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COMMISSIONER ROBERT M. McDOWELL

Second Public *En Banc* Hearing
On Broadband Network Management Practices
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Thank you Mr. Chairman. Also, many thanks to Stanford for hosting us today. And I also thank our distinguished panelists for speaking with us. But I am disappointed that, apparently, AT&T, Comcast, Verizon and Time-Warner did not accept our invitation to appear today. So it appears that we have only one network operator witness for our hearing on network management. Nonetheless, it's good to be back here in the Bay Area. It's also fitting that we come from Washington, D.C., the birth place of the Internet's ancestor, ARPANET, to a part of the country that has played such an important role in the Internet's development and success.

We are here today not only to examine more closely the question of what is appropriate network management, but also to reassure American consumers that the FCC takes allegations of anticompetitive conduct seriously.

At the heart of this discussion is an allegation that Comcast inappropriately manipulated the upstream bits of certain peer-to-peer (P2P) video applications, namely those of BitTorrent. This allegation is especially serious because many P2P applications carry video content that competes directly with Comcast's video content. Additionally, most residential consumers only have a choice of two broadband pipes into their homes: a cable modem pipe or a DSL pipe from the incumbent local phone company. Additionally, for several years now, roughly two-thirds of residential broadband subscribers have been cable modem customers, in part because the cable industry was

first-to-market with such broadband technology. In short, the allegations boil down to a suspicion that Comcast was motivated not by a need to manage its network, but by a desire to discriminate against BitTorrent for anticompetitive reasons. However, the conversation we are having about this matter is a healthy one and is yielding positive and constructive results.

In the meantime, America's online video market is exploding in a wonderfully energetic and chaotic way. comScore reported that Americans downloaded an unbelievable ten billion online videos last December alone! According to the *New York Times* last month, a Nielsen Media Research study revealed that thirty-nine percent of Internet users ages 18 to 34 have downloaded full-length television episodes over a three month period.[1] When NBC's comedy, "The Office," premiered last September, one in five of its viewings was seen online. "The Office's" premiere attracted 9.7 million broadcast viewers, while it was streamed from the Web 2.7 million times in one week.

But the world's apparent overwhelming thirst for online video content is posing an engineering challenge to network providers. Several analyses estimate that P2P applications comprise over 75 percent of the Internet's traffic. And, while I'm here in California, the intellectual property capital of the world, I would be remiss if I did not observe that pirated content is a significant part of all P2P traffic.

P2P works by "seeding" millions of consumers' computers all over the world with pieces of videos. When a consumer wants to download a video from a P2P provider, the application calls on these millions of seeded computers to send their pieces of the show upstream. At times, only five percent of broadband users are consuming as much as 90 percent of network capacity. P2P usage is causing congestion, especially on the upstream

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[1] Brian Stelter, *Serving Up Television Without the TV Set*, N.Y. TIMES, Mar. 10, 2008, at C1.

portion of networks that were designed and built years ago, before these P2P applications were invented.

In the future, Internet usage is likely to be largely wireless. As we discuss and debate these issues, we must consider how what we do, or don't do, will affect today's build out of tomorrow's wireless networks. Like cable networks, wireless networks are shared. They also suffer from uploading challenges. Most emerging wireless broadband providers are not also video providers in the same way as cable companies. Accordingly, if wireless broadband providers are required to manage the demands placed on the upstream portions of their networks, unlike the situation with cable, allegations of anticompetitive conduct against online video content may ring hollow. But we may not know for a long time. As a result, we should examine this complicated issue carefully before rushing headlong to codify a "solution" that may create more engineering problems than it solves.

In the meantime, the weight of the evidence in the record thus far tells us that Comcast was manipulating upstream, not downstream bits. If its actions were intended to be anticompetitive, would Comcast not have been interfering with video downloads instead? If the evidence shows that consumers could not perceive any slowing of downloaded videos due to the manipulation of uploads, is such evidence exculpatory of the charge of anticompetitive conduct? Are answers to these questions clearer after the March 26 BitTorrent/Comcast agreement? These, and many other questions, abound.

Nonetheless, contrary to rumor, the P2P congestion challenge is not unique to the United States. Japan, which offers fatter and faster pipes on average, is also experiencing vexing congestion problems when it comes to P2P applications. According to the

Japanese Embassy, a mere one percent of Japanese users consume more than half of the broadband capacity in that nation. With widespread 100 mbps service across Japan, the lesson here is that substantially more bandwidth alone in the last mile does not solve the P2P congestion problem. Something more must be done.

And something more is being done. Through a number of initiatives, the FCC has been creating opportunities for more competition in the last mile. While those efforts take root, however, the private sector is not standing still. In fact, last summer, long before the BitTorrent complaint was filed, the private sector created the P4P Working Group. The mission of this coalition of cable companies like Comcast, application providers like BitTorrent, content producers, engineers, universities and others is to:

> work jointly and cooperatively with leading Internet service providers (ISPs), peer-to-peer (P2P) software distributors, and technology researchers to ascertain appropriate and voluntary best practices for the use of P4P mechanisms to accelerate distribution of content and optimize utilization of ISP network resources in order to provide the best-possible performance to end-user customers ….[2]

In fact, just last week, on April 9, the P4P Working Group announced the completion of successful field tests of new P2P protocols that increase delivery speeds for consumers while removing network delivery obstacles for ISPs. The results show increased delivery speeds of up to 235 percent for P2P content carried on U.S. cable networks and up to 898 percent speed increases for other networks.

And just this past Tuesday, April 15, Comcast and P4P Working Group co-chair Pando Networks, announced that they will lead an industry-wide effort to create a "P2P Bill of Rights and Responsibilities" (BRR) for P2P users and ISPs.[3]

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[2] Haiyong Xie, The P4P Working Group, http://cs-www.cs.yale.edu/homes/yong/p4p/p4pwg.html.

[3] Press Release, Comcast Corporation, *Comcast and Pando Networks to Lead Creation of "P2P Bill of Rights and Responsibilities" for Peer-to-Peer Users and Internet Service Providers* (Apr. 15, 2008).

These announcements come on top of the Comcast/BitTorrent agreement of March 26. Comcast agreed to migrate to a capacity management technique that is protocol-agnostic while BitTorrent acknowledged the need of ISPs to manage their networks, especially given that the Internet has matured into the rich media environment it has become. In their joint press announcement, Comcast and BitTorrent expressed the view that "these technical issues can be worked out through private business discussions without the need for government intervention."[4]

As I have said for a long time, it is precisely this kind of private sector solution that has been the bedrock of Internet governance since its inception. America's Internet economy is the strongest in the world. It got that way not by government fiat, but by all interested parties working together toward a common goal. By definition, the Internet, a network of networks, is a "Wiki" environment which we all share, shape, build and, ultimately, pay for. Since it was opened up for public use, as a society we have worked hard to ensure that the Internet remains open and free. We have also worked hard to ensure that the Internet works, period. We call this: Internet governance. But since the days of ARPANET, Internet governance has migrated further away from government regulation, not closer to it.

By flattening out the governance structure into a bottom-up rather than government-mandated top-down environment, it has long been believed that the Internet is better able to flourish as a more dynamic and democratic entity. In contrast, an illustration of more government control of the Internet is China's Internet model. While

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[4] PR Newswire, *Comcast and BitTorrent Form Collaboration to Address Network Management, Network Architecture and Content Distribution* (Mar. 27, 2008), *available at* http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/03-27-2008/0004781055&EDATE=.

this may be an extreme example, some argue that societies that regulate the Internet less are more democratic, while societies that regulate it more are less democratic.

Early efforts to keep the Internet open and free sparked the creation of non-state-controlled Internet governance entities. For example, the Internet Society (ISOC), an umbrella organization founded in 1992, develops technical standards for the Internet. It is a non-profit corporation with a board of trustees and is funded by individuals and organizations in the Internet community virtually free from any government influence. Several organizations work with ISOC on a variety of Internet governance issues. Among them are: the Internet Engineering Task Force (IETF); the Internet Engineering Steering Group (IESG); the Internet Research Task Force (IRTF), the Internet Research Steering Group (IRSG); and the Internet Architecture Board (IAB), among others.[5] These organizations are largely self-governing and self-funded, with individuals and representatives of private organizations and companies serving on their boards. Similarly, the Internet Corporation for Assigned Names and Numbers (ICANN) is a private non-profit entity that works to govern the Internet's domain name system. ICANN manages the domain name system through a joint project agreement with the Department of Commerce. Furthermore, ICANN is a non-profit corporation funded and governed by private entities. The P4P Working Group is essentially no different.

The point is that the Internet has flourished by operating under the principle that: engineers should solve engineering problems, not politicians and bureaucrats. But don't take my word for it. Let me close with a quote from someone we all know and who had a great deal of influence over how the Internet became privatized.

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[5] Association for Computing Machinery, *A Concise Guide to the Major Internet Bodies*, http://www.acm.org/ubiquity/views/v6i5_simoneli.html.

Though government played a role in financing the initial development of the Internet, its expansion has been driven primarily by the private sector. For electronic commerce to flourish, the private sector must continue to lead. Innovation, expanded services, broader participation, and lower prices will arise in a market-driven arena, not in an environment that operates as a regulated industry.

Accordingly, governments should encourage industry self-regulation wherever appropriate and support the efforts of private sector organizations to develop mechanisms to facilitate the successful operation of the Internet. Even where collective agreements or standards are necessary, private entities should, where possible, take the lead in organizing them.[6]

Any guesses as to who said this? It comes from the Presidential Directive announcing the "Framework for Global Electronic Commerce" signed by President Bill Clinton in 1997.

We should heed President Clinton's advice. The government should encourage collaborative private sector solutions, such as those created by the P4P Working Group and the BitTorrent/Comcast agreement. But state intrusion into these partnerships will only inhibit future constructive endeavors. So to those who argue for more government control, I say be careful what you wish for.

Is now the time to discard that model which has served us so well after so many years of tremendous success? Would those who favor even seemingly innocuous consumer disclosure requirements on network owners regarding how they manage P2P traffic mind if a similar requirement were imposed on applications providers to reveal to consumers that their computers must be "seeded" and work 24 hours a day at the expense of your computer's processing power to allow the P2P system to work? Such disclosure

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[6] Memorandum from the White House Office of the Press Secretary to the Heads of Executive Departments and Agencies (July 1, 1997), *available at* http://www.landfield.com/govnews/mail-archives/root-hcc/0779.html.

might be beneficial to the public interest. But isn't the private sector the best forum to initially try to resolve these conflicts?

Having said that, I want to thank BitTorrent, Free Press and Vuze for their filings at the FCC. You have stimulated the debate and spotlighted these important issues. In the end, I am optimistic that if we encourage all Internet stakeholders to continue their dialogue -- and collaboration -- we will see more win-win agreements that ultimately benefit consumers.

Thank you again to Stanford for hosting this hearing and I look forward to hearing from our distinguished panelists and members of the public.