NOTE TO WORKSHOP PARTICIPANTS—

The following paper is a draft of a forthcoming report from the Aspen Institute workshop on the "Future of Video." It reflects, as the report itself will make clear, an informed observer's (in this case, me) perspective on the issue. It also constitutes some of my initial thinking on a topic I intend to develop further in future work. It is, even in this form, a draft and should not be shared, quoted, or cited from without permission. (Indeed, the finalized version should be out in January and that one can be cited to, etc., freely).

EXECUTIVE SUMMARY

The future of video is, in many respects, the story of the Internet's next frontier. The promise of digital broadband networks is that, unlike their predecessors, they can carry full motion video as an application on the Internet. The development of new video programming options—ranging from movieload services like that offered by Movielink and Amazon.com to user-developed content hosted by YouTube to Apple's new iTV initiative to competitive video services being offered by traditional telephone companies—is only taking shape. In the years ahead, businesses and policymakers will face a series of challenging questions related to this new frontier. This report, based on the discussions at the 21st Annual Aspen Institute Conference on Communications Policy, "The Future of Video: New Approaches to Communications Regulation," outlines a series of important issues related to the emergence of a new video marketplace based on the promise of Internet technology.

The future of video is well framed by the stories of how the music and voice industries have met the challenges wrought by the Internet. In the late 1990s, the music industry failed to meet the challenges of digital distribution and suffered as a result. The recording studios originally resisted this new technology, turned to the courts to fight peer-to-peer file sharing systems, and failed to embrace digital distribution (sacrificing a market opportunity) until they embraced Apple's iTunes. In the early to mid-2000s, landline telephone connections optimized for voice communications began to confront similar challenges—with both Voice over Internet Protocol and wireless phones undermining their core product offering and resulting in a rate of "line loss" of around 7% per year. The next frontier for the Internet will be its impact on the video programming market.

The Internet's impact on the video industry is likely to play out over a period of several years. Notably, the levels of bandwidth delivered by broadband networks is likely to continue to grow, technologies for transferring video programming delivered via the Internet to the TV set (where people generally watch video programming) are still developing, and consumers are adjusting to new opportunities created by the Internet. Such opportunities range from accessing content not previously available through traditional distributional outlets (say, watching WonderWoman over your broadband connection), finding user created content on websites like YouTube or MySpace, and downloading popular TV shows to an iPod so they can be watched at any time anywhere.

Even with real uncertainty as to how the Internet will change the video business, there are compelling policy challenges—related to the underlying broadband infrastructure (its build-out, adoption, and regulation) as well as the content and services that ride on top of it—that must be addressed in the very near term. This report offers both an examination of how video programming is changing and how policymakers should address those changes. In general, it views these changes as a positive development that policymakers should facilitate. At the physical layer level, policymakers can enable new video delivery models by promoting the continued deployment of broadband infrastructure, supporting the adoption of broadband across all socio-economic

groups, and evaluating concerns about broadband providers' abuse of any market power they possess.

At the content layer, policymakers should focus on ensuring sound intellectual property policy that protects creativity as well as facilitates innovative and legitimate uses of content. Given the likely increase in the sources of content available to consumers, it is important that policymakers also support an effective program of self-regulation and, where necessary, government enforcement to address concerns about harmful content, particularly as to children. Finally, in revisiting legacy regulations, policymakers should harmonize regulation across different platforms—for example, lifting regulations imposed on TV broadcasters to ensure video programming for children—in a manner that does not create barriers for new entrants (and individual users) to use the Internet as a platform for distributing video programming.

This Report engages the issues related to the future of video in five parts. After Part I's introduction and Part II's discussion of the relevant technological and business developments, Part III focuses on questions related to the emerging broadband infrastructure. In particular, Part III discusses both the questions related to reforming universal service policy to facilitate greater deployment and adoption of broadband as well as the economic regulatory concerns discussed as part of the network neutrality debate. Part IV of this report turns to the questions raised by the proliferation of video distribution options—what applications and content distribution models will develop and how will those models relate to copyright policy and social regulatory goals such as preventing consumers from harmful content. Part V offers a short conclusion.

I. INTRODUCTION

To set the tone for the conference, all of the participants recounted their next generation video moment. For Rob Atkinson, President of the Information Technology and Innovation Foundation, the moment was watching the "Amazing Juggling Finale," featuring performer Chris Bliss, on Google Videos after a friend emailed him a link to the short clip. Here's how *The Washington Post* described the video that Atkinson raved about:

> It's just a guy, three balls and an ornate stage at some unnamed live event. The Beatles' melancholy "Golden Slumbers" begins playing on a loudspeaker, and the gray-haired man in the dark shirt and pants is suddenly juggling in perfect sync to the music.
>
> For 4 1/2 minutes, he tosses and grabs, his hands and body language capturing the pace and mood of the Fab Four as they build to the rousing three-song finale of the "Abbey Road" album. When the music ends and the last ball is caught, the crowd is on its feet, roaring. The man takes a bow and walks off the stage.[1]

The video itself is riveting, Atkinson explained, but its back story makes it even more compelling. As he explained, the clip was actually from a 2002 comedy festival and remained a largely unnoticed posting on Bliss's personal website until early 2006 when someone came across it and sent to a group of friends. The video quickly became an Internet sensation and, thanks to the wonders of viral marketing, was viewed over 20 million times by mid-April, 2006. As of this writing, it has been viewed over 7 million times on Google Videos alone. In fact, the video is so popular, it received what some might call the highest compliment possible—someone did a parody of it.[2]

The Chris Bliss video represents a stark example of how the Internet can transform video markets. On account of the changing video marketplace, consumers are moving a long way from the appointment viewing and "must see" Thursday lineup of yesteryear. NBC, for example, once prided itself on the appointment viewing of its Thursday night lineup, with its most popular program, *The Cosby Show*, garnering a 42% share of the total prime time viewing audience as recently as 1988. Today, not much more than that percentage of total viewers watch the prime time shows on all four major networks combined, with a myriad of cable networks attracting increasing numbers of viewers. The fragmentation of the viewing audience is even more dramatic if one begins to consider that

---

[1] David Segal, A Stand-Up Guy Happily Juggles His Passions, Washington Post, April 11, 2006, at C1. The video is posted at http://video.google.com/videoplay?docid=4776181634656145640.

[2] See http://video.google.com/videoplay?docid=-6283096511750618839. In a play on Oscar Wilde's famous quote, Siva Vaidhyanathan remarked that "the only thing worse than being sampled [in the online world] is *not* being sampled." David Bollier, From Push to Pull 37 (2006).

some consumers who once viewed prime time programs now view programs via the Internet, DVDs, or other media platforms.

The revolutionary aspect of video programming like Chris Bliss' juggling act is that such programs can reach a large audience without the aid of a distribution platform like NBC. YouTube, which is reportedly responsible for 60% of all video viewed online and plays over 100 million videos daily,[3] enables consumers to be their own talent scouts and programmers—as opposed to telling them what programming is "must see." Other companies have followed YouTube's lead and have moved quickly to roll out their own online video offerings, with the Yahoo! Current Network and Microsoft's Softbox on MSN Video offering platforms for users to upload programming. Responding to the changing viewing habits, NBC has even rolled out a new platform for its shows, the National Broadband Network (NBBC), which will allow content producers to syndicate their programs to NBBC. Unlike other providers in the online video space, however, NBBC will not allow users like Chris Bliss to upload content of their own creation.

Which services will thrive in the Internet-enabled video space or the effect of these services on traditional video programming outlets remains to be seen. It is clear, as *The New York Times* reported, that "[v]ideo delivered over the Internet is clearly shaping up to be an actual business that advertisers are interested in."[4] To that end, Google recently agreed to pay $1.65 billion to purchase YouTube, which had become an overnight Internet video sensation whereas Google's own Google Videos had failed to gain traction in the marketplace. With the dramatic changes now taking hold in the emerging video marketplace, policymakers are just beginning to confront a series of challenging issues related both to the development of the infrastructure necessary to support Internet-enabled video delivery as well as the content of the programs themselves. This Report seeks to both understand the nature of the current changes as well as advice policymakers on how to revise regulatory policies in light of them.

II. The Digital Broadband Migration and the Emerging Video Marketplace

In many respects, TV technology is the laggard in the digital broadband migration. A large plurality of consumers, for example, still watch video programming delivered via analog connections. To be sure, the satellite TV firms (Echostar and DirecTV) rolled out their services using digital technology from the get-go and the cable providers have upgraded their networks to provide digital cable, but only about one half of all cable customers have made the switch. As for wireline video competition, traditional telephone companies are just beginning to deploy their own video services in direct competition with

---

[3] Heather Green, Whose Video Is It Anyway?, Business Week Online (August 7, 2006) (http://www.businessweek.com/magazine/content/06_32/b3996051.htm).

[4] Richard Siklos, A Video Business Model Ready to Move Beyond Beta, N.Y. Times BU4 (September 17, 2006) (http://www.nytimes.com/2006/09/17/business/yourmoney/17frenzy.html?_r=1&oref=login).

incumbent cable companies. As for broadcast television, there is now a fixed date (in early 2009) for consumers to begin receiving over-the-air digital television, but only a small minority of them have made the switch. As for video delivery over the Internet, it has only begun in earnest this past year (with the advent of YouTube), leaving a series of questions as to how it will evolve.

The impact of the Internet on the video programming industry is likely to play out over a period of years. For starters, the TV is still the center of consumers' attention (the average household still watches over 8 hours of TV per day) and will remain so for some time, particularly as broadband speeds are not up to delivering high definition video programming, electronics markets are still developing new products to drive convergence (like Apple's iTV initiative), and consumers (as well as producers) take time to adapt to new opportunities. It is instructive, however, that consumers with higher speed broadband connections are spending less time watching TV than their fellow Americans and that millions of Americans have already embraced YouTube, leading Google to pay 1.65 billion for the new start-up video phenomenon.

While the exact path of the emerging video marketplace is unclear, it is difficult to deny that the developments now taking root are ultimately going to transform the video industry. Not only will new technology empower user-developed content (like the Chris Bliss video), but it will also allow for specially developed content for the Internet (discussions of niche subjects, for example) and meet demand for a previously untapped vault of old television shows (like Wonder Woman, now available through AOL's IN2TV) that are not currently available through any other outlet. As Ted Leonis, Vice Chairman of AOL, put it, "convergence is finally really happening. The bandwidth is there, the audience is there—we are getting 113 million customers a month and 14 million simultaneously on our servers. The ad market is exploding."[5]

The emerging new platforms for delivering video content via the Internet both provides enormous opportunities and challenges for established providers. Consider, for example, the case of traditional television broadcasters. To compete in the emerging video marketplace, explained Marsha MacBride, Executive Vice President Legal and Regulatory Affairs at the National Association of Broadcasters, they must compete for attention in an ever-

---

[5] Carol Wilson, VON: TV over IP About to Explode, Telephony Online (September 12, 2006) (http://telephonyonline.com/iptv/marketing/iptv_pulver_leonsis_091206). *The Economist* offered a slightly less confident outlook, but with the same bottom line:

> Whether or not convergence turns out to merit the hype, the industry has convinced itself that it is worth pursuing, and anyone who disagrees risks being left behind. "As soon as one operator adopts convergence, all the others have to follow," says Mr Lombard [Chairman of France Telecom]. Quite how far and how fast the process will go remains to be seen. But like it or not, convergence is coming.

Your Television Is Ringing, The Economist, Survey: Telecoms Convergence (October 12, 2006) (http://www.economist.com/surveys/PrinterFriendly.cfm?story_id=7995312).

expanding media universe as well as evaluate opportunities to use their valuable content that can now be made available via the Internet.

For new entrants, the Internet offers the opportunity for content developers to take advantage of what *Wired* Editor in Chief Chris Anderson has called "The Long Tail." After observing the dynamics of electronic commerce via the Internet, Anderson explained that businesses like Netflix are able to sell a large number of works at the "tail" end of the distribution curve. As he explained in the essay that he later developed into a book:

> Hit-driven economics is a creation of an age without enough room to carry everything for everybody. Not enough shelf space for all the CDs, DVDs, and games produced. Not enough screens to show all the available movies. Not enough channels to broadcast all the TV programs, not enough radio waves to play all the music created, and not enough hours in the day to squeeze everything out through either of those sets of slots. . . . This is the world of scarcity. Now, with online distribution and retail, we are entering a world of abundance. And the differences are profound. [6]

The long tail phenomenon can be a disruptive force for established industries premised on scarcity and promoting hits. For Blockbuster, its guaranteed stock of video hits for rental faced a formidable challenge in Netflix, which not only challenged its reliance on late fees (by doing away with them), but also countered with a large inventory that catered to all sort of niches. For those interested in documentaries, for example, Blockbuster just cannot compete with Netflix's selection. Moreover, Netflix helps consumers identify content that they would enjoy based on their previous viewing experiences.

By facilitating the development of long tail marketplace opportunities, Internet-based video distribution platforms (like Netflix) can support and enable the development of new video programming that previously would not survive in a hit-driven world. Moreover, such platforms can also facilitate new entry—and undermine established business models—by establishing an alternative to Hollywood's model of programming development (and hit-driven mentality). This is not to say that the new video marketplace will be one devoid of hits, but rather that there are increasing opportunities and vehicles for niche programming to find a receptive audience.

The Digital Broadband Migration Comes to Video

Robert Pepper, Senior Managing Director-Global Advanced Technology Policy for Cisco Systems, began the formal part of the conference by underscoring that true convergence is finally happening and explaining that the ingredients are now in place for a new video marketplace to emerge. To set the stage for the emerging video marketplace, Pepper outlined what he saw its four predecessor stages. The first stage was the introduction of television based on a limited number of choices—i.e., the big three TV networks. The second stage

[6] Chris Anderson, The Long Tail, Wired (2005) (http://www.wired.com/wired/archive/12.10/tail.html).

involved the introduction of more choices, originally with the creation of UHF channels and then with cable TV (as well as, much later, satellite television). The third stage came in the 1980s with increased consumer control, notably through the introduction of the remote control and the VCR. The fourth stage involved a level of interactivity and personalization typified by the Digital Video Recorder (DVR), which enables consumers to personalize their viewing options and receive recommendations tailored to their interests.

Finally, Pepper explained, the emerging video marketplace is increasingly featuring users as producers. In this stage now only beginning and typified by the Chris Bliss video, the costs of program development and distribution are likely to be far lower than in previous eras. As explained in a previous Aspen Institute Report, *From Push to Pull*, user-based product development even occasionally outperforms conventional markets by being "more flexible, personally satisfying, and culturally authentic" than conventional (and centralized) media.[7]

As Pepper outlined, a series of technological developments underlay the development of the emerging video marketplace. For the current stage of the industry's development—i.e., the future of video—a critical development is the widespread adoption of broadband Internet access. The original development of Internet applications during the mid to late-1990s catered to a narrowband (dial-up) infrastructure. During the late 1990s, consumers began migrating to broadband connections and the first popular broadband application—Napster—demonstrated that consumers craved digital media (in that case, mostly music). In the early 2000s, voice over Internet Protocol (VoIP) services grew in popularity, with consumers increasingly adopting such services from not only "over the top" VoIP providers like Vonage, but also cable companies which marketed VoIP offerings along with their core broadband product. Just recently, with increasing bandwidth and a broader base of consumers using broadband connections, video over Internet applications like YouTube are growing in popularity. As Pepper explained, broadband users behave in fundamentally different ways than their narrowband counterparts: they spend more time on the Internet, use different Internet applications and spend less time watching TV (see Figure 1 below)

[7] David Bollier, From Push to Pull 35 (2006). For a lengthier explanation of the user-based innovation phenomenon, see Yochai Benkler, The Wealth of Networks (2006); Eric von Hippel, Democratizing Innovation (2004).

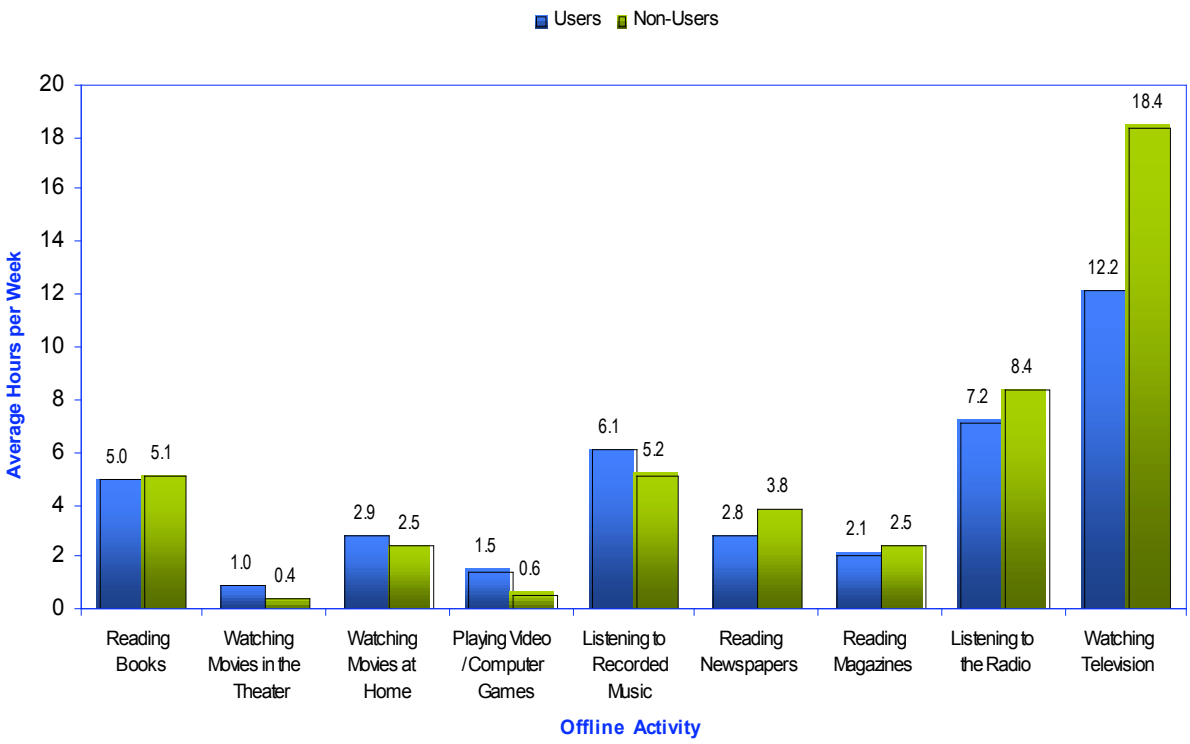


Figure 1: From "Surveying the Digital Future" A Project of Center for the Digital Future-USC Annenberg School, 2006

The implications of the emerging video marketplace are only starting to become clear, but most major media companies are not waiting to act out of fear of being left behind. For the Walt Disney Company, explained Bill Bailey, Vice President, Government Relations at Disney, a critical message is that "it used to be that there was a debate over whether content was king or distribution was king; now consumer is king." Moreover, Bailey continued, producers of video content must learn from the experience of music industry—consumers want content delivered to them "when they want it and how they want it." In Disney's case, its commitment to meeting this challenge underlies its extensive cooperation with Apple, both in terms of making available TV shows for downloading to a video iPod and in terms of Apple's more ambitious iTV initiative, which aims to enable movies and TV programs to be streamed from computers to consumers' TV sets.

Eli Noam, Professor of Business at Columbia University, suggested that the new media initiatives spearheaded by Disney, News Corp (e.g., its acquisition of MySpace) and the telephone companies constituted risky bets on the future. They are "good for consumers," he explained, "but as a shareholder, I am worried about how they are going to make money." Dean Brenner, Vice President, Government Affairs at QUALCOMM Inc., suggested that the investments in new technological frontiers will invariably pay off. "People thought Qualcomm was crazy for believing in the capacity of mobile phones to carry data," but that effort succeeded wildly; similarly, Brenner suggested, new video delivery options, via the Internet or mobile phones, would succeed and be

profitable for leading innovators. Based on the early results, the news is indeed good for Disney, with 125,000 film downloads from iTunes in the first week, with projected revenue at $50 million for the first year of this initiative.[8] Similarly, MySpace struck a deal with Google that promises $900 million in revenue based on advertising on the site. As for the effort by the telephone companies to enter into video markets, it is still unproven, but some project that by 2010, 49 million viewers around the world will subscribe to some form of "IPTV," making it a $13 billion industry.[9]

Regardless of its economic impact, the conferees were far more confident that the explosion of content and alternative distribution systems would promise far greater levels of fragmentation than ever before. As Link Hoewing, Vice President of Technology Policy at Verizon Communications, noted "No longer can Walter Cronkite pull us all together." As the era of a truly mass media comes to an end (i.e., when shows like *The Cosby Show* were watched by a large number of Americans at the same time), commentators are beginning to debate whether the new era—characterized by content plenty that is increasingly personalized to niche tastes—is going to be a good or bad development for American democracy and culture. [10]

The new video marketplace, without the strong guiding hand of three major networks and hit programming, will present viewers with a large variety of programming options and will threaten them with information overload. Based on the development of blogs, which are still mostly text but increasingly include video programming as well, it seems likely that "power laws"—a form of the network effects phenomenon where a service is more valuable as more individuals use it—will lead to a heavy reliance on certain sites (such as YouTube). As Clay Shirky has explained, power laws characterize a skewed distribution toward a limited number of points and explain why a relatively select number of outlets tend to garner the greatest attention of Internet users (as measured by in-bound links).[11] If addition to power laws (where users tend to watch what other users are watching), Internet users are also likely to look for other cues to economize on their search costs—including systems like the one Netflix uses to suggest movies that would appeal to viewers based on their past viewing habits and rating systems like eBay's that attest to a seller's reliability.

The Significance of Broadband

The changing nature of consumer behavior in the Internet age means that the same content might be viewed on a mobile phone, a computer, or a television.

---

[8] Joshua Chaffin, Disney's iTunes Sales Hit 125,000, Financial Times (September 19, 2006) (http://www.ft.com/cms/s/3cc773fc-481b-11db-a42e-0000779e2340.html

[9] Daisuke Wakabayashi, Microsoft Eyes Another Change to Be A TV Player, Washington Post (October 13, 2006) (http://www.washingtonpost.com/wp-dyn/content/article/2006/10/13/AR2006101300446.html?nav=hcmodule).

[10] *Compare* Cass Sunstein, Republic.com (2002) with Richard Posner, Bad News, N.Y. Times Book Review (July 31, 2005) http://www.nytimes.com/2005/07/31/books/review/31POSNER.html?ei=5090&en=4f8754ed897bdb1b&ex=1280462400&pagewanted=print)

[11] http://www.shirky.com/writings/powerlaw_weblog.html; Albert-Laszlo Barabasi, Linked (2000).

Providing the consumer with access to this content in a flexible fashion is "a challenge to established content providers," Joe Waz, Vice President and Public Policy Counsel to Comcast, explained. Steven Teplitz, Vice President and Associate General Counsel of Time Warner underscored this point, explaining that "the ongoing march of technology is changing how consumers are purchasing services and we deliver them." In many respects, the rise of Google typifies this challenge to established providers, as its mission—summed up by Andrew MacLaughlin, Google's Head of Global Public Policy—is to "enable access everywhere and develop new ways to use computing platform." This access everywhere model will not only involve Internet-based content services, but also mobile video ones, such as offerings like Sprint's recently announced sports and entertainment network.

Regardless of the service delivery model, Joe Waz of Comcast explained, someone needs to build the physical networks. The cable industry has invested over $100 billion over the last ten years to develop their networks and some reports suggest that the industry will need to invest even more to compete with fiber-to-home build-outs such as that spearheaded by Verizon. At AT&T, noted Jeff Brueggeman, Vice President, Regulatory Policy, the focus is on building out our broadband infrastructure and being "a network company first and foremost," with "a lot of partnering to get customers whatever services they want, however they want it." With cable companies and telephone companies providing the overwhelming number of broadband connections, a number of conferees remained concerned about the state of broadband deployment and adoption.

As an initial matter, some conferees urged a focus beyond the mere numbers of adoption and on the level of bandwidth provided. Other countries, explained Andrew MacLaughlin of Google, have far greater levels of bandwidth—say, 30 megabits per second as compared with 1-5 megabits per second in the U.S. Similarly, Dan Gillmor, Director of Center for Citizen Media, explained that slow upstream speeds represent an enormous failing given that "users are producing new products and services as members of communities"; the promise of user-developed content, Gillmor suggested, will only be realized if bandwidth availability is more symmetric.

The principal issue that concerned the conferees related to broadband deployment is the search for a third broadband pipe—i.e., will a competitor emerge to challenge the cable and telephone companies in this market. In contrast to last year's report, which featured the optimistic claim that the broadband market was at 2 ½ competitors and counting, a number of participants suggested that the search for the third broadband pipe appeared more daunting. As Federal Trade Commissioner Jonathan Leibowitz stated, we must ask ourselves whether "we are facing a natural duopoly." Blair Levin, Managing Director and Telecom and Media Analyst at Stifel Nicolaus, stated his view plainly as "I don't see a broadband pipe emerging." Initially, Levin explained, he viewed wireless broadband—particularly as supported by the satellite TV providers—as a promising technology, but given results of the recent AWS auction (where no new entrant purchased a nationwide footprint) and the lack of new spectrum available until January of 2009, he explained that the advanced development of the market and the "power of the bundle" will make it too difficult for a new pipe provider to emerge. Echoing Levin's analysis, Dale

Hatfield, Adjunct Professor at the University of Colorado, added that "there is lots of money being invested today in particular architectures [such as Internet Multimedia Substation (IMS)] that could make" entry more difficult and be difficult to address down the road. As one observer suggested as to such fears, technologies like IMS "will let broadband industry vendors and operators put a control layer and cash register over the Internet and creatively charge for it."[12]

The limited cause for optimism on the emergence of a third pipe is captured by the suggestion that "good enough" wireless broadband might keep the cable and telephone companies on their toes. As Andrew Odlykzo explains:

> What is needed is a wireless technology that provides bandwidth of a few tens of megabits per second (all that most consumers will need for a while, given how slowly display technology is changing), a range of a few hundred meters, to be able to serve a number of households, and ability to offer voice (which is where the money will continue to be for quite a while yet, and which is not hard to do when there is enough bandwidth). Once that is available, one could build new wireless services to compete with established wireline ones. Whether such wireless systems would use licensed or unlicensed spectrum is an open question.[13]

In short, Odlykzo's argument suggests that wireless broadband need not succeed wildly, but merely enough to pressure its wired counterparts. Whether such wireless broadband offerings will emerge remains to be seen, but there are some hopeful signs on the horizon, including Wireless Internet Service Providers (WISPs) and municipalities using wireless technology for their own uses and, in some cases like San Francisco, making it available as a public service for their citizens.

A different type of an optimistic perspective, offered by James Gattuso, Research Fellow in Regulatory Policy at the Heritage Foundation, maintains that two broadband providers may be enough competition. After all, Gattuso explained, some markets—say, Boeing and Airbus—seem to function reasonably well with only two producers. Others disagreed, explaining that such markets are materially different than the broadband market because, among other reasons, the purchasers in such markets are far more sophisticated and because broadband—unlike those markets—functions as an enabling technology for other applications.

The importance of broadband as an enabling technology gives rise to the concern that a large number of consumers have yet to adopt broadband and do not appear poised to do so within the next several years. Commissioner Michael Copps of the FCC championed the importance of focusing on broadband deployment, calling it the "central infrastructure challenge of our time"—tele-

---

[12] John Wadawsky, IMS 101: What You Need to Know, Business Communications Review (June 20, 2005) (http://www.bcr.com/carriers/public_networks/ims_101_what_need_know_now_2005061514.htm).

[13] Andrew Odlykzo, The Many Paradoxes of Broadband, First Monday (July 31, 2003). (http://www.firstmonday.org/issues/issue8_9/odlyzko).

medicine, tele-education, and other emerging applications all depend on consumer adoption of broadband technology. As Figure 2 below illustrates, it appears likely that 37 million American households will not have broadband technology by 2010.

Online Households in the US, by Access Technology, 2004-2010 (millions and penetration)

	2004	2005	2006	2007	2008	2009	2010
Dial-up	34.5	30.6	26.1	21.3	16.6	12.8	10.6
Broadband	35.3	43.7	52.2	60.8	68.9	75.6	80.0
Online households	**69.8**	**74.3**	**78.3**	**82.1**	**85.5**	**88.4**	**90.6**
Total households*	114.7	116.8	119.0	121.2	123.3	125.5	127.6
Household Internet penetration	60.9%	63.6%	65.8%	67.7%	69.3%	70.4%	71.0%
Broadband penetration of online households	50.6%	58.8%	66.7%	74.1%	80.6%	85.5%	88.3%

*Note: *based on data from the US Department of Commerce, September 2004*
Source: eMarketer, May 2006

072608 www.eMarketer.com

Figure 2

* * *

In short, all conferees agreed that encouraging greater levels of broadband adoption—and access to the applications and content that rides on this infrastructure—is a critical goal of communications policy. As David Honig, Executive Director of the Minority Media and Telecommunications Council, explained, "there are millions of people not able to participate in democracy or recognize our creative potential," without broadband, making universal broadband "the most important civil rights issue of the day." Notably, this civil rights issue is not about class issues and not simply racial ones; one study, for example, found that, whereas six out of every 10 households with income above $100,000 subscribes to broadband Internet access, only one out of every 10 households with income below $30,000 has broadband Internet access.[14]

II. THE DEVELOPING BROADBAND INFRASTRUCTURE AND ITS ASSOCIATED POLICY CHALLENGES

The conferees recognized the importance of facilitating available and affordable access to broadband services, but cautioned against using the existing model of universal service assessments to do so. Moreover, as the Working Group report that framed our discussion underscored, the current debate on this topic is compromised by the lack of a clear understanding the reasons for and the levels of broadband adoption. In short, these two concerns—that the next generation policy should not simply follow the current voice model and that new

[14] http://www.freepress.net/docs/bbrc2-final.pdf#search=%22Broadband%20Reality%20Check%22

policies be grounded in a clear understanding of broadband adoption—underpinned the four principles outlined as part of a next generation universal service policy.

Toward A Next Generation Universal Service Policy

First, the conferees emphasized the need to take a broad view of the broadband adoption problem. Such an approach requires an examination of all of the factors that might affect adoption, including service pricing and availability, hardware costs, and technological literacy. At present, unfortunately, most of the reports on this topic are less than illuminating. To be sure, there are a few initiatives designed to better understand this issue *(MIT, Pew, Ken Flamm, Measuring Broadband, to evaluate broadband adoption (Pepper; Link for CITES),* but there is a remarkable level of uncertainty and an array of (sometimes inconsistent) explanations for the state of U.S. broadband adoption. With a better understanding of consumer behavior, policymakers can begin to develop more effective policy strategies. Thus, the first principle of a sound broadband policy is to develop a careful understanding of the issue and, then, to design policies to facilitate adoption based on the areas shown to matter. In so doing, moreover, policymakers should develop a set of metrics for defining success in this endeavor.

The second principle of a next generation universal service policy is that policymakers should adopt a flexible (and evolving) target for broadband adoption based on market experience. Stated differently, the goal of universal service policy should be for all citizens to be able to use broadband in a similar manner to other citizens regardless of income. On account of greater levels of broadband adoption, the U.S. would benefit politically, culturally, socially, and economically. In particular, not only would ubiquitous adoption of broadband better promote widespread access to news, information, and public safety services, it would also enable economic growth and opportunity. Even without attempting to resolve whether the U.S.'s relative level of broadband adoption (i.e., the often cited ITU rankings that place the U.S. in the mid-teens internationally[15]) is relevant as matter of national competitiveness, the conferees

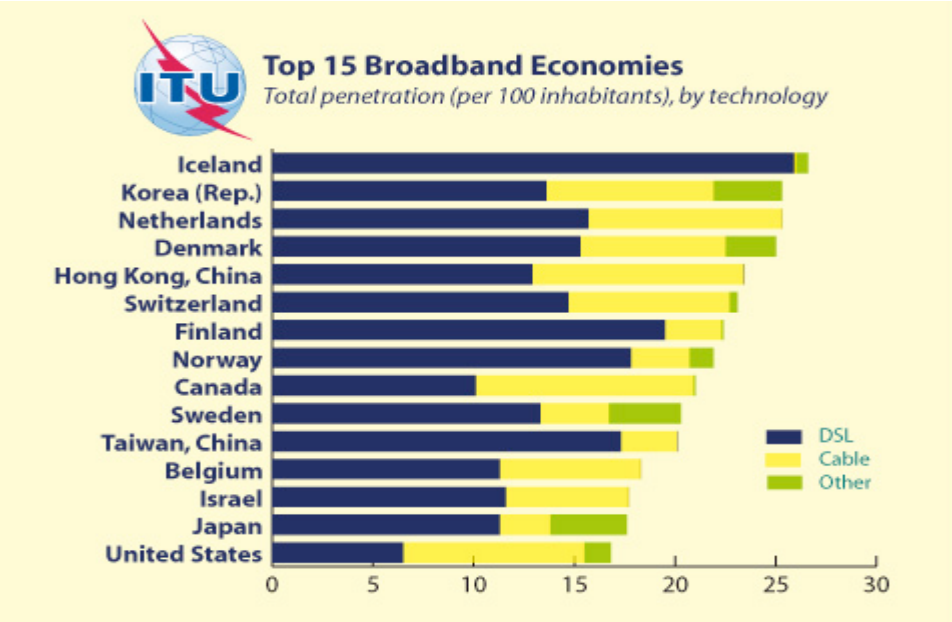
[15] The chart of broadband rankings, as calculated by the International Telecommunications Union, is set out below (as taken from http://www.itu.int/osg/spu/newslog/ITU+Broadband+Statistics+For+1+January+2006.aspx). For an analysis of the rankings, see Robert Atkinson, U.S. Continues to Tread Water in Global Broadband Adoption (April 12, 2006) (http://www.itif.org/files/oecd-article1.pdf).

did conclude that such comparisons suggest—at a minimum—that greater levels of adoption are certainly feasible.

The principle of using a flexible and evolving target for broadband adoption underpinned the conferees' policy recommendation that the U.S. adopt a means-tested program for supporting broadband deployment. In particular, such a program could be charged with the objective of lifting penetration rates for low-income households to the comparable level of those of households in a defined, high-income group that serves as the adoption benchmark. If, for example, 75% of all households earning over $100,000 are subscribing to broadband connections capable of two way video transmission, that should be the standing for households earning less than $100,000. The conferees recognized that this proposal is merely a starting point for a broadband subsidization program because some adjustments for other demographic characteristics may be necessary (e.g., older Americans may not be adopting broadband for other reasons) as well as adjustments based on geography (e.g., supporting fiber optic build-outs in rural areas may well be impractical). Moreover, a number of conferees emphasized that broadband penetration rates reflect not merely the availability of broadband, but also the availability of applications that will both promote adoption and serve important public interest objectives (e.g., distance learning, telemedicine, etc), suggesting that some efforts to support the development of such applications might be warranted. In any event, the virtue of a flexible and evolving approach is that it would provide a market test of the costs and benefits of broadband adoption.

Third, as mentioned above, the conferees believe that universal service support for broadband should be separated from the universal service fund (USF) that supports "plain old telephone service" (POTS). In particular, the POTS USF reform process is proceeding on its own track and confronts numerous legacy

---



issues and constraints.[16] By contrast, broadband universal service policy presents more of a clean slate and thus may have a wider range of politically feasible policy choices. Significantly, policymakers can turn to sources of general revenue to support broadband deployment rather than industry-specific assessments that support POTS USF assessments. The use of industry-specific assessments is most unfortunate as it actually deters users from communicating insofar as it raises the price of communications services. From an economic perspective, industry-specific assessments should be reserved for goods that the government wishes to discourage consumption of (e.g., tobacco); by imposing such assessments on communications services, the government sends consumers exactly the wrong message.

Finally, the conferees agreed that policymakers should support and conduct a series of decentralized experiments that are centrally funded through a competitive grants program. Notably, efforts supported by this program would provide alternative means of promoting broadband universal service to those already in place. Initiatives supported by such a program could include using new technologies to support wireless broadband (such as WiMax), different subsidy models (including using voucher systems or reverse auctions to provide covered services), and various policies to promote competition. As envisioned, this program would be open to both private and public applicants and would seek to identify policies that work and that can applied on a national scale.

The initiative of supporting new experiments to drive broadband adoption would differ from previous such efforts, including the NTIA's Technology Opportunity Program. Notably, proposals that would be funded under this system would have to focus on promoting broadband adoption by underserved groups. Moreover, policies would not have to be self-funding or identify other sources of funding. For example, the goal of an experimental voucher program would be to establish whether this could be a model for a national policy that would be funded through some sort of tax or universal service fee.

Economic Regulation

In general, the conferees concurred that broadband should not be subject to any of the traditional forms of common carriage regulation (price, entry & exit, service quality, etc.) The primary concern discussed at the conference was thus whether broadband providers possess market power and are in a position to undermine the development of applications—either new services or the delivery of content—from upstart firms like YouTube. The conferees agreed that the debate in Washington, D.C. on this issue was often surreal, unintelligible, and even comical. As Blair Levin put it, "the network neutrality debate was the most amusing debate ever, but the intellectual content was not focused on which regime would produce more innovation."

[16] For an overview of the current regulatory program for supporting universal service, see Jonathan E. Nuechterlein & Philip J. Weiser, Digital Crossroads: American Telecommunications Policy in the Internet Age ch. 10 (2005).

The conference focused on the question of what economic principles should guide the inquiry into what model of regulation (if any) would be appropriate for overseeing access to broadband. One guiding principle sketched out by Michael Katz, Sarin Chair in Strategy and Leadership at University of California–Berkeley's Haas School of Business, is that "two-sided markets" may give rise to novel pricing strategies. As Katz explained, a two sided market is one where a firm must attract entry on two sides—say, users of broadband and providers of applications for them to use—and may use different types of business strategies to do so.[17] In the case of night clubs, for example, which must attract both men and women to be successful, it is sometimes a rational strategy to hold a "ladies night" when women are given a discount (say, one free drink) and men are required to pay more (at least as a relative matter). Similarly, Katz reasoned, it might be a rational pricing strategy in broadband to offer consumers a discounted rate and to require application providers to pay more.

Bob Blau, Vice President of Public Policy Development at BellSouth, provided an example of how BellSouth has implemented a novel pricing strategy in a manner that benefits consumers. In particular, BellSouth sells DSL connections at different levels of bandwidth, including ones limited to 256 kilobits (kbps) per second downstream (and 128 kbps upstream). For such customers, downloading video programs is likely to be a difficult proposition. But, on account of a deal with Movielink, even 256 kbps DSL subscribers can download movies quickly because Movielink pays an additional amount to BellSouth to provide the subscriber with greater bandwidth for the sole purpose of the movie download. By analogy, suggested Kevin Kahn, Senior Fellow and Director of the Communications Technology Lab at the Intel Corporation, 1-800 calls are not priced so that the customer is the only one allowed to pay for the connection—and indeed an industry has flourished on the premise that, for a certain type of call, customers should not be charged the full freight.

The conferees speculated that there would and should be a variety of different business arrangements where firms paid for quality of services assurances for access to broadband or to the content. In the case of access to content, Bill Bailey of Disney related that ESPN 360 provides specially developed broadband content that is contractually provided to certain broadband providers. As Michael Katz underscored, the negotiation of such relationships can be complicated if government regulation leaves property rights (such as the perogatives of broadband providers) uncertain; after all, as the Coase theorem explains, with clearly delineated property rights and no transaction costs, parties can successfully contract around property rights to reach an economically efficient outcome.[18]

The conferees largely concurred that different quality of service arrangements and charging application providers for access to broadband on a quality of service basis was a healthy and normal development in the Internet's evolution. The concern that many conferees focused on is whether broadband

[17] For a discussion of the two-sided markets phenomenon and its implications, see Jean Charles Rochet & Jean Tirole, Two Sided: An Overview (March 12, 2004) (http://faculty.haas.berkeley.edu/hermalin/rochet_tirole.pdf).
[18] *See* R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 15-19 (1960).

providers would engage in harmful discrimination—i.e., undermining quality of service—because of some form of vertical integration (either contractual arrangements or ownership in a competitive service). As a starting point for analyzing this concern, it is important to appreciate that modern economic learning suggests that many vertical relationships are benign and that broadband providers often lack the incentive to engage in vertical foreclosure. Or, to state the issue in more concrete terms, as did Lee Schroeder, Vice President at Cablevision, "we [at Cablevision] are all about finding complementary services that will encourage consumers" to subscribe to our broadband services, not about limiting what types of services can ride on our platform. Nonetheless, there are cases where firms will have the incentive and ability to engage in an anticompetitive discrimination, as Madison River Communications demonstrated when it blocked Vonage's Voice over Internet Protocol service.[19]

The debate on network neutrality worth having is how often abuses of market power are likely to occur and what regulatory regime should be instituted to guard against and react against any such abuses. On the side of the debate that the Internet should adhere to an architecture premised on the end-to-end principle—where no gatekeeping or intermediary should prioritize traffic on the network—was Andrew MacLaughlin of Google who explained that such an architecture would best promote innovation. If the Federal Trade Commission could be trusted to act swiftly and effectively to remedy any anticompetitive conduct, MacLaughlin explained, he would be less committed to his "architecture as policy" perspective. In response, Katz explained that proactive regulatory programs that limit the behavior of platform providers—such as the old Financial Internet and Syndication (FinSyn) Rules that limited the ability of the major networks to enter into the programming business[20]—merely distort the market in ways that harms consumers. To address anticompetitive concerns, Katz maintained, the best model is the antitrust system. Adding to this point, Rob Atkinson of ITIF explained that an antitrust model (superintended by either the FCC or the FTC), along with a select number of proactive requirements related to transparency and providing incentives for a growing and robust level of bandwidth for best efforts connections, is the best regulatory program for addressing network neutrality concerns.[21]

After further discussion, it became clear that the essence of the debate among the conferees revolved around whether allowing fees for quality of service (QoS) would compromise the control at the edge that historically gave rise to considerable innovation. In particular, the fear that MacLaughlin and some others explained is that the quality of service assured network would crowd out the best efforts network. In particular, James Assey, Democratic Senior

---

[19] For the explanation of why firms often will not have an incentive to engage in vertical foreclosure (or monopoly leveraging) in applications markets as well as the exceptions to this rule, see Joseph Farrell & Philip J. Weiser, (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=452220). For the Madison River decision, see Madison River Communications LLC, Consent Decree, 20 FCC Rcd 4,295 (March 3, 2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-05-543A2.pdf.

[20] Those rules were invalidated, on the basis that they lacked a coherent economic justification, in Schurz Communications v. FCC, 982 F.2d 1043 (7th Cir. 1992).

[21] http://www.itif.org/files/netneutrality.pdf

Counsel to the Committee on Commerce, Science and Transportation, asked "what incentives does the introduction of quality of service assurances have on the development of the best efforts network"? As for the justification for allowing QoS assurances, Katz's argument about differential pricing in two-sided markets was coupled with the need to provide incentives for investing in greater levels of bandwidth to make the case for allowing greater freedom on the part of broadband providers.

While most participants were comfortable allowing QoS assurances for a fee, there was considerable disagreement as to whether such assurances should be policed for harmful non-discrimination. On this point, at least one broadband provider conceded that non-discrimination requirements should apply to QoS assurances offered to that provider's own services, but that such restrictions should not apply as to assurances offered to third party services. Others suggested that non-discrimination should also to all arrangements while yet others suggested that no such oversight was appropriate. To make matters more complex, some noted that the entire debated begged a fundamental question—"what is the Internet?" and should any relevant restrictions on QoS prioritization apply to so-called "private network-based services" or "cable services" offered by the broadband provider. Needless to say, the conferees did not reach a conclusion on this issue or the appropriate regulatory oversight of QoS arrangements more generally.

Toward Consensus Principles

The conferees did not (to no one's surprise) resolve the network neutrality debate. The discussion did, thanks to some thoughtful work by the Economic Regulation Working Group, develop a set of consensus principles. The first principle—as suggested above—is that the concern over "network neutrality" only arises if the market is not sufficiently competitive so as to ensure that broadband providers will enable all applications to operate effectively at least on some networks. Consequently, the most essential and significant policy challenge is facilitating the development and deployment of new broadband technologies through a variety of tools, including spectrum policy reform and broadband deployment tax credits. Until new broadband pipes develop, however, there is a concern that the incumbent providers will abuse any market power they possess.

The second consensus principle is that the FCC's Policy Statement on broadband policy sets out a number of important rights for consumers.[22] In particular, as that Statement contemplates, broadband providers should disclose their network management policies so that consumers can make intelligent decisions and be permitted to use the equipment they want as well as access,

[22] Policy Statement, *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 FCC Rcd 14,986 (2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf. This statement borrowed heavily from an earlier policy pronouncement of former Chairman Powell's. *See* Michael K. Powell, *Preserving Internet Freedom: Guiding Principles for the Industry*, 3 J. on Telecomm. & High Tech. L. 5 (2004), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf.

download, and uphold the content they want (subject to legitimate restrictions, such as those necessary to protect against spam, viruses, and offensive content).

The third consensus principle is that there is a real need for more information and greater awareness about what types of arrangements are taking hold as the Internet evolves. The Internet, whether or not quality of service assurances by broadband providers are going to be permitted (and all indications are that they will, at least for the foreseeable future), is changing in a number of important ways. To track the changing nature of the Internet, there is a real need for organizations to monitor how Internet traffic is relayed across networks and what forms of prioritization are instituted.

The fourth consensus principle is that an effective regime of after-the-fact (ex post) enforcement is superior to a before-the-fact (ex ante) regime comprised of prophylactic rules. Stated simply, the conferees embraced an antitrust-like model that enforced general principles that defined anticompetitive behavior as opposed to an effort to define specially through regulation all forms of anticompetitive behavior. As Sharon O'Leary, Chief Legal Officer for Vonage Corporation, explained, the critical area that policy should focus on is not on developing categorical rules, but on "the policing mechanism used to address anticompetitive conduct." As noted above, however, the conferees were not able to reach closure on the substance of the appropriate principles, particularly with regard to the circumstances that would justify the sale of differing quality of service assurances to application providers based on their willingness to pay for them, leaving that issue for further evaluation and debate.

The final consensus principle is that a new institutional strategy must be developed for adjudicating the relevant disputes. Notably, the conferees expressed their concern that the FCC's institutional culture left it poorly suited for the challenges of after-the-fact competition enforcement. For starters, as Bob Blau of BellSouth put it, the FCC's history of price regulation might incline the agency toward greater oversight of the terms and conditions of their broadband services. Others, such as Michael Katz, emphasized the agency's lack of an enforcement mindset as well as suitable powers for obtaining information through subpoena. Consequently, the conferees endorsed either a new institutional framework within the FCC (say, administrative law judges acting according to a specially designed mission) or a delegation of appropriate oversight to the Federal Trade Commission or the Justice Department's Antitrust Division.

III. EMERGING VIDEO APPLICATIONS AND CONTENT: THE NEW REGULATORY FRONTIER

In reaction to Rob Atkinson's story about the Chris Bliss video, one participant noted that the video's use of the Beatles' songs violated the Copyright Act. This reaction mirrored that of the recording industry, which sent Bliss letters in the wake of the video's soaring popularity. In response, as *The Washington Post* reported, Bliss "diplomatically asked them for guidance and the

matter was promptly dropped."[23] Both the sending of the notice and the dropping of the matter underscore that copyright policy often does not deal well with issues like the Bliss video—after all, where are the profits and what is to be gained through enforcement?

The challenge for digital copyright policy is to facilitate creativity by ensuring opportunities for users to use prior works—even by paying a licensing fee—and improve on them. Thankfully, in the case of the Chris Bliss video, the issue did not become a show stopper and, in a twist of irony, Ringo Starr posted the video on his site (although he does not own the copyright for the songs that are played in the video). But other creators are not so lucky.

The reaction of some parents at the conference during Atkinson's telling of how he stumbled on the video through a link in an email was a disturbing unease related to the challenges of monitoring videos that kids watch based on receiving emails from their friends. With ever-increasing sexual predation and risks from using harmful Internet applications (spyware, identity theft, etc.), the regulatory challenges of consumer protection and social regulation in the Internet age are only going to become more formidable. In the case of both intellectual property policy and consumer protection, this Report raises more questions than it answers. In both cases, however, it is critical that policymakers begin analyzing tomorrow's questions today.

A. The Role of Intellectual Property Law

Intellectual property law is a double-edged sword. On one side, as Congresswoman Marsha Blackburn emphasized, both upstarts and established firms depend on intellectual property protection to justify investment in risky ventures. In the case of larger, established firms, those investments can be on the order of massive research and development initiatives; for upstarts, it can be a matter of betting the entire company on a single technology. At the same time, some upstarts (and established firms) face intellectual property litigation as a strategic tool either to gate entry and innovation or simply to reap rewards for the firm owning the relevant intellectual property right.

Economists continue to debate the nature of innovation and the role of intellectual property policy in encouraging it. At present, however, we can rely on a few basic principles to guide policy in this area. First, it is fairly clear that inventions (in the case of patents) and creative works (in the case of copyright) are—without legal protection—easily appropriable by others, creating a critical role for intellectual property law to ensure that inventors can reap rewards for their efforts. Second, it is also clear that established firms with legacy business models—say, Blockbuster—face an enormous challenge when "disruptive technologies" provide a means of providing a competitive service through a new technology. Often, an established firm will face the "innovator's dilemma" as to whether to implement this technology or maintain its current course.[24] If a firm chooses the latter strategy, it is a tempting proposition to challenge the upstart either in the courts, at a regulatory agency, or both, with intellectual property

[23] *See* supra note __.
[24] *See* Clayton Christensen, The Innovator's Dilemma (1997).

litigation presenting one possible vehicle for limiting innovation. Famously, the broadcasters used just such a strategy toward the cable providers, convincing the FCC to adopt a series of onerous regulations imposed on cable operators (including program origination requirements and a ban on pay TV) that some commentators have called a "textbook example[s] of anti-competitive regulation."[25]

The development of copyright law for the digital age must strike an important balance in preventing and addressing piracy while providing innovators with a clear framework that will safeguard them from unwarranted legal actions that could chill investment. A principal vehicle for striking this balance is copyright law and, more specifically, the doctrine adopted by the Supreme Court in the *Grokster* case.[26] In *Grokster*, the Court ruled that a firm that induces infringement through creating a product or service designed to benefit from piracy is liable for copyright infringement. The Court did not address specifically, but left intact, the safe harbor rule set forth in the Sony Betamax case.[27] Under *Sony*, a substantial non-infringing use is sufficient to provide a safe harbor against suit. It remains unclear to what extent, if any, that *Grokster* affects this rule, but it is clear that copyright law protect innovators—unlike Grokster itself—that design products that are envisioned to provide a legitimate service and not to induce piracy.

To appreciate the stakes of the *Grokster* rule and its implementation, consider the case of the iPod. When invented, the iPod was envisioned as a new platform for distributing digital music (particularly in conjunction with iTunes). Nonetheless, any reasonably intelligent person could also anticipate that the iPod might be used for storing and playing pirated music. (The same could be said about the VCR.) Under *Grokster*, it seems clear that the iPod would be insulated from a legal attack. A related question—left open under *Grokster*—is whether the designer of a new product like the iPod should be required to build in protections against piracy (at additional cost and at the cost of potentially degraded functionality) if such protections are foreseeably helpful. The same question, as we will discuss below, can be asked as to network owners. As to both network providers and equipment developers, some in the Working Group on Intellectual Property believe that no such requirements should be imposed as a matter of copyright law, although there might be cases where equally effective and efficient systems are available and that, in such cases, firms should take reasonable steps to avoid facilitating piracy.

Creating A New Environment for Effective Licensing

The first and most critical challenge of the new digital environment is to develop norms that respect copyrighted content. In many cases, Internet users

---

[25] Thomas W. Hazlett, *The Wireless Craze, The Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335, 419 (2001) *("Wireless Craze")*; *see also* Stan Besen & Robert Crandall, *The Deregulation of Cable Television*, 44 LAW & CONTEMP. PROB. 77 (1981) (criticizing early regulation of cable television).
[26] *See* MGM Studios, Inc. v. Grokster, Ltd., 125 S. Ct. 2764 (2005).
[27] Sony Corp. of America v. Universal City Studios, Inc., 464 U.S. 417 (1984).

are growing accustomed to downloading music and increasingly video over peer-to-peer file sharing networks (like Bittorent) without paying for copyrighted works. Such behavior, however, is subject to change, as Verizon's Hoewing explained. Notably, Hoewing recounted, students in high school plays once regularly copied the relevant scripts whereas today's students—on account of a concerted effort by the publishers—now respect copyrights and do not do so. This type of an education campaign must be a critical part of developing a sustainable and effective copyright strategy. To do so, some in the Working Group suggested that, rather than filing lawsuits seeking to shut down YouTube or MySpace for failing to police copyright laws, copyright holders should work with those websites to undertake a concerted effort to educate users, create new markets, and shape consumer behavior. In all events, educational efforts alone, however, are probably not sufficient to combat behavior that does not respect copyright.

Creating new markets in the digital environment represents one of—if not *the*—most exciting aspects of the Internet. Before the Internet, the Chris Bliss video might be available to a handful of individuals. But even with the Internet, the video could be pulled at any time—as well as the basis of a lawsuit seeking a significant amount of statutorily prescribed damages[28]—on the ground that the use of the Beatles' songs were used without permission. Unfortunately, for those interested in using Beatles' songs or other valuable content as part of online videos, there may be no easy way for users and creators to gain permission.

As a first step in the effort to facilitate more user-friendly ways to work with content, policymakers should recognize that effective licensing markets are a critical part of a healthy Internet ecosystem. One important development that is beginning to promote effective licensing through a voluntary system is the advent of the creative commons license.[29] That system provides creators with a menu of options as to which rights they wish to retain—say, to be paid whenever a protected work is copied in its entirety—as well as which rights they are willing to leave in the public domain—say, the right to sample the work in any derivative work.

As a norm of how consumers behave, many act as if any website without a specific notice claiming copyright protection allows others to copy from that website in creating their own content. The beneficial effect of this norm is that it spurs content owners to develop terms and conditions for allowing the use of their content (i.e., at whatever price and under whatever conditions they select) or otherwise be deemed to allow any use of their content. Ideally, new databases and content distributors will emerge to lower transaction costs and bring together buyers and sellers of content to enable it to be reused, revised, or repurposed.

The stakes in the effort to develop effective licensing models are high. To the extent that firms devise ways to release content that had long been locked

[28] *See* 17 U.S.C. § 504(c) (providing for statutory damages ranging from $750 to $150,000 per act of infringement).

[29] For more information about creative commons licenses, see http://wiki.creativecommons.org/FAQ.

in an "analog vault," consumers will have new choices—not only of old content, but old content utilized in creative ways. This phenomenon reflects two powerful facts of Internet life—that, without scarcity of shelf space, Internet providers can take advantage of "long tail" markets and that user-developed innovation represents a powerful generator of valuable content.[30] If, however, the lack of a vibrant licensing market fails to develop, the cost to our economy and culture would be substantial. Because unlocking the vault is a win-win proposition (for producers (such as TV broadcasters) and consumers), market forces can be expected to develop effective solutions.

The lack of an accessible system for licensing creative works also could drive creators and consumers to rely on peer-to-peer networks like Bittorent. Such networks would provide lots of illegal, but valuable digital content for free and without restrictions and thus provide a powerful incentive for content holders to support the development of effective licensing regimes. The recording industry, as some participants noted, learned this lesson the hard way and the video producers are taking a number of steps to make digital content available to consumers when they want and how they want it.

In general, the group believed the incentives to create effective licensing markets and the threat of piracy were sufficient motivators that government did not need to intervene to develop a compulsory licensing model along the lines proposed by Terry Fisher and others.[31] Such a model has a series of associated challenges, including devising and overseeing a taxation scheme over broadband connections as well as placing the government in the position of setting prices for creative content—a process rife with inefficiencies. Moreover, at least in this case, there is still time for a private sector solution to develop, as suggested by the fact that Bittorent is already striking deals with content producers (as it has already done with Time Warner) to distribute content over its peer-to-peer network. Over time, we would expect to see such developments and others, as we are already seeing in the digital music realm (say, with iTunes and Rhapsody).

As many conferees emphasized, it is important for online video initiatives to learn from the experience that the recording industry in the face of their efforts to resist the digital distribution of music. As Edgar Bronfman, of Warner Music, explained in outlining an agreement to work with YouTube: "Consumer-empowering destinations like YouTube have created a two-way dialogue that will transform entertainment and media forever," and "Warner Music is embracing that innovation."[32] Notably, Warner's reported agreement with YouTube would be not only authorize YouTube to distribute its music videos, but would authorize the distribution of homemade videos for its songs. Such a strategy, if pursued more widely by the industry, would facilitate legitimate distribution avenues from the get-go—as was the case for the market for ringtones, for example—and would provide formidable protection against individuals resorting to piracy. To be sure, it is far from clear that the industry

[30] *See* Chris Andersen, The Long Tail (2006); Eric von Hippel, Democratizing Innovation (2004).
[31] Terry Fisher, Promises to Keep (2003).
[32] http://news.yahoo.com/s/ap/20060918/ap_on_hi_te/youtube_warner_music

will pursue this strategy, as some companies are reportedly evaluating the merits of copyright challenges against YouTube and other firms hosting copyrighted works (like the Chris Bliss video).[33]

One critical area for policymakers to address is that securing a license to copyrighted work is often very difficult to arrange for either legal or practical reasons. On the legal front, the situation with "orphan works" is particularly troubling given today's Internet-enabled landscape. In the analog era, the fact that a book was out-of-print and in a library suggested that was the best use for it. In the digital broadband era, however, there are exciting online distribution opportunities, but if the holder of the relevant copyright cannot be found, users cannot take advantage of such opportunities. Congress is currently considering an array of proposals to address this issue and we strongly recommend that it be resolved, say, by authorizing the use after a sufficient effort to search out the copyright holder and removing the heavy penalties that copyright law imposes on unauthorized copiers in such situations.[34]

A second legal front related to the orphan works issue that some members of the Working Group believe requires attention is the collateral damage caused by the practice of extending copyright terms. In the Copyright Term Extension Act, for example, Congress authorized an additional 20 years for all copyright terms. For major and still used works, say, Mickey Mouse, this law merely protects the right of copyright holders to control those creations. For unused works, however, this law prevents an enormous amount of material—including early films—from coming into the public domain. Some conferees thus suggested that, at the very least for any future copyright term extensions, it is critical that Congress not allow such a law to protect unused works. Congress might, for example, require that all copyright holders wishing to retain works under their control to pay $1 per year to retain control of the creative works in question.

Challenges of Digital Rights Management

Some of the most challenging issues in technology law relate to the development of digital rights management policy. In short, copyright law, and the policies it protects, does not translate easily into a digital broadband environment. In 1998, Congress enacted the Digital Millennium Copyright Act (DMCA) as a means of promoting digital distribution of content on the Internet by providing protection to owners of digital content, but there are questions that

---

33 http://today.reuters.com/misc/PrinterFriendlyPopup.aspx?type=internetNews&storyid=2006-09-14T013359Z_01_N13130884_RTRUKOC_0_US-MEDIA-UNIVERSALMUSIC-YOUTUBE.xml&src=rss (reporting on the comments from Universal Music Group's CEO to the effect that "We believe these new businesses are copyright infringers and owe us tens of millions of dollars").

34 All too often, copyright law itself tends to be a fairly crude tool—either allowing use of a copyrighted work (as a fair use or noninfringing use) or banning it altogether, imposing statutory damages that can put a firm out of business. This was the case for MP3.com, for example. *See* UMG Recordings, Inc. v. MP3.com, Inc., 92 F.Supp.2d 349 (S.D.N.Y. 2000).

remain unanswered and some have expressed concerns about how the DMCA operates in practice.

The first issue we addressed is whether the current regime, as structured under the DMCA, overly burdens intermediaries by requiring them to act as the copyright police. Under the DMCA, all broadband providers and firms that host Internet content are required to identify users engaging in copyright infringement and may be required to take down content alleged to violate the Copyright Act. This regime was the product of a legislative bargain requested by Internet intermediaries (such as Internet service providers) sought to be protected from liability both from content owners in cases where their users are infringing copyrights and by their users where the intermediary acts to deal with infringement allegations brought to their attention. Congress thus crafted the "notice and takedown" regime to promote the efficient operation of the Internet and to create incentives for creators and intermediaries to work together to address online infringement.

Under the DMCA, all broadband providers and firms that host Internet content are required to identify users engaging in copyright infringement and to take down content alleged to violate the Copyright Act. In terms of the operation of the "notice and takedown" regime, some have noted that there is a problem that many websites do not realize their right to challenge requests to take down their content. This is particularly problematic in light of some studies that have shown that firms providing web hosting regularly take down content when requested to do so even if it is clearly in the public domain (CITE from Andrew). To address this issue, David Honig suggested that firms hosting websites should more effectively explain the relevant procedure and find ways to protect their users. To that end, Google posts all notice and takedown requests sent to it (and chillingeffects.org maintains a larger repository), thereby ensuring that "sunlight can act as the best disinfectant." Finally, some conferees believe that lawsuits like the one brought against Diebold for abusing the notice and takedown procedure may also help address this issue.[35]

A more forward looking concern is whether network providers will be required to implement new technologies to police infringement. Such technologies, such as deep packet inspection, might be seen as content owners as an effective tool to fight piracy. Kevin Kahn, however, counseled against such a step, explaining that there are a number of ways to move information through encryption. Moreover, such technologies would not only add expense, but they would undermine one form of Internet nondiscrimination—i.e., not knowing whether a packet is carrying different types of content is a protection against control by the network owners. Finally, the conferees agreed, it is a dangerous step for government to mandate technologies and such steps should not be taken without a very compelling justification.

Another forward looking concern is how the analog concepts of the first sale and fair use doctrines will be implemented in the digital world. Under the first sale doctrine, for example, Netflix is free to develop a business based on sending out DVDs via the U.S. mail. In the digital broadband environment,

[35] *See* Online Policy Group v. Diebold Inc., 337 F. Supp. 2d 1195 (N.D. Cal. 2004).

however, there is no such mechanism for Netflix to purchase and own the content (that would be provided by a license). This form of control over the content could be problematic to the extent that the movie industry establishes relationships with a particular distribution model (as they did with Blockbuster) and is reluctant to make the content available in digital form. In practice, however, a number of content providers are in fact licensing multiple platforms and multiple forms of distribution. In any event (and in part due to the novelty of the issue), the conferees were not able to develop any particular proposals on this issue.

The conferees discussed briefly how DRM regimes could protect "fair use," which courts traditionally protected through after-the-fact adjudication, in a digital age where limitations on use could be built in. It is possible, as Bill Bailey suggested, that firms will want and need to respect consumer behavior, but such commercial pressures have not been the sole protection in the analog world and thus some have raised concerns that they may not be sufficient in the digital world. One measure that seeks to protect fair use in a digital era is the so-called "Boucher Bill" that would revise the DMCA to legalize circumvention technologies that enable non-infringing uses of content. This legislation, however, has raised significant concerns among creators of content that such changes would effectively repeal the DMCA's core protections and thereby undermine the purposes underlying its enactment. The conferees did not discuss DRM issues more generally, but recognized that there are a number of other important issues that will need to be addressed, including ones related to consumer protection, compatibility between DRM systems, and enabling consumers to use digital content in creative ways.[36]

Finally, we addressed the question of whether the FCC should be placed in the role of managing copyright policy in the form of the broadcast flag regime. One fundamental concern about such a regime is that it is critical that government not mandate technologies nor empower private industry to set technologies enforced by government. The original broadcast flag regime proposed by the MPAA did just that, but the FCC prudently adopted a model in which it would assess, on a case-by-case basis, whether a technology sufficiently protected digital content from unauthorized redistribution.[37] In practice, this regime even approved some controversial technologies, such as the Tivo To Go system. Nonetheless, the conferees remained concerned—as in the network neutrality case—that the FCC would be too susceptible to making judgments based on political considerations (as opposed to the technical merits) Others complained that, even in concept, the regime was fatally flawed.

---

[36] For a report addressing these issues, see http://www.cdt.org/copyright/20060907drm.pdf#search=%22Evaluating%20DRM%20Building%20A%20Marketplace%22

[37] For the original decision, see Digital Broadcast Content Protection, 18 FCC Rcd. 23550 (2003), *rev'd*, American Library Association v. FCC, 406 F.3d 689 (D.C. Cir. 2005), available at http://pacer.cadc.uscourts.gov/docs/common/opinions/200505/04-1037b.pdf. For an assessment of the regime, see Center for Democracy & Technology, Implications of the Broadcast Flag: A Public Interest Primer (http://www.cdt.org/copyright/031216broadcastflag.pdf).

Patent Law

The final frontier of intellectual property policy is the development of patent law. Of late, a twin set of critical reports—by the Federal Trade Commission and the National Academies of Sciences[38]—have catalyzed a congressional debate on the topic of patent reform. Although the conference did not focus on this issue nearly as closely as the digital copyright issues, we concluded both that it is critical to protect legitimate inventors through a well-functioning patent system and that the current U.S. model is rife with abuses. In particular, we expressed concern that the current system had given rise to a series of opportunities for firms to abuse the system and engage in strategic behavior unrelated to legitimate business development, but solely to extract royalties. This behavior ranges from the conduct of the so-called "patent trolls"—who might purchase patents out of bankruptcy with the sole intention of using them to extract payments from manufacturers—to firms like Rambus, which apparently disregarded the norms of a cooperative standard setting body and sought patent protection that could be used to "shake down" those firms who adopted the relevant standard.[39] Without a more careful analysis of the relevant issues, however, we did not embrace any specific recommendations, but rather many recognized that the system is seriously flawed and in need of reform. Others noted that, in evaluating what sorts of reforms are warranted, policymakers must ensure that the patent system continues to serve its core purpose of rewarding technological innovation and that any proposed changes, in the name of "reform," do not limit patent protection to such an extent that valid inventions are no longer sufficiently protected.

B. Social Regulation

Cyberspace can be a dangerous place. "Don't talk to strangers," for example, or "don't watch certain channels" are admonitions that parents cannot easily teach as to a medium that brings individuals and content from all over the globe to one's home computer screen. In short, the conferees recognized that the world of MySpace—an easily accessible platform for the sharing of information between users—provides enormous challenges to parents and regulators alike.

As a primary strategy for addressing these channels, the conferees embraced the basic philosophy that the primary role of government in regulating access to information and content should be to empower users—both in their role as parents and consumers—so that they can protect themselves effectively against what is broadly called "malware" as well as offensive content. (Malware is a contraction of the term "malicious software" and includes a range of dangerous programs, ranging from spyware to rootkits to worms.) As Brent

[38] Federal Trade Commission, To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy 5 (2003); National Research Council, National Academy of Sciences, A Patent System for the 21st Century" (Stephen A. Merrill, Richard C. Levin & Mark B. Myers eds., National Academies Press 2004). For a critique of the current system, see Adam B. Jaffee & Josh Lerner, Innovation and Its Discontents: How our Broken Patent System is Endangering Innovation and Progress and What to do about It" (Princeton University Press 2004).

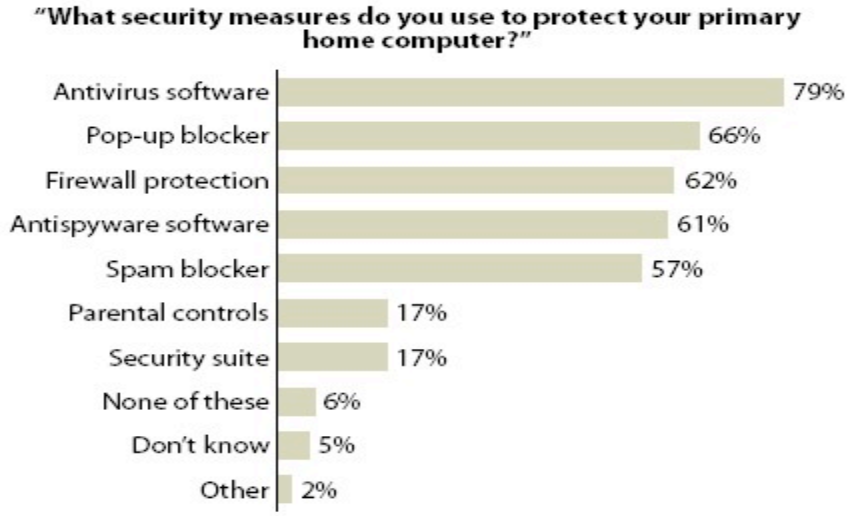
[39] In the Matter of Rambus, Inc., Opinion, Docket No. 9302 (August 2, 2006), available at http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf.

Bozell, Founder and President, Parents Television Council and Founder and President, Media Research Center, put it, it is critical that the key companies embrace "self-regulation as a strategy to prevent the FCC and FTC from engaging in command-and-control regulation" of the Internet's content.

The Realities of Internet-Delivered Content

The challenges of cyberspace are increasingly being met by ever-more savvy Internet users. As indicated in Figure ___ below, antivirus software is increasingly recognized as a "must have" product. At the same time, however, parental controls are still in their early stage of adoption.

Figure 1 Consumers Use A Range Of Security Solutions



Forrester's NACTAS Q1 2006 Devices & Access Online Survey

40282 Source: Forrester Research,

As noted above, the conferees do not rule out direct government regulation of harmful content ranging from fraud, spam, viruses, phishing schemes, and child pornography, but rather concluded that direct government regulation will invariably face formidable difficulties and is, at best, a second best strategy. Notably, regulating speech in the Internet environment is becoming increasingly difficult because of the decentralized nature of the Internet and its international reach. Consequently, the conferees—with the aid of a thoughtful Working Group report on the subject—developed a strategy based on educating users and promoting self-regulation.

The first principle of a user education program would involve accurate labeling of content. Without a system of accurate and comprehensive labeling of broadband content, users will be unable to manage their own Internet use effectively—let alone that of their children. Moreover, a system of content labeling is also fundamental to the prevention of deceptive practices and to the notion of truth in representations (e.g., representations regarding broadband use).

Indeed, it was just this model that gave rise to the Internet privacy program overseen by the Federal Trade Commission—whereby companies post privacy policies and the FTC ensures that they comply with their promises to protect private information.[40]

In terms of developing a ratings regime for Internet content, the Internet Content Ratings Association (ICRA)[41] is already developing such a model. Ideally, this (or another such effort) will succeed in harmonizing the ratings system across all types of content delivery, including movie theatres, video games, broadcasting, cable, and Internet video. In order for any such system to work effectively, the labeling system must be well understood by consumers, use effective and user-friendly technology, and reach critical mass (on the part of both users and content providers).

The second principle for an effective strategy is that it is critical that educational institutions and governmental organizations develop curricula related to technological literacy. These literacy skills should be geared to both parents and children. At a minimum, such materials would educate Internet users about the risks of identity theft and social networking (including, for example, the proliferation of sexual predators online) as well as point them to other materials relating to media/internet literacy for parents/children developed by government and industry.

The conferees recognize that the above two principles are far from perfect and would require a series of refinements to work in practice. For starters, we recognize that there is a considerable amount of content created internationally and that, for any system to be ideally effective, it would need to be adopted internationally. Second, we recognize that one of the Internet's great attributes is user-developed content, including "mash-ups" that combine existing content in creative ways, which may be difficult to rate. Third, we recognize that many sites will simply decline to rate their content at all, but as long as a critical mass of sites do so, consumers will still be able to use a content rating system and access a wide variety of content.

Of all of the challenges, we recognize that a particularly important one is to develop an effective enforcement mechanism. In any system of self-regulation, enforcement is always bound to be a challenge as industries sometimes do not relish policing their own. In the context of Internet privacy, the Federal Trade Commission played an important role in this regard by encouraging firms to develop and post privacy policies—and then enforcing the content of those policies. An alternative model, which some recommended, would operate along the lines of spam filters. As Andrew MacLaughlin of Google related, Google's email system uses feedback from users to label spam and to treat it as such for other users. In theory, a similar regime could be used to identify unauthorized copyrighted material on the Internet.

---

[40] For a discussion of this system, see Steven J. Hetcher, The FTC as a Privacy Norm Entrepreneur, 53 Vand. L. Rev. 2041 (2000).
[41] http://www.icra.org.

Despite the formidable challenges, we believe that government and stakeholder partnership can develop reasonably effective strategies for content regulation and consumer protection. The beginnings of such an effort should be the development of a system of best practices that could guide both parents and content providers. Such best practices could include an increased reliance on "safe havens"—i.e., providers who offer content appropriate for children. It also would include efforts to educate consumers about unlabeled "edge" or "peer-to-peer" communications—such as the FTC's model literacy and iSafe programs.

Although it would be premature and counterproductive for Congress to develop a comprehensive regulatory regime for Internet content, we also believe that there are important measures that should be adopted as soon as possible. As an initial matter, we recommend that Congress should enact legislation to enhance the ability of domestic law enforcement agencies to bring enforcement actions dealing with instances of Internet malfeasance by organizations or individuals operating outside the United States. In so doing, Congress would empower the FTC and other appropriate domestic agencies can share confidential information with their foreign counterparts regarding activities such as "phishing," spyware, and spam. Second, we believe that Congress should enhance the FTC's ability to obtain civil penalties for "unfair or deceptive acts or practices" that cause harm to consumers, for example, by strengthening the Agency's statutory authority to impose fines or by easing its rulemaking burdens.

* * * * *

The issues around social regulation underscore an insight that will increasingly haunt policymakers—the Internet will continue to undermine the legacy of content regulation that developed in response to specific technologies. In the case of broadcast television, for example, the FCC initially developed rules to promote children's programming. In the face of new distribution technologies, starting with cable TV and ever-increasing on account of Internet technology, it is difficult to invoke scarcity as a rationale for forcing broadcasters to provide certain types of programming. Moreover, to the extent that any content regulations should apply to broadcasters, it is difficult to justify not applying those same regulations to identical programming delivered over different distribution platforms—say, cable televisions or Internet-enabled downloads to iPods. In short, the silo-based legacy of content regulation (see Appendix A) is impossible to justify and should be reformed.

A critical challenge of the broadband era—which is particularly significant in the case of social regulations applied to video programming—is to recognize where the emerging marketplace casts doubt on many longstanding regulatory policies. In this category, for example, we should evaluate the evolving role of Public, Educational, and Governmental channels in the age of the YouTube.[42] Similarly, we might evaluate the proposal for an a la carte mandate as to cable television channels with an appreciation that the Internet is in the beginning stages of revolutionalizing the video marketplace.

[42] For a first-rate discussion of tailoring media policy to new digital realities, see Ellen P. Goodman, Media Out of the Box, 19 Berkeley Tech. L.J. 1389 (2004).

The conferees recognize that there are a number of social policy goals that should be advanced in the broadband video era. We noted, for example, that concerns related to a variety of issues—such as ensuring the protection of children, access for people with disabilities, and emergency alert systems—must be thoughtfully addressed. A thoughtful approach to such issues, however, means that policymakers evaluate what strategies make sense given the Internet's architecture and course of development. In particular, policymakers should appreciate the unique attributes of Internet-based video distribution—including that the Internet is increasingly "designed to overcome geography, not track it"[43]—and not adopt policies that undermine its potential. As noted above, some incumbents may well propose such policies (say, requirements of local programming) as a means of self-preservation along the lines that the broadcasters did in response to the rise of cable television. In the Internet context, however, such policies may well backfire, as attempts to impose onerous regulations may not only stifle innovation from legitimate firms, but encourage efforts to provide similar services from off-shore servers, leading to an ongoing game of cat-and-mouse if regulatory authorities were to impose such policies. [44]

---

[43] Vonage Holding Companies Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission, *Memorandum Opinion and Order*, 19 FCC Rcd 22,404 ¶ 25 (2004); see also Douglas Sicker, *The End of Federalism In Telecommunications Regulation*?, 3 NW. J. OF TECH. & INTELL. PROP. 130 (2005), *available at* http://www.law.northwestern.edu/journals/njtip/v3/n2/3.

[44] A recent report by RAND Europe described this issue as follows:

> Incumbents with strongly-integrated value chains can view such regulation as a source of protective cost-based entry barriers. Instead, potential market entrants would choose offshoring, "flag of convenience" locations, entry by affilitation with incumbents or investment in other sectors altogether. In particular, game industry developers and others are a "movable feast," which can be transferred between regions or substituted with some ease if market conditions dictate. . . .Venture capitalists have strong preferences for markets that permit innovation without regulatory approval or sanction.

Chris Marsden et al, Assessing Indirect Impacts of the EC Proposals for Video Regulation 141 (2006) (www.ofcom.org.uk/research/tv/reports/videoregulation/videoregulation.pdf).

V. CONCLUSION

In general, the proliferation of content developed by users or made accessible by the Internet are exciting developments that policymakers should encourage. Such content also raises significant risks that warrant careful oversight. The transformation of video markets is going to take time, giving policymakers an opportunity to adjust to and prepare for a new reality. Like the transformation of music and voice industries, the impact of the Internet will undermine many established policies and thus provides an important opportunity to focus on what questions really matter.

As discussed in this report, a fundamental question is how to support the development and deployment of broadband and ensure that all sorts of applications are able to compete in a broadband-enabled video environment. Part of facilitating competition and creativity in this area requires an examination of copyright and patent law to ensure that each is facilitating a market for legitimate creative works and is fostering creativity (as opposed to stifling it). Finally, without careful planning, users are likely to be left in a bind as to how to protect themselves and their children from dangerous and offensive content in a world of video plenty.