

Battle for Freedom in Chinese Cyberspace

BY XIAO TIAN

“We are set to tear down the Great Firewall of China. Our goal is to restore to Chinese Internet users their freedom in cyberspace,” said Bill Xia, President of Dynamic Internet Technology, Inc. (DIT), a small Internet technology company in North Carolina.

When the U.S. Congress granted Permanent Normal Trade Relations (PNTR) to China, Western mainstream thinking was confident that free trade and new information technology would, on their own, bring change to China. The computer and the Internet, so the reasoning went, would bring free information and free thinking to China, and the communist regime would eventually lose control.

In actuality, however, the development of the Chinese Internet followed a different path. The Chinese communist regime has launched a multimillion-dollar Golden Shield project and turned the Chinese Internet into Big Brother-net. (See “Business, Values, and Moral Traps: The Paradox of the Chinese Internet,” *Chinascopes*, March/April 2006) Instead of a versatile communications tool providing people with great freedom, the Chinese Internet is now locked inside the



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Bill Xia, President of Dynamic Internet Technology, Inc., presents the opportunity and implication of an information breakthrough in China, during a hearing held by the U.S.-China Economic and Security Review Commission on June 5, 2003. Mr. Xia is involved in projects aimed at breaking the information blockade by the Chinese communist government. He also conducts research on how the regime is censoring the Internet.

Great Firewall of China and has become a new tool the regime can use to exercise deceit and control. Western companies have provided most of the technology that enables the Golden Shield.

Experts like Ethan Gutmann have conceded that the West has lost a great opportunity, losing the Chinese Internet to the communist regime.¹ As China quickly gains economic power, the West has fewer and fewer means for containing the technologically modernized Chinese communist regime.

Bill Xia's idea to restore freedom on the Chinese Internet is exciting and can have historical impact. But, given the strong political and economic muscle that the Chinese communist regime exercises over the Chinese Internet, can his efforts succeed?

A SMALL COMPANY BATTLES WITH A POWERFUL REGIME

The major battles in cyberspace have been fought with Internet anti-jamming technology.

One of the pioneers in the field, Bill Xia launched his company, DIT, in 2002. DIT uses a proxy network

called DynaWeb to enable users to circumvent the Internet censorship in China and gain secure and full access to the Internet. Through FreeGate, DIT's proxy network software, Internet users in China can even access forbidden websites. As of this year, 300,000 unique users have gained regular, unblocked access to the Internet through FreeGate.

Generally there are two ways to access a website through an Internet browser. One is to type in the domain name, for example, www.google.com. The other way is to type in the 10-digit IP address for the same website. Typing a domain name is more popular since it is user friendly. After a user types in a name, a Web browser converts the domain name into an IP address and fetches the right information for the user. In China, the communist regime has installed filters on the national Internet gateways that can block access to any IP address the Communist Party dislikes. Bill and his team have created a variety of techniques to help Chinese users evade the regime's firewall, and their battles in cyberspace have been fought round after round.

Round 1: Beginning in March 2002, DIT sent unblocked IP address updates to subscribers through its mass mailing technologies, which obviously included



China Photos/Getty Images

Policemen stand guard at a gate to the Forbidden City on April 23, 2006, in Beijing. The Chinese Internet is now locked inside the Great Firewall of China and has become a new tool for the regime to use in exercising deceit and control.

Chinese government censors. Within two weeks of the release of these IP addresses, the valid time window for a DynaWeb IP address was reduced to a range of between a few days to a couple of hours. DIT's strategy needed to evolve.

Round 2: In April 2002, DIT expanded to domain names with dynamic IP addresses. However, China's censors countered with an automated process to detect the IP addresses that pointed to the domain name. DIT adopted a new strategy that forced China's censors to manually verify the IP addresses before blocking them. China's automatic IP blockade disappeared.

Round 3: In August 2002, users started to have difficulty accessing DynaWeb through https even though the IP was not blocked. DIT later discovered that the certificate it used for secured access from the Internet browser was filtered. In response, DIT changed its certificate daily. No certificate blocking has since been reported. Again, censors were frustrated by the requirement of daily updates of all related content for the filtering engine and quit.

Round 4: At the end of September 2002, users in China who typed in the browser DynaWeb domain names and many other forbidden websites like www.voa.gov were redirected to a fixed IP 64.33.88.161 in China.² DynaWeb upgraded its FreeGate software to get around such redirection.

Since early 2003, DIT has had the upper hand in the anti-jamming race with the Chinese regime. In

2003, DIT took some time to develop accompanying technologies to make its service more user friendly, and it saw a corresponding increase in users. In 2004 and 2005, DIT was limited by resources and saw a slow growth of users. As of 2006, DIT has about 300,000 regular users from China.

DIT would not be able to stay a step ahead of the communist regime without support and cooperation from the end users inside China.

CONNECTING WITH THE CHINESE PEOPLE

From behind the Great Firewall, people are seeking the truth.

In 2005, from behind China's Great Firewall, a policewoman sent an email to Bill Xia's DynaWeb, the proxy network in the United States that provides uncensored information in the Chinese language. Let's call her "Lingling."

"Hi, I am a policewoman working in a prison. In the past 11 years, I have seen so much darkness and filth in this profession. Our souls yearn for truth and compassion but twisted notions have tarnished our hearts. What is justice? What is conscience?"

Lingling went to state that everyone working around her was subject to monitoring. "Spies and agents are everywhere," she continued. "I am saddened by all I see. One day I got your website link. Given what I

know about the Communist Party, I believe what I see on your website. I sincerely want to work with you to build a better China, a China that is fair, democratic, and free. Here is my telephone number [omitted]. What I am doing now is not betraying China, instead it is patriotism."

"Since a friend sent me your website link at QQ³ I feel I have found a friend that shares my life mission. I have learned so many truths and firmly believe them. When I did population census work, I saw people struggling under the poverty line, such as families of coal miners. They live in shabby shelters and eat whatever vegetables they can

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Dynamic Internet Technology, Inc. (DIT) uses a proxy network called DynaWeb to enable users to circumvent Internet censorship in China and gain secure and full access to the Internet. Above is an advertisement that DIT uses to promote the DynaWeb through the Internet.



AFP/Getty Images

Young Chinese surf the Internet. China's Internet Service Providers (ISPs) are increasingly censoring their own content for subversive political material through so-called "self-discipline pacts." The China Internet Association said the agreements banned signatories from producing or releasing contents that are "harmful to national security and social stability" or illegal.

find on the ground along the street. I have also seen how the Communist Party officials squander resources. How can we expect them to serve the ordinary people? Please contact me. I want to work with you and be an example to awaken the numb Chinese. I do not know how to contact you. When I was young, I admired the police. I became a police officer only to find out the truth behind the title. How I long to get rid of the police uniform! To survive, I am still among them. The most disheartening is the plight of those who are imprisoned. Police who are supposed to uphold justice are actually committing crimes against them. There are no laws or principles—it is all up to the discretion of the Communist Party leaders. This is the Communist Party. It is not 'One mouse spoils one pot of porridge'—everything is totally spoiled."

Lingling is not alone. Hits at the DynaWeb site have reached 30 million a day. Some of those hits came from a young man working in an intermediate court. "Thank you, Webmaster. I have downloaded the video version of the *Nine Commentaries on the Communist Party*. If every Chinese including CCP members could

read it just once, the CCP would soon fall. Since I graduated from college six years ago, I have worked at an intermediate court. I have no interest in communism. After I subscribed to Internet services, I happened to visit the UltraReach website using UltraSurf software, and I saw a free and true world. I am so fortunate! I have downloaded a lot of information from UltraReach and DynaWeb sites, including those about June 4th Tiananmen, the *Nine Commentaries*, and Falun Gong. I am going to bring my computer back to my hometown during the Chinese New Year so that my folks and friends all know the truth. Happy Chinese New Year."

A man named Yue Shao found a home in DynaWeb. He wrote, "On this new and great website I finally found hope and motivation for my life. China will soon abandon communism. I will do my utmost to spread DynaWeb information."

Another user suggested DynaWeb upgrade its software. "Today UltraSurf is not working. It used to be very fast. Suddenly, today I cannot connect. The CCP must have taken action. Please send me the latest software."

I have successfully passed your software and the *Nine Commentaries* to over 100 people. What a victory. We also need better protection. Suggest you update security information for the users. Thanks.”

Young people appear to be the majority of those who have successfully broken through the Great Firewall. How their thinking has changed as a result is quite obvious.

“I used to devoutly support communism because I knew ‘without the Communist Party, there is no China.’ I loved New China so much because I believed what I was taught about the ‘evil old society.’ My grandpa was a guerrilla leader and fought even harder than the communist troops, but he quit the Communist Party in the 1950s. He said, ‘I do not know how to bribe. I do not know how to corrupt. So I am no longer qualified to be a Communist Party member.’ After several years of investigation and verification, I am shocked. What I devoutly admired in the past is just a bunch of evils!!!”

“Dear Webmaster, How are you? I am 26 years old. I visit DynaWeb every day. I see information

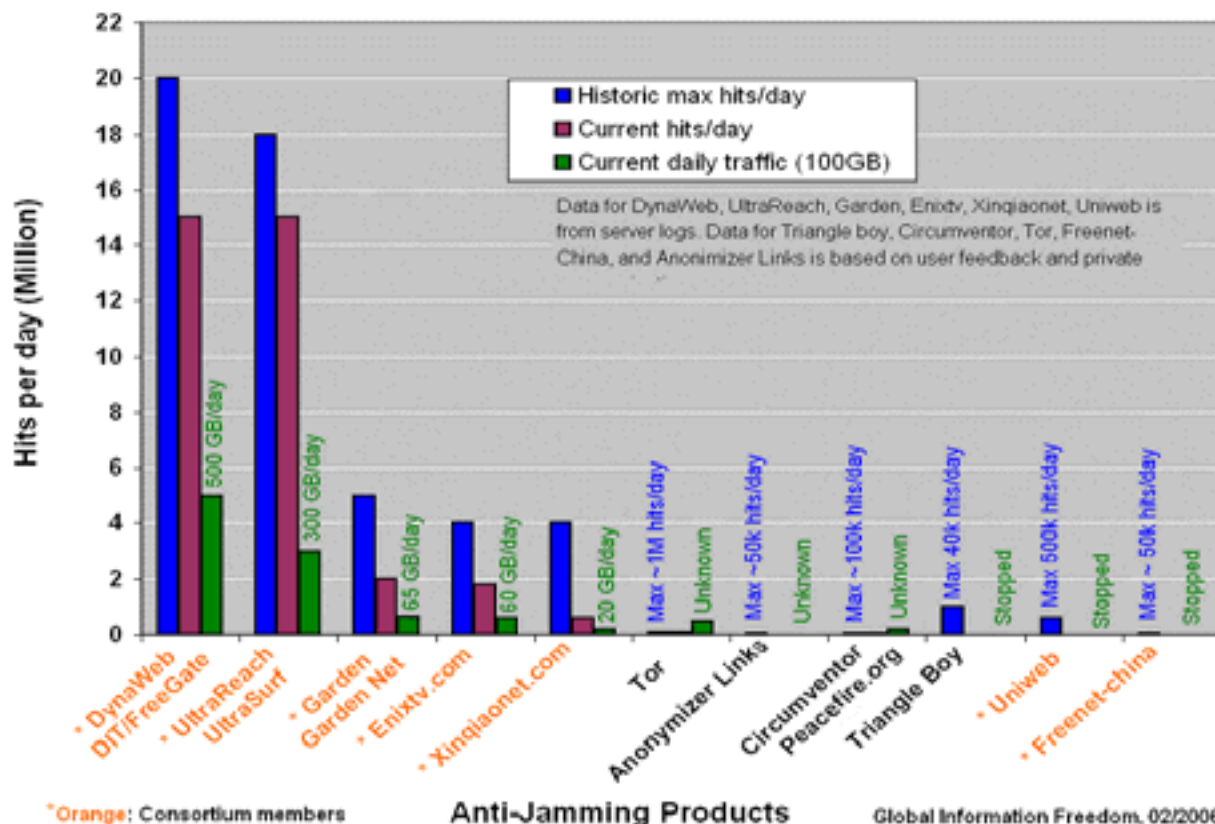
that I cannot see in the Chinese domestic media. Your information is like fresh air to me. I am a fan of DynaWeb. You allow me to see China and the world with a clear mind. Think about it. My previous twenty-some years were spent under the lies of the Communist Party. My family is in the old industrial region of Jilin Province. I have witnessed how laid-off workers desperately try to support their families. I was sad and lost. Here is my QQ number [omitted]. I hope to get to know people who share the same mission to revive our nation.”

A VARIETY OF APPROACHES FROM A DIVERSE POOL OF PLAYERS

Besides DIT, there are several other players who have developed different technologies to ensure freedom in Chinese cyberspace.

UltraReach Internet Corp. is a California company founded by Falun Gong practitioners. Sherry Zhang and her fellow practitioners developed a software called UltraSurf that enables users in China to access forbidden websites outside China via Internet Explorer without being detected.

Figure 1. Daily Internet Traffic from China Categorized by Services Used to Evade Communist Censorship, in 2006





China Photos/Getty Images

A Chinese man tries a new LG laptop at the China International High-Tech Exhibition on May 23, 2005, in Beijing. DIT and UltraReach Internet Corp., together with other companies, formed the Global Internet Freedom Consortium. The consortium's member organizations have developed highly successful anti-jamming technologies and secure Internet tools, enabling users inside China to access uncensored information and blocked websites at will.

Freenet, developed via a collaborative, open source methodology, is a peer-to-peer-distributed data store that allows members to send or retrieve information anonymously. Freenet is based on a system described by Ian Clarke in his July 1999 paper "A Distributed Decentralized Information Storage and Retrieval System," written while he was a student at the University of Edinburgh. Shortly after the publication of this paper, Clarke and a small number of volunteers began work on what became Freenet.

TriangleBoy, a proxy tool that enables a user to remain anonymous, was designed to allow users to get around firewalls and censorship and visit websites anonymously. It was developed by SafeWeb, a computer software company founded by Stephen Hsu in northern California. TriangleBoy was supported in part by Voice of America (VOA) as a way for Chinese readers to be able to bypass China's Great Firewall and

reach the VOA website. Symantec acquired SafeWeb in 2003 and no longer supports this software.

Anonymizer® Inc., a company engaged in online identity protection software and services, announced in March 2006 the launch of Operation Anti-Censorship. This new privacy software, created specifically for Chinese citizens, is said to enable safe access to the Internet by circumventing the Chinese authorities' Web filters. The software aims to shield Chinese Internet users' personal identities and related information that the Chinese authorities are currently able to monitor.

Tor, not for the computer novice, is a software program that enables its users to communicate anonymously over the Internet. Originally sponsored by the U.S. Naval Research Laboratory, Tor became a project of the Electronic Frontier Foundation (EFF) in late 2004. Chinese authorities routinely conduct traffic

analyses—intercepting and examining messages to deduce information from patterns in communication, which can be performed even when the messages are encrypted and cannot be decrypted. Tor aims to protect its users against traffic analysis attacks. Tor offers its users anonymous outgoing connections and anonymous hidden services.

DynaWeb (FreeGate) from DIT and UltraSurf from UltraReach Internet Corp., are clearly leaders in the anti-jamming field, as shown by the Internet trafficking data in Figure 1.

DIT and UltraReach Internet Corp., together with other companies, have recently formed the Global Internet Freedom Consortium. The member organizations of the consortium have developed highly successful anti-jamming technologies and a suite of secure Internet tools for users inside China. These tools allow Internet users in China to access uncensored information and blocked websites at will.

Bill Xia told *Chinascopes* that the consortium members have achieved the following milestones:

- In 2005, online hits by mainland Chinese Internet users at forbidden sites provided by the members of the consortium averaged 30 million a day. A vast majority are repeated users.
- Essentially, every single website normally blocked from Internet use in China is still accessible because of the efforts of these consortium members. Such is the case for the websites of Voice of America and Radio Free Asia, for which the consortium members have provided services over the past four years.
- The technologies developed by consortium members have drawn much attention from the Chinese Communist Party (CCP). As the CCP focuses more resources on these specific technologies, it is now easier for other new and smaller anti-jamming efforts to penetrate China's Firewall using less sophisticated methods that focus on lightly blocked and lightly used proxy links and websites.
- The technologies developed by consortium members can make the

uncensored search engines of Google and Yahoo! available to Chinese Internet users.

In fact, the consortium has experienced the full cycle of anti-jamming technology development, including design, scalability, promotion, deployment, maintenance, support, and product improvement and is ready for substantial scale-up. Moreover, it has accumulated successful end-to-end service experiences with users in China. The ability to directly connect to the end users in China is a unique strength of the consortium.

A DEEP CHINA CONNECTION

It was his passion for freedom in his home country that led Bill Xia to pursue his current career.

Bill went to China for graduate study in the 1990s. Comparing America and China, he started to appreciate the severity of media control in China. With his skills in computer technology, he used the power of the Internet to get around the media controls in China. After he obtained an advanced degree in computer science, he founded the North Carolina-based Internet service company in 2001.

The main business of his company is to develop, launch, and host websites, with a specialty in Internet secu-



AFP/Getty Images

President George W. Bush speaks at a celebration for the 60th anniversary of Voice of America on February, 25, 2002, at VOA headquarters in Washington, D.C. The VOA website, which is blocked by the Chinese Communist Party, can be accessed by Internet users because of the efforts of the Global Internet Freedom Consortium.

urity and anti-jamming technology. Voice of America and Radio Free Asia are listed as DIT's prominent clients on its website. According to Bill, he and his team need to work very hard to ensure that his clients' websites are always accessible to Chinese Internet users. Bill regularly works from early morning until well into the night on the computer to monitor the traffic flow from China to his company's websites and to exploit openings in the formidable Great Firewall of China. It is crucial for DIT to keep technologically ahead of the communist regime. "I am really happy when I receive feedback from my fellow Chinese users in China. They are grateful for our efforts, and they encourage us to continue the work," Bill said. "Our hard work has provided people with tools to access information otherwise off-limits to Chinese people. Our company is making a long-term impact on China."

Many others on the front of Internet anti-jamming are like Bill Xia—they share Chinese roots and a passion for the importance of what they are doing.

California chemist and software developer Sherry Zhang, a Falun Gong practitioner, is helping UltraReach attack China's Great Firewall. She related what happened to an American friend of hers in China: "He went to an Internet cafe and just typed in two words, 'Falun Gong.' Instantly, the sirens went off and the police appeared in front of him within a minute. So that's how bad it is, because they have ways to monitor what people are doing on the Internet, especially in Internet cafes." Sherry Zhang thinks UltraReach can help her fellow Chinese break through the Chinese Firewall.

OUTLOOK IS UPBEAT, DESPITE MAJOR OBSTACLES

The battle for Chinese cyberspace is being fought on uneven ground.

The Chinese communist regime is desperately afraid of the truth, and it has spent over \$800 million on its



TED ALJIBE/AFP/Getty Images

A protester demonstrates how prisoners are treated and paraded in public in mainland China, during a rally in Hong Kong on July 31, 2005, for freedom of the press after radio commentator Wong Yuk-man was fired. Wong, who resigned after complaining he was harassed for criticizing China's Communist Party was fired from Commercial Radio, the main private channel in the southern Chinese territory, with three months left on his contract. The latest departure coincides with further concerns about press freedoms after local media outlets were accused by watchdogs of abandoning their critical voices for the promise of advertising and access to the Chinese market.

Golden Shield project, dubbed the "Great Firewall of China." As concluded by OpenNet Initiative, this Internet filtering system is the most sophisticated effort of its kind in the world. It comprises multiple levels of legal regulation and technical control. It involves numerous state agencies and thousands of public and private personnel. It censors transmitted content through multiple methods, including Web pages, Web logs, online discussion forums, university bulletin board systems, and email messages. Besides the Golden Shield's project cost of over \$800 million, there is a special task force of some 30,000 "cybercops" that patrol the Internet.

The freedom fighters are mainly a few small American companies like DIT and UltraReach, which are supported by volunteer networks. Amazingly, they have successfully and continuously poked holes in the formidable Great Firewall of China. DIT and other members in the newly formed consortium have made it possible for, in total, about one million Chinese users to have free access to the uncensored Internet.

When discussing these achievements, Bill Xia is upbeat: "We have successfully provided our users in Chi-



GOH CHAI HIN/AFP/Getty Images

A worker rushes to complete work on a new Internet cafe in downtown Beijing. The Internet is growing at a rapid pace in China, with the number of users now standing over 100 million, second only to the United States. The fast development of the Internet offers an opportunity that has never been possible in the past for the Chinese to freely acquire and exchange information.



Guang Niu/Getty Images

DIT's technology allows millions of Chinese to get uncensored information via the Internet. DIT and other companies that strive to break through the Great Firewall in Chinese cyberspace still have multiple challenges to overcome in order to win the battle.

na with effective tools that defeat the China Great Firewall and censorship for more than four years. Right now we can support about one million Chinese end users. Our aim is to significantly increase that number. Think about that. What if we could support 10 or 20 million users? That's about 10 or 20 percent of all Chinese Internet users. If that many people in China can freely access information on the Internet, the Chinese communist regime's censorship would be all but defeated."

Whether the newly formed Global Internet Freedom Consortium can reach that exciting goal or not remains to be seen. Bill Xia listed three major hurdles:

The first is the fear in the minds of Chinese end users. If the end users are too afraid of the communist regime, they may not dare to access free information. Ideally, the international community should keep up the pressure on the communist regime's human rights violations so that the Chinese people are encouraged to seek freedom.

The second hurdle is the exportation of advanced technology to China. In the past, several Western companies such as Cisco have sold China specially designed equipment for building the Great Firewall. If these large, profit-seeking companies keep supplying the communist regime with advanced technology, the freedom fighters and their small companies stand little chance of winning the battle.

The third is funding and resources. The new consortium needs to find sufficient funding and resources to scale up its existing operations. The U.S. government and major foundations may not have fully recognized the importance of this battle for freedom in Chinese cyberspace. Funding these companies would be an intelligent move to help ensure Internet freedom for an enormous number of people currently under the thumb of an oppressive regime.

While Bill Xia and his friends have yet to overcome these hurdles, they will continue no matter what because they know that hundreds of thousands of Chinese Internet users like Lingling have put their hopes in them.

~~~ *Chinascop original* ~~~

*Xiao Tian is a correspondent for Chinascop.*

*Footnotes:*

1. *Ethan Gutmann, Losing the New China: A Story of American Commerce, Desire and Betrayal (San Francisco: Encounter Books, 2004)*

2. <http://www.dit-inc.us/report/hj.htm>

3. *Tencent QQ is the most popular free instant messaging computer program in mainland China.*