HOW TECHNOLOGY IS DRIVING REGULATORY REFORM:
IPTV AND THE CASES OF THE U.S. AND CHINA

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Abstract: IPTV is a technology on the verge of widespread adoption. It delivers video programming to users in a manner analogous to the way VoIP provides voice, using IP technology over private networks. It has unique technical characteristics. As currently applied, allows telephone companies to offer video services comparable to cable television over residential copper wires, riding on DSL technology. In the future, it has even broader applications. Because it has characteristics which appear similar to telecommunications, cable, broadcasting and information services, it has created a regulatory conundrum. This is true even in countries with very different regulatory structures, such as the U.S. and China. The paper reviews the IPTV situation in both countries and shows how it requires significant restructuring of traditional regulatory models. Some alternatives are suggested. Regulatory responses are needed soon, as traditional structures have become an impediment to further development.

Keywords: IPTV, IP-enabled services, CATV, Telecom, Regulation, FCC, SARFT, MII, SBC, Verizon, Bell South, Microsoft, China Netcom, China Telecom, Licensing, Digital Television.

1. INTRODUCTION

New technologies, and in particular IP-enabled services such as VoIP and IPTV, are provoking regulatory headaches worldwide. This is apparent even in such disparate regulatory regimes as the U.S. and China. Using IPTV as an example, it is clear that former regulatory structures need to be reconsidered. Traditional models of regulation have become dysfunctional, doing more harm than good. The inherent paradoxes of these models become apparent in the attempt to apply them to IPTV, a technology which can span, at the same time,
broadcasting, cable, satellite, mobile and Internet, delivering packets of audio and video bits which can be reconstructed into “television” or something like it. Problems have arisen from the confusion of the physical distribution system with the content, and new approaches are needed to resolve them.

Although estimates vary over a fairly wide range, it is clear that widespread use of IPTV is believed to be approaching rapidly. Analyst Herve Uteza with the Diffusion Group Inc. estimates that 15.3 million homes will subscribe to IPTV services worldwide by 2008. Consultancy Multimedia Research Group estimates there will be 15.6 million IPTV viewers by 2007, up from a few hundred thousand today. A study from TDG Research predicts that worldwide IPTV subscribers will pass the 20 million mark around 2010, and that IPTV-generated revenue will experience a compound annual growth rate of approximately 102 percent between year end 2004 and year-end 2010. With the launch of IPTV in Europe, Asia, and North America, according to a survey conducted by market research firm MRG, the number of global IPTV users will increase from the current 2 million to 26 million in 2008.

This paper will look at the situation and the challenges it creates for regulation, first in the U.S., and then in China, and then conclude with some general observations about the introduction of IPTV and its impact on regulatory regimes and the need for change.

2. IPTV IN THE UNITED STATES

2.1. Commercial Implementation

Three out of four remaining “Baby Bells” (SBC, Verizon and BellSouth, also known as incumbent local exchange carriers), representing the great majority of what remains of the traditional local telephone industry, have recently announced interest in moving into the provision of Internet Protocol Television. To compete with expanding and consolidating cable television companies which have teamed with wireless players and offer VoIP, these companies believe that they must have a viable offering known as the “triple play”: voice, data, and video – that is telephony, the Internet and television. The triple play can triple per-customer revenue, bringing in as much as US $150 per month from some households, while it reduces “churn”.

TV over phone lines is already taking root in Europe, with offerings from France Telecom, Italy’s FastWeb, MaLigne TV and CanalSat DSL in France, Britain’s HomeChoice and others. Many more are on the way. HomeChoice offers about 80 channels through a television set-top box, including numerous free on-demand programs, and movies for an additional charge, and is bundled with a high-speed Internet connection. The planned 2005 TV-over-DSL launch by BellSouth, SBC and Verizon in the United States is propelling this new technology in the U.S.

2.2. U.S. Telecom Carriers Involvement in IPTV

It's been much easier and much less expensive for the cable companies to add voice to their networks than for Baby Bells to add TV to theirs, so if the Bells are going to compete, they need to make a large amount of investment quickly to upgrade their network to provide enough bandwidth to support the “triple play” of voice, video and data.

2.2.1 Verizon

Verizon Communications Inc., the nation’s largest telephone company, has been rolling out a new fiber-optic network to consumers' homes and expects to make its new network available for subscription to some three million homes by the end of this year. Verizon has
announced plans to use Microsoft Corp.’s technology for its rollout of television service over this network. Verizon also has announced that it plans to spend billions over the next few years to provide its 30 million customers with direct fiber connections. It is pushing its fiber-optic networking even further along the last mile with the announcement that it will be deploying its Fiber-To-The-Premises (FTTP) network in six more states on the East Coast. Customers in parts of Virginia, Maryland, Massachusetts, New York and Pennsylvania will join others already announced in California, Florida and Texas.

Business and residential customers on the FTTP network will be able to subscribe to Verizon's FiOS broadband Internet access service for downstream connection speeds of up to 30 Mbps, roughly equivalent to a DS3 link, at rates starting as low as $34.95 per month. Verizon offers the services available as part of its DSL products over the FiOS platform without extra charge, and plans to add video services next year. The software maker’s platform initially will be used to provide an interactive program guide, high-definition television, digital video recording and video-on-demand for Verizon’s FiOS TV service, which is due to launch in undisclosed markets around mid-year.

2.2.2 SBC

SBC Communications, the nation's second-largest phone company, which is the next Bell in line to deliver TV services, has earmarked $4 billion to upgrade its network with fiber-optic lines and newer DSL technology to neighborhoods rather than to homes to support video. Called “Project Lightspeed”, SBC has already signed up two technology heavyweights--Microsoft and Alcatel--to build out the system for consumers. SBC expects to reach 18 million homes in the next three years.

SBC announced at the Consumer Electronics Show in January 2005 that it has named its Internet-based TV service “U-verse”. According to SBC CEO Edward Whitacre Jr., U-verse will provide data speeds of 20-25 Mbps. U-Verse allows SBC to add more digital features, such as digital video recording and more high-definition stations, without requiring a lot of bandwidth. SBC plans to bundle its TV offering with phone, wireless and Internet services in a package that could end up costing about $100-$150 a month. SBC will begin launching U-Verse to select customers by the end of 2005 or the beginning of 2006.

By 2009, some 7 million subscribers are expected to get television programming from a phone company, according to forecasts from PricewaterhouseCoopers. Over the same period, cable subscribers are expected to fall to 64 million, from 70 million, while satellite companies can expect 32 million subscribers, an increase from 23 million now.

2.3. IPTV Cooperation with Content Providers

In order to offer an IPTV service, the phone companies will need access to movies and TV programming that is already available to cable and satellite operators. Microsoft provides software, but not content, so an IPTV service provider also needs content partners and suppliers. In fact, a big obstacle that could potentially slow down the deployment of IPTV is access to the content.

Regarding content, in connection with the offer of Verizon for MCI, it has been noted by one observer that MCI has a contract to deliver Time Warner Cable programming over IPTV, and Verizon is getting ready to start installing DirecTV systems. Verizon announced that it had struck a deal to carry all of NBC Universal's channels on its television service. It is reported that Verizon has signed content-programming deals with Starz Entertainment Group LLC as well as content providers representing roughly 100 television channels, as the phone company
steps up its push into the world of entertainment.

But things are not going on its way smoothly. While content providers such as Viacom, Disney and NBC Universal welcome the addition of a new distribution channel for their content, the details of how this can be done using IP technology haven't been worked out yet. There are a lot of considerations, such as piracy and copyright, which have to be dealt with when looking at distributing content other ways. While these agreements will most definitely be worked out at some point, it will take time. Unfortunately, time is not something the Bells have in great supply.

2.4. Franchise Agreements

Before the Bells can make their pitch to consumers, though, they will have to strike franchise agreements with the local municipalities where they want to sell their service, just as cable providers do. These agreements typically dictate the taxes to be paid by the television operator, the type of programming available and the number of residents in a town or city who can receive the service. Cable companies pay about 5 percent of their revenues as a license fee to municipalities.

In starting out fresh, the Bells will have to reach agreements with thousands of municipal governments, a chore that could take years to complete. Indeed, simply acquiring all the needed franchises could slow down the rollout of the phone companies' video service. This might be another obstacle. The phone companies are already lobbying federal and state regulators to find alternatives to the city-by-city regulatory approach. One strategy is to classify Internet-based TV as an interstate service that would be beyond the regulation of municipalities.

2.5. The Issue Calling for Regulatory Reform

Wireline IPTV can be seen as a cable distribution system, a telecommunications system, or an information service. If it is transmitted to wireless phones, PDAs, etc. it could be seen as a wireless service. It may be transmitting signals originating from satellites. There is no easy answer. The FCC’s traditional regulatory “silos” do not fit, or, alternatively, fit in part but overlap.

2.5.1 “IP-Enabled Services” Proceeding

FCC is still studying this issue in its “IP-Enabled Services” proceeding. The debate about regulation of IP-enabled services has been driven largely by the rapid emergence of Voice-over-IP as a competitor and alternative to traditional telecommunications carriers. Of course, IPTV introduces the additional element of program content, which implicates the interests of the cable and programming industries.

FCC Commissioner Kathy Abernathy, in a speech, said the ultimate issue wasn’t Voice-over-IP, or TV-over-IP, it was “EOIP”, or, as she put it “Everything Over IP.” She foresees a great array of IP-enabled services riding over broadband networks which do not fit into tidy regulatory boxes. But she singled out IPTV for special comment: Take IP television (it has the) potential to reshape the market for multi-channel video programming services. As local exchange carriers, software companies, and others begin to introduce IPTV services regulators at the local and federal levels will be forced to grapple with many of the same kinds of questions that arise in the VOIP debates. For example: Will IPTV is regulated as an information service, a cable service, or both? Should IPTV services be subject to any or all of the regulations that govern cable operators, including build-out requirements, franchise fee
obligations, public access channels, must carry, and so forth? Would exempting new entrants from such legacy requirements are a good way to promote innovation and competition? Or would it create an uneven playing field that is unfair to incumbent video distributors? Will existing program access requirements ensure that IPTV providers have nondiscriminatory access to programming controlled by vertically integrated MVPDs? These are just a few of the questions that will arise in the coming years. “We need to recognize,” she said, “that the IP revolution will have consequences for all legacy and regulatory structures, not just the utility regulations that apply to telephone services.”

2.5.2 Jurisdiction

A key element in the U.S. of IPTV regulation (and that of VoIP and IP-enabled services generally), is the question of jurisdiction, that is, who may regulate these services. Traditionally, jurisdiction over telecommunications services was divided, with the FCC regulating interstate communications and the states regulating intrastate communications. But the case at hand, VoIP, did not fit neatly into these categories, and, after a formal proceeding, the FCC, in November 2004, the FCC unanimously blocked state public utility regulation of Vonage’s VoIP service, declaring it to be inherently interstate in nature, and subject only to federal jurisdiction. The logic of this decision, by extension, would also apply to IP-based video.

The other high-profile question is whether IPTV, since it delivers “video” programming, falls under Title 6 of the Communications Act, which was originally passed as the Cable Act of 1984, and has extensive rules and regulations which apply to the operation of cable television systems. Of course, if the FCC finds IPTV to be an unregulated “information service”, then these rules would not apply. But that would have significant implications for municipalities which regulate cable systems and receive franchise payments from them, and for cable TV operators, which would see them as direct competitors with a huge and unfair advantage.

The National Cable and Telecommunications Association (NCTA), which is the industry association for cable, have already announced that, “We believe Title 6 applies.” SBC strongly takes the opposite view. SBC argues that its TV service isn’t the same as a broadcast or cable-provided service, and doesn’t require a local franchise. To make that point, SBC’s lawyers are relying on the FCC’s Vonage ruling. The FCC’s central reasoning was that Vonage’s VoIP service was not affected by state borders and should not be regulated by the states. According to SBC, “It’s the same as when the cable companies provide telephone service over IP, there is no regulation at the local level.” “Cable’s putting telephony on their network and they’re not paying, so why should we”. Verizon has shown a willingness to seek cable franchises where necessary, but would be happy to be relieved of that obligation. This debate has, in some places, moved into state legislatures, which typically have the power to pre-empt local municipal franchise authority.

3. IPTV IN CHINA

3.1. Status

China may be in a position to overtake both Europe and the U.S. in consumer entertainment by adopting Internet television (IPTV) this year. Both China’s telecoms companies and broadcasters are gearing up to tap into IPTV, a potentially lucrative business. China’s telecoms companies and broadcasters consider IPTV in very different ways.
Broadcasters, as traditional content providers, offer network TV to complement their traditional programs. But telecoms regards IPTV as a new application over IP networks to extend the penetration of broadband access and help increase their profits.

Being very different from the U.S. where the FCC is the only regulator, under China’s administrative system, radio and TV as well as related audio/video content is supervised by the State Administration for Radio, Film and Television (“SARFT”) while Internet and telecommunications and related ICP resources come under the Ministry of Information Industry (“MII”).

3.2. Carriers’ Business Operations

China Netcom, the country’s fourth largest telecoms carrier, has edged into the Internet protocol television sector by establishing three IPTV stations over the past half a year. The latest TV station of this kind is www.bjiptv.com.cn/, launched by Beijing People’s Broadcasting Corporation (BPBC) on December 24. The BPBC’s TV Web site started trial operation on December 24 simultaneously in Beijing, Tianjin, Hebei Province and Heilongjiang Province. In addition, Netcom has joined hands with the International Data Group and China Central Television for the Internet TV business.

At the end of May 2004, Netcom gained the country’s first license to broadcast audio-visual programs on the high-speed Internet. Subsequently, the fixed-line carrier, in partnership with IDG, poured yuan 500 million into a broadband Internet venture, Tianitian Online. Netcom is the largest shareholder in the venture with a 40% stake. The company is also a strategic partner of www.chinasee.net, an Internet TV site opened by the dominant state TV agency CCTV this June. Now chinasee.net operates in Beijing, Shanghai and Jiangsu Province, with 22,000 paid users registered. CCTV has said it expects to recruit 600,000 IPTV subscribers this year.

Similarly, Beijing Communication Corporation, the local fixed-line telecom operator, announced cooperation with CCTV Network Development Col, Ltd. On May 31 to open Internet TV services, by which users could watch TV programs on the Internet. According to statistics from CCTV Network, the number of registered users of the service in Beijing had reached 60,000 by September 20.

Working with China Central Television and the Beijing All Media and Culture Group (BAMC) on content, Netcom has launched two IPTV websites: “Beijing IPTV” and “i-CCTV.” Launched in Beijing, Shanghai and Jiangsu, i-CCTV claimed 220,000 subscribers at the end of 2004, while Beijing IPTV, the BAMC venture, is running trials in Beijing, Tianjin, Hebei, and Heilongjiang.

China Telecom is said to have plans to launch large-scale promotions of IPTV in most cities in the country this year, following the launch of the Internet TV service in Shanghai last August, in co-operation with a subsidiary of China’s Central Television (CCTV). In Hong Kong, according to an executive with Hong Kong’s fixed-line carrier PCCW, the firm has seen the number of its IPTV subscribers soar to 350,000 by November from 3,000 in September 2003 when the service was launched. Now, 40 percent of PCCW’s broadband subscribers are using the broadband TV service.

Many entities other than telecommunications carriers have an interest in IPTV. It is cheaper to use China’s mushrooming number of Internet connections than it is to build cable TV networks. When the service is available commercially, there will be no shortage of companies producing programming for it, including traditional non-TV media such as Xinhua.
3.3. IPTV Regulation and licenses

In the year of 1999, aiming to intensify the administration over the mutual pervasion of services between SARFT and telecom, the national government enacted State Council Document 75. This document remains in effect and bars telecom operators from broadcasting and broadcasters from operating telecom services. The situation underlines an increasing convergence of the telecoms, Internet and broadcasting sectors in China, which is posing a major challenge for regulators.

The national ban on network convergence began to loosen in early 2003, when SARFT issued “The Management Measures for Dissemination of Audio-Visual Programs on Internet,” establishing a licensing regime for audio and video content transmitted over the Internet. China Telecom and CNC have gained the opportunity to tap into the Internet TV market.

With the tendency to deregulation, it seemed that telecoms’ video service would expand rapidly with a bright future. But in July 2004, SARFT decided to re-examine the licenses, and require those companies which had the “license for Dissemination of Audio-Visual Programs on Internet,” to re-submit their applications for new licenses. SARFT strengthened once again its policy restraint over telecom carriers’ IPTV operations.

Two licenses will be released and the licensed companies will be interior companies within the SARFT sector. The CCTV network and East network under the supervision of SMG are the most likely ones. Telecom carriers are not among the first licensed group. This poses a substantial obstacle to telecom companies’ entrance into the IPTV market.

Although the current policy is far from clear, seeing that under the current situation the market requirement keeps expanding and the telecom operations keep striving for new growth, it is certain that whether or not SARFT’s re-examination is aimed at limiting telecom carriers or at letting private companies come in to diversify the market, the telecom carriers will not give up the IPTV market. One of the top officials of Beijing Communication Corporation said, “We do not have related license, but it affect little of the operation expansion, because our cooperators (SARFT subordinating enterprises) have the license. If they want to transmit video programs over Internet, our help is indispensable. In this way of cooperation, we still can tread into this domain (IPTV).”

Current government policies may be thwarting the development of IPTV, says Chen Jinqiao, director of the Institute of Telecommunications Policy of the China Academy of Telecommunications Research. Due to increasing industry convergence, some industry professionals have been calling for the establishment of a super-supervision body which combines the function of the Ministry of Information Industries and SARFT.

4. REFORM OF REGULATORY STRUCTURE

4.1. New Approaches for U.S. Regulator

In the U.S., the key regulatory principle was established in the FCC’s decision in the Vonage proceeding regarding the efforts of states to regulate Voice over Internet Protocol (VoIP). State regulators, concerned about the loss of their traditional powers that flowed from their jurisdiction over intrastate telecommunications services, made an argument for state common carrier regulation of VoIP based on “functional equivalency.”
The shorthand for this is the “walks like a duck” theory, which asserts that if something walks like a duck, and quacks like a duck, then it’s a duck. In the VoIP context, that meant if something provided the functional equivalent of traditional voice telephony, then it should be regulated like traditional voice telephony. That is, it doesn’t matter whether the network is a circuit switched analog network, or a digital, packet-switched IP network, as long as it delivers “voice.” The F.C.C. decisively rejected this approach with respect to VoIP, finding that the differences in the structure of the networks were both significant and dispositive. The nature of the Internet, it found, was inherently interstate, and the states’ jurisdiction over it was pre-empted.

To regulators, the most natural response is to make the “walks like a duck” argument. However, that appears to be both unreasonable in theory and impractical in terms of enforcement. In this analysis, just because VoIP can be used to deliver voice, that doesn’t make it a telecommunications service; and just because IPTV can be used to deliver “video”, that doesn’t make it a “television broadcaster” or a “cable” company.

The FCC addressed the state regulation issue without making a final decision on the underlying question of what IPTV’s regulatory status should be. New approaches are needed. One solution is to merge the regulation of content and carriage; another is to separate them out in a “layered” approach; a third is to move from “silos” based on technology to functions. In the first, a single regulator oversees all aspects of transport and content under a unified regime. In the second, regulation would be restructured by “layers”, e.g., transport, applications, content (some have suggested up to seven). Each layer would have its own rules and regulation would provide that dominance in one layer did not extend to other layers. In the third, “silo” type regulation would be replaced by functions, such as spectrum management, market promotion (competition policy), consumer protection, universal service, etc. Each function would then be applied to all market participants. This is a model that was proposed for the F.C.C. by a former Chairman, although no such action has yet been taken.

4.2. China’s Challenge for Its Regulatory Reform

Although the formal structures are different, the same conundrum presents itself in countries which have ministries in charge of telecommunications and different ones in charge of “broadcasting”, such as China. In part, this is because historically most countries have conflated the content of broadcasting (programs) with the means of its distribution (assigned frequencies in the spectrum). When the means of distribution, e.g., IPTV, becomes radically different, the content regulator is perplexed. Besides IPTV, mobile TV in which TV programs are broadcast on mobile phones is also gaining traction worldwide which could be a future challenge for regulators.

The current draft of China’s telecoms law does not resolve this issue. With respect to the methods of structural regulatory reform, one approach that has been mentioned would be to establish a comprehensive supervisory body, which would work as in Figure 1.
Currently, not all regulatory powers over the electronic communication sector are concentrated within the MII; at a minimum, the valid regulatory function over transport networks of broadcast programming doesn’t reside in the MII. It is supervised by SARFT. At this point, the MII is very different from the FCC, a U.S. unified IRA. A unified regulatory agency could more openly and fairly distribute resources, but whether and how to establish such a body in China is an even greater challenge than that which U.S regulators face with respect to the IPTV issue.

Regarding content regulation, the same challenge is facing China’s regulator, i.e. the conflation of content and distribution system. Currently, China’s SARFT has issued only two licenses for the dissemination of audio-visual programs on the Internet, both to broadcasters. Having licenses for both transport and program content, the companies under SARFT could have a dominant position for developing IPTV services as technology convergence in China increases. Telecom companies will be in a very different situation, having only one license for transport, and will have to co-operate with broadcasters to tap into the Internet TV market. It is obvious that the situation is unbalanced. If all transport networks were supervised by a unified agency and a department only takes charge of issuing content licenses, China’s, a fair and balanced competitive environment in the communications communication market could be established.

Since China’s broadcasters currently only have distribution networks from their stations to CATV customers, they are ready to welcome telecoms as partners to implement IPTV operations. Although IPTV stimulates co-operation between telecoms and broadcasters, it isn’t the real convergence of communications industry and service. If China wants to drive policy to fully meet the needs of convergence, and to provide high quality services, a combination of telecoms, Internet and the broadcast industry and the setting up of a unified supervisory agency is a policy choice which should quickly be put on the table for discussion.

For the time being, it’s better to separately administer the production, supervision, distribution and broadcast of programs. With respect to how best to resolve the issue of integrated transport networks and program content, there are a number of academic proposals which have been put forward, such as the European model, the “layered” model, the IP-migration model, and the market-structure model. China can take lessons from around the world to develop a rational regulatory structure which incorporates China’s particular circumstances. Technology convergence is now leading to operations convergence in China. TV programs can be efficiently transmitted over IP networks, CATV networks, and especially over mobile networks in the future to be more responsive to the interests of Chinese users,
which can be greatly facilitated by forward-looking government with policies.

5. CONCLUSION

No matter which alternative is chosen, it is clear that some kind of major, possibly radical, reform is needed in the structure of the regulatory agencies to adapt to technologies like IPTV, and that given the global momentum of these technologies, these fundamental decisions need to be taken sooner rather than later to give direction to the market and the public.

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