

Exhibit 29

Grass-roots war heats up against government Web blocks ; 'Hacktivists' work for free flow of communication

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When the reports started trickling out in early September, they were met with disbelief and then outrage among technophiles. The Chinese government had blocked its citizens from using the popular search engine Google by exercising its control over the nation's Internet service providers.

The aggressive move surprised Nart Villeneuve, a 28-year-old computer science student at the University of Toronto who has long been interested in Chinese technology issues.

Blocking one of the most popular sites on the Internet was a far cry from Beijing's practice of restricting access to the Web sites of dissident groups or Western news organizations.

From his research, Villeneuve knew that the Chinese firewall was less a wall than a net. It was porous, and the holes could be exploited. So he sat down at his home computer and within three hours had created the basics of a program that would enable Chinese Internet users to get access to Google through an unblocked look-alike site.

"It's a very simple solution," Villeneuve said. "It's kind of crude, but it works."

Villeneuve considers himself a "hacktivist"--an activist who uses technology for political ends.

"I think of hacktivism as a philosophy: taking the hacker ethic of understanding things by reverse engineering and applying that same concept to traditional activism," he said.

Villeneuve takes part in Hacktivismo, a 2-year-old group of about 40 programmers and computer security professionals scattered across five continents. It is just one of a handful of grass-roots organizations and small companies that are uniting politically minded programmers and technologically astute dissidents to combat Internet surveillance and censorship by governments around the globe, including those of Saudi Arabia, Myanmar, Laos, Yemen and the United Arab Emirates as well as China.

Some protect the identities of computer users in countries where Internet use is monitored closely. Others are creating peer-to-peer networks that allow for anonymous file-sharing. Some have taken established techniques for encrypting data and made them easier to use. Still others adopt techniques used by commercial spammers to send political e-mail messages past restrictive filters.

"They are computer scientists who have principled causes," said Ronald J. Deibert, an associate professor of political science at the University of Toronto who runs the Citizen Lab, a political science technology laboratory that supported Villeneuve's work. "They are developing technologies not for commercial purposes but for political purposes."

File-sharing network

One group, the Freenet Project, has built an anonymous file-sharing network from which Internet users can download anti-government documents without fear of reprisal. Dynamic Internet Technology, a small company in Asheville, N.C., provides technical services to efforts by the Voice of America to get e-mail newsletters into China, using spammers' techniques like altering subject lines or inserting odd characters in key terms (like "June 4," the date of the crackdown on protests in Tiananmen Square in 1989). Chinese Internet service providers use filters that scan e-mail for such politically sensitive terms.

SafeWeb, a maker of networking hardware in Emeryville, Calif., that has drawn some financing from the Central Intelligence Agency, recently provided free software called Triangle Boy that protected users' identities by routing their browsing through SafeWeb's server.

SafeWeb was popular in Saudi Arabia, the United Arab Emirates and China but has been suspended for lack of money.

Villeneuve's project, which he calls a "pseudoproxy," is fairly simple. A computer user in China who knows the right Web address-- usually learned through word of mouth--can visit the Google look-alike site on unblocked computers that run Villeneuve's software. Those computers call upon Google's servers and return the search results to the user.

Other Hacktivismo members are taking Villeneuve's concept and applying it into a more secure and flexible program that can be distributed to computer users around the world to help Chinese users gain access to sites if and when they are blocked. (Google's main site is no longer blocked by China, although search requests are being filtered. The words "Falun Gong," for example, the name of a spiritual sect outlawed by the Chinese government, do not return search results.)

Most groups are ad-hoc operations made up almost entirely of volunteers with shoestring budgets. The impact of their David-versus-Goliath struggles can be difficult to gauge. Lately these groups and companies have been receiving more attention from U.S. government officials. In August the House Policy Committee, the forum in which the Republican leadership develops priorities and policies, issued a statement that included a call for the United States to "aggressively defend global Internet freedom" by supporting non-profit and commercial efforts.

Controlled infrastructure

Fighting restrictions on the use of the Internet can be difficult because the governments imposing the limits often control the technological infrastructure in their countries. The Saudi government, for example, filters all public Internet traffic. The Chinese government has public security bureaus across the country that monitor Internet use.

In its statement, the House Policy Committee noted that the Syrian government, for example, is able to monitor e-mail messages because it controls the single Internet service provider. Tunisia's five Internet service providers also are under direct government control, the statement said.

So the technology activists sometimes have to get creative to get around the restrictions. The activists include computer industry professionals as well as teenage geeks.

"There is a lot of apathy among my generation with political processes," said Ian Clarke, the 25-year-old founder of the Freenet Project. "The nice thing about writing code to address the political issues is that we are playing the game on our own turf."

Some of the groups are careful to distance themselves from protest-oriented forms of hacking that attack or deface computer systems. Hacktivismo members, for example, say they are trying to be constructive rather than destructive.

The Freenet China project uses the publishing technology of a broader organization, the Free Internet Project, known as Freenet, to disseminate information about China on the Web. People who install Freenet software on their computers can anonymously place information in a global information library shared by the network of Freenet users. Although users of the World Wide Web ordinarily make direct connections with Web sites to obtain information, Freenet users make indirect requests to other Freenet computers, which in turn send the request onward if they do not have the requested document.

Among the documents that have been released through Freenet China are the Tiananmen Papers, a compilation of transcripts of 1989 meetings among Chinese leaders about the protests.

Siuling Zhang, a Long Island, N.Y.,-based developer of the project, said that it had received 10,000 requests for the Freenet China software. Since the program is small enough to fit on a floppy disk, she said, it has undoubtedly been copied many times over.

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Abstract (Document Summary)

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