Thinking Chaordically:
The future of communities and technology

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I'm going to talk first about some trends that I think are worth noting.

The first is the walled garden[1]. The walled garden concept is now being promoted openly by the telecomm industry--access providers are promising it will provide wonderful new services to users. Vendors are madly churning a whole new generation of "solutions" that promise to help these service providers implement the walled garden.

For those of you not familiar with the walled garden concept, it is the concept that when you log on, you and your computer enter a "walled garden," full of beautiful things to do and full of wonderful things to buy, but the walls keep you safely inside. The walls are there to protect us from all the terrible things that exist on the Internet. Some companies are going to tell us that they are doing it "for the kids," where doing it for the kids is a handy way to hide their real intentions, which is to control what you do and where you go on the Internet. It is more accurate to call this the Wal-Marting of the Internet. The equivalent of Wal-mart superstores, the walled garden will kill the Internet Main Streets, which, by the way, is where CTCs and CNs reside. Becoming partners with ventures like this--where the

company offers some small sop in return for access to local content--will be a slow death.

I will mention, but not dwell on, Microsoft's Hailstorm. A similar effort that seeks to turn the entire Internet into a pay by the drink system, Hailstorm has been covered extensively in the press. There are so many things wrong with Hailstorm, in so many ways, that it is hard to know where to start. But like the walled garden, Hailstorm will leave little left to do for CTCs and CNs. Even more disturbing is the effect it will have on the poor and disadvantaged in the world--to them, the message will be: Welcome to the Internet--give us all your money. And if they cannot afford to pay, many opportunities will be denied to them. For example, Hailstorm could make it very difficult for small business and microbusiness projects to succeed because of the need to use Hailstorm systems just to collect payments (even though Microsoft claims the opposite will be true). For the rest of us that will not be as affected by the constant sucking of money out of our wallets, the security and privacy issues are truly horrifying--Hailstorm effectively usurps the roles that government--all governments--play in creating a civil society.

I do not wish to be all doom and gloom. I am very excited about open source software and Weblogs. Open source projects offer us liberty from the walled gardens and the Hailstorms of the world. In the past eighteen months, I have seen exciting increases in both the quantity and quality of open source projects. I have been involved in developing and using software for thirty years, and I now have tools I only dreamed of as little as five years ago.

The other positive development is the rise of Weblogs. Weblogs are the equivalent of an online diary, open to the whole world. Most Weblog servers come with a rich array of tools that make writing on the Internet as simple as typing--little or no knowledge of HTML is required. Weblogs make the creation of content simple; as

more community networks begin hosting Weblog systems, and as CTCs teach more people how to use Weblogs, we are going to see an explosion in conversation on the Internet.

So like all of life, there are some good things and some bad things. I try not to worry too much about the bad things....as someone once remarked, the Internet regards censorship as damage, and routes around it. It is important to be aware of these things, but I try to put my energy into developing rich, interesting alternatives.

The Knowledge Democracy

Dee Hock, the former CEO of VISA International, the multinational credit card company, notes that:

> *If one is to properly understand events and to influence the future, it is essential to master four ways of looking at things: as they were, as they are, as they might become, and as they ought to be.[2]*

Unfortunately, we often become experts at looking at the past and at maintaining how things are--we stay in the comfort zone of our own egos and expectations.

In my work with communities over the past eight years, I have found one factor in common among all successful community projects--a shared vision for the future. This is independent of the size of the community, independent of the local economy, independent of the wealth (or poverty) of the community. If the community can come together and reach consensus on a futures-oriented vision of what the community ought to be, that community will be successful. Once a community shares that common vision, the goals, objectives, and outcomes flow naturally from the shared vision.

So I will start by proposing a vision for technology.

The purpose of technology is to support and enhance human relationships.

Put another way, my role in life is not to encourage people to have a close, personal relationship with their computer. Nor is it to encourage people to use software that requires them to constantly ship a significant fraction of the wealth and prosperity of their community to a few companies that are using their size and power abusively. My role in life is not to encourage people to spend hours installing overly complicated and complex software that crashes frequently just so they can write a one page letter to someone on the town council. My role in life is not to support the public and stated goals of access companies to create "walled gardens" that encourage people to buy more stuff while locking the out of the opportunity to publish and read whatever they like.

But I am going to go further. I do not believe our job is make sure everyone has their own Web site. Our job is not to ensure that everyone knows how to write Excel macros. Our goal is not to train 12% more people that we did last year.

So what am I doing? My goal in life is to help bring citizens and communities into the Knowledge Democracy. The concept of the Knowledge Democracy involves three key points:

- First, the acknowledgement that telecommunications and the rise of the Internet have permanently altered the way people acquire and use information. In the past, distribution of information about community issues and affairs was expensive and tedious. Information was often passed informally through the maintenance of human relationships in the community. Today, information is

widely available from many sources, and human relationships are no longer needed to obtain information.

- Second, a civil society trying to make decisions will be most effective when the process of finding the common good is regarded as a mutually interdependent effort in which the goal is to help all parties to the process succeed. This approach requires constant maintenance of relationships through mutual respect of the opinions of others, gained by speaking, listening, and understanding.

- Third, that the American model of democracy works best when approached as an ongoing set of conversations about issues, leading to a consensus within the community about the best course of action. These conversations are purposeful, parallel processes designed not just to to talk about the issues but also to reach consensus on how the community should proceed. These processes are aimed at rebuilding trust by letting citizens participate fully in all aspects of deciding what to do about a key issue.

So, in the Knowledge Democracy, how should technology behave? I think that there are four simple first principles:

- Technology serves humans; humans do not serve technology.
- Technology should be simple to develop.
- Technology should be easy to use.
- Technology should be affordable for every human on the planet.

If, in Dee Hock's words, we ask how technology "ought to be," a simple analogy serves us well: Technology ought to work in the same way that pencils "work."

- Pencils serve human needs well--no one complains of difficulties caused by pencils that crash, break down frequently, or require changes to the way we work.
- Pencils are easy to make, using a variety of systems and technologies.
- Pencils are very easy to use, even for young children and people with disabilities.
- Pencils are affordable--virtually everyone everywhere can acquire pencils without undue financial burdens.

Some may complain that this comparison is too simplistic, that it does not reflect the way things are, or the way that things seem to be going. But that is exactly the point--we do not need to meekly accept the technology given to us today. We need to create new organizational structures that allow us not only to ask, "How technology ought to be," but these new organizational structures--chaordic alliances--should give us the liberty to pursue the answers that arise from asking those questions.

The purpose of a chaordic alliance--in which all members participate as equals-- is to help us consider how things might become and how things ought to be. It is this last view--*how things ought to be*--that is most important and is currently asked least frequently.

We live in a time when technology is becoming not just ubiquitous but pervasive--nearly every device we touch at home and at work may be "wired" in just a few years. Most of this wiring is being done by transnational corporations with little or no thought about the consequences and effects on individuals, communities, and the common good.

Is this how things ought to be?

The work of community technology centers and community networks is to ensure that technology supports human goals and aspirations, and that technology supports the growth and development of human relationships (not machine relationships).

Challenges and Opportunities

In the 20th century, economic development and community development reflected the nature of of manufactured goods--all were rooted in physical places. Manufactured goods, compared to the weightlessness of information, are difficult and expensive to move. Collaboration and cooperation across regions and across political boundaries was, like moving manufactured goods, hard to do and hardly seemed necessary.

The Internet has created a new and different economy, in which goods and services have no weight, and are not tied to place. Political boundaries are invisible to the Internet. Does this mean that political entities no longer have relevance? Just the opposite is true, but in a way that most of us do not yet understand fully.

Thomas Jefferson's original vision for democracy in the United States was that most power and influence would be concentrated at the local level, with limited roles for state government, and an even smaller role for the federal government. In fact, Jefferson would be depressed and dismayed at the growth in state and federal governments; it is neither what he envisioned nor what he planned.

Both in the United States and in other countries, telecommunications and related information services are provided and regulated by a confusing array of public and private entities, with pricing structures that are more reflective of the cost of government regulation than the actual cost of delivering a particular service like

voice telephony or Internet access.

As deregulation of telecommunications becomes more common, the potential exists for local and regional collaborative ventures in telecommunications that return much control to local communities, and out of the hands of national regulators and large telecommunications conglomerates. The current situation in most countries, in which these providers offer services countywide or across multiple regions, leave local communities with little control or influence over the kind of services they receive or the cost they pay.

Community networks and community technology centers have evolved over the past fifteen years to provide a wide variety of services, ranging from training classes in neighborhood access centers (relatively low tech) to providing sophisticated networks that include Internet access and commercial quality information services (e.g. email, Web hosting, database design, network management, etc). For many years, these organizations (CNs and CTCs) were largely ignored, but the rise of the digital divide as a political issue and the changing landscape of the telecommunications industry have led to an interesting set of interlocking and conflicting challenges and opportunities.

- CTCs and CNs now find themselves competing for funds from a wide variety of organizations with little background or expertise in technology, but with more sophisticated fund raising operations and better political connections.

- As more users become connected to the Internet, demand for services and network access often increases, especially in rural areas and urban inner cities that are often underserved by the private sector--creating opportunities.

- As some CTCs and CNs expand their service offerings and provide more and better services, criticism from the private sector that they are "unfair competition" increases.

- An increasing base of users is steadily driving down the cost of network access and information technology. But the lowered cost of technology has been accompanied by a parallel increase in overall complexity in the network, in hardware, and in software. CTCs and CNs that rely largely on volunteers are struggling to provide the systems and services that users are demanding.

- Even CNs and CTCs that are operating successfully as non-profit businesses face the same technology challenges--to be a full service provider requires expertise in depth that may be difficult for any single CN or CTC to maintain over the long term.

- CNs and CTCs that operate in the same geographic region may offer overlapping and duplicate services, raising costs for all of them, and by extension, limiting service offerings.

- CNs and CTCs are in a double bind because of the failure of the hardware and software industry to provide technology solutions that are more suitable for small organizations and personal use. The majority of companies in the technology industry continue to provide watered down corporate "solutions" that are very expensive to support and maintain over the life cycle of the product. Large corporations (who are also ill-served) have large support staffs and large technology budgets that hide the problem. But CNs and CTCs end up trying to support costly and completely inappropriate systems that users expect because they are not aware of the alternatives.

The challenges focus on competitive pressures, a changing regulatory climate that continually redefines the "rules," and the need to constantly extend technological expertise. But opportunities also abound--increasing demand for services and a fragmented private sector that leaves many communities without adequate access and services.

Telecommunications Infrastructure Issues

Dan Gillmor, a well-known Silicon Valley technology commentator, recently wrote:

> *To compete and thrive, the nation needs ubiquitous broadband, or high-speed, data connections. Yet the evidence is growing that market forces aren't going to provide them either quickly or universally. So it's time to bite a national bullet. It's time to run high-capacity glass fibers to every home [3].*

In the United States, the 1996 Federal Telecommunications Deregulation Act has had mixed effects. The law provided legal deregulation, but many confused that with marketplace deregulation, which the law was never intended to address. The United States government expected that legal deregulation would be followed swiftly by marketplace deregulation (i.e. a competitive marketplace for services), but the telecommunications services market has changed much more slowly than anyone hoped.

To confuse things further, some states attempted to preempt the Federal law with state laws that limited the ability of communities to enter the telecommunications marketplace. In Virginia, House Bill 335 effectively ended innovative infrastructure projects in community-managed networks until 2001, when the law was struck down by a Federal Circuit Court, which clarified the Federal law by

strongly stating that any entity, public or private, has the right to offer telecommunications services [4]. To paraphrase the judge, it does NOT depend on what the word "any" means--any means any. Communities and regions are free to create any kind of telecommunications business they wish, including public/private partnerships, non-profit organizations, or municipally-owned networks. Ideally, these ventures would seek to attend to the common good while trying to keep as much investment (and jobs) in the private sector as possible.

The rise of the "digital divide" as a political issue in 1999 after the release of the United States Department of Commerce report *Falling Through the Net* [5] tended to focus attention on racial and socioeconomic "divides," but by late 2000 growing numbers of communities began to recognize geography as a valid determinant of a service and access divide. In particular, rural communities, because of the low population density, tend to have the fewest number of service providers and the highest cost of service. The 2000 Commerce report [6] showed that urban areas were almost twice as likely to have broadband access as rural areas .

These disparities offer incredible opportunities to community networks and partners of community networks. Internet access fees offer regional and community network projects the consumer demand and cash flow to underwrite not just fee-based access services but related no fee and low fee service offerings. The difficulty is that network access services require a level of network expertise that most CNs and CTCs currently lack; although the cash flow potential is high, so is the initial capital investment and ongoing operational expense.

Networks are most cost effective when designed on a regional basis; this means that collaboration and partnerships are critical, not just among CNs and CTCs, but also with local governments and economic development agencies.

A Chaordic Alliance

Coined by Dee Hock, the word *chaordic* is a combination of the words *chaos* and *order*. Hock's vision is to create a new kind of organization (the chaordic alliance) that is based not on traditional, hierarchical, top-down decision-making, but rather on shared purpose and consensus. Dee says:

> *We now live in a world of such complexity, diversity, and multiplicity of scales that there is little possibility of achieving constructive, sustained governance with existing concepts of organization. People, everywhere, are growing desperate for renewed sense of community. Shared purpose and principles leading to new concepts of self-governance at multiple scales from the individual to the global have become essential. [7]*

A chaordic alliance does not rely on heroic leadership to make decisions (and having the organization blindly follow), but rather the alliance does only those things that all the partners agree to in advance--that is, the organization initiates actions and activities only when all members of the alliance agree. This is a fundamentally different approach that discards the ***I win--you lose*** antagonism for a collaborative model based on ***I win--you win***. Consensus is most likely to be reached when all parties find something of value in the outcome.

Figure 1 on the next page illustrates chaordic technology alliances, with four primary, equal, and autonomous organizations, each with its own goals and services. These four organizations are:

- The Community Technology Center (CTC) which provides intra-community services to a neighborhood or to the community. There may be one or more CTCs in a community.

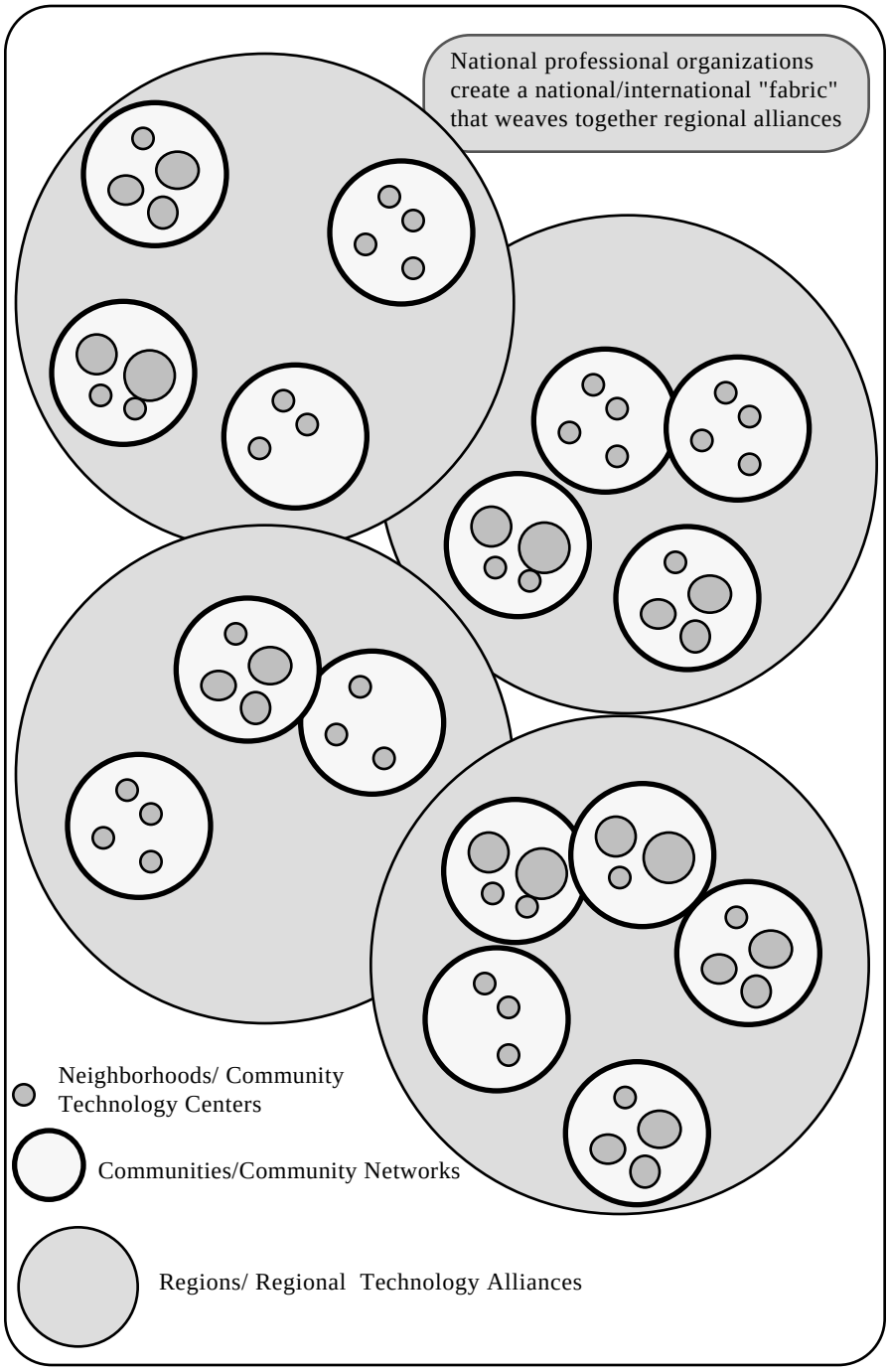

Figure 1: Chaordic Alliances in the National Organization Context

- The Community Network (CN) provides services across an entire community, and may collaborate on programs and services with local CTCs.

- The Regional Technology Alliance (RTA) provides services across an entire region, and works collaboratively with CNs and CTCs on service and infrastructure projects too large for any individual CN or CTC to handle alone.

- National organizations provide services to all three community service groups (the CTCs, the CNs, the RTAs) as well as individuals and other interested organizations.

Readers may be tempted to view Figure 1 as a hierarchical diagram, in which CTCs are "less than" CNs and in which CNs are "less than" RTAs. But there are no lines of command and control between these entities. CTCs would continue to be independent organizations, but they may find it in their self-interest to collaborate with the local community network on projects or to share service costs (e.g. a community network may run a mail server for several CTCs). Similarly, CNs may collaborate with CTCs and other CNs as needed. The Regional Technology Alliance provides an organizational mechanism to facilitate the "coming together" of individual projects.

As an example, an RTA might purchase backbone Internet access wholesale and resell it to several community networks and CTCs in the region--reducing costs for all who collaborate in the arrangement. RTAs could also play an important role in helping to develop regional infrastructure projects (like inter-community, long haul data networks), which require extensive coordination among multiple political entities. Regional infrastructure projects offer communities and citizens the ability to declare independence from cost and service manipulation by the large

telecommunications companies.

Community Technology Centers

Community Technology Centers are a necessary and critical part of the overall fabric of the model, for it is at the neighborhood level that people actually touch and use the technology. CTC staff provide the essential human contact that is so important. It is also important to note that I am intentionally decoupling CTCs from CNs for the sake of discussion; most successful community networks run CTCs--indeed, it is a large part of the reason for their success. Toni Stone says that Community Technology Centers usually offer two or more of the following activities [8]:

- Public Access to computers, related information technology (e.g. digital cameras, video equipment, etc) and Internet access.
- Preschool and family activities, including after school activities and elder services.
- Adult education, including technology training, literacy classes, GED programs, and distance learning programs.
- Career development and job preparation, along with assistance in finding work.
- Electronic publishing, including Web site design, writing classes, online news site management, video, and multi-media production.
- Small business support, including training on electronic commerce, management seminars, and micro-business and home-based business support.

CTCs may benefit the most from a chaordic alliance by being able to reduce the costs of providing technology, which would allow them to spend more on delivery of services directly to neighborhood organizations and citizens.

Community Networks

Community networks provide citizens, businesses, local governments, and public institutions like schools and libraries with technology services and expertise affordably. The work of the community network is to listen to the community, work collaboratively to identify needs, and to provide the technology expertise and services infrastructure to apply technology creatively to meet needs and help solve community problems. Community networks play several roles:

- Support the "knowledge democracy" and create public spaces in cyberspace. In the past, communities have routinely invested in public spaces like town halls, recreation centers, parks, schools, and libraries. Communities need the equivalent in cyberspace.

- Act as a community technology resource and provide a source of unbiased technical expertise and advice for local governments, schools, libraries, and civic groups trying to understand how to apply and use technology.

- Support technology education and training efforts in the community. Identify training and education needs, partner with CTCs, schools, colleges, and libraries to teach citizens about technology. CNs can provide CTCs with Internet access and core services like Web hosting and email accounts.

- Help communities develop a 21st century network infrastructure that will

enable them to participate in the Information Economy. In this role, CNs would rely heavily on collaborative efforts with the Regional Technology Alliances, which would assist with regional network design and development.

- Assist a community shift its economic development focus to the new information economy. Traditional economic development approaches may not meet the need of high tech companies, and CNs would again work closely with the area RTA to spur economic development that is respectful of traditional community life, fits in with local transportation infrastructure, and does not degrade the environment and the quality of life.

Community networks, by joining in regional alliances with CTCs and other CNs, would be able to offer a wider array of services, more sophisticated services, reduce the costs of service delivery, and could introduce new systems and services more quickly. Community networks have great potential to be self-sustaining by providing technology design and consulting services to local government and non-profits, but only if they can offer a level of service and sophistication that maintains a close parity with (more expensive) private sector services. The RTA can provide the technical expertise and systems needed to remain viable over the long term.

Regional Technology Alliances

The RTAs could play many important roles, limited only by the interests and needs of the participating partners, including:

- Regional network access and network administration--network access and administration is most effective and efficient (i.e. lowest cost) when aggregated over a large area (ignoring political boundaries). RTAs can act as brokers to purchase Internet access and provide a Network Operations Center (NOC).

- Server and services administration and support--most services (e.g. email, Web hosting, etc) also benefit from aggregation. By spreading the cost of the most expensive technical support across many organizations, costs for all are reduced and the local organizations have more staff time and budget to spend on delivering core services and avoiding much of the expense of back end systems.

- Research and development--RTAs could provide R&D support for member organizations, helping to push more sophisticated services and support out into user hands more quickly.

- Training--Support and training/education of staff who would work on the local level in CNs and CTCs. RTAs could provide less expensive and more frequent training opportunities.

- Infrastructure development--Telecommunications infrastructure development (fiber and wireless transmission, co-location facilities, etc) is also best done at the regional level, and requires technical expertise than most individual CNs and CTCs lack.

Fully realized, an RTA might have a staff of 7-8 people plus a director. This could grow as more organizations join.

- Director
- Trainer for education programs
- Network administrator
- Server administrator
- Desktop computer support
- Phone support/receptionist
- Software and services support administrator

- Bookkeeper
- Office and clerical help

But RTAs could take a variety of forms, depending upon local needs and the wisdom of alliance members. Some RTAs might have little or no paid staff, but would primarily issue RFPs for services, review bids, make awards, and serve as a contract administrator. Private sector companies would actually provide workers and services.

As the service arm of the chaordic alliance, the RTA would be dedicated to the success of the community networks and community technology centers. The RTA would never initiate projects on its own; it would always provide services and support to projects started by the member organizations of the alliance. These services and systems would never be forced upon a member of the alliance; a consensus would be needed before the RTA initiated an effort.

It would be essentially "invisible" to the public, because it would have no public mission. The community networks and community technology centers would work on behalf of the public common good; the RTA would work on behalf of the common good of the chaordic alliance. In California, the Yolo Area Regional Network (YARN) is already effectively operating as a Regional Technology Alliance, providing a broad focus to enable a variety of local and regional projects [9]. A community network--the Davis Community Network--is one of the key facilitators in the effort.

National Organizations

National and international organizations like the Association For Community Networks (AFCN) and the Community Technology Center Network (CTCNet)

would still play important roles, including:

- Professional development--By providing professional development training, handbooks, conferences, and seminars, the national organizations enhance the skills of existing managers and staff, and help provide learning opportunities and support for the next generation of managers and professionals in the field.

- Human networks--The national organizations provide a wider lens of experience for all members by linking together geographically diverse people and projects. The informal learning and sharing facilitated by conferences, newsletters, Web sites, and mailing lists is extremely valuable, and is can be especially effective when done across regional and/or national boundaries.

- National policy development--National organizations provide a unified voice that represents the interests and beliefs of their members. This can be an important influence upon legislation and national policy.

- Member services--The national organizations, like the RTAs, can provide services and functions done best by spreading costs and benefits across the largest possible number of people.

National organizations also play a critical role by reaching across national boundaries to work with other national organizations on international projects, human networking, information sharing, and policy development. There exists enormous differences in the ability of the people of the world to purchase, access, and use technology. Today, technology is designed primarily for "first world" countries with high standards of living and large disposable incomes.

Oddly enough, the technology industry seems indifferent to the fact that most

potential users of technology are not likely to be able to afford and use the current generation of technology--ever. This is even more peculiar when one considers that by designing computers for the world's poor, the market for technology could expand by sixfold and corporate profits could increase as well.

What is needed are systems like the Global Computer described by Cohill [10] in 1999. Fortunately, these computers are beginning to appear, and they are not being designed and built in the United States. One interesting outcome of a computer designed for everyone could be that U.S. domination of the IT industry could pass to other parts of the world. Efforts like the Simputer [11] in India point the way toward new opportunities for regional and international collaborative efforts to change the way we think about acquiring and using technology. The Simputer, which is Linux-based, is intentionally designed to be inexpensive, durable, and simple to use.

Summary

So where do we go next? After we attend national conferences, spending two or three days discussing these issues, we return to our families, to our communities, and to our work. Has anything changed? Have we changed ourselves? Have we changed the world? I think change occurs in small increments. Change does not occur through good or even great speeches, or by sitting in windowless rooms for three days watching slide presentations.

As far as I can tell, change occurs only through practice. What is practice? It is chopping wood and carrying water--engaging in the necessary activities of our lives. We practice by going to the CTC in the morning and cleaning away the empty soda cans, sweeping the floor, and straightening out the keyboards. We practice when we greet the first people coming through the door with compassion and

warmth. We practice when we teach an elderly person how to exchange email with their grandchildren. We practice when we update the home page on the community Web site. We practice when we make system patches and upgrades on our email servers. If we do these things, day by day, with compassion, with warmth, and with our best effort, we will know what to do at the right time as the future unfolds before us.

More than thirty years, I was reading *Gravity's Rainbow* by Thomas Pynchon. Like all of Pynchon's books, it is a dazzling and dense story, but one paragraph jumped out at me as if I had been shocked...I still remember, clearly, the moment that I read it; I was puzzled by the emotion it evoked, and I wrote it down. Thirty years later, I still turn to Pynchon's words from time to time, and it has become a kind of touchstone for my direction in life.

> *We have to look for power sources here, and distribution networks we were never taught, routes of power our teachers never imagined, or were encouraged to avoid...We have to find meters whose scales are unknown in the world, draw our own schematics, getting feedback, making connections, reducing the error, trying to learn the real function...[12]*

The chaordic alliance, rooted in mutual respect, equality of representation, shared vision, a common purpose, and action by consensus provides a new framework for community technology centers and community networks to work on behalf of the good of our communities and for the common good of every human on the planet.

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Dr. Andrew Michael Cohill is the President of the Association For Community Networking (2000 - 2001). He is an information architect with an educational background in architecture, ergonomics, and computer science. Cohill is the Director of the Blacksburg Electronic Village (BEV) at Virginia Tech and an adjunct professor in the Department of Architecture at Virginia Tech.

He has published numerous papers and book chapters, and is an author and co-editor of the popular book about Blacksburg (*Community Networks: Lessons learned from Blacksburg, Virginia*), now in its second edition, and also available in Japanese. He is currently working on a new book on communities and technology that will be published in the fall of 2001. He is an advocate for community-managed technology efforts, and is Co-Chair of the Governor's Task Force on eCommunities in Virginia.

The Blacksburg Electronic Village, an outreach project of Virginia Tech, is designed to link Blacksburg's citizens to each other and to the world, using computers and networks. It is serving as a model community for the data "superhighways" being planned for the United States. A variety of innovative services and network access methods have been developed for the BEV (http://www.bev.net). Applications include education, medical uses, government and general information, and other retail and commercial opportunities. Current BEV work includes the design and development of a community MSAP (Multimedia Services Access Point), and the development of a community fiber infrastructure.

Blacksburg has become widely known as the "most wired community in the world." In the fall of 1999, more than 87% of the town's residents were using the Internet. An estimated 60% of Blacksburg citizens and businesses have high speed broadband Internet access.

Cohill has an international reputation for his efforts in network design for communities. He is in wide demand as a speaker and consultant because of his shrewd and plain-talking approach to complex technology issues. He is also a member of the National Advisory Board for Communities of the Future, a national coalition of thinkers and policy makers concerned with the sustainability and health of communities. He is also a member of the Local Access Place (LAP) Keyboard Ensemble, an eclectic group of technology experts dedicated to making technology more human-centered and more playful.

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