

China's New Internet Regulations: Two Steps Forward, One Step Back.

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Introduction

China's recent double-digit economic growth has impressed the world, but its telecommunications sector has been growing faster than the economy as a whole. Since 1989, telecommunications in China has been expanding at an annual rate of 30-50% [12]. Each year, about 10 million phone lines are added to the nation's public network. There are 6 to 7 million mobile phone users in China.

China has further attempted to develop and adopt cutting edge information technology. In a revealing indication of China's self-concept as a nation, it has launched its own "National Information Infrastructure" projects, generically known as the "Golden Projects," in response to NII initiatives in the advanced economies of the US, Japan, and Europe. At the forefront of China's NII initiatives is its desire to build up its own ubiquitous Internet.

Mixed signals, however, are emerging. In the midst of its ambitious expansion, China's government is trying to impose stricter controls on content and access. In January 1996, China's top civil authority, the State Council, announced regulations to consolidate the administration of all computer network-building activities and international interconnections under four government agencies [13]. Further, in February 1996 all Internet users were required to register with the Ministry of Public Security (MPS), an uncomfortable reminder to users that their activities may be monitored by police [14]. In September 1996, private Chinese sources and Western newspapers reported that access to about 100 Western Web sites were blocked to ChinaNET users [2, 4].

The developed, Western world has a difficult time making sense of China's uneasy relationship with information technology. Current interpretations tend to emphasize the authoritarian, restrictive aspects of China's recent Internet regulations. A more careful look at the background and details of the new rules, however, warrants a more moderate view. The new regulations are not as restrictive as many foreign observers think, and certainly not as restrictive as they could have been. In general, reform-era China's Internet policy and regulation follow precedents set by its treatment of other media, which can be described as an attempt to balance gradual commercialization and modernization with controls protecting the Communist Party's ideological and political dominance. The policy is designed to allow development to proceed while maintaining a residual capacity to prevent the use of media to mount direct, organized threats to the regime. Within this framework, there is surveillance and the potential for harsh repression, but there are also plenty of loopholes and a lot of unmonitored and spontaneous access to overseas and domestic content.

The Backward, But Quickly Improving Infrastructure

The Ministry of Posts and Telecommunications (MPT) is the official telecom service in China. The construction of the national trunk network falls under its direct control., although recently a second operator, China UNICOM, backed by the Ministry of Electronics Industries (MEI) and several other ministries, was authorized to compete in a number of national markets [12].

The MPT's national backbone network is based on optic fiber trunks and large earth stations that interconnect all 31 provincial capital cities. The networks within each province, controlled by MPT's local bureaus, are often a mixture of fiber optic trunks, microwave links, and coaxial cables. While the national network as a whole is relatively slow and often suffers reliability difficulties, it does provide coverage to all the county-level cities. The

MPT has allocated a large amount of future investment to upgrade its backbone in its ninth (1991-1995) and tenth (1996-2000) five-year plans. It will mainly deploy over 155Mbps SDH optic fiber systems and high-capacity satellite systems while 622Mbps and 2.5Gbps SDH systems have already been installed in some trunk routes.

The second national carrier, China Unicom, is still in its infancy. China Unicom has focused on setting up GSM mobile services in many large cities to establish a competitive edge, since mobile services tend to be quickly configured and also highly lucrative. However, establishing a national infrastructure to support voice and data communications has been included as one of China Unicom's near-term corporation goals. Another new company sponsored by MEI), JiTong Communications Corporation, has been constructing its own national data network in support of its Golden Bridge project by deploying VSAT satellite technology.

The Beginning of China's Internet

As in other countries, China's early computer networking efforts centered on research and education activities in the field of computer science. CAnet (China Academic Network), established in 1987, is generally cited as the first computer network in China [12].

Two other early, independent, sources of Internet development were the China Research Network (CRnet) and the Institute of High Energy Physics (IHEP). CRnet, established on a research project from 1987 to 1990, used an X.25 link to exchange information with global networks through the European Research Networks (RARE). IHEP, a member of the Chinese Academy of Sciences, set up a direct international leased line to the Stanford Linear Accelerator Center (SLAC) in March 1993.

The early Internet activities in China were academic operations concentrated on research and education. The central government paid little attention to this activity. But the global Internet fever of the mid-1990s awakened China's government and many other interests to the Internet's commercial potential. From 1994 on, projects and initiatives related to the Internet began to come out of the woodwork: from academic circles, governmental ministries, and commercial operators. Under the popular slogan of "economic informatization" promoted by the Golden Projects, many government organizations have created their own proposals to build national computer networks for internal usage [12]. Many of those networks could become commercial Internet Service Providers. In large cities such as Beijing, Shanghai and Shenzhen, local groups and entrepreneurs are already taking advantage of dedicated national networks to provide local commercial Internet access.

This diffusion was encouraged by China's more relaxed regulatory regime in data communications. China's MPT, the assigned regulator of telecommunications, classified the Internet as a "value added" information service. "Value added" services, according to MPT's regulations, can be provided by any qualified Chinese organization after registering with the MPT.

If they had been left to their own devices, Chinese organizations and businesses probably would have followed the model of competitive, decentralized development which has led to such rapid Internet expansion in many other nations. The involvement of all these organizations would have fostered quick, uncontrolled development of China's Internet. But China's central government, concerned about the implications of unrestricted development, issued two new sets of regulations designed to impose controls on the spread of China's Internet.

Regulations on the Internet

On February 1, 1996, the State Council issued Order No. 195, "Interim Regulations on International Interconnection of Computer Information Networks in the PRC" [13]. The regulations begin by assigning primary responsibility to the State Council's Leading Group on economic informatization instead of the telecommunications regulator, the MPT. This is not only because Internet regulation seems beyond MPT's telecommunications regulation territory but also because other involved ministries would not bend to MPT's decisions, given its direct involvement in service operation and its potential conflicts with other players. Thus, a

high-level and "neutral" organization, the Leading Group, has been authorized "to be responsible for the coordination and decision-making on the important issues of international interconnection"[13]. The Leading Group's General Office is in charge of "defining the rights, obligations and liabilities of international interconnection channel providers, interconnecting organizations, accessing organizations and users."

Order No. 195 divides China's Internet networks into two categories: Interconnecting Networks (INs) and Access Networks (ANs). The term "interconnecting networks" is a literal translation of the Chinese characters Fu(4)Lian(2), and refers to those computer networks directly linked to the Internet through international leased circuits. The State Council's directives order that all Interconnecting Networks must be controlled and administered by one of four organizations: the Ministry of Posts & Telecommunications (MPT), the Ministry of Electronics Industry (MEI), the State Education Commission (SEC), and the Chinese Academy of Sciences (CAS).

After this consolidating order from the State Council in February 1996, China's INs have been organized into four high-level national ones. The four networks are SEC's China Education and Research Network (CERNET), MPT's ChinaNET, CAS's China Science and Technology Net (CSTNet), and MEI's China Golden Bridge Net (ChinaGBN).

All Interconnecting Networks must go through MPT's international gateway. Currently, the number of INs is limited to the four listed above. But the State Council has not closed the door for all others permanently, since the provisions of the Order allows the State Council to approve new INs in the future.

Access Networks are those networks that indirectly connect to the international Internet. ANs are first required to obtain the connection through one of the four authorized INs. In Western parlance, ANs are Internet Service Providers. Though the original order did not require special licensing for ANs, Premier Li Peng on May 30, 1997 imposed new regulations requiring all units doing business related to the global computer network to apply for licenses.

In addition, the Ministry of Public Security (MPS) requires all Internet users to register with the MPS bureau in their locality. The authority for this decree was derived from the State Council's 1994 Order No. 147, "Security regulations for Computer Information Systems in the PRC", which stated that any computer information system should not put national security in danger, further authorizing the MPS to be in charge of the issue [14].

Currently individuals who want to set up an Internet account or even use a computer in an Internet cafe must first fill out the Police File Report Form which goes to the local MPS and to the provincial-level MPS Computer Security and Supervision Office. New users also need to sign a Net Access Responsibility Agreement in which they swear not to threaten state security or reveal state secrets or to do anything that "endangers the state, obstructs public safety, or is obscene or pornographic." Finally, if they are getting a dial-up account, they must provide their ISP with detailed information including the MPS permit number for their modem.[3]

While the new order does give MPS's local bureaus authorization to monitor Internet users, their ability to systematically implement such security has been doubted by many experts. MPS's local bureaus both lack the necessary equipment and skilled manpower to conduct such monitoring, needless to say that users have many technical alternatives to skip the monitoring.

Many observers focused on the police registration scheme and the blocking created by the new regulations. Another important restriction, not as well appreciated by foreigners but of equal or greater importance than the registration and blocking, was the requirement to use MPT's circuits for all international access. This is intended to increase the PRC's capability to monitor content and users while keeping MPT's monopoly of the international gateway. Without question, the new regulations represent an attempt to control and censor China's Internet. Indeed, it would have been utterly unrealistic to expect a government such as China's to completely refrain from regulating computer networks while many nations in the world are adopting some kind of content regulations [1]. But in many ways, the new regulations are more flexible than they might at first appear to be.

First, China's Internet has been officially recognized and "legalized" by the new regulations. The interconnection with international Internet has also been "legalized" under the control of the four government agencies. A more awkward decision could have shut down the connections to international Internet.

Secondly, diversity and competition has been recognized in the new regulations. There are four administering organizations of INs rather than one. The State Council recognized existing stakeholders, instead of forcing Internet activity into one centralized organization. This is an important indication that China's political process is not monolithic and that policy is a product of contending interests, not simply the political interests of the Chinese Communist Party. Further, the regulations permit authorization of new INs in the future, which may intensify the competition. There is no specific effort to centralize the ownership of ANs. Many different ANs can exist and compete. At the same time, each AN is held responsible for what their users access and many are engaging in their own filtering of Web sites and news groups.

Thirdly, the blocking of Web sites is mostly an attempt of "window dressing". There are many ways to get around the blocking. Not all "bad" sites can be blocked. The Chinese government understands this, but must make a public, visible effort to control it. The PRC wants to "raise the barriers" to prevent access to "subversive" content, but it knows that it cannot block it entirely. This is, to some extent, similar to efforts in the United States to technically block adult oriented Web sites from being accessed by minors while everyone knows that the total blocking of them is an unrealistic expectation.

Finally, the monitoring of users by the MPS is primarily a warning. The MPS cannot effectively monitor all the users both because of its limited means and manpower and because of technical difficulties. China wants a residual capacity to suppress dissidents and organized threats to its regime. However, China has to maintain most normal commercial, educational, and social uses to facilitate its economic and social development goals.

The Future of Academic Networks.

It is noteworthy that the regulations recognized two distinct academic networking activities, CSTNet and CERNET, as well as two major commercial interests, MPT's ChinaNET and MEI's ChinaGBN. This means that competition exists among INs, even within the nonprofit academic and research-oriented networks.

CSTNet is under the administration of the Chinese Academy of Sciences (CAS). CAS's Computer Network and Information Center(CNIC) is actually running the CSTNet. CSTNet has a supercomputer center in Beijing and a 64K leased international line to access the international Internet. Its domestic communication facilities are leased from the dominant telecommunications operator, the MPT. CSTNet claims that its core purpose is to "serve scientific research and technology progress" in China [8]. Its backbone is the national network of the Chinese Academy of Sciences (CASnet) which interconnects the hundreds of CAS research institutes throughout China. Additionally, CSTNet is trying to include other academic institutions outside of the CAS.

China's educational and research network, CERNET, has hooked up more than 200 universities through 8 regional centers. This was achieved in less than three years after its launch in 1993 [11]. Initiated by China's State Education Commission (SEC) in 1993, CERNET is modeled after the United States' NSF backbone project of the mid-1980s. It proposes to build a nation-wide backbone with international links, eight regional networks and more than 1,000 campus networks. Its goal is to link all of the universities in China in the near future and to connect high schools, middle schools, primary schools and other education and research entities by the end of the century. Recognizing the commercialization trend underway in the global Internet, CERNET's developers claim that "CERNET has its unique and irreplaceable status among all the Internet competitors in China. We believe CERNET will greatly improve the education and research infrastructure in China and train network experts as well as experienced network end users. In a word, it will help to boost China's education, research and economic developments." [11].

CERNET's nation-wide backbone and international connections will be fully funded by the Chinese government through the State Planning Commission, China's National Science Foundation, and the State Education Commission. Eight regional networks and campus networks will utilize funds from local universities and other

local organizations. A quite surprising feature, found by interviews with end users, is that some campus networks are adopting a usage sensitive scheme to charge their academic end users. Some experts have argued that this charging system has specifically limited Chinese users' international outgoing traffics, which might retard their information exchange with outside world. Others see it as a significant means to partially fund the expansion and local area networks and the extremely expensive international links as well as to successfully avoid the congestion.

By leasing from the MPT, CERNET's national backbone bandwidth ranges from 64Kbps to 2.048Mbps (E1). It has a 2 MB connection to the global Internet through Global One and also has connections to the German Research Network (64 Kbs) and to Hong Kong's City University (64 Kbps).

The functions of the two academic Interconnecting Networks overlap to a significant extent. Which one will be dominant? CAS's Computer Networking Information Center has been chosen by the State Leading Group to control the ".cn" national domain. The strength of the Chinese Academy of Sciences is its technological talent. The CAS does not, however, have direct administrative ties to other Chinese academic and research institutions. That may undermine its ambition to become a national leader among academic networks. Additionally, it is not clear whether CAS can secure the funding required to support a high-speed national backbone.

CERNET, on the other hand, has its administrative home in the State Education Commission (SEC), which directly or indirectly administers all of the Chinese universities. CERNET already has faster national and international links than the CSTNet, and it has firm commitments from the SEC for continued funding of backbone facilities. CERNET controls the delegation of all domain names under ".edu.cn" and is well positioned to lead China's academic networks.

The Future of Commercial Networks

In the commercial sector, as in the academic sector, China's State Council recognizes two competing interests. Commercial Internet developments have been drawn into the rivalry between the MPT and the MEI, over who will control the country's information superhighway.

MPT's ChinaNET

The MPT has a de facto monopoly on China's telecommunications services, with the new competitor, China Unicom (Lian Tong), just beginning to move into this sector in 1994. The MPT is not satisfied with being a "carrier" for China's Internet. It also intends to get into the service business and become the dominant commercial Internet Access Provider. The MPT is currently in the process of creating its own commercial Internet Service Provider, ChinaNET, run by the MPT's Data Communications Bureau (DCB).

ChinaNET started its trial services in large cities including Beijing and Shanghai. The Beijing Telecommunication Administration (BTA), started to offer Internet access in Beijing municipality in the Spring of 1995. Thousands of users were reportedly joining the service each month. The PTA in Shanghai experienced a similar growth rate. The PTAs appear to be targeting corporations and affluent individuals.

ChinaNET's provide services in all 31 provincial capital cities [6]. Its 256K international link from Beijing is operational. The international link from Shanghai has been established and the link from Guangzhou will be added soon.

MEI's ChinaGBN

The other commercial network approved by the State Council to become a national Interconnection Network is MEI's China Golden Bridge Network (ChinaGBN). ChinaGBN is an outgrowth of the widely publicized "Golden Bridge Project," an attempt by the MEI to create a national data networking backbone connecting all the

major commercial centers in China. Currently, the long-distance backbone mainly relies on VSAT technology with Beijing as the center and 24 large cities as local nodes [5].

After a trial operation of one month, ChinaGBN began service to the public in September 1996. With the help of the US company UT Starcom in Connecticut, ChinaGBN installed a 256Kbps international link in Beijing. ChinaNET and ChinaGBN are currently the only two approved commercial Interconnecting Networks in China. ChinaNET is obviously in a better competitive position because of MPT's near-monopoly position in the telecommunications industry and its ability to use MPT's nation-wide backbone as a platform. However, a shortage of technical talent and limited experience in Internet-type information services has retarded ChinaNET's expansion. On the other hand, ChinaGBN's owner, Ji Tong Corporation, has close ties to the electronics industry which may be a source of expertise.

There are many other commercial and non-profit computing networks under construction, including numerous Internet Service Providers (ISPs) in large cities. They all fall into China's Access Network category. In early 1997, the APNIC database, which is responsible for China's domain name registration, registered 603 networks with sub-domain names under the country domain CN. Among them, 32 are self-defined as Internet Service Providers. China's Internet began its growth in 1994. By the end of 1994, a conservative estimation of total users is 1,600. In 1995 there were 6,400. By early 1997 MPT's ChinaNET had about 200 access networks and 41,000 users; China GBN had about 40 access networks and 2,000 users; CERNET had about 200 campus networks and 24,000 users; while CSTNet had about 100 campus networks and 12,000 users.

China's Dilemma: Economic Informatization vs. Information Control

Underlying China's embrace of the Internet are several theories which center on the role of information technology and its application in economic development. The idea that science and technology promote economic development has been endorsed both by the former Party leader, Deng Xiaoping, and by the current leaders, Jiang Zemin and Li Peng. Information technology is regarded as the main driving force toward future economic development in China [9]. "Economic informatization" is universally accepted within China's ruling regime as a process that should be promoted and accelerated.

Nevertheless, "economic informatization" brings with it the risk that the central government might lose control of the flow of information. The improvement of communication networks makes organizations and individuals more capable of collecting, processing, and distributing the kind of information which used to provide China's central government with the leverage to maintain its controlling position. Equally important, the Internet enables users to easily and inexpensively communicate with the international community. Thus, given the strong differences between the political, economic, and cultural systems of China and foreign countries, international access poses a serious threat to China's system of government.

China's government has chosen two methods to deal with this threat. One is to allow a limited number of INs and to require all INs to use MPT's international gateway facilities, so that they can be more easily monitored and accounted for. The other approach is to block certain Western Web sites. As China becomes more familiar with advanced technologies, it may deploy more efficient means such as content-filtering and user-selected blocking to allow some users full access but to deny such access to others [15]. While China's content controls have been criticized by some Westerners [4, 10], they have been welcomed by many domestic players, especially local Internet Service Providers (ISPs). According to a CINET-L report on March 3, 1996, several Chinese ISPs regard the State Council's Order No. 195 "more of an opportunity than an obstacle" [7]. By publishing the new regulations and blocking certain foreign Web sites, the Chinese government has "legalized" the existence of Interconnecting Networks and Accessing Networks. This should be taken as a positive indication that the government is attempting to retain the advantages of Internet expansion while technically eliminating the so-called "anti-government activities" and "spiritual contamination" that may come with it.

The extent of China's blocking and censorship practice will fluctuate with China's domestic political environment and the general reform process. Some news reports have noticed China's very recent un-blocking of several news

Web sites, including CNN, while most politically labeled sites remain on the blocking list. Technical advances and economic allurements will keep China's Internet connected to the world.

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