

MAiP

Master of Arts
interactive
Production

Research Seminar Outline

J.E.D. Gibbs

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“The New Scientist reports that the US government is developing a new peer to peer system that could ultimately replace the Web”

Create magazine December

My major project is the development of a specialist college intranet. This may be hosted on a web server to also allow internet access as an extranet.

For my research seminar I was investigating potential threats to the World Wide Web as we currently know it - if the Web were to succumb to virus attack or overload, or be usurped by a better technology, it might render my major project redundant and threaten my job teaching Web design. The Create article quoted above as my headline offered the promise of a credible solution to many of the threats I had begun to examine, but carried with that promise the additional risk that its success would still sweep away the hypertext transfer protocol World Wide Web.

- Technical overview: existing Web client-server vs p2p
- p2p in the Napster era saw ‘mp3’ become a more popular search term than ‘sex’. 2003 milestone of 200 Million downloads of KazAa p2p system alone reflect popular embrace of p2p - perhaps driven by ‘piracy’ of video and mp3 audio.
- Commercial resistance as music recording association RIAA launch fight back including ‘poisoning’ of p2p networks with damaged ‘song’ files and fake servers, and successful legal action vs Napster and other purveyors of networking client software.
- p2p purveyors adopt decentralised systems which remove the need for dedicated servers to index and record transfers. Users are connected directly and swap files independently of the software purveyor so the software supplier is not in the loop.
- Ignorance of what files are exchanged is proving a useful defence in the courts as a judge rules that this p2p version is comparable to the production of video recorders in the respect that while the technology may be exploited for piracy, it also has many legitimate uses. RIAA then targets individual users with massive suits...
- Personal exploration of (AOL’s) Gnutella p2p network and KazAa shows some

strengths to the system but raises doubt about its ability to 'replace' the web.

Positives:

- Resistance to the sort of virus attack which only narrowly failed to bring down the WWW, targetting its reliance on 13 main servers, of which 11 were successfully attacked.
- Wide range of files available quickly and without the hassle of hunting through a series of websites and layers of navigation
- p2p is inherently scalable, reducing concentrations of network traffic to specific servers by distributing access across many computers. Once files have been passed on to other users they are often also made available from the new 'owners' for download, increasing the chances that the file will be available 24/7, no matter what happens to the original site. Currently websites such as <http://www.welovetheiraqiinformationminister.com> are frequently victims of their own success, swamped by sudden interest. If the content is a particular file, that can be passed on and redistributed via p2p without the first site having to bear the entire load - the more popular the file, the more sites will be available from which to obtain it.
- Files available from multiple sources can also be downloaded faster and more reliably as they are supplied in a similar manner to a hard drive using 'raid' striping (as used to improve the speed of video).
- No censorship possible, so political and religious powers cannot ban knowledge i.e. some believers in the Biblical Genesis would like to expunge the concept of evolution.

Negatives:

- No censorship possible, pornography is widely swapped, including child porn.
- RIAA has already opposed p2p with aim of protecting copyright - wait until the major corporations in all fields realise that p2p means that people are obtaining the files that they want without visiting a branded website or viewing their adverts...

- p2p strips away the framework of information and structure that a well-designed website can offer. As a result it is difficult to establish the source and authenticity of a file. Apart from deliberately faked files to discourage 'piracy', it is hard to know whether software or drivers are the most recent released, or just the best you can find on this connection. Over time the system may well clog with outdated files. This historic archive may prove useful when you need a specific version if you know exactly what you need, but it is a major disincentive for the legitimate companies such as HP, Epson or Canon to release drivers over p2p.

Conclusions:

- p2p is a useful technology for file transfer, but would be better described as a rival or replacement for ftp (file transfer protocol) and certain newsgroups. It is not a replacement for the http (hypertext transfer protocol) of the World Wide Web, it fulfils a distinctly different role and can co-exist with it. This has parallels with e-mail, another distinctly different software use for the internet hardware. Browserless internet access is also soon to be possible with Flash, as published in Digit magazine on April 30th 2003.
- There might be a place for p2p as part of my 'extranet' plans for the distribution of student briefs as pdfs (portable document format) and tutorial movie files. A useful p2p technique is that once an interesting file has been found, you can view a list of all the other files shared by that site. By adding a file with a unique name for which students could search, they could then view a list of all the other available files on my site. (Music swappers use this to explore the musical treasure trove of someone who has a similar taste in music, rather as music site <http://www.peoplesound.com> encourage their fledgling artists to select a genre and a similar known artist so that browsers who like the Rolling Stones can find new artists in the same vein).