

# INFORMATION SUPERWHICHWAY?

by Craig Pfeifer

It seems that the “Information Superhighway” and the “National Information Infrastructure” have been thrown around a good deal by the news media recently. America’s largest online services, Prodigy, America On-Line, and CompuServe, have suddenly offered on-ramps to the information superhighway via email, FTP, and other gateways. All of a sudden, Internet access is easier than ever.

I did not realize how far-reaching the effects of the media had become until late one night, while cable surfing, I stopped on QVC. They had a computer for sale, and the slick salesman was busy smiling away and reading the cue cards about the product, as if it were another genuine cubic zirconia cocktail ring or a Flowbee.

(A flowbee is a hilarious product that is advertised in late-night infomercials. It hooks up to your Hoover so you can give yourself haircuts. It frightens me.)

As always, someone calls in with some bit of unsolicited testimonial that they personally bought the product, and that it’s better than ball-point pens and sliced bread. Well, I was about to continue my surfing when the salesman said something that took me completely by surprise. “Have you been on the Information Superhighway yet?” (With a smile, the salesman gestured quote marks with his two hands.) “Oh no,” replied the caller, “I’m too scared!” The salesman then soothingly assured the caller that the highway is a wonderful place, and encouraged her to wander around and explore it.

Also, when my weekly copy of *Newsweek* arrived, I turned to the “Periscope” page, edited by George Hackett, and was treated to a partial list of some of George’s favorite whimsical USENET newsgroups. [alt.wedding](#) and [alt.tv.fan.90210](#) topped his list. Of course he didn’t mention [alt.barney.die.die.die](#) and [alt.christian.second.coming.real.soon.now](#). Neither Mr. Hackett, nor the rest of the American news media, mention that there are about 10,000 or more newsgroups and that they only picked out a few of the funnier ones. They fail to mention that this is not a representative sample of the entire lot of available newsgroups.

The romanticization of the Internet seems to be the prevailing problem with Internet media coverage. When the Internet is the focus of a story, it is usually negative. Whether it is how child pornography runs rampant on the “Information Superhighway” or how easy it is to receive pirated software, it seems that the media doesn’t focus on the positive events that take place daily on the Internet. Or, it could be that those events aren’t as exciting as chasing an ex-football player and his best friend down a Los Angeles highway at 45 miles per hour. Who knows.

The general public’s eye has been turned away from OJ Simpson and clubbed, whiny figure skaters long enough to take notice of a few computers linked together by some leased lines. However, the general public is a fickle bunch, whose attention span hardly lasts one network television commercial break.

If it wasn’t the media, and those fanciful AT&T commercials promising the world at your keyboard (“Ever see a commercial so often, you begin to get really sick of it? You will.”), what was it that caused this sudden interest? The Internet has been around for a long time.

I talked briefly to Professor Gene Spafford, here at Purdue University, for some background for this article. Until late April in 1993, Professor Spafford was a common name upon the Internet. He collected information for new users about the USENET groups, and posted this list regularly. Through these postings and his active participation in the newsgroups, he quickly became a sort of “USENET Information booth.” Since then, he has co-authored a book on UNIX security, published numerous papers, and been mentioned in several popular novels dealing with computers and the Internet. He is a recognized authority on the Internet and security.

According to Professor Spafford, the Internet is roughly doubling its own size every nine to ten months. New net providers sprout up like weeds and unveil their on-ramp onto America’s latest gold mine. America is information hungry. Everything has to be bigger, and faster than before. It is in my opinion that the Internet has become America’s latest fad. Now “email” and “Internet” are thrown around as casually as “cellular phone” and “answering machine.” Once again, the technology of the few has come to the masses. At one time, only important, affluent people owned a cellular phone. Now, the technology has become so readily available, that anyone can. Just like the television and the personal computer, the world’s largest computer network is now available to anyone with enough money.

But, will the public stay interested in the Internet? In my brief conversation with Professor Spafford, he says that it depends. If the Internet offers quality services people want, and at the right price, sure they will. If they find it to be a valuable service, it will stay popular. I guess the answer to this query is that only time can tell. It depends on the balance between the Internet providers and their users.

The Internet seems to be the next logical step in America's information hungry rampage. It started with the pony express and has since escalated to integrated cellular phone/faxes/beepers (a la Apple's "Newton" and AT&T "6300"). The Internet is not limited to words written on a piece of paper, as faxes are, it is not limited to voice conversations, as cellular phones are, and it is not limited to a phone number and a 5 line message, as some beepers are. The Internet can transmit any series of ones and zeros between any computers to which it is connected. The Internet doesn't care if it's a fax, a digitized voice, a pornographic picture or a live UNIX "talk" session, the TCP/IP protocol suite handles it all seamlessly. It's the epitome of connectivity! Whatever you want, whenever you want it, and whatever format you want it in. You don't have to worry about getting the latest version of a software package before the shop closes because FTP/WWW/Gopher sites are open all day, everyday. The Internet never sleeps. It's kind of like New York, but a little bit cleaner, and the high crime rate isn't so obvious.

Of course, with the influx of new users onto the eighth wonder of the world, there is bound to be some friction. Computer crime will probably increase. The Internet is a wonderful place, when all of its users are educated individuals who do not mean harm to anyone. They just want to access data, compare notes with colleagues, and play solitaire once in a while. It is a system based on trust. But when fiendishly minded people see the Internet as an untapped resource, ripe for the plucking, we have a problem. The Internet was not designed with dishonest users in mind. Its protocols are quite old, and their dissemination is publicly available to any and all who care to read about it. Over the years, hackers have examined protocol implementations in search of security bugs, while honest people have contributed patches and improvements. But software vendors have been slow to release patches and system administrators have been slow to install them. As a result, hackers have been able to share their discoveries with their friends and take advantage of holes for quite some time before they are patched. Another major problem with the influx of diverse individuals onto a homogeneous network, is what the users bring with them, their views, attitudes, virtues and vices.

While talking with Professor Spafford, he recounted a tale of a math professor here on campus who was outraged by some of the more risqué images that a student was accessing via a WWW site in the Netherlands. He wanted to know how we could stop this kind of pornography from invading our pillar of education that is Purdue. Well, that's a tough one. Purdue University Computing Center (or PUCC, "puck," for short) has had numerous complaints of students wasting network bandwidth "MUDding," or engaging in pseudo-Dungeons & Dragons style games accessed via telnet, and was forced to do something about it. Purdue employs Cisco brand routers which can be programmed not to accept certain types of packets from certain machines. The problems with this were: a lot of the code that runs these games is so user-configurable that it can change the game's address on-the-fly and there are so many routers on the campus, it is possible, using traceroute and other such utilities, to direct your packets to routers that

are off the beaten path. In effect, the Internet is so open, that anything is possible. Trying to block access to one Internet site is analogous to trying to dam the Mississippi River. If you do not build the dam correctly, the water will just flow around the sides, and continue its course.

The Internet is so huge, that you cannot possibly block out one WWW site absolutely, and to try takes more system programmer energy and clock cycles than it is worth. And who is to decide which users have the privilege of accessing more mature material? On the Internet nobody knows if you're a fourteen year-old, pre-pubescent eighth grader, or are a fifty year-old woman. The problem with such subjective, moralistic legislation is the same on the Internet as in real life: who decides the standards? Should there be an Internet "ratings committee?" This clearly violates the basic premise of the Internet, the free exchange of information. I have been an advocate of the "think for yourself" movement. It states that each individual should make up his or her own mind about how they feel about certain morally questionable items. In talking with Professor Spafford about this subject, he suggested that to help combat this problem, maybe the Internet should be broken down into several subnets. This way, whoever does not wish to be accosted by certain items that they find offensive, such as digitized picture archives or dirty joke servers, will not be forced to share a domain name with such services.

I had hoped to summarize in a few pages just what the Internet is and where it's going. But, as it turns out, the Internet is so incalculably massive, it is whatever each user sees it as. It is possibly the only international service, besides garbage collection and government, that serves the needs of people from system programmers to people who cannot program their VCR. People from all walks of life talk with each other, in the purest form of communication. By this I mean people talking to people. Human beings communicating without regard to their physical appearance, spoken accent or speech impediment. You only hear what they say - not how they say it or how they act when they say it. It is almost as if the problems of society, race, color, and creed, to name a few, have been left at the doorstep. However, as the Internet continues to grow and more people use it, it will slowly start to take on the characteristics of the culture and people that created it, much like the relationship between parents and children. Some of the social issues of today may be waiting in the wings to be tackled online tomorrow.

The next time you see someone's insipid post and are just seconds away from filling that person's mailbox with molten mail, sit back, take deep breaths, and contemplate your navel. You never know to whom you are writing, because, on the Internet, nobody knows you're a dog. Woof.

## Biography

Craig Pfeifer ([cep@cs.purdue.edu](mailto:cep@cs.purdue.edu)) is pursuing his bachelor's degree in computer science at Purdue University. Outside of the classroom, Craig is involved with his local ACM chapter, and the Purdue Science Student Council, where he edits their newsletter. He was also recently accepted as a residence hall counselor.



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