

History of internet essay



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Without a doubt, the Internet is undergoing a major transition as it experiences a tremendous influx of new users. Due to the anarchic, distributed nature of the net, we cannot even begin to enumerate the population of the Internet or its growth. As more of the world's population moves on-line, new concerns will arise which did not confront the earlier generations. The new culture will demand different resources, services and technology than the old generations expected and used. Already we can witness a clash between the emergent culture and the entrenched culture. The largest conflicts occurring now are about sharing resources, the impending commercialization of the net, and the growing problem of computer crime.

The Internet was born in the union of government and researchers, and for two decades afterwards remained mostly the realm of those two groups. The net began as ARPANET, the Advanced Research Projects Agency Net, designed to be decentralized to sustain operations through a nuclear attack. This nature persists today in

the resilience of the net, both technologically and in its culture.

ARPANET was phased out in 1990 and the net backbone was taken over by NSFNET (National Science Foundation). Since 1969 the main users of cyberspace have been involved in research or in the university community as computer experts or hackers, exploring the limitations and capabilities of this new technology. These people formed a cohesive community with many of the same goals and ethics. In addition to the homogeneity of the net, the small size contributed to a strong feeling of community. There has been some conflict between the hackers and the researchers over sharing resources, and philosophies about security and privacy, but on the whole, the two groups have co-existed without major incident.

The newest of the members of the so-called old generation are the university users who are not involved in research work on the net.

Generally these are the students using the net for email, reading netnews and participating in interactive real-time conversations through talk, telnet or irc. This wave of people integrated smoothly

with the community as it existed. Still sharing the common research and education orientation, the community remained cohesive and the culture did not change much, perhaps it only expanded in the more playful areas. These users did not compete with the researchers for resources other than computer time, which was rapidly becoming more available throughout the eighties.

It is only in the past year or two that we have begun to see the explosion of the new generation on the Internet. Businesses have begun connecting themselves to the net, especially with the prospect of the NSFNET backbone changing hands to permit commercial traffic. Public access nets run by communities or businesses are springing up in cities all over the world, bringing in users who know little about computers and are more interested in the entertainment and information they can glean from the net. Commercial providers like America Online and CompuServe are beginning to open gateways from their exclusive services to the open Internet, specifically allowing their users to access email,

netnews and soon ftp and telnet services. The explosion of BBSs and the shared Fidonet software has brought many users who were previously unable to get an account through a university to the world of email and netnews. At this point, anyone with a computer and a modem can access these most basic services. Several states, such as Maryland, have begun efforts to connect all their residents to the net, often through their library system. The city of Cambridge, MA now offers access to the world wide web for short segments of time in its public libraries, and even several progressive coffeehouses in the San Francisco Bay area and soon in the Boston area are offering public net access.

In the last 20 years, the net has developed slowly, adapting comfortably as its population grew steadily and shifted the culture to more diverse interests. But as the net faces a huge increase in its users in a short time, the reaction is bound to be more severe, and debate will center around several key issues that were irrelevant in a small homogeneous community. The establishment of new customs

concerning these issues will define the culture of the future Internet.

Most resources on the net currently are not designed to handle the

amount of usage that will occur within the next six months. Sites

which offer access to ftp archives are particularly worried about the

massive influx of new users from commercial services opening

access soon. America Online administrators addressed this issue in

a recent piece of email to ftp sysadmins where they recognized the

perceived problem and stated that they would “ request that AOL

members limit their FTP traffic to off-peak hours for sites” and “ work

with administrators to help manage load problems.” They offer to set

up mirror sites for easier access to these resources. Unfortunately,

this may not be adequate — it is certainly agreed by now that

Internet users will need more patience in the future when accessing

the information they want. Many net users have been complaining

recently about the influx of AOL users onto Usenet. Of course,

perceptions of these new posters were not enhanced by a bug that

caused their messages to be reposted eight times. Newsgroups

(such as alt. aol-rejects) were created specifically with the intent of insulting AOL users and resenting their entrance onto Usenet. As the net becomes more crowded, we can expect more animosity and rivalry for “rights” to access resources.

As the NSFNET backbone changes hands to allow business traffic, we will see even more of a business presence than that which already exists. At the present time the ethics of business on the net are very unclear. The perception of commercial use as inappropriate use of the net still exists among many segments of the net community. Incidents such as the mass advertisements from the law team of Canter&Siegel have made many people fearful of the potential of abuse of access in cyberspace. On the other hand, useful services are coming on-line, especially with the advent of fill-out forms on the World Wide Web. With technology advancements like authentication and digital money, commercial activity will become even more widespread.

Computer crime becomes a much more immediate problem as the

net's population expands without control. The old and new generations on the net have different security and privacy needs, and different views of what constitutes a computer crime. Even as this conflict plays out on the net, the print media sensationalize every story of computer break-ins and computer pornography rings. Often crimes that only incidentally involve the net are promoted as being symptomatic of the destructive anarchy that exists on the net. This attitude towards news about the net will eventually bring with it stricter laws governing cyberspace. Major concerns in net crime now involve break-ins, data theft, privacy violations and harassment.

When the net was new, it existed solely for the purpose of cooperation and collaboration between researchers. Thus, resources were shared regularly and uncomplainingly. There were few enough users that one could take the resources one needed without disturbing other people's use of the net. Of course, there was not as much available then for which users would compete.

A few years ago, the idea of commercializing the net was a thought anathema to most of the users, but slowly and surely, businesses are establishing themselves on the net and will soon form a large portion of the traffic. The old generation fears the abuse of the anarchy of the net for advertising. Most people oppose intrusive methods of advertising, such as junk-mailing lists and “spamming” Usenet, or posting messages to many newsgroups as Canter&Siegel did. Individual choice in viewing promotional material is important to the older generations because this is not intrusive, and in fact supplies a desirable service. Word of mouth is an important factor in deciding to view information about a product or a service.

On the smaller net of the past, there was less crime, less reason for crime, and less vulnerability to major damage. The net was a homogeneous community, dedicated to collaboration, and the information stored on the net was hardly as sensitive as the information soon to be spreading across the net like credit card numbers, driver’s records, medical histories, proprietary information

and sensitive financial information. The action most frowned upon by members of the old generation was misuse of resources. Most realized that their systems and accounts were not very secure and tolerated some exploration by curious hackers (though not destruction of data). However, the old generation received a rude awakening in November 1988 with the Internet worm. As the worm spread to machines all over the nation, bringing down computer systems by the dozens, the net community began to realize that the security of the net would help them protect their data and their resources. Although the worm was not a malicious invention, it was easy to conceive of a recurrence of the worm with destructive attributes.

In the early beginnings, many systems were open to all who wished to come and share data or read documents. Computer experts enjoyed exploring systems and finding entrances just for the knowledge to be gained from these activities. This “breaking in” to systems was not a major concern for users. Over time, though,

people began to feel a right for privacy and security of their information and hackers fell into disfavor. Data theft was also not a big concern, as the purpose of the net was to share data, not to restrict information. There was very little personal or private information stored on the net. The small community only included users with legitimate research concerns at the beginning, and cyberspace was not as anonymous as it is now, so harassment was not a concern.

The new generation has heard of the infinite resources of the net and the hundreds of communities established on-line. In the last several years the news media have been trumpeting the magical things that the Internet can do for our society. Tantalized by these reports, thousands of people unaffiliated with research institutions or the government are streaming onto the Internet to access these resources. This influx is causing a monumental change in the direction and the culture of the Internet.

We are seeing the beginning of commercialization of the net. This

definitely represents a trend away from the old attitudes, as commercial activity has been frowned upon for years. Now the people of the net demand commercial services, information about products, and companies demand access to consumers. It is unclear to me what the new generation of net users want in the form of advertising. Within the last year, however, we have seen a frightening example of the potential of abuse of the Internet by advertisers with the law team of Canter and Siegel. Their message which was posted to almost all newsgroups was considered very invasive and extremely inappropriate, yet the duo states that they considered the advertisement a success, and are willing to repeat it. Is this the kind of advertising the new generations want to see? Do we want our inboxes filled with junk email and our travels on the net interspersed by advertising?

Because more of us will be on-line, and more of our commercial and business transactions will be taking place on-line in the future, crime will rise in cyberspace, and people will need to be protected.

Currently the net operates mostly in an anarchic state with sysadmins and government officials patrolling the borders. There may, however, be a call for greater security on the net. Because of the existence of much proprietary and personal information on the net in the future, access to sites will be restricted severely, and breaking into systems will become a more serious crime. Many people are willing to let the government install our safeguards, but there has been recent controversy about what kind of access the government should have to our information. Computer crime has been sensationalized recently in the media, especially crimes linked to sex offenders or pornography distributors. I believe that this kind of reporting is detrimental to the future of the net because it may incite unnaturally stringent lawmaking in cyberspace.

As the Internet grows to encompass a larger segment of the world's population its diversity will increase until it begins to mirror the external world. We are beginning to see breakdown in the previously homogeneous characteristics of economic status and educational

background. In the San Francisco Bay area there are coffeehouses with cheap access to an on-line chat area that even homeless people can afford and indeed, many homeless people have come to find that these chat areas give them a sense of community and “home.” Local library systems across the nation are providing net access.

Maryland’s Sailor project is a good example – they provide gopher access in the libraries and through toll-free dialup, and individual libraries will begin to offer full access with mail, ftp and telnet. With the coming of the National Information Infrastructure, net access may become as common as telephone access. It will cease to be merely a useful toy and tool for the research community and will be a simple fact of life, a point of access to a wealth of information and a meeting place for dispersed communities. We can easily expect conflict to arise in this nascent world net community simply because of differences in needs and visions for the net.

An old attitude that makes it difficult to create harmony between the old generations and the new is the behavior of more experienced

users towards `newbies' on the net. In the past, one could expect other users to be somewhat familiar with computing environment.

People who asked too many `stupid' questions were ostracized and `flamed.' Now the net must handle a gigantic influx of users with less computer experience, who will ask thousands of questions in their exploration of the obscure operations of the Internet.

People come to the net with great expectations of the vast resources available to them, and they do make use of them. Unfortunately, not all sites are able to accommodate the increase in traffic, especially with services like CompuServe and America On-line opening their gates to the Internet. In a letter to ftp sysadmins, Robert Hirsh of AOL states that AOL will request that its members limit traffic to off-peak hours and that AOL will work with administrators to manage load problems, specifically by providing local mirror sites for AOL users and for Internet users. One Internet user from the University of Massachusetts voiced his fears in a post to the newsgroups alt. aol-sucks: "...careless actions by AOLers could

seriously jeopardize access and availability on sites already overloaded and restricted.” and “ Those who depend on the Internet for legitimate information retrieval/sharing and communication will find themselves swamped in a sea of curiosity seekers, net. sex geeks, and those who are convinced that ‘telnet’ is synonymous with ‘Information Superhighway.’ ” The old generation perceives the new generations as overtaxing the resources and resents the burgeoning population.

Conflicts are inevitable in the commercialization of the net. Simply, the old common philosophy was opposed to commercial activity on the net because the net existed solely for research purposes. The new generations see the net as the center for many services and operations, and thus will require heavy commercialization of the net.

Commercialization does promise to bring more advancement in technology and more investment in the net. The old generation is being forced to accept commercialization, and there has been little outcry over the appearance of commercial WWW sites. More than

anything else, the old generation fears the intrusion of advertising, but this may become commonplace as people join the net through commercial providers and access commercial servers.

Beyond resource management and commercial use, the area of most concern policy-wise and legally is that of computer crime. The older generation were used to an anarchic Internet and some would like to continue this experiment in the spirit of freedom, but new users are demanding protections similar to those we enjoy in the physical world. I believe that the need for security is justified, though, because of the expanding and changing nature of the Internet. In particular, breaking in for exploratory purposes will be frowned upon. As our cyber-dealings gain importance and we begin to think in terms of our cyber-personae as being extensions of ourselves into the realm of cyberspace, privacy violations, data theft and other crime will become more serious.

We will spend more time in cyberspace handling our business correspondence, purchasing products, disseminating information

and interacting with other people. Through these activities we will gain identities in cyberspace that will be as important to us as our identities in the physical world. We will need to have easily available forms of authentication of people's identities, probably through a digital signature. Will we need to ensure that people only have one identity in cyberspace? This may seem logical at first, just as in the physical world we are only one identity by the government for purposes of the law and finances. However, I believe that imposing too many restraints in cyberspace will fail, because there is a tradition of working around the technical solutions of authority to access greater freedom. Perhaps it will work in the business world, because fair dealings involve authentication of identity.

The net will become increasingly supported by commercial services, and many of the resources we now have free of charge will become commercial because they cannot serve the increasing population without funding. Advertisement will become a commonplace occurrence on the net, though I hope that by convention it will

remain unobtrusive. I fear that as more information about ourselves become available on-line, marketers will not resist the opportunity to use this knowledge to their advantage by targeting us for specific product pitches.

Cyberspace will be policed in the future. I envision an agreement between nations regarding illegal actions occurring in cyberspace on a international scope not unlike the current law of the sea. We will see the most control occurring where people get their access to the net. Walls will go up in cyberspace, information will be hidden and restrained. We will still have hackers working their art on the net, finding ways around our technological barriers, and they will become more dangerous as we have more sensitive information on the net. Crime stories on the net will be sensationalized because there will still be fear and misunderstanding of cyberspace, and because of the increasing importance of on-line security.

The diversity of the emerging cultures will segment into like-minded communities. Information on the net is oriented towards serving

interests and not uniting diverse interests. Thus, I fear that the division between the older generations and the new ones will become institutionalized as each culture builds the part of cyberspace in which they wish to exist, and there will be little communication between the parts culturally.

As we progress into the information age, everyone will move into cyberspace, just as most people have adopted telephones and integrated them into their homes and businesses. Thus, the on-line culture will slowly begin to duplicate the physical world in its inequalities and segmentation, its diversity and opportunity.

Restrictions will go up and walls will be built in cyberspace. There will be laws and regional police to enforce those laws and monitor security in their regions.

We are undergoing a transition perhaps on the same scale as the transition to literacy several hundred years ago. For many centuries after writing began, this skill was left in the hands of the educated elite – mainly the church servants. When literacy finally came to the

majority of the middle class and some of the lower class, the Renaissance began. Similarly, we are witnessing the opening of a new medium of information to the general populace, and we can only guess at the outcome.

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