The Political Economy of Governing ISPs in China: Perspectives of Net Neutrality and Vertical Integration (forthcoming)

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THE POLITICAL ECONOMY OF GOVERNING ISPS IN CHINA

Perspectives of Net Neutrality and Vertical Integration

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ABSTRACT

Internet service providers (ISPs) have played an important role in the Internet regulation regime of China. This article illustrates how ISPs are governed to serve the government’s regulatory goals. The task of explanation involves examining some of the most extraordinary and profound insights concerning the Internet governance, that is, the theories of Layers Principle, the End-to-end Argument and the Generative Internet. Chinese ISPs have been the dependent rather than neutral regulatory intermediaries of the government. Moreover, in addition to telecommunication carriers, the radio and TV networks affiliated to the State Administration for Radio, Film and Television (SARFT) are to become a new type of ISP that is capable of choking free spirit of the Internet as recently demonstrated by the far-reaching policy of “network convergence.” This article argues that the policy has a great potential to drastically alter the structure and ecology of the Internet in China.

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I. INTRODUCTION

Internet service providers (ISPs) have played an important role in China’s Internet regulation regime. They can be roughly divided into two categories based on business scale: backbone ISPs and last-mile ISPs. Backbone ISPs own independent gateways connected to the international Internet and outsource the last-mile access business to last-mile ISPs. At present, China has seven major backbone ISPs, running three commercial networks—China Telecom, China Unicom and China Mobile, and four public service networks—CSTNET, CERNET, CIETNET and CGWNET. In this article, I will illustrate how these two kinds of ISP are governed to serve the government’s regulatory goals. Drawing the contours of ISPs’ daily operations is far from enough to fully understand the intent and logic of Internet regulation by means of ISPs. The task of explanation involves some of the most extraordinary and profound insights concerning Internet governance, that is, the theories of Layers Principle, the End-to-end Argument and the Generative Internet, which to a certain extent justify the regulations in favor of net neutrality. Although these theories have not been applied in any literature to Chinese Internet, I believe they will prove to be powerful tools and useful perspectives to cast a light on the status quo of Chinese Internet regulation. Chinese ISPs have been the dependent rather than neutral regulatory intermediaries of the government. Their political actions and commercial behaviors can compromise the function of Internet as an open and innovative platform for culture production, free expression and creative industry. Moreover, in addition to telecommunication carriers, the radio and TV networks affiliated to the State Administration for Radio, Film and Television (SARFT) are to become a new type of ISP that is capable of choking the free spirit of Internet as recently demonstrated by the far-reaching policy of “networks convergence”. The latent effects of this policy remain ignored by the academia. This article argues that the policy has a great potential to drastically alter the structure and ecology of Internet in China.

This article proceeds as follows. Firstly I will summarize the legal obligations and daily operations of ISPs in Part II, with an emphasis on the mechanisms of the Great Firewall. Parts III and IV start with the theories of Layers Principle, the End-to-end Argument and the Generative Internet, and then proceed with two cases of VoIP and P2P in Chinese context. Based on all these, in Part V, I take the
SARFT as an example to show the problems and regulatory implications of the “networks convergence” policy, especially identifying a perfect model of Internet control without check and balance. Finally I will summarize the findings of each part and their significance.

II. LEGAL OBLIGATIONS OF ISPS AND THE IMPLEMENTING REGIME

A. GFW at National Level

In China, ISPs assume heavy and important responsibilities of Internet regulation. Both backbone and last-mile ISPs are responsible for online content blocking and filtering. At the national backbone level, the state asks its managing agents to apply blocking and filtering technologies to the international gateways to prevent domestic users from visiting certain foreign sites and foreign users from visiting certain domestic sites. Such actions are primarily taken in major cities such as Beijing, Shanghai and Guangzhou, where most international gateways are located. The set of hardware and software of blocking and filtering is known as the Great Firewall (GFW).  


allowed to visit and what information to obtain. In practice, more and more people are aware of the GFW and bothered by it, although some of them cannot distinguish governmental manipulation at the back-end from pure technical mistakes. However, only a small number have the incentive to browse “across the wall.” For these tech savvies, it is fairly convenient to circumvent the GFW with free proxies or software that are readily available on the Internet; For those who are politically insensitive, they can live quite well with business and entertainment contents provided by domestic sites.

The primary goal of GFW is to block free flow of information and facilitate the formation of a “local net” or “intranet”. Compared to telephone and telegraph, the Internet is unique in that its operation relies on the physical facilities and technological code. By blocking and filtering at the international gateway at national level, the Chinese government has created one basically “clean” virtual sphere in its own hands. Even if a Chinese netizen gets around the GFW, it is unlikely for him to spread any blacklisted information domestically on a large scale due to the inspection of last-mile ISPs at local level.

B. ISP Censorship at Local Level

While the GFW is directly managed by the central government, domestic practice of Internet censorship lies with local government. Several laws have ruled that ISPs shall be held responsible for the information security within their own networks, including keeping the original records of user behaviors and reporting to the police on time, the same obligations as those of the websites. These obligations elevated the level of self-censorship by ISPs. As in the case of the GFW, local last-mile ISPs apply a blacklist of key words and websites prescribed by local governments to routers or main nodes covering one or more administrative jurisdictions. Since local blacklists substantially vary, the self-censorship

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3 It is analyzed that many netizens were more fond of browsing the overseas news republished by others rather than go across the GFW themselves. See Tian Lu and Yao Yao, “The War of GFW,” Phoenix Weekly 2009 (2).
4 However, the government is still able to order the domestic software manufacturers to kill such circumventing software as virus or malware. For example, Freegate, a kind of popular software among Chinese netizens is regarded as virus by almost all antivirus software in China.
7 E.g., Computer Information Network and Internet Security Protection and Management Regulations, article 10; Telecommunications Regulation, article 62.
regime causes a split-up of Internet among towns, cities and provinces. In case of emergency, provincial
governments can order a cut-off of communication networks linked with other provinces.

In addition to the state laws and regulations, backbone networks are subject to different
governance structures based on their respective natures. Non-commercial networks (i.e., public service
networks) are vertically governed by sectoral regulatory authorities (such as Ministry of Education and
Chinese Academy of Science) that also act as the main content regulators. Due to the relatively small
number of users primarily composed of teachers, researchers, students and soldiers, it is relatively easy to
exert control. By contrast, commercial networks are operated by telecom companies and horizontally
supervised by the telecom agencies of local governments, while the information flowing over the Internet
is governed by other special content agencies.

The two distinct patterns of network governance correspond to the universal government structure
of tiao-kuai (vertical-horizontal, 条-块) system in China. On one hand, the tiao (vertical) governance of
non-commercial networks by the sectoral regulatory authorities ensures the exclusive control over their
proprietary networks (primarily in the education sector) including content regulation and technical
maintenance. For example, the Ministry of Education can control any information flow among the inside
and outside users of The China Education and Research Network (CERNET), and purge any information
deemed harmful or illegal at its sole discretion. On the other hand, the kuai (horizontal) governance of
commercial networks by local telecom agencies demands self-censorship on the part of ISPs and
cooperation in content regulation among local agencies of several sectoral authorities. While backbone
ISPs’ subsidiaries and numerous last-mile ISPs impose self-censorship over Internet content on a daily
basis, local telecom agencies coordinate “comprehensive strikes” against unlawful Internet content among
several sectoral regulatory authorities on a periodical basis (a distinctive nature of kuai governance). In

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8 It should be kept in mind that Chinese Internet consists of commercial and non-commercial backbones. Commentators often either mix them up or simply ignore the existence of non-commercial backbones. As a result, they may lose sight of the basic regulatory style of the government and make mistakes when studying, for example, the real name system in university BBS. For more details, see Hu Ling, “The China Education and Research Network (CERNET),” supra note 1; Hu Ling, “Real Name System on the Internet: Origins and Practices,” Internet Law Watch, 2007 (8).
9 Hu Ling, “Real Name System on the Internet,” ibid.
10 For non-commercial networks’ obligation, see Coordination Measures of Management on Internet Websites (Feb. 17, 2006); for commercial networks’ obligation, see Telecommunications Regulation, Chp. V.
these official comprehensive strikes, ISPs are heavily relied on to implement the clearing of harmful information, spam, virus and malicious software. For example, the MII will first send a notice to backbone carriers, requiring them to deal with the unlawful content within each network. Then the “self-censorship” or internal examination by ISPs is achieved through technologies such as key words filtering, IP filtering of harmful sites and spam senders, closing illegal sites at request of other government sectors, or certifying user’s information and trusted servers. Finally the ISPs will be assessed according to their behaviors after the campaign.11

It is especially noteworthy that all Chinese content regulators tend to secure an absolute control from the pipes to end devices without any check and balance, either vertically or horizontally. As I will demonstrate later, China’s regulatory approaches to the virtual world are essentially the same as in the case of its traditional governance of the real world. Before we elaborate this point, which is crucial to our understanding of Chinese Internet regulation, it is necessary to introduce several basic theories of Internet governance.

III. END-TO-END ARGUMENT, LAYERS PRINCIPLE AND THE GENERATIVE INTERNET

The Internet can be viewed both as inter-connected computers and as a set of technological layers. Three decades ago, the basic principles of Internet’s structure were initiated to better serve people in constructing future networks. One of the principles was “End-to-end,” proposed by three MIT computer scientists in 1984.12 End-to-end refers to such system device, in which “the function in question can completely and correctly be implemented only with the knowledge and help of the application standing at the end points of the communication system.” That means the conduits within an ideal system design should solely focus on data transmission, leaving data correction and main functions of the system to end devices. Similarly, in an ideal computer network, the pipes and cables transmitting data should not

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11 The Notice of MII on the Special Measures of Legally Striking Internet Pornography (2007). All leading backbone carriers are the members of the special striking leading group.

interfere with the function of end applications. All they need to do is to ensure the correctness and security of information transmission. The End-to-end principle ensured the flourish of Internet during the early age of its development, because all innovations can be experimented at the edge of the Internet without any interfere from the central.

Another was the Layers Principle, which claims that the Internet can be divided into several layers. Each layer should have its own special function and it is inefficient and problematic to interfere into one layer for sake of another. There are usually three layers: the content layer, the logic layer and the physical layer, which form an hourglass model of the Internet. The content and physical layer should develop respectively, while the logic layer such as TCP/IP protocol should be kept simple to facilitate data transmission. In this ideal structure, the numerous end users are encouraged to innovate and produce various contents through personal computer (PC) and operation system (OS) at the periphery of the Internet, without worrying about being prohibited or blocked. Eventually a generative Internet will come into being, creating more and more prosperous economies and cultures in cyberspace. From the viewpoint of freedom of speech, the Internet should not be controlled by ISPs as a common carrier for telecommunication. People are entitled to the freedom of expression even on the privately owned information networks, because these networks usually functions as part of the national infrastructure. Despite of the security problems caused spontaneously by the same structure such as virus and cyber-attack, the better solution should be to launch reforms at the end device rather than the middle.

These theories induced a public policy debate called “Net Neutrality” in the United States since 2000. With respect to the blocking behaviors of end software applications by several cable broadband

carriers (including Madison River and Comcast), the Federal Communication Commission (FCC) and Supreme Court ruled that cable providers (different from dial-up ISPs) should not resume the liability of common carriers under Title I of the Telecommunications Act of 1996, and therefore were allowed to discriminate end applications and expressions at their discretion. In response, certain advocates of Net Neutrality proposed legislation to make sure the Internet was neutrally and non-discriminately managed.\textsuperscript{19} Besides the Constitutional justification, the debate mainly focused on economic efficiency. Those who favored Net Neutrality argued that the discrimination on the part of broadband ISPs would destroy an open platform for mass innovation.\textsuperscript{20} They urged the government to regulate cable ISPs to the extent of providing a basic protection for end innovation. On the contrary, the opponents upheld a solution of vertical integration of conduits and end-devices, which was in favor of innovation by last-mile ISPs as opposed to innovation by end users. As long as the market of Internet access is competitive, they argued, both innovation and efficiency could be fulfilled by vertical integration.\textsuperscript{21} As a matter of fact, both sides acknowledged that competition was necessary for a flourishing Internet. The fundamental difference between the two sides of arguments is how to handle the relationship between upstream and downstream markets, e.g., innovation by end users or ISPs.

\section*{IV. NET NEUTRALITY IN CHINESE CONTEXT}

The policy implications of the aforementioned theories include, the telecommunication carriers should either remain neutral for the purpose of promoting various values such as culture production, creativity and freedom of speech, or fully compete in the last-mile market for the purpose of promoting innovation by them. When we have a closer look at Chinese Internet regulation, a third trajectory emerges against the original intentions of Internet architecture. Before evaluating the conflict between regulation and the ideal Internet architecture in China, I will examine how such conflict happens and where it is going from two dimensions of the ISPs’ behavior.

\textsuperscript{19} For an overview, see Nunziato, \textit{Virtual Freedom}, supra note 16.
Firstly, the political behavioral pattern. As illustrated in Part II, Chinese ISPs are far from neutral, because the backbone carriers are all state-owned enterprises. The MII and ISPs are mandated by law to cooperate with special content regulators such as the SARFT and Ministry of Culture (MoC); they “monitor the harmful information on the Internet and harmful SNS with information security technology and the network platform, and punish those websites that run illegal businesses or spread harmful information.” On a neutral Internet where the digital trace of “harmful” information is protected as privacy, it must have been hard for special content regulators to fulfill their political tasks. Thanks to the dependent ISPs, special content administrators can easily block the data containing sensitive key words and locate the distributors of such data; they can also easily control end users and ICPs by directly controlling these intermediaries. They utilize one layer of the Internet to control contents of another. ISPs are key to filtering the huge amount of sensitive words on the blacklist. Under such circumstance, Chinese ISPs are more political than commercial.

Secondly, the commercial behavioral pattern. Although the ISPs have little incentive to block harmful information, they are apt to block end technological innovations that may harm their commercial interest or directly compete with their telecommunication businesses.

A well-known example is the Fu Zhou VoIP case of 1998. In 1997, the Chen brothers in Fu Zhou used the net2-phone software to provide overseas VoIP service to the public at a much cheaper price than traditional IDD. The police arrested the Chen brothers and seized all their assets at request of local bureau of telecommunication for the reason of national interest and normal market order. Chen brothers sued the police in an administrative litigation. Although the trial court dismissed the action on procedural ground, the court of appeal decided in favor of the brothers that VoIP is essentially a computer information

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23 One 2007 case in Shanghai manifested such dilemma. The personal site of the plaintiff, Mr. Du Dongjin, was set in a foreign server and blocked by Shanghai Telecom by mistake. Mr. Du not only wanted the site restored but also required to reveal the secret black list and mechanism behind. Of course the court would not give him such an opportunity to challenge GFW and decided in favor of the defendant that the contract between two sides did not “warrant the plaintiff to successfully visit any particular website” and the defendant was obvious irresponsible. See Civil Judgment of Pudong New District People’s Court of Shanghai (2007) Pu Min Yi (Civil) Primary No.6518, http://picasaweb.google.com/yetaai/ChinaInternetCensorshipLawsuitAgainstChinaTelecomByVetaai#.
24 For example, the strikes against harmful information might reduce the interests of the users directly and thus the value of their networks indirectly.
service that is technically different from traditional telephone service, and therefore should not be monopolized by the government for its own interest according to the existing policies.\textsuperscript{25} The landmark decision declared the bankruptcy of telecommunication agency’s intention to monopolize VoIP by legal means, but failed to stop the agency from building its de facto technological monopoly.\textsuperscript{26} Very soon the MII fought back. First, it decided to license all the computer information services so that all future new innovations would need the official approve. Second, directly against the court’s decision, the MII ruled VoIP and fax service through the Internet were the only exception of information services, thus totally prohibited any such practice by non-official parties.\textsuperscript{27} Third, in 2000 it decided to “open” VoIP service market and began to issue licenses. However, only the five state-owned telecommunication carriers are qualified to obtain such licenses.\textsuperscript{28} The MII also restricted the localities for VoIP experiment to only a few cities. The process of VoIP experiment is long and slow due to such restrictions, and VoIP has yet to grow to a mature industry in China after a decade. Meanwhile, private capital is never allowed to invest in VoIP.

Another example involves Peer-to-Peer (P2P), a technology allowing Internet users to share files among their PCs directly. It is widely reported that major telecommunication carriers including China Telecom, China Netcom and China Tie Tong have blocked, or limited the speed of, the use of P2P software such as Bit Torrent in several cities on the ground that such software occupied too much bandwidth at the cost of ISPs.\textsuperscript{29} It is a reasonable concern. However, from the perspective of net neutrality, the ISPs should not block any legitimate innovative software and applications only for their own sake. It is realized that the productive way to deal with it is not to outright ban P2P software, but to increase bandwidth accordingly or implement a QoS (Quality of Service) policy to differentiate users of different

\textsuperscript{25} Administrative Verdict of Fu Zhou Intermediate People’s Court of Fu Jian Province (1998) Rong Xing Final No.76.
\textsuperscript{26} For a comment, see Zhou Qiren, “Thanks to the Chen brothers: comments on the Fu Zhou IP telephone case,” in Shuwang jingzheng: zhongguo dianxinye de kaifang he gaige (Competition Among .Coms: openness and competition in telecommunication industry of China) (Beijing: sanlian shudian, 2001).
\textsuperscript{27} Notice Concerning Questions Relating to the Operating Permit System for International Connections Business of Computer Information networks (Sep.18, 1998).
\textsuperscript{28} Notice Concerning Opening the IP Telephone Business in our Country (Mar.2, 2000).
\textsuperscript{29} Although the backbone carriers officially denied the accusation, many local netizens found useful proof and posted in the forums. For example, Li Baiqing, “Tie Tong Blocked BT officially,” http://www.tianya.cn/publicforum/Content/it/1/324611.shtml.
bandwidth at different prices. The real danger lies in the carriers’ capacity of suffocating any innovations such as P2P that may conflict with ISPs’ interest.

It is commonly believed that basic service providers (access business) should be entrusted with more responsibilities than value-added service providers (information business), for example, the former are obliged to ensure fair access and nondiscrimination while the latter do not have such obligation. The Chinese Telecommunications Regulation of 2000 also divides telecommunication business into basic and value-added service, but does not impose distinctive duties on service providers accordingly. What’s more, the state-owned broadband ISPs are free to provide both basic and value-added service, which always brings monopoly in both upstream and downstream markets. If there is any value-added ICP having conflicting interests with them, they could discriminate any content and end-application at their discretion. It is also impossible for the lawyers to reason based on the division between broadband provider and dial-up provider as in the U.S. laws. The flaws of Telecommunications Regulation provide excuse for illegal behaviors such as P2P blocking to take place once and again. The latest proposed Telecommunications Law still does not make the distinction to solve that problem. The future practice is still unclear.

V. RETURN TO THE REGULATING MODEL: THE CASE OF THE SARFT

A. Model of Perfect Control

We can now go back to the question proposed at the end of Part II: what is the regulating model of Chinese Internet governance? What is the role of ISPs in this model? From the perspective of online-offline parallel, the tiao-kuai management regime in real world is applied to the cyberspace. If the parallel only reflected old characteristics of the regime, then a perspective from the nature of the Internet could

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30 According to CNNIC, since 2003, the number of broadband access users has been rapidly increasing. To mid 2009, the broadband users reached 346 million, that is, 90% of the total amount of Chinese netizens. All ISPs tried to develop broadband access business and the traditional dial-up access service almost disappeared. The Telecommunications Regulation does not make any distinctions between different access technologies and ISPs like broadband provider and dial-up provider, which is now even unnecessary. See CNNIC, The 25th Statistical Survey Report on the Internet Development in China (January 2010), http://www.cnnic.net.cn/html/Dir/2010/01/15/5767.htm.

31 See draft article 44.
provide us a new theoretical model which is more powerful in explaining the regulatory intent and behavior of Chinese government.

Due to the prevailing fear of subversion the government, content regulation and information security are first priorities to Chinese leaders. Special content regulators tighten the restrictions over the objects under close observation. Such intent does not change much in comparison with the offline practice. Take license for example. Every special content regulator tried to licensed online professional information such as news, publication, videos and games. Through such action, the government can raise the market entry threshold and meanwhile facilitate the daily supervision and management of these content industries. Once the amount of players is limited, the government can maintain the absolute influence. As for the scattered information and personal sites outside their realms, they can rely on the unneutral ISPs for help. The easiest way to regulate these chaotic sites is to shut down the sensitive and uncooperative ones for a period of time, especially during the important days such as Birthday of CCP and National Day, which has become a natural political custom of local governments.

However, these means are far from enough for special content agencies, with the conduit in the hands of an independent agency (i.e. MII). In order to supervise online information and behaviors, the regulators not only need a set of executive staff, but have to control the whole information system as much as possible. Each execution of power has to do with the platform, infrastructure, standard, market and information, namely, all layers of the Internet. Because the information of regulatory objects can be collected through network platform, it is natural for the regulators to establish their own management system.

What’s more, cooperation between different agencies usually involved high transaction costs such as refusing to cooperate. That’s why the central government launched the comprehensive movements one after another. If the Internet did not exist, or the amount of the websites was growing slowly, or all websites were clearly classified by contents and licensed by different regulators, the business of regulation would have been much easier and more efficient. However, the convergence nature of new media makes it quite difficult to control online information in a traditional way, if not impossible. But the
regulators’ partial interests make them reluctant to deregulate. Thus the establishment of independent information system is the best choice to solve the cooperation problem.

Therefore, in the digital age, if the points of information flow are controlled in the same hand, the situation so formed is called vertical integration, the same strategy applied by the ISPs. Through this kind of administrative vertical integration, regulator can supervise the information flow at any point. It is obvious that such idea emerged in the minds of Chinese leaders of different agencies. The most ideal situation is to control a vertical closed system, which not only brings huge profits from the monopoly industries and prevents intervening from other agencies, but enables them to enhance the information security protection and construction of content industry. They will own the power to set rules on industry standard, management platform, market entrance, regulatory object’s information and service through end product. Once the state power is combined with commercial interests without any check and balance, the corruption can easily occur. Worse, the whole market of idea, free expression and creative commons would be intervened and censored through the infrastructural control. Unfortunately, China is undergoing such a process and moving fast towards an uncertain future. We can find such an evolutionary trajectory clearly in the developing process of radio, movie and TV industry. The practices of the SARFT have exemplified perfectly the policy of vertical integration over the Internet.

B. The Problem of the SARFT

The SARFT is a special content regulator which used to control a considerable proportion of people’s spiritual products in the history of People’s Republic of China. Such control is mainly achieved by tight censorship and active propaganda. From the early 1980s, the broadcasting department underwent the same commercialization reform as other media regulators. Local governments have the power and incentive to build their own radio and TV networks (RTNs). They also invested in TV programs, especially satellite TV and cable TV, to promote local economic interests. At that time, the

32 For more discussions of the SARFT’s role, see Yuezhi Zhao, *Media, Market, and Democracy in China: between the party line and the bottom line* (Urbana, Ill.: University of Illinois Press, 1998); Irene S. Wu, *From Iron Fist to Invisible Hand: the uneven path of telecommunications reform in China* (Stanford, Calif.: Stanford University Press, 2009), Chp. 3.
SARFT was still capable of exerting considerable control over the contents conveyed in local RTNs by issuing injunctions to ask local radio or TV station to stop playing certain indecent or illegal programs *ex post*.

The Internet brings great challenges to the SARFT. One challenge comes from the netizens. The Internet empowered the ordinary people with generative tools to create their own amateur culture without official gatekeeping and censorship as in the professional cultural production industry. The multiple online channels for videos broke the uniform authority of the SARFT. It becomes difficult for it to regulate the contents transferred through the Internet as traditional RTNs. The responding measures of the SARFT include licensing the special video sites, raising the market threshold through controlling the source and amount of venture capital, launching special strikes all over the country and advancing cultural industry. Because these video sites are directly connected with the commercial ISPs, the SARFT can only ask the sites to conduct self-censorship, implying it can impose limited influence on them.

The other challenge comes from the ISPs and the MII. In the late 1990s, many ISPs saw the great profit of IPTV, a kind of innovative business that combines TV broadcasting and other interactive services on a uniform platform, which is more convenient for the audience than traditional one-way TV broadcasting. The telecommunication carriers began to build digital video platform and provide radio and TV services on the Internet through P2P technology before any relevant regulation came out. Besides great profit, another reason to invest in IPTV is that the nascent online content market was small. The ISPs were seeking new business opportunity in order to attract more users. Nothing could be more attractive than IPTV, while such business of course infringed the monopoly interests of the SARFT.

To be sure, the ownership of the communication network plays a vital role in the regulatory games in China. It has been well established that the ownership of the mass media weighs much in content selection and the formation of public opinion. The ownership can even affect the values of freedom of speech and democracy.\(^\text{34}\) The problem remains the same in the digital age. Although the ordinary people are empowered with the ability to challenge the large incumbents, the latter still has the

power to dominate the public discourse by means of vertical integration of mass media. In the United States, the danger of convergence of three layers of the Internet has been recognized and alerted, but it is difficult to advance the net neutrality principle immediately.\(^{35}\) In China, the ownership also matters, only performing in different forms. As is known, like telephone line, radio and TV station, and satellite antenna, telecommunication infrastructure has been state-owned asset from the scratch for the reason of information security and monopoly interest. At the national level, backbone ISPs are supervised by the MII, while the last-mile ISPs are under supervision of local authorities. Because the MII is not responsible for any content regulation and is mainly in charge of technological and business issues, it lacks incentives to regulate the end users unless their behaviors threaten their economic interests. However, different from the MII, agencies such as the SARFT resume three-fold tasks: to promote the socialist culture, to make profit through the RTN and to defeat the harmful information and contents. It has to control the RTN from the conduit to end device for its own sake. If the network was taken away from its hand to a more “neutral” agency like the MII, it will lose quite a lot of profit and power. That’s why the SARFT has always been opposing any proposal that attempts to let the MII take over the RTN, although the latter could make it more efficient and profitable.

During the telecommunication reform of 1998, the proposal of “convergence of three networks” (san wang heyi or san wang ronghe, 三网合一或三网融合) was first brought forward to the decision makers in the State Council. “Three networks” refer to the telecommunication network, RTN and the Internet. The policy goal is to put all three networks together technically and build a uniform network supporting telephone, video, email and various kinds of communication. The advantage of such plan is to avoid low-level repeating construction and waste of resource to make full use of digital technology and broadband and to provide more high quality services and programs. Obviously, the MII mastered advanced information technologies and has the incentive and advantage to embrace the RTN to a uniform network. It can easily combine the telecommunication and computer networks together, which has been

\(^{35}\) Lessig, The Future of Ideas, supra note 14; Mark Cooper, Media Ownership and Democracy in the Digital Information Age (Center for Internet and Society, Stanford Law School, 2003).
launched through its 3G plan in 2009. But the reform in radio and TV system has fallen behind because of the large bureaucracy and its disadvantageous technology.

C. The History of Conflict between SARFT and MII

The conflict between the SARFT and the MII took place at the end of 1990s. As the ISPs were taking advantage of IPTV, the SARFT was irritated and refused to cooperate with the ISPs. Very soon such behavior of providing IPTV service was prohibited by a joint regulatory document issued by the SARFT and the MII. In fact, when the MII was newly established in 1998, several power of the SARFT were decided to be shifted to the hands of the MII, especially the power of planning, managing and technological standard setting of the TV network (both wire and wireless).36 But the SARFT decided to ignore these arrangements and still held the relevant power until present day. Later in October 1999, the SARFT issued another notice confirming that “any radio, movie and TV program transmitted through various information networks (including the Internet) within the national territory must be submitted to the SARFT for approval.”37

In reality, the practices of all kinds of IPTV could not be banned thoroughly because the users preferred it to the traditional TV set both in its broadcasting speed and high quality. The local governments also supported such creative business for the sake of huge profit.38 As the ISPs began to upgrade the telecommunication networks to broadband conduits, the business of IPTV was even more welcomed. The SARFT had no choice but to build robust digital networks by itself to compete with the ISPs. On one hand, under the shelter of content security, the SARFT tried hard to develop digital TV (DTV) networks to replace IPTV in spite of a series of difficulties such as money, the uniform digital technology standard, and the cooperation from local agencies.39 On other hand, it issued several

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37 The Notice of The SARFT on Strengthening the Management of Radio, Movie and TV Programs through Information Networks (October 1999).
38 In practice, there are mainly three typical models for IPTV, which are developed in Shanghai Hangzhou and Qingdao respectively. For a critical review, see Yu Hui et al., “Study on the regulatory policy of convergence of networks,” in Yu Hui (ed.), Gonggong zhengce yanjiu baogao ji I (Collections of Public Policy Research Report I) (Hangzhou: Zhejiang University Press, 2008), pp. 36-48.
39 Zhou Yan, Zhongguo shuzi dianshi chanye zhengce de xingcheng yanjiu (Study on the Formation of the Policy of Digital TV Industry in China) (Beijing: Communication University of China Press, 2007); Peng Jixiang (ed.), Chinese Television in the Age
regulations on video sites to restrict the online program through direct license, thus indirectly restricting
the program providers from supplying IPTV providers with high-quality video programs.\textsuperscript{40}

Confronting the disadvantage of technology and money, the strategy of the SARFT lies in that it
could continue to control both the end content and the conduit in the name of the ideological threats
brought by the foreign capitals after China signed the WTO agreement. The whole regulatory regime of
the SARFT gradually emerged based on the architecture of the Internet. Besides the tight control over the
content transmitted on video sites and the restriction of the market scale of video sites as usual, the
authority also realize the advantages of end broadcasting device and the Internet TV station. In 2004, the
SARFT issued a new regulation on the online video and programs in order to comply with the new
Administrative License Law, replacing the old one which was issued only one year ago. The new rules not
only strengthened the system of administrative license, but emphasized that “to transmit programs
through the international Internet by prefecture-level radio and TV stations is encouraged.”\textsuperscript{41}
Those ICPs or ISPs running business of “Internet TV station” without license from the SARFT would be prohibited
and sanctioned. What’s more, the Internet companies might never get a chance to obtain the license
concerning the special end-device for Internet TV (i.e. TV set top box), because according to another rule
in 1999, the end-device for Internet radio and TV program could only be manufactured by the radio and
TV stations licensed by the SARFT. Any other entities are prohibited from manufacturing such devices
and rebroadcasting programs from formal stations.\textsuperscript{42} This strict regulation meant that, telecommunication
companies was not allowed to run IPTV business revolving TV set box. They can only provide the
service through PC, while the radio and TV companies could run both businesses. Because DTV has

\textsuperscript{40} The SARFT has strictly controlled the creation, aggregation and broadcasting of video programs, especially the barrier for
foreign capitals. When Rupert Murdoch’s effort of entering China was about to succeed after ten years’ struggling around 2004,
the new ideological policy of Hu Jintao era changed to be hostile again. The SARFT was afraid that video online sites could
become another form of TV program in case they were to cooperate with IPTV industry and circumvent the regulation.

\textsuperscript{41} Measures for the Administration of the Publication of Audio-Visual Programs through the Internet or Other Information
Network (2004), article 5.

\textsuperscript{42} Provisional Management Measures of Approving the Internet Broadcasting End-device (Nov.12, 1999), article 4.
become a powerful competitor to IPTV, the survival environment for IPTV is quite hostile and disadvantage.

Traditionally, for radio and TV agencies, it is convenient and profitable to control from transmitting conduit to broadcasting end-devices to the content itself. However, several serious problems still exist for the future development of RTNs. The monopoly interests make it impossible to realize the long-term policy goal of the separation of broadcasting network and TV station; the RTNs do not have an independent International channel similar to the telecommunication carriers and are restricted from the telecommunication business by the MII; the local agencies are too scattered to form a uniform national network to enhance competitive capability of the whole industry.\(^{43}\) Although the SARFT has been advancing DTV network all these years, there’s no sign indicating that it would regulate the digital network in the same way the MII regulates the Internet. The SARFT was waiting for an opportunity allowing it to build a uniform digital propaganda network all over the country, namely, the proprietary information infrastructure.

D. Convergence of Networks and its Regulatory Implication

Fortunately, the attitude of the state has gradually changed from prohibiting the SARFT and the MII from running business of each other to encouraging both to use the information technology to provide digital radio and TV service. That means the state decided to pick up the convergence of networks policy to deepen the cultural industry and media reform. After this policy was written into the Eleventh Five-year Plan in 2005, six ministries jointly issued a milestone document at the beginning of 2008, *Several Policies on Encouraging the Development of Digital TV Industry*, requiring speeding up the convergence of three networks substantially. The document stated that “under the precondition of ensuring the secure transmission of radio and TV program, the service and management system fit for developing convergence of three networks should be established and improved. The radio and TV institutions should be encouraged to provide DTV and value-added telecommunication service through

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\(^{43}\) Board of Caijing Magazine (ed.), *Guangzhi de huanghun (The Twilight of Regulation)* (Beijing: Social Science Documentation Press, 2003).
the national public communication network and RTN. Under the precondition of satisfying the finance policy, the investment in the construction of DTV access and the reconstruction of end-device digitalization by national capitals including national telecommunication firms should be supported,” while “the SARFT should tighten the supervision and regulation over the process of producing, aggregating, and broadcasting of the digital program and make sure the rightness of content and security of broadcasting.” In January 2010, the State Council decided to speed up the convergence project, planning to accomplish it in 2015.

From these words, we can capture the very essence of network convergence policy. Obviously it is reconciling the conflict and partial interests of the SARFT and the MII. Firstly, a consensus has been formed among the leaders that the country needs network convergence to enhance its international competition and that policy should not be impeded by the narrow interest of agencies. Both the SARFT and the MII (especially the former) realized the advantage of convergence technology and the importance of financial supports from the State Council. Secondly, the concrete steps of the policy include allowing the SARFT to use telecommunication network and permitting the MII to invest in digital RTN construction, that is, entry into each other’s infrastructure.44 Thirdly, the SARFT could gain enough funds to develop its own digital network and incorporate the scattered local RTNs, which will greatly enhance its power of supervising its subordinates. At the meantime it could maintain the power over the network under the cover of content security and will never give up the chance to develop its own technology standard. That’s why it insisted that convergence of networks is not necessarily equal to one uniform network; rather, there could be several technically convergent networks supervised by different agencies. Fourthly, the two competitors have respective strategies to embrace the technology and policy. the SARFT is developing the Next Generation Broadcasting Network in cooperation with the Ministry of

44 According to some sources, the slow speed of the SARFT to advance DTV made the state to realize that the status quo lacking competition must be changed and decide to introduce the capital from ISPs into the new industry to advance the overall transformation of DTV. See Luan Lu, “Encouraging DTV industry to develop, telecommunication and broadcasting industry enter into each other from quitting from each other,” http://news.xinhuanet.com/fortune/2008-02/03/content_7558403.htm. However, according to the State Council, there are obvious differences between the entitlements of SARFT and MIIT. The former is encouraged to engage in the telecom business with no limitations while the latter is encouraged to engage only in radio and TV creation and transmission businesses, which is only one aspect of radio and TV business. The power of editing and broadcasting still remains in the hand of SARFT.
Science and Technology and intends to build it into a fundamental infrastructure covering most of the cities, while the MII (now the Ministry of Industry and Information Technology, MIIT) has finished the 2008 reform, ending up with three telecommunication enterprises, and issued three 3G licenses, which also helps solve the VoIP problem. It is reported that the two agencies are cooperating to discuss how to develop the cell phone TV, which seems to break up the contradictions between. But it is still uncertain how to regulate the mobile TV and its content. The battle over the infrastructure has far from ending.

What I’m more interested in is the regulatory model by the SARFT assuming it finished its DTV plan and dominated in the network convergence business. Ideally, the original one-way transmission network would be technically upgraded into a two-way network; all TV programs would be transferred in digital forms and the end-device will be more like a PC rather than TV set. It is even proposed that an independent institution like FCC should take charge of the new media and network. However, I doubt the real effects of such digital revolution in broadcasting area, because such an ideal will require the SARFT to abandon more power over the RTN. In the future, RTN might become a new type of ISP which is quite different from the present ones, probably even stricter, considering the underlying intent of the SARFT is to enhance its own power and interest in the business of propaganda. It can of course provide Internet access services to the customers combined with its rich program resources, making the IPTV industry more profitable and monopolistic. The convergence technology is only a tool to improve the transmission capacity. The SARFT could certainly refuse any institutional change that might threaten its control over the industry standard, transmitting network, end-devices and contents within the radio and TV broadcasting. It is true that it is much safer to produce a new DTV set, which can satisfy the needs of mass audience while maintaining the tight control of information. Besides, the reforms of the separation

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45 Nan Fang Daily, “Network convergence speeds up; the SARFT engages in cell phone industry,” http://media.nfdaily.cn/content/2009-10/21/content_6056088.htm.
47 Yu Hui et al., “Study on the regulatory policy of convergence of networks,” supra note 38, pp. 54-56.
48 Wang Taihua, head of SARFT, has another higher position in the party system, that is, Vice Minister of CPD. Another Vice Minister, Cai Wu, also holds a government position, head of the State Council Information Office. This means that the voice from these two Ministries is more powerful and effective than other special content regulators, and that they are less unlikely to be transformed into one market player.
between RTN and TV station, the separation between broadcasting and creation of program have all encountered many obstacles all these years. If the relevant reform in offline media industry cannot succeed, its online counterpart will probably face the same fate. It is highly possible that the future machine of DTV is not a generative PC but only an intelligence box; the future digital RTN would be an intelligent and centralized conduit rather than a generative Internet. The vertical integration of the digital network and unique end-device would empower the SARFT greatly, facilitate its regulation, restrict entry into the market and finally restrict innovation and expression over the network. That’s a really perfect model of Internet regulation in China.

VI. CONCLUSION

This article stresses the crucial role of ISPs in Chinese Internet regulation. It intends to provide a fresh perspective in observing, and a powerful explanation of, the complicated and sometimes disordered regulatory practice in China. Against the background of tiao-kuai regime (vertical-horizontal division), I draw a trajectory of cyberspace regulation. The state has tried to incorporate the Internet into the traditional administrative framework of media and press (i.e., the tiao-kuai regime, which is suitable for a vast country that is politically centralized like China), and make the technological innovation of Internet serve the country’s developmental goals. However, the state has encountered unexpected difficulties in its efforts to do so, because the Internet is different from traditional offline media in its capability of information aggregation and convergence. The theories of Layers and Generative Internet have revealed the secret of maintaining control in the digital age: vertical integration, that is, the state controls not only the end-device and innovative platform, but the conduit for information flow. All relevant sectoral regulatory authorities (such as the Ministry of Culture) tempt to develop their own methods towards vertical integration. As a result, Chinese ISPs become managing tools for heavy regulation rather than neutral service providers. The debate about net neutrality in the United States focuses on striking a balance among efficiency, equality and freedom of speech. By contrast, the values of net neutrality are never considered in China’s policy-making process. No efforts of separating the network from end devices and websites would be successful.
In particular, the SARFT, a content regulatory authority and propaganda agency of China, is striving to dominate the Internet vertical integration according to the network convergence policy. In the spirit of good governance and net neutrality, the SARFT is supposed to deregulate the transmission network and focus on end devices. However, the agenda of deregulation will become even more remote, if the SARFT transforms the existing radio and TV networks into a powerful digital network and becomes the first almighty content regulator of a vertically integrated system. Consequently, the radio and TV networks affiliated to the SARFT will become the largest commercial ISP in China. Confronting the double pressures from ideology security and commercialization in the digital era, the SARFT finally explored a way to tame the challenges from the Internet. It is now not only capable of control the content through licenses, but has its own special digital network. Such vertical integration model is the dream of those who stand in a monopoly position and want to control their content not to be distorted or misused, whether such content is political or commercial. There is no doubt that the free spirit of Internet stands to suffer.

To retrieve a more generative and innovative Internet based on an open and neutral platform, the future Telecommunications Law should further stipulate different providers’ responsibility and establish the common carrier doctrine as the first step. The backbone carriers shall not discriminate the legal content transferred in their conduit and applications used on PC and OS. A strong and independent judiciary is also needed. At present, because the content regulators do not own the whole network, the extent of control could be buffered; and the effects rely more on the cooperation between the MIIT and other regulators. Such labor division ensures the freedom and flourish of the present Internet to some extent, although ISPs are still participating in content filtering and blocking.