world has reluctantly come to grips with the fact that you have to compete and collaborate with your neighbors in a professional manner, it is time for community networking leaders to do the same. This, indeed, is our challenge to those leaders.

Seize the Opportunity!

We would like to take this opportunity to give acknowledgment, and our sincere thanks, to those who have helped guide and develop our thinking over the past year. A thank you to the literally hundreds of people who have met with us, shared their knowledge and experiences with us, and given of their time and themselves. Many of you are in this room today.

In summary, we urge community networks to reexamine their operations, to focus on lasting, positive social change, and to build networks as vehicles for community *action*. You have the opportunity to take years of hard-earned knowledge and experience and build a powerful new communications medium that can really help people change their lives. To that end, let us restate our ten suggestions toward ensuring the *survival*, the *relevance*, and the eventual *prosperity* of community networking:

- **Aim High: Work Toward Positive Social Change** — set your vision on the ultimate goals of positive social change in your community, and maintain that focus in all that you do

- **Serve the Needs of Community** — build and develop your network to meet the ever-changing needs of your community

- **Engage the Broader Community** — expand and recompose your leadership to represent all the people you serve and establish an effective communications program within the community

- **Broadly Re-Define Support** — establish an infrastructure, a support plan and full-time staff to support the community network

- **Establish a Sustaining Economic Model** — move aggressively toward self-sufficiency and end dependence on outside funding

- **Build a Strong and Open Technological Base** — understand the issues of growth, scale, and interoperability — and how they relate to your system

- **Make Information Relevant to Your Community** — add value and context to the vast amounts of information available, by filtering and structuring it toward your local needs

- **Ensure Broad-based Access** — work to provide comprehensive physical access to your network, improve its ease of use, and make useful relevant knowledge a staple of its appeal

- **Prepare for Competitive Times Ahead** — take an objective look at other not-for-profits, as well as commercial services, and look to strategic partnerships whenever possible

- **Collaborate to Represent a Powerful Movement** — community networking leaders must reach out to one another, share information and resources, and speak to the world with a common voice — toward common goals

The challenge we collectively face is: "How do we make community networking succeed by building on the formidable successes achieved by the pioneers of this new medium . . . to construct a grander, more encompassing, and higher vision?" A vision to support significant social action — of truly helping people change and improve their lives. We implore those of you "in the field" today to unite in this purpose and put aside philosophical differences. The grass-roots spirit and innovation that have fueled this explosion of talented, motivated, caring people is too big, too important, indeed, too crucial to our development as a people, to be stopped now.

You have a chance to affect history. The ramifications of what we do, how we grow the true concept and practice of community networking, will be felt for generations to come.

We urge you to seize the opportunity, make this next step, truly be a part of history. We at the Morino Institute would welcome the opportunity to work with you and to help you in this quest . . . to build this communications medium into a lasting force for changing people's lives.

On behalf of the Morino Foundation, the newly formed Morino Institute, and our staff that have worked so hard to get us to this point of introduction, thank you to Apple Computer for the use of their facilities, and a special thanks for Steve Cisler for his initiative to conduct this conference.

Good luck to you all and we look forward to when our paths will cross again.

Appendix A

The following letter is reprinted from the March 1994 newsletter of the Cleveland chapter of the Alzheimer's Association. The Alzheimer's Disease Support Center on the Cleveland Free-Net was implemented in 1989, and is directed by Dr. Kathy Smyth of Case Western Reserve University.

"Free-Net: How to Regain Your Sanity Without Leaving Home"

by Mike Braun

Dear Computer Family:

Do you think in the fall of 1984, that Dr. Tom Grundner of the Department of Family Medicine, Case Western Reserve University had us in mind?

I wonder if he realizes that the coping mechanism he created is one of our greatest assets?

Does he know that he gave to us, and any Alzheimer's caregiver, a 24 hour per day, seven day per week Support Group? As a doctor, he was aware of mental stress and the necessity to get rid of it. But was he thinking of us?

The holiday season officially ended for me yesterday, and I am in a very sentimental, sad mood. Once again, I must use Free-Net to help me get back to normal. For some unknown reason, I really don't want to dwell on my feelings, but I do need to talk to my computer family. Every time I do get on Free-Net, I need some kind of help, and when I leave I have truly received the help I need.

Sometimes, I can't write, or don't know how to express my feelings, so I just read the articles that you have posted.

Do you know that reading these articles has caused me to cry? The problems that some of you are presently going through will soon be mine, and I can feel the frustration and pain that you have. How I suffer along with you! My prayers are no longer for my wife and myself, they now include all of you. I pray that God gives you some relief.

Your articles have provided me with so many answers to my questions. You never tell me what to do, you only share your own experiences with me, and these experiences always provide me with the direction I must take.

Fortunately, we all realize that even though most of the problems we have are either the same or very similar, each of us is a unique creature of God, and being involved in this terrible disease, only the individual can make a decision. None of want advice; we desperately need help.

We need someone who really listens. We need someone who really cares about me. We need each other.

I wonder if Dr. Grundner had us in mind back in 1984? I doubt it. I know that he had to be a caring, and sharing person. I know that he must have emotional "highs" just thinking about some of the things that could occur on his creation.

Dr. Grundner, I want to thank you. I want you to know that without Free-Net I would be lost. Your work has given to me a source of comfort and relief whenever I need it. You have saved me on more occasions than I want to remember. Being a caregiver for an Alzheimer's-related dementia (Pick's Disease) is a nightmare. I have been a caregiver for a very short time, and statistically I know that I will be involved for a very long time. I don't worry, I am not afraid, I have Free-Net and my Computer Family of loving and caring friends. These resources, together with God, will get me through, and I know that I will be able to provide my wife with the best care possible.

I pray for you too, doctor, and thank God that He gave you the ability to create the most helpful vehicle a caregiver can possibly have.

Appendix B - A Brief History of Community Networking

The following represents some of the key events in the history of community networking. Permission is hereby granted to reprint all or part of the following, giving due credit to the Morino Institute.

1969

- ARPANET (precursor to Internet) created — first American networking community

1972

- InterNetworking Working Group (INWG) created to address need for establishing agreed-upon protocols (Chairman: Vinton Cerf)

1973

- First international connections to ARPANET: England and Norway

1976

- UUCP (Unix-to-Unix copy) developed at AT&T Bell Labs

1977

- EIES (Electronic Information Exchange Service), first general academic computer conferencing system created by Murray Turoff. Publication of seminal *Network Nation* by Hiltz and Turoff

1978

- Computer Bulletin Board System, Chicago — first BBS established by Ward Christiansen, who also creates XMODEM protocol. CommuniTree BBS established in Santa Cruz

1979

- USENET news system established using UUCP
- Telecomputing Corporation of America (TCA) — first dial-up computer service
- Berkeley Community Memory project established — public terminal-based communications service

1980

- Old Colorado City Electronic Cottage, community political action BBS established by Dave Hughes. 50,000 calls by 8,600 persons in 3 years; pioneers in electronic democracy

1980 (continued)

- TCA becomes The Source
- CompuServe established

1981

- Penrose Library, Colorado Springs, first public library in country to give citizens dial-up modem access to "Maggie's Place"
- BITNET established, linking universities
- Computer Professionals for Social Responsibility (CPSR) formed

1982

- INWG establishes TCP/IP standard

1983

- Name server developed at U-Wisconsin (users no longer required to know exact path to other systems)
- First course for college credit taught entirely online for Colorado Technical College, via the Source

1984

- "St. Silicon's Hospital and Information Dispensary" — Tom Grundner's medical BBS, Cleveland
- Domain Name Server (DNS) introduced
- Number of Internet hosts breaks 1,000
- First version of FidoNet released by Tom Jennings as shareware, providing inter-BBS mail, conferencing, file transfer on free local BBS's
- "Electronic Cafe" established in Santa Monica

1985

- The Well established by Stewart Brand in Sausalito, California

1986

- Cleveland Free-Net established
- NSFNET created (backbone speed of 56Kbps)
- First international FidoNet conference held, Colorado Springs
- Apple II-based "FredNet" for educators created by Al Rogers, San Diego

1987

- Youngstown (OH) Free-Net established (second Free-Net system)
- Number of Internet hosts breaks 10,000
- Rogers Bar in Old Colorado City puts RJ11 jacks in booths
- TWICS conferencing system established in Tokyo; NHK Television starts public-access BBS in Japanese and English

1988

- Big Sky Telegraph established by Frank Odasz and Dave Hughes, Dillon, Montana
- "Internet worm" virus burrows through the Net

1989

- Santa Monica PEN established, running Caucus conferencing software
- Free-Net II (2nd version of CWRU Free-Port software) implemented in Cleveland
- National Public Telecomputing Network (NPTN) founded
- Number of Internet hosts breaks 100,000

1990

- Heartland (IL) Free-Net, Tri-State Online (OH), Medina County (OH) Free-Net established
- ARPANET ceases to exist
- First relay between a commercial electronic mail carrier (MCI Mail) and the Internet
- Electronic Frontier Foundation founded by Mitch Kapor
- First BBS established in then-Soviet Union; Americans dial in

1991

- WAIS released by Thinking Machines Corporation
- Gopher released by U-Minnesota
- Lorain County (OH) Free-Net established
- Dr. George Johnston teaches course in Chaos Physics from MIT to one-room schools in Montana, Colorado, Wyoming by UUCP and FidoNet-linked BBS's

1992

- Internet Society founded by Vinton Cerf
- World Wide Web released by CERN
- Number of Internet hosts breaks 1,000,000
- CapAccess established in Washington, DC
- Cupertino Connection established
- Tom Grundner leaves CWRU to devote full-time to NPTN
- Wellington (NZ) CityNet, Buffalo Free-Net, Victoria Free-Net (Canada) established

1992 (continued)

- Civic Networking Roundtable in Washington, DC — sponsored by CPSR, EFF, Rockefeller Foundation
- Center for Civic Networking (CCN) formed by Miles Fidelman, John Altobello, Richard Civille
- Boardwatch magazine reports 55,000 local BBS's in U.S., 25,000 global FidoNet BBS's

1993

- Big Sky Telegraph becomes Internet-accessible
- National Capital Free-Net (Canada), Denver Free-Net, COIN, Tallahassee Free-Net, Seattle Community Network, Prairienet (IL), Ocean State Free-Net, Great Lakes Free-Net, Free-Net Erlangen-Nuernburg (Germany), Dayton Free-Net, CIAO! (Canada) established
- Cupertino CityNet established
- Blacksburg Electronic Village established
- International Free-Net Conference held in Ottawa
- CCN-sponsored Civic Networking Roundtable in Washington, DC
- *NII: Agenda for Action* published by Clinton-Gore administration
- Americans Communicating Electronically (ACE) formed
- Corporation for Public Broadcasting announces CWEIS grant program
- Mosaic released by UIUC
- Global Network Navigator released by O'Reilly Associates
- First Class released by SoftArc
- Prodigy offers Internet-connected e-mail

1994

- Tom Grundner conducts telecast with PBS affiliates to team for CPB/CWEIS grant
- ORION, Rio Grande Free-Net, Los Angeles Free-Net established
- Public Interest Summit held in Washington — Benton Foundation et al.
- Apple Computer and the Morino Foundation fund development of the NPTN Rural Information Network
- America Online offers USENET, gopher, WAIS
- O'Reilly/Spry "Internet in a Box," NetManage "Chameleon" released — personal dial-up Net access
- Pipeline — New York City community net-over-Internet software released
- Dave Hughes and son, David, Jr., create HiCom, a low-cost generic community network system on OS/2. Used to create bilingual SalsaNet in Albuquerque
- Internet co-operatives in Seattle, Colorado
- Indian owned Arrowhead Industries of Denver starts network to link all Indian Reservations
- NTIA announces NII request for proposals
- DIAC — CPSR conference
- Apple Conference on Building Community Computer Networks