

Publishing on the Internet
a new medium for a new millennium

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Preface

*The silver-haired media monopolists follow their 500-channel dream. They haven't reckoned with the 500 million channels of Netscape and the Internet. – Steven Levy*¹

*The Internet is a very important vehicle for information delivery; and we've just scratched the surface of its potential. –John Warlock, President, Adobe Systems.*²

These words are being written in rural Kentucky, a place that seems isolated from new media and the new millennium. This Commonwealth is a technological oddity of *sorts*. The word *Kentucky* sparks images of horses and fried chicken, not state-of-the-art online services such as the network that will link all public schools to the Internet. On the contrary, rural Kentucky is as close as midtown Manhattan or central London. The Point Internet review service was spawned in Harrod's Creek and sold to the College Marketing Group in Boston, Massachusetts. Just one example of how the networked environment gives surprising leverage to those applying technology in useful ways.

People and their money

Staying in Kentucky for the moment, we may note that the roll out of Security First Network Bank is moving forward rapidly. Internet users will be able to obtain checking accounts and use bill paying services from the world's first truly electronic bank. Cardinal Bancshares in Lexington, Kentucky has a primary stake in the venture. SFNB is the first bank without a main office, branches, tellers or cash machines. Customers, however, will be able to use the SFNB ATM card at machines throughout the world. Visit the bank at <http://www.sfnb.com>.

Banking has long been a conservative industry. The architectural style of banks resembles prisons because their customers expect, even demand, security. SFNB is a bold step because it is a virtual bank; that is, it exists as data and software on a computer accessed via the Internet.

SFNB, which is regulated by the American government's Office of Thrift Supervision, is a first step, and an important one. It turns upside-down the traditional approach to doing serious business. It also presages more important, even more far-reaching changes. SFNB will need none of the costly overheads that traditional

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- [1] Lead in for the article 'How the Propeller Heads Stole the Electronic Future', *The New York Times Magazine*, 24 September 1995, p. 58. Mr. Levy is a columnist for *Newsweek*.
[2] Quoted in an interview published in *Computer Reseller News*, 23 October 1995, p. 93

banks must support. The use of software, not people, brings other benefits to its owners. For one thing, staff costs and real estate expenses are likely to be sharply reduced or almost eliminated. More importantly, SFNB can compete with financial institutions many times its size. Cardinal Bancshares is a fraction of the size of Sumitomo or National Westminster, yet it can compete with them for customers. One other advantage SFNB has is that the ATM machines used by its customers are owned and operated by other institutions. Those capital costs are simply eliminated.

The potential financial pay-off has attracted investments from Wachovia Corp of Winston-Salem, North Carolina, and Huntington Bancshare of Columbus, Ohio. Each company invested about \$2 million in SFNB. In addition, Kentucky-based Area Bancshares invested an estimated \$1 million and will use SFNB software for its own Internet banking service offered through Owensboro National Bank.

Will people feel comfortable in a comprehensive banking relationship with a computer screen? A certain segment of the global community of computer users will (and let us remember how surprised the banks were back in the 1970s when ATM cash dispensers proved to be highly popular, against the views of many 'experts' who claimed that customers preferred human-human interaction rather than the impersonality of the machine). What no one yet knows is how many customers will move to digital, as opposed to brick-and-mortar, banking.

Equally interesting developments are taking place in health care, education, publishing and many other knowledge-based businesses. If the network infrastructure can support these new, high-demand activities, downsizing, cost control and automated processes will accelerate dramatically. Internet users can plan a trip to Paris or obtain the direct dial telephone numbers of Japan's Ministry of International and Trade and Industry at the click of a mouse.

Can the global telecommunication infrastructure support the high-traffic online services? The network infrastructures in the most highly developed countries certainly can, although service is likely to slow to a crawl at peak times. Network traffic like motorway traffic expands to fill available capacity. Less wealthy nations and people are likely to struggle to tap into the new medium. Benefits obviously flow into areas where connections are possible and where people have the knowledge to exercise the systems.

Bandwidth will expand only to have its capacity saturated. The periodic bottlenecks are likely to be a common user frustration. Nevertheless, a certain segment of the global community will make extensive use of network technologies. What is not known is how much of a dividing line will be drawn between the network haves and have-nots.

In the short- to mid-term, if the infrastructure collapses, private networks stand to reap major rewards. Their users pay more for services, but the response time and availability of their value-added networks more than offset the extra costs.

The more likely scenario is continued rapid growth of public Internet-based services and extra-cost, branded online services. Regardless of the texture of the networked environment of the next two to three years, steady, significant change

will work its way through the fabric of developed countries' societies. The social impact of the actions of small, innovative companies in unlikely places will have major social and economic consequences.

People and their safety

The networked environment poses many types of threats that seem new and unusual. Newcomers find the openness, the potential security risks, and the fine line between public and private information surprising, even disturbing. The networked environment follows a different and more fluid path from more traditional media. Even television with its MTV videos is more predictable than an interactive, organic medium such as internetworking. One other development casts into sharp relief the thin edge between the public's right to know, and the citizen's right to privacy.

Not far from Harrod's Creek, Kentucky, a public library in Indiana put a list of sex offenders online. The data can be examined at <http://www.state.in.us/acin/cji/-index.html>. Anyone can key a person's name or social security number and view a list of people matching the search criteria. The listing provides such facts about the offender as full name, aliases, race, gender, eye colour, height, weight, type of offence, date of sentencing, social security number, date of birth and last known city or country of residence. The 1993 Zachary Law enacted in Indiana stipulates that sex offenders register with their local police and that the registry be made available to the public. A similar effort is underway in New York with the July 1995 Megan's Law. In all, 27 states have similar laws on the books.

Consider the impact of free-flowing, borderless, near instantaneous data flows about criminal behaviour. New business opportunities abound. For example, using electronic mail and intelligent software a victim may pay to learn the whereabouts of his or her assailant. Employment services can provide value-added background checks that employers do not have time or the knowledge to perform themselves. Criminals can scout databases of offenders to look for a partner.

Public access to this information has its upside and its downside. This Briefing is not the place to debate these difficult issues. These examples are given to demonstrate the types of changes that can be triggered from entities not generally considered as being in the thick of technological innovation.

People and their future

One can find examples of dramatic new forms of communication. Some of these are free, but a larger and larger number are generating revenue. The Comdex registration site on the World Wide Web is reported to be responsible for about \$1 million per month in conference registration fees. Other success stories abound: Netscape Communications, Demon in Britain, and many others.

New applications tantalise users. There is the home delivery of user-defined products such as the news filtering services from Clarinet and Individual. There are industry-specific or task-specific sites such as the <http://www.uvision.com> computer products and services site, and the technique of advertising a business with a

free service such as Ford Motor Company's virtual test drive, or VocalTec's software that allows a person to make free long distance calls via the Internet.

These examples can be multiplied many times over. The sudden emergence of the Internet as a new medium has given an estimated 6 to 35 million people a way to communicate and disseminate information from their desktops.

Anomalies about the number of users stem from the fact that it is almost impossible to know at any given point in time for any network who is connected where for what purpose. Counting is subject to many subtle issues such as counting passwords or actual connects to a service, counting new users versus habitual users, and counting activities within a session or the session itself. In short, it is difficult to know what to count and how to report it, assuming, of course, that software tools are available to keep track of the accesses in the first place.

The wide variance in the estimated number of users stems from the distributed, organic structure of the Internet environment; not even a commercial online service that reports more than three million users can say for certain how many actual users of the service it has.

Nevertheless, many people are making use of the new medium, and the more technologically literate are pushing the edges of innovation at an incredible pace. The key to these two examples is that the new medium is unleashing the power of networked electronic information in new and powerful ways. Geographic location is not a factor. Access to knowledge and technology are the determining factors. The new medium that is evolving from the Internet behaves according to some surprising factors:

- **Bifurcation.** Network publishing divides people into distinct clusters. The promise of the Internet as a way to bring people together and invent a new spirit of community, works up to a point. The people who benefit are those who have access to the network. Those without access are excluded. Network publishing slices and dices 'customers' in several ways, and markets of one become possible. Simultaneously, network publishing divides the world into haves and have-nots.
- *Dis-intermediation.* The application of network technology to specific organisational problems leads to cost reduction. In the bank and criminal information examples mentioned above, people who performed certain functions are no longer needed; or fewer people with more technical capabilities will be needed. What has been largely ignored is that virtually all knowledge workers will be affected. The new medium dis-intermediates; that is, it eliminates whenever possible and feasible, midway stops or barriers between the customer and the solution.
- *Darwinian evolution.* Seed services or functions grow and create complex structures and infrastructures. A single network publishing activity such as banking makes possible further services and invites more technological development. Network publishing unleashes change in many directions.