Much ado about nothing: The Internet dream

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Abstract

In the last five years the growth of the Internet has gone far beyond the expectations of many. From its humble beginnings as a small communication medium of the privileged few to the global mass communication medium for everyone, the Internet has aroused many dreams and expectations that may never come to be. While it is too early to pass judgement on its achievements, already two camps of opposing philosophies have emerged. Those who think that the Internet is a wonder kid to perform miracles, in one camp, and those who see it as a cancer of our civilization, in the other. Is the Internet an empty promise? This paper surveys many of the visible pitfalls that may make the argument about the pending abyss of the Internet plausible.

INTRODUCTION

Is the Internet broken? Does it need fixing or it is just going through the experiences of growing pains and it is just fine? These are questions whose answers support the two views in the current debate about the state and the future of the Internet. The debate pits two opposing philosophies against each other which for our discussion we will refer to as the 'wonder' and the 'problems in paradise' philosophies.

WONDER

The wonder philosophy, led mostly by the intelligentsia, advocates a market-driven Internet with no central regulating and enforcement authority. Indeed, those in this camp were happy to see what had long been the rudimentary Internet central force - the United States (US)-based National Science Foundation backbone - cease to exist. Since the termination of the backbone, commercial interests in the Internet have skyrocketed and the Internet now resembles the historical American West land rush in Oklahoma, but this time with companies struggling to set up shop on the Internet. The supporters of this philosophy usually paint a very rosy and romantic picture of the future of the Internet drawing from its past and current successes which have changed the cultural and socio-political landscape along the way.

These changes have not only been social and political, but have also been culturally fundamental as the Internet lingo has entered mainstream languages at a higher rate than no other technology before it. For example meaningless symbols like <http://www.something.somethingelse/> or <ftp://something.somethingelse/> or <gopher://something@somewhere.something>, and uniform or universal resource locators (URLs) have come to mean something, whatever the meanings are. Cyberspace came to mean something other than fiction; cybercommunities were no longer made up of fictional creatures with funny heads. At the same time, old words picked up new meanings just overnight: the web no longer referred to cobweb; and surfing no longer required a surfing board and water - just a mouse - but not that mouse - a computer mouse.

Beside changing our lingo, the Internet has also had a profound effect on us in a number of other areas. In business and commerce, the Internet is rapidly driving the creation of new technology industries and companies unknown just a few years back, with telecommunications in the lead. On a personal level, the Internet has brought a more personal touch to communication allowing a wide range of personal communication facilities with more freedom. Individual benefits have not only been in communications but also in information gathering in fields like education, research, medicine, the arts, you name it. The Internet brought into reach scarce resources at the click of a mouse. The latest research data can be obtained in a fraction of the time it would have taken to get from the best research centres to the remotest places around the globe. School children can get instant information saving mum and dad a trip to the library.

PROBLEMS IN PARADISE

As expected in a debate, the opposing problems in paradise philosophy believes that, despite the Internet goodies described above and more, the Internet has nevertheless lost its soul - the guiding philosophy and decision-making body to set its agenda, pace, and guide it through the difficult growing pains. There is a litany of problems. Among these are: over-commercialization, poor architectural design, protocol, bandwidth, frequent breakdowns, the content and nature of the user community, censorship, and unfulfilled expectations, all plausible points in the argument.

When the US government relinquished its role in the Internet backbone, on which the Internet has depended for policy and guidance since its inception, commercialization of the Internet started immediately. Big and small companies started vying for control of the Internet and, very soon, a monopoly of one or more companies is likely to emerge with a potential for a cartel. The so-called superhighway has become a dangerous highway cluttered with advertising billboards. What is even more worrying is that this advertising is on the rise. Besides advertising, the Internet is also providing fertile ground for other business vices like the unprecedented rate of information gathering from the public by companies purely for commercial reasons. Many corporate sites now require users to register before they can access the site, thus scooping information like email addresses from unsuspecting users which is used later to build databases either for sale or for their own direct marketing. The result of all this has been a high volume of junk mail, both snail and email. On one discussion group of which I am a member, a user got 5,848 emails in one day, costing the poor fellow several hours of valuable time shifting through and deleting the mail. The downside to this corporate invasion of the Internet is the possible loss of individual privacy as companies cast global nets to get customers in their customer base.

Rapid over-commercialization is not the only problem with the Internet. The poor architectural design of the Internet as a loose network of computers has caught up with the demand. Since 1988, the number of Internet users and services has been doubling every year with email and world wide web in the lead [1]. With this exponential growth of web sites on network computers, and with each site using several links to other sites, the network of computers is now like a giant pot of spaghetti. Searching for information in this pot with its billions of links is becoming more and more a nightmare, contrary to the goals of the Internet. Information search and retrieval is further hampered by the poor Internet protocol itself. The Internet uses a protocol known as the TCP/IP suite, really a combination of two protocols, the Transmission Control Protocol (TCP) and Internet Protocol (IP). Between them, they offer a connection-less packet-switching and a reliable connection-oriented delivery service. In the IP scheme, each computer host in the Internet is assigned a unique 32-bit number known as an IP-address. It is this number that must be used with all network communication with this host. In addition to assigning each network host with a unique IP-address, IP also assigns one or more unique IP addresses to the network routers - computers with multiple network connections or bridging computers. TCP, a major and reliable transportation component in the TCP/IP suite, breaks up each message originating from a network host into packets called an IP datagram. Each IP datagram consists of two parts, the header which contains information about where the packet is from, where it is going, the type of information carried within it, and the body which contains the information itself. Packets are numbered and TCP makes sure that they are delivered error-free at the destination in the same sequence. So, with TCP/IP, any message from one host to another in the network is broken into hundreds of smaller packets before it is sent. On a busy day, there are billions of these small packets floating around in all directions. At peak times, at times of crisis, and at other high profile events, like the 1996 US presidential elections, billions of floating packets become too much for the system to handle and the whole system slows down to a rate that is becoming annoying to many.

Late in 1996, many of the major Internet providers started the flat rate user fee and, at the beginning of 1997, three small US Internet providers started to offer free Internet access in exchange for sending advertisements to their registered customers' screens as long as the customers are logged on to the Internet. If either of these actions or if both of them take root among Internet users and the anticipated growth comes true, there is likely to be gridlock on the Internet. To overcome such a gridlock, the bandwidth must be increased faster than the rate at which users are joining otherwise the whole protocol will be hanged. Although there are already plans dubbed Internet II to increase the bandwidth of the overtaxed Internet, such efforts may not be enough to catch up with the anticipated growth of the Internet and may even be too little too late.

A number of events have in the past tested the strength of the Internet bandwidth to withstand a rapid and unexpected upsurge of usage. Two events in particular are worth mentioning here: the 1996 US presidential elections and the storm that hit the eastern coast of the US in 1994. In both events, the Internet bandwidth was stretched to the limit causing many delays and frustrations. Now the question which many people are asking is whether the Internet can withstand a crisis of a magnitude greater than any of these two events. What about a catastrophic incident? From what we know so far we can probably guess that the potential is there for a complete breakdown of the whole Internet system in the event of a crisis that demands a bandwidth ten to twenty times greater than any of the events experienced so far.

The recent America Online (AOL) problems that resulted after AOL decided to charge a flat monthly fee of \$US19.95, created the worst crisis in the Internet's history and resulted in a near breakdown of the whole AOL system, one of the major global Internet providers. This problem, together with frequent breakdowns of major carriers, are episodes of things to come if the growth of the Internet does not abate. These frequent breakdowns by carriers, coupled with the infrastructure of the Internet itself as a loosely connected network of computers which are largely self-regulating, together with an almost chronically poor rate of improvements, service additions that constantly lag behind the rate of people joining the Internet, and poor maintenance, are all symptoms of things yet to come and may offer a good indication of the likelihood of total anarchy that may engulf the Internet community.

OTHER PROBLEMS

Besides structural weaknesses and poor administration, the Internet is a fertile medium for scams and bad content. A study of Internet scams by the Washington-based National Consumer League found widespread use of pyramid scams, bogus Internet-related services, spurious equipment, claims of quality goods while delivering inferior ones (if any), fraudulent business opportunities, and appealing work-at-home offers. The study further noted that Internet scams are on the rise [2]. Whether a scam or not, Internet content is also getting more and more worrisome as more and more users of all shades join the Internet bandwagon with little or no regard to civility. The result has been a decline in the standard of the Internet

content to a level that borders on distasteful. Distasteful content takes, among others, the following forms:

- (i) **Garbage:** Though not an evil in itself, but certainly an irritant, the web is starting to become a garbage can where people of all shades post their garbage for the world to see on personal and business home pages. Because of the volume on the web, it is difficult to know where garbage is but it is always there. It is estimated that nearly 50% of the stuff on the web is garbage, the spectrum of which varies from obscenity, at one end, to just bad taste, at the other. Although the web is the third most used Internet service, and is soon becoming only second to email, in a poll of the 7.5 million web users in the US conducted by FIND/SCVP, 75% of the web sites users visited were either not available or had unintelligible messages [3, 7, 8].
- (ii) **Hate:** Hate groups around the globe have seen the Internet as an inexpensive way of disseminating their hate messages and furthering their causes. Some are using the Internet as a recruiting tool. For example, hate groups like the Neo-Nazi Heritage Front, White Power, and the Ku Klux Klan have web pages and home sites to disseminate their message of hate.
- (iii) **Criminal Acts:** The Internet has been used for criminal activities since its inception. The most notable of the criminal activities have been paedophilia, drug trafficking, espionage, child abuse, and many others.
- (iv) **Bad Taste and Entertainment:** The graphic nature of the web has given the pornography industry a boost. The web has become the prime spot for advertising pornography. With no regulating and responsible body to check on sites and, because of the borderlessness of the web, the industry is doing a booming business.

The problem with bad content on the Internet is exacerbated by the structures and nature of the Internet communities and the ability to be anonymous. The Internet community as a whole is a mosaic of different interests, intentions, social and cultural backgrounds, and varying degrees of moral character. Since many of the user communities are clustered around special interests, they spend little time outside these clubs and, therefore, have little interest in, let alone know, what else is carried on the Internet. Those who care to know have little power to influence change because of the way the Internet is structured as a highly individualized and self-controlled medium.

As a mass medium that is geared to serve a diverse audience, the Internet has fallen prey to what all other mass media serving diverse audiences have - all materials are not appropriate to all audiences in different communities, cultures, and countries. This is reflected in the reactions to the Internet's contents from different countries that is, in some cases, total censorship and, in others, a curb on individual freedoms. Reasons for Internet censorship vary depending on historical, cultural, social, and religious grounds. For example in Singapore, one country well known for Internet censorship, the reasons given for censorship are historical and social-political. China's censorship, on the other hand, is political and, in Iran, it is religious. Whatever the reasons, Internet censorship is catching on in unlikely places including Germany and the US.

And, finally, there are unfulfilled public expectations. Contrary to public expectations, every house is not likely to have a computer by the year 2,000. Therefore, Internet use is likely to fall far short of predictions and this may well be

the linchpin that will let down the whole success of the Internet. Social expectations of the Internet included enhancing human individualism and adventurism, since both have been the catalysts for the rapid growth of computer technology. While this has happened in some sectors, it has not been widespread. The limitless human exploration of the Internet was hampered by a number of issues including the accessibility of the Internet itself, contrary to public predictions. Computers and computer technology since inception have been and remain in the domain of the haves, those who can afford thousands of disposable dollars to buy, connect, and subscribe to commercial online services. Outside the commercial online services, access can only be obtained through higher education institutions and research institutions, serving but a small sector of any society. The poor have yet to participate fully in the Internet game [4].

CONCLUSION

If the dream is to be held dear for every community user worldwide, the Internet needs to be a lot more than it is currently. It needs to be a decent place where my children and your children can log on, without sparking fear in you as you cross your fingers and hope that little John Mukasa will not stumble on to guess what. Besides the social issues on the Internet, there must be a balance between the commercial interests and other users' interests, like research and personal communication. It would be tragic if the Internet becomes like television, completely taken over by commercial interests and a user has to navigate commercial advertisements in order to surf the net. There is a need for a loose central body to set the philosophy and agenda for the Internet and spearhead it through difficult times with little or no commercial interests. One immediate advantage coming out of such a body is the timely response to the Internet needs, like a quick response to the constantly changing bandwidth and the installation of other timely technologies.

Luckily there is a growing sense and interest in Internet issues and the problem in paradise philosophy is gaining ground. Both governments and the private sector are taking steps to keep the Internet to its intended goal and mission. Governments are passing legislations that will create safe environments for users although many are being challenged in the courts like the US Communications Decency Act. On the private front, community groups and companies are also trying measures to curb illegal activities and bad content; for example, the Platform for Internet Content Selection (PICS) establishes an Internet convention for label formats and distribution methods. PICS labels describe Internet content on several levels. PICS works with selection software to prohibit access according to labels. Parents can use PICS labels to prohibit access to unlabelled Internet documents. Already major companies like IBM, Microsoft, and Microsystems are supporting PICS-compatible products while online companies like AOL, CompuServe, Microsoft Network (MSN), AT&T, and others are providing free blocking software [5, 6].

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