

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

It is a true pleasure to have been invited to the beautiful city of Nanjing. This is a great and historical city. Signs of China's recent transformation and its strengthening economy are obvious here. The beautiful tree-lined boulevards also remind me of Washington, D.C. The U.S. Federal Communications Commission (FCC) has a long history of working with our colleagues in the Chinese government, both at the national and provincial levels. It is thus a pleasure to participate in this seminar, and to continue our ongoing dialogue. I hope that when you have the opportunity, all of you will come visit us in Washington, D.C. as well.

Before I begin to talk about how global technology trends affect us, I would like to highlight three characteristics of the FCC that will inform our discussion. First, we emphasize protecting consumers. It is easy to lose sight of this priority because we have close interaction with representatives from industry who vehemently advocate private agendas. Our most difficult decisions, however, are guided by the principle that we labor to improve the broader, *public* welfare. Second, the FCC is an independent U.S. government agency – it is not financially involved in any of the markets it oversees. American telecommunications providers and equipment manufacturers are privately owned, sometimes by Americans and sometimes by foreigners. We believe that private investors are more nimble adopters of new technologies than are public entities. They are also more reactive to consumers' desires. The FCC tries to make decisions that give companies as much freedom as possible to develop and innovate. Third, FCC decision-making relies on public comment. We must solicit this information and cite public views before making final decisions. This is a critical part of the decision-making process because rapid changes in the market and technology make it difficult to keep abreast of novel issues. The wide range of views presented to the FCC makes its decisions stronger.

In the U.S., there is a growing recognition that our national economic opportunity depends in part on the deployment of broadband networks. The pace of technological change in this area is quickening. Policy makers must likewise step up their efforts or we will be left with obsolete rules wrecked by technologies that do not pay attention to traditional notions of jurisdiction, geography or time. The trend in the U.S. is to recognize the limitation of past regulatory approaches, and think anew about policies that encourage deployment of broadband infrastructure and protect vital social policies. Today, I would like to talk to you about the U.S. experience in this area. The message I will deliver today comes with a large dose of humility – humility because we at the FCC recognize that the forces shaping global technology trends are much larger and more powerful than anything that the institution I represent could hope to devise. I also humbly respect the differences – geographic, political, demographic – between our two countries.

Digital Migration

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

We can conceive of the current trend in developing next generation networks as a great “Digital Broadband Migration.” This migration is a fundamental shift in technology and competition policy. It is not optional. It will occur whether policy makers recognize its relevance or ignore its long term importance. This migration is a good thing – if we share a belief that more next generation networks will empower consumers.

In the old world, traditional communications networks, such as the circuit switched telephone network, provided customers with access to a single application using narrowband capacity. On these networks, the application was inherently tied to the underlying technology. Next generation networks are broadband networks. Digital applications and content as well as standardized transmission protocols – like the Internet Protocol (IP) – allow many different applications such as voice, video, and data applications, to ride on a single broadband platform.

When multiple broadband platforms compete in the market for broadband access, regulators can lift rules designed to protect against monopoly abuses. In the U.S., our focus is on policies that hasten the arrival of multiple broadband platforms, including wireline, cable, power line, and unlicensed networks to name but a few. Where there are multiple platforms in place, our belief is that regulation can grant providers more flexibility to enter markets and innovate within them. This process empowers consumers as carriers must become responsive to consumers’ needs to maintain their advantages.

This process also allows regulators to pare down their mandates – not to completely remove government from the picture, but to define and enforce core values. In so doing, we start from the proposition that traditional monopoly services regulation is not applicable and that the FCC should apply discrete rules only where necessary to fulfill important federal policy objectives. A few of the important social policy objectives we have focused on include: universal service, emergency services, lawful surveillance activities, and access to persons with disabilities. Also, discarded are traditional notions of jurisdiction – or the sharing of power between the FCC and our counterparts in the states. While it may be very important for the FCC to set a national, next generation networks policy, we proceed on the assumption that state and local governmental officials will continue to play an important role in the area of consumer protection.

I would like to highlight three discrete trends in the area of next generation regulation – each of which are important in their own right and each of which play a part in the Digital Migration I spoke of earlier. First, I would like to talk about our approach to Voice over Internet Protocol (VoIP) services. Second, I would like to talk about our work in the area of intercarrier payments, and finally, I would like to say a word or two about our spectrum policy.

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

VoIP

In recent months, one application has grabbed headlines: Internet voice services or VoIP. VoIP applications have caught the attention of regulators, carriers, and equipment manufacturers lately because it may be the answer to awakening a flagging telecommunications sector. Let me begin by being very clear about what we mean when we say VoIP. As discussed earlier, when applications – such as voice calling – are separated from the underlying platform and are based on IP – we understand those services to be VoIP services. For us, VoIP services are not simply those services that utilize excess capacity on the old narrowband infrastructure or those that use IP to haul voice traffic within a carrier's network backbone. The use of an alternative transmission protocol over a traditional circuit switched network is not VoIP – why? Because using IP to merely deliver traffic along the lines of a traditional call does not provide consumers with any of the transformative benefits – in terms of price and new functionality – that true VoIP applications provide.

One the one side of the spectrum, there are traditional telephone calls. A traditional telephone call placed over a circuit-switched network typically requires resources to be reserved along the path between both parties for the entire duration of the call, even if the amount of information being transferred does not require the full bandwidth of the facilities. In contrast, in IP networking, data are segmented into packets which are individually addressed and then transmitted over a series of physical networks which may be comprised of copper, fiber, coaxial cable, or wireless facilities. Whereas circuit-switched networks generally reserve dedicated resources along a path through the network, IP networks route traffic without requiring the establishment of an end-to-end path.

On the other side of the spectrum, there are pure VoIP calls. Calls are transmitted between end-users almost exclusively over the Internet and originate and terminate on packet-switched networks – typically cable or DSL. In this scenario, providers like pulver.com's Free World Dial-up or Skype merely manage a database of end-users and facilitate a peer-to-peer, packetized conversation between customers using broadband Internet connections.

In the middle, you have a blending of the two kinds of calls – calls that originate on a broadband connection but terminate on the old circuit-switched network or PSTN. This scenario is the most troubling for policy makers in the U.S. because it enmeshes us in a host of legacy regulations that center around how carriers compensate each other for handling traffic – whether it be VoIP or circuit-switched traffic. The biggest debate right now in the U.S. is how a carrier will pay another for terminating a VoIP call when it begins on a broadband connection and terminates on a circuit switch.

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

To explore the VoIP issues, on February 12, 2004, the Commission released a comprehensive Notice of Proposed Rulemaking (NRPM). The NPRM examines some of the important definitional debates surrounding Internet voice services, with a view to existing definitions and how those definitions might apply to today's changing communications environment. The Commission is building a record to determine where the line is best drawn between various flavors of Internet voice services, and to begin to determine how social and public safety objectives can best be achieved when using IP-enabled communications. A full and robust record will pave the way for the Commission to adopt policies that facilitate economic growth, a more secure homeland, and preserve and advance universal service and access to people with disabilities. But our work is not done. Still other petitions remain before the FCC that involve different varieties of IP-voice services, with different levels of digitization and interaction with the public switched telephone network.

Unified Payment Regime

Much of the debate about the proper classification of VoIP stems from providers' desire to avoid paying each other to handle traffic – in U.S. parlance this is known as an intercarrier compensation obligation. For purposes of this discussion, assume the following is true: that traditional circuit switched termination rates are above cost and include some contribution to paying for service in high-cost areas; that when a call originates on a broadband connection, carriers do not assess any per-minute access charges on that traffic; and finally, that there is an economically correct, cost-based rate for terminating a circuit-switched call and that rate is somewhere between .1 and .25 cents U.S. per minute. Right now in the U.S., different carriers pay different rates for termination; wireless may pay one rate, wireline another, paging another and VoIP still another.

The simple solution to eliminating this form of “regulatory arbitrage” is to establish an intercarrier compensation regime that is unified – and true to the principle that “a bit is a bit.” In this world, carriers should not charge one rate for terminating traffic that is deemed one kind of bit (*e.g.*, wireless), while they pay another rate for another kind of bit (*e.g.*, VoIP). The trend in this area is toward a “bill and keep” system where carriers recover their costs from end users instead of between companies.

As I noted above, some portion of the rate for terminating calls pays for service in high-cost areas. This implicit subsidy is not sustainable in a world where multiple platforms provide VoIP services. Accordingly, the correct policy answer for U.S. regulators is to create an explicit support mechanism that will provide a subsidy for parts of the country that are particularly difficult or costly to serve. Without the creation of an explicit subsidy, carriers will continue to arbitrage the current system, leading to the eventual collapse of the implicit support system.

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

The U.S. has adopted one type of explicit support mechanism, unrelated to intercarrier compensation, at the federal level. Our Universal Service Fund collects contributions from traditional interstate telephone companies and distributes support to high-cost areas. The FCC's goal is to foster a system of universal service that is fair to all competitors in an increasingly competitive marketplace. IP communications represent a real opportunity to advance our universal service objectives, including ubiquity and affordability. New technology can reduce the costs of providing supported services, particularly in the higher-cost areas of our country. The introduction of technologically advanced, lower-cost networks also can have a positive effect on the high-cost fund over time, thereby limiting the burden our policies place on consumers.

Finally, the trend toward arbitrage of the current system will accelerate over the next few years. Indeed, some predict that as the amount of VoIP traffic increases, the current system will be unsustainable in 3-5 years. The lesson we take from this technological trend is that U.S. policy makers do not have a choice to reform the current intercarrier payment system; we must, or technology will render it a quaint antique of a forgotten time where only one carrier provided service to all consumers. Against this backdrop, the Commission has initiated a Notice of Proposed Rulemaking to address these issues and move toward a unified intercarrier compensation regime.

Unlicensed Wireless Uses

The Commission has also undertaken to significantly reform its regulation of spectrum. To prevent interference between broadcasts on a finite and scarce amount of spectrum, the FCC traditionally took a command-and-control regulatory stance toward the allocation of spectrum and management of spectrum use. Advances in technology, however, are changing the technical and economic fundamentals of spectrum use. Cognitive radios are less sensitive to interference and can make far more efficient use of existing spectrum – spectrum is becoming less scarce as devices become more advanced. Spectrum regulation must, in turn, keep current with these advances.

To follow in this pursuit, the Chairman created the Spectrum Policy Task Force (SPTF) whose objective is to update the nation's spectrum policy – nearly 100 years old – to reflect today's dynamic marketplace for spectrum-based services. The SPTF report is available on the FCC's website, and I highly recommend it to you. Our goal is to create a flexible regulatory environment that was hospitable to innovation. The task force found that spectrum access is as much a problem as spectrum scarcity and that technological advances in cognitive radio and antenna arrays are allowing systems to be much more tolerant to interference than in the past. This groundbreaking work is ongoing, and we are moving from inquiry to implementation of SPTF I recommendations into a SPTF II phase that will propose further recommendations.

Trends in Next Generation Network Regulation

Christopher Libertelli
Senior Legal Advisor
Office of Chairman Michael K. Powell
Federal Communications Commission

Spectrum policy reform in the U.S. is focusing on making spectrum more widely available to end users and service providers, and is making spectrum use more flexible. The Commission has established secondary markets for spectrum licenses. It has also increased the amount of spectrum available for unlicensed uses. However unlikely unlicensed wireless operation was in 1934, UNLICENSED has been ULEASHED. We at the Commission have heard the call to open more spectrum that can be used on an unlicensed basis. Further, these providers have expressed a desire to use this spectrum with higher powered signals. The Commission sees a growing demand for unlicensed devices operating at lower frequencies where the combination of propagation characteristics and strong, high-powered signals are conducive to longer-range communications, yet nonetheless resistant to interference. These include the use of new technologies such as smart antennas and cognitive radios. We are also working to streamline our equipment approval process in order to bring innovations to the market faster and at lower cost. We are freeing spectrum, for example, by considering the allocation of unused TV channels for wireless broadband. The opportunities to deploy additional services with value added mobility should grow as spectrum regulations are liberalized.

This is an exciting time for communications and this is a wonderful forum to further the policy dialogue. Thank you again for your hospitality; it has been a pleasure to speak to you today.