Penn Law
UNIVERSITY of PENNSYLVANIA LAW SCHOOL

3400 Chestnut Street
Philadelphia, PA 19104-6204
Tel 215.746.8772 Fax 215.573.2025
csyoo@law.upenn.edu
http://www.law.upenn.edu/faculty/csyoo/

Christopher S. Yoo
John H. Chestnut Professor of Law
Professor of Communication
Professor of Computer and Information Science
Founding Director, Center for Technology, Innovation, and Competition

May 1, 2014

Chairman Patrick Leahy
U.S. Senate Committee on the Judiciary
Washington, D.C. 20510-6275

Dear Chairman Leahy:

Thank you again for the opportunity to testify on April 9 at the hearing on "Examining the Comcast-Time Warner Cable Merger and the Impact on Consumers." At your request, I am forwarding you my answers to the questions for the record you sent to me on April 17.

Question from Senator Klobuchar:

In the Comcast-NBC order, the FCC said the company would have "the incentive and ability to hinder the development of rival online offerings." A Comcast filing made in connection to the NBC Universal merger assumes that this type of "cord cutting" household would download 288 GB of television content per month. Given the filing is from 2010, the estimate is based on a viewing mix of standard-definition and high-definition content. An all HD mix more in line with today's viewing habits requires significantly more data, not to mention greater bandwidth. Furthermore, today, consumers often want to their broadband connections to stream online video on multiple devices in their home. Confining your analysis to broadband technologies that fit these criteria, which are suitable substitutes to cable broadband? What percentage of this market does Comcast control?

The U.S. broadband market is undergoing fundamental changes as providers in many technologies are investing heavily in upgrading their infrastructure.

DSL is making a major comeback. AT&T is in the process of deploying technologies known as IP DSLAMs, pair bonding, and vectoring to upgrade its DSL network to provide 45 Mbps service to nearly 80% of its service area, with half of those households receiving 75 Mbps service. AT&T plans to increase the number of locations where AT&T's U-verse VDSL network to 33 million locations (an increase of 8.5 million), 90% of these locations receiving 75 Mbps service and 75% of these locations receiving 100 Mbps. CenturyLink has also deployed VDSL, although it has not yet announced any expansion plans. But the real bellwether is Europe, where leading telecommunications providers as Deutsche Telecom, BT, Telecom Italia, and Orange are making VDSL the centerpiece of their broadband strategies. These speeds are clearly sufficient to compete with cable. Indeed, where AT&T has already upgraded its network, it is taking subscribers away from cable.

With respect to fiber-to-the-home (FTTH), Verizon's FiOS network has been joined by two new companies. Google Fiber has expanded beyond Kansas City to expand to Provo and Austin and has indicated that it plans to lay FTTH to 34 additional cities. In addition, AT&T has also begun deploying FTTH in Austin and in April announced plans to deploy FTTH in the Research Triangle and Piedmont Triangle areas of North Carolina. AT&T has announced plans to expand FTTH to 100 cities, including 21 major metropolitan areas.

Even LTE is capable of providing the download speeds necessary to support HDTV. *PC Magazine* and *Root Metrics* report that Verizon, AT&T, and T-Mobile each offer average download speeds of 12–19 Mbps and peak download speeds of 49–66 Mbps, well in excess of the 8 Mbps needed for HDTV. Moreover, most U.S. households have their choice of multiple providers. As of the end of 2013, Verizon covered 96% of the U.S., AT&T covered 90%, Sprint covered 66%, and T-Mobile covered 63%. By mid-year, Sprint projects to reach 79%, and by the end of 2014, AT&T's coverage should reach 95%, and T-Mobile's should reach 79%. Moreover, LTE providers initially focused on making geographic coverage as broad as possible, even if that meant provisioning too little bandwidth in major metropolitan areas. These providers are now focusing on densification of urban areas which should help bring capacity in line with demand. In addition, if one gives up mobility and uses LTE to provide service to a fixed location (in direct competition with cable), it is possible to use 8 antennas instead of 4, in which case the throughput rates increase dramatically. In addition, U.S. providers are preparing to follow the lead of South Korea, Australia, and the U.K. and deploy 150 Mbps and 300 Mbps service, often based on the next-generation technology known as LTE Advanced. All of these developments suggest that wireless broadband holds considerable promise as a competitor to cable.

When evaluating a merger, antitrust law counsels in favor of focusing on what the world will look like in the future rather than what the world looks like today, since it is the future world that matters. In this respect, the future looks quite bright. Indeed, we are seeing waves of investment driven by the competitive incentive to outdo one another. Those who have attempted to right off DSL, FTTH, and LTE as meaningful competitors to cable have done so without any empirical foundation. Indeed, observers have been writing off DSL for years only to be proven wrong time after time. Moreover, it was just a few short years ago where the Berkman Center report and other studies were writing off cable, arguing that it was not match for FTTH. The real lesson is that the future is hard to predict and that innovation has thrived most when no one has attempted to impose remedies based on any particular prediction of which technologies will succeed or fail.

Questions from Senator Grassley

We currently have a hodgepodge of regulations that regulate the communications sector. Common Carriers are regulated like a telephone company from 1982 when they had a monopoly on voice services. Today, Comcast and Time Warner Cable are both competing with telephone companies not only for broadband customers, but for voice customers as well. Do you believe

that today's regulatory regime that places burdensome regulations on the telephone company but not on the cable company, gives the cable company a market advantage?

The one consistent complaint from every quarter is that the regulatory regime that has governed the communications ever since the Communications Act of 1934 creates technological siloes where different technologies are subject to different regulatory regimes. This was workable in 1934 because different technologies did not compete with one another. Voice communications were available only via wire, and video was available only over the air. The advent of cable television and the ability to provide video over wires put pressure on this regime and required the enactment of a new statutory regime in 1984 just to govern cable. Wireless telephony and the ability to transmit voice over the air required still more statutory adjustments.

And yet these changes are minor compared with the fully convergent world made possible by packet-based communications. At this point, every type of communication is available via any transmission technology. Yet despite the fact that cable modem service, DSL, and FTTH compete directly with one another, they are subject to completely different regulatory regimes.

The differences between these regimes are stark. Cable broadband has never been subject to significant regulation since its inception. Telephone-based broadband, in contrast, was heavily regulated at first and was not deregulated until 2005, three years after the FCC made clear that it would not impose on cable the regime that it had initially imposed on broadband provided by telephone companies.

The FCC's major decisions of the mid-to-late 2000s have eliminated much of the regulatory asymmetry. However, some important differences remain. For example, telephone companies remain subject to privacy restrictions under the rules governing customer proprietary network information (CPNI) that do not apply to cable broadband. All such differences should be eliminated if U.S. broadband policy is to achieve the ideal of technological neutrality and does not have the practical effect of picking technological winners and losers.

In your opinion, what will be the effect of the merger on regional sports programming costs, which are necessary for other video providers to offer in order to maintain a viable service?

Interest in regional sports programming tends to be highly localized. People who live in the Philadelphia area tend to follow Philadelphia sports teams. A merger between the cable company that serves the Philadelphia area with the cable company serving the Los Angeles area would not alter the relative bargaining power of the Philadelphia-area sports teams or the Philadelphia-area cable provider. Moreover, it is not clear how such a combination would hurt any advertising market. National advertising revenue naturally seeks national distribution channels. In terms of local advertising, FCC data indicate that cable represents only 7% of the local advertising market. It is possible that a market for regional advertising may exist. Any concerns would require an examination of actual behavior and the extent to which advertisers regard local and national advertising as a substitute for regional advertising. In addition, advertising markets can be very hard to define. Different advertising avenues vary in their

ability to reach different types of demographics. As a result, it is impossible to make predictions in the abstract that the merger will harm the market for regional sports programming. Such a conclusion would depend on a very careful and fine-tuned analysis of actual market conditions.

In your opinion, should Congress take additional steps to ensure access to the Internet for content, service and application providers, as well as for consumers? Or are existing laws and policies sufficient to deal with potential anti-competitive behavior?

Congress has the authority to take additional steps to mandate greater access for content, service, and application providers. It is not yet clear that such action is necessary at this time. With respect to traditional video, the FCC has a mature regime of program and network access rules designed to ensure that no actor can use its control over key content or key infrastructure to harm other actors in a way that harms consumers. With respect to the Internet, at the FCC's May 15 open meeting, the agency is scheduled to vote on revised open Internet rules designed to address these problems with respect to the entire industry. At this point, I would recommend that Congress permit these initiatives to run their course while keeping a watchful eye on how things develop.

The one matter on which the FCC and academic commentators agree is that merger clearances represent a bad way to create such access reuiqr3ements. Not only does the resulting restriction apply only to the merging parties. Merger conditions are typically not subject to the full range of administrative procedures, such as public participation, the need for reasoned justification, and the discipline of judicial review. Most importantly, it would only address the conduct of a handful of industry actors. It would do nothing to solve the same problems when they arise with respect to parties who have not recently merged. The proper venue for such issues is in a general regulatory or legislative proceeding, not the merger review process.

Some have argued that free markets and a lack of government regulation have enabled technological innovation and allowed internet services to flourish. Do you believe that imposing new regulations could stifle innovation and inhibit the growth and deployment of broadband services? In your view, should there be more or less government involvement in this industry?

A comparison of the U.S. approach and those taken in other parts of the world demonstrate the value of the hands-off approach that the U.S. has taken with respect to the Internet. Despite some occasional rhetoric to the contrary, the actual data shows that European countries are by and large lagging far behind the U.S. in terms of high-speed broadband deployment and that European broadband companies are investing two to two-and-one-half times less than their American counterparts. Moreover, in terms of service providers, U.S. companies are the envy of the world. Even in Asia, where governments have mandated broadband buildouts, high-speed service is languishing with low take-up rates and enormous financial losses. Together these comparisons provide a strong endorsement in favor of maintaining the U.S. approach of minimal government involvement with respect to the Internet.

Are you concerned about any monopsony problems with this transaction? The concern is that new online innovators are just starting to develop competitors to cable, but many of them come from companies that need Comcast/TWC as both a cable distributor and an ISP. Is this a valid concern?

The merger would not create the levels of concentration traditionally associated with monopsony power. As an initial matter, many observers have mistakenly asserted that the merged company would have market shares as high as 40% by disregarding DSL and other technologies. The fact that AT&T's DSL network is taking market share away from cable in areas where AT&T has upgraded its DSL network suggests that this approach is mistaken. Other analysts make the mistake of ignoring smaller players, who typically represent roughly 7% of the market, as well as the fact that the merging companies have pledged to divest 3 million subscribers. The resulting market share of the merged company would only be 30% of the multichannel video market and 32% of the broadband market, which is well below the levels traditionally associated with monopoly or monopsony power.

On a more fundamental level, there is an essential difference between cable television and Internet video. For multichannel video, the failure to reach an agreement means that none of the cable company's subscribers will be able to see the content. The situation is quite different for the Internet. Comcast maintains peering arrangements with more than 40 other networks and transit arrangements with more than 8,000 other networks. This means that the failure to reach an agreement does not cut subscribers off, as there are always thousands of other paths into Comcast's network, although these paths vary slightly in terms of cost and latency. It also limits Comcast's bargaining power, as the only leverage is the difference the price of a direct connection and the content provider's next-best alternative. Unless the cable company were to use deep packet inspection to monitor all 8,000+ paths, conduct that is both impractical and barred by Comcast's commitment to abide by the Open Internet Order despite the fact that it has been struck down, content will be able to find a way to consumers. All that is at stake is a routine bargain over price.

Should we be wary of agencies using their merger review authority to pursue policies that they do not otherwise have statutory authority to pursue? For example, the D.C. Circuit recently said that the FCC did not have authority to enforce its net neutrality rule. Should the FCC be allowed to now condition the merger on Comcast's agreement to comply with that same rule?

Comcast's obligation to abide by the terms of the Open Internet Order is the result of voluntary commitments it made in order to obtain approval of its acquisition of NBC Universal and not the result of the Order itself. As a strict legal matter, the FCC may continue to impose conditions whether or not general regulations exist with respect to that subject matter.

For the reasons stated above, however, the merger clearance is widely recognized as a poor avenue for making regulatory policy. Not only does it obviate standard administrative processes

and immunize decisions from judicial review. It also raises the ability for agencies to impose mandates that they could not impose through regular administrative processes.

A similar situation arose in the past with respect to the FCC's attempt to place a cap on the percentage of the national market for multichannel video subscribers that any cable company could reach. In order to obtain clearance of its cable mergers, AT&T agreed to abide by the national ownership cap only to see that regulation struck down by the courts. The FCC decided to waive that obligation because otherwise the merged company would be subject to restrictions that applied to no other company and were beyond the FCC's statutory authority to impose.

What are the implications of this merger for open access and peering in the broadband market? How does the proposed transaction affect competition in the market for "last mile' interconnection services?

As an initial matter, the fact that Comcast remains bound by the terms of the Open Internet Order severely limits the impact of the merger on open access. In terms of peering and the market for last-mile interconnection services, companies are experimenting with a wide range of different solutions, including proprietary data centers, collocated content delivery networks, and multitenant hosting in third-party data centers just to name a few. At the same time, each of these types of companies are experimenting with a wide range of commercial arrangements including for example traditional peering, paid peering, secondary peering, traditional transit, and paid transit. The parties should be permitted to experiment with different ways to satisfy all of these actors' shared interest in delivering content to end users in the most effective way.

Some are concerned that this merger is bad for content providers because a combined Comcast-Time Warner Cable would be too powerful of a gatekeeper. However, others view this merger as a possible signal that the industry is transitioning from a cable television system of the past to a new system. Could this merger break down some of the walls of innovation and shift from a licensing model to a more direct IP-enabled model?

Things are changing in how we view television – every day there are more ways to watch our shows, movies and other content. Comcast and Netflix have reached a deal and it has been rumored that Apple and Comcast have had discussions about providing service for Apple TV. Both of these entities are Comcast competitors. How does this co-opetition benefit consumers? How does it affect the industry?

The video industry is undergoing fundamental changes. Cable subscribership is slowly declining, and consumers are shifting more and more to online video. At the same time, content acquisition costs are increasing faster than the overall cost of cable television. These price trends suggest that content providers are in a stronger bargaining position than are able operators to the point where Cablevision has floated the possibility of abandoning the video business and simply allowing over-the-top providers like Netflix to fill the void.

In this world, agreements such as the one between Netflix and Comcast hold many benefits for consumers. As an initial matter, as a direct customer instead of an indirect customer, Netflix now has a service level agreement with Comcast that guarantees certain levels of service. At the same time, direct connections hold the promise of allowing the two companies to better coordinate their behavior to deliver content more effectively. In addition to obtaining better service, there are indications that such arrangements may reduce the prices that consumers pay. Although Netflix has to pay Comcast to terminate traffic, it no longer has to pay its former transit provider, Level 3. Industry observers have concluded that cutting out the middleman can yield substantial savings. Even if the net price does not go down, the enhanced service should provide considerable benefits to consumers.

Question from Senator Hatch

During the hearing, you commented on the proposed merger of Comcast and Time Warner Cable from the perspective of antitrust law. According to your legal analysis, would this merger create—for either video or broadband—an industry structure resulting in anticompetitive harms under established antitrust or communications law? In particular, can you speak to the relevant markets at issue in that analysis?

As I stated in my written testimony, the merger has implications for two product markets: the market for multichannel video and the market for broadband Internet access. In both of these product markets, the merged company would contract with two different types of entities: end users and content/service providers. Each of these markets should be analyzed separately.

Beginning with the market for multichannel video, the merger will have no impact on the market in which cable companies bargain with end users. This is because cable operators in different cities serve different geographic markets and as a result do not compete with one another. In short, consumers would have the same number of choices of multichannel video providers the day after merger that they did the day before. With respect to the market in which cable companies bargain with channels such as ESPN, Nickelodeon, and the Disney Channel, the courts have twice rejected attempts by the FCC to show that control of 30% of the national market would give a cable operator the ability to create anticompetitive harms. Given the merging companies' commitment to reduce their holdings so that they control no more than 30% of the national market, these court decisions raise serious doubts as to whether anyone can show that the merger would create anticompetitive harms in this market.

Moving on to the market for broadband Internet access, again the merger will not affect the market in which merging companies bargain with end users. The lack of any overlap in the areas served by Comcast and Time Warner Cable again means that the merger will not reduce the number of options available to any end user, which makes it unlikely that the merger would affect the prices charged to subscribers. The rapid deployment of new broadband technologies should reduce any such concerns still further. With respect to the market in which cable companies contract with transit and peering providers that carry data from content and service providers, again, the 32% market share falls below the thresholds associated with anticompetitive

activity. In addition, as noted in my answers to Senator Grassley, content and service providers have literally thousands of ways to reach Comcast customers. Disputes are thus not over whether the content and service providers can reach Comcast subscribers. Instead, they are fairly routine disputes over price and quality of service that are well suited to being resolved through arms-length bargaining.

I hope that these answers are helpful. Please do not hesitate to contact me again if there is any way I can be of assistance.

Sincerely,

Christopher S. Yoo
John H. Chestnut Professor of Law
Professor of Communication
Professor of Computer and Information Science
Founding Director, Center for Technology, Innovation, and Competition