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Event Summary
Network Management: The Latest Battle Over Net Neutrality

Rayburn House Office Building
Washington, DC

February 29, 2008

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Comcast's "network management" practices set off a firestorm of controversy, leading to an FCC inquiry and lending support to a new Congressional bill entitled "The Internet Freedom Preservation Act." Some argue that such management practices are necessary primarily to deal with network congestion created by a small number of users to prevent a worsening of service to everyone else, while others contend that providers can use them to discriminate unfairly against certain types of content. In the FCC public hearing on "Broadband Network Management Practices" on February 25, Chairman Kevin Martin indicated the FCC's willingness to discourage certain network management practices, but provided little indication what such rules might entail. This panel will evaluate the economic, legal, and engineering aspects of network management based on evidence from the United States and Japan and will discuss the potential impacts of possible proposed regulations.

Panelists: Scott Wallsten, Vice President for Research and Senior Fellow, Technology Policy Institute, moderator
Marvin Ammori, General Counsel, Free Press
David Burstein, Editor, DSLPrime
George Ou, Technical Director, ZDNet
Haruka Saito, Counselor for Telecom Policy, Embassy of Japan
Christopher S. Yoo, Professor of Law and Communications, University of Pennsylvania

Christopher Yoo began the discussion by describing the positive effects of network management. He questioned what the shape of the Internet will be in the future, and whether traffic will exceed the capacity of the network. He also stated that the network is not uniform, and the most efficient way to manage the network could vary with transmission methods and types of access (DSL, cable, and wireless). With the current large increase in bandwidth use, allowing ISPs to prioritize certain types of traffic could encourage them to invest more in network infrastructure by increasing profitability and serve as a safety valve if traffic were higher than expected. Yoo stated that prioritization is already occurring for some sensitive services like VoIP, and alternative approaches to reducing congestion would prove problematic. Building more bandwidth would be extremely expensive and it would be hard to predict the necessary final capacity, while peak-load pricing has proven too difficult to implement effectively.

Haruka Saito reported on how network management issues are seen in Japan. He emphasized the implications of P2P and the necessity of developing rules for packet shaping in order to address some of the issues raised by network neutrality. Despite high network capacity, traffic has increased in Japan by 250 percent over the past three years, and therefore ISPs are facing mounting congestion issues. A high proportion of this traffic is due to P2P applications like Winny, and the top 10 percent of P2P users are responsible for 60 percent of bandwidth use. He claimed that because traffic has been increasing so rapidly, flexible approaches are necessary

to manage congestion without dramatic increases in technological capabilities. Saito described how P2P methods could prove an efficient way to help manage and expand the network and that a "P2P Network Experiment Council" had been established to investigate these issues. He stated that the major question is about who pays for bandwidth. While he agreed that charging heavy users could be acceptable, problems with finding an appropriate price suggest a case-by-case approach would be the best for now. Saito concluded by saying that Japan had established a council of telecom business associations, with the Ministry of Internal Affairs and Communications as an observer, to create minimal traffic shaping rules to make network management policies clearer.

George Ou focused mainly on the technical aspects of network congestion and P2P use. He said that P2P users are the major "bandwidth hoggers;" even video conferencing does not utilize as much bandwidth on average as a P2P user, since P2P is often "always on." He claimed that services like Vuze are essentially free riding on the networks, as unlike YouTube they do not pay for their own servers and storage, which ultimately transfers the costs to the networks or end users. Since cable networks are shared by large numbers of people, he described how a few large P2P "seeders" could fill the bandwidth meant for everyone, a problem which would only be more extreme in a wireless network. He then said that many Free Press proposals against network management were inconsistent or unfeasible, and that mandating equal treatment of P2P traffic would result in higher costs for everyone and damage small ISPs.

David Burstein started out by saying that net neutrality is a minor issue compared to lack of access to affordable broadband service for many Americans, but nevertheless Comcast should not be shaping networks. He claimed that anyone selling video service that also provides broadband access, like Verizon and Comcast, has a huge incentive to prevent people from watching television online. In reality, he said, a connection of 50-100 Megabits would allow people to watch high definition television online. Therefore network capacity is the real issue. Burstein argued that even though bandwidth demand has been growing by around 35-45 percent per year, the cost of providing it has also gone down by 25-50 percent, and so much of the concern about excessive use has been largely fabricated. He concluded by criticizing the lack of available data from the major providers, like Comcast, and how many researchers depend on data provided by the major service providers to come to conclusions in their favor, while these companies are the only players with access to the true information.

Marvin Ammori began by taking the position that the reason Comcast was degrading BitTorrent's traffic was because it was a direct competitor to Comcast's own video service. He said that BitTorrent users whose speeds were being throttled had already paid for their service through their Internet provider, and so should be able to use it. He took issue with the label "network management," claiming that instead Comcast was actually blocking a competitor from access to the market, since the amount of time people are willing to wait for a service is limited. Any degradation of service that does occur, he argued, should not be on the basis of specific

applications, and metering, while not a good solution, would still be better than blocking some traffic.

The question and answer session began with Scott Wallsten asking the panelists about whether the costs of some users' behavior are fully internalized and what the costs would be to upgrade the network. Ou asserted that a major problem results from Vuze not paying for its own servers and bandwidth since most other applications, like YouTube, do so. After Wallsten asked a question about network shaping in Japan, Burstein claimed that with an efficient network, like in France, shaping would not be necessary. The main issue, he argued, is that no one knows how much it would cost to upgrade the network since the operators will not tell us, but that these costs should be assumed small unless these companies produce data on costs to support their opinions. However, Yoo pointed out that since the network is not owned by a single party, no one knows the costs completely, and it would not be reasonable to construct a system for the infrequent peak load times. Therefore, traffic shaping could prove an effective management tool to increase the efficiency of a system designed for normal usage. Ou went on to talk about how the network management issue is larger than the Comcast/BitTorrent case, and network management in general can be good. For example, with VoIP, Vonage would be hurt if Comcast had a latent network as a result of not managing its network because VoIP does not work with dropped packets.

Burstein continued the discussion, saying that the FCC should act to prevent unreasonable traffic shaping. ABC and the BBC use P2P technologies to distribute their shows, and he did not believe it is reasonable for these broadcasters to have access when people cannot always use BitTorrent. A question from the audience raised the issue of servers; since ABC has its own servers, its P2P has a different effect on the network than a seeder on BitTorrent, as it does not use upstream capacity. But Burstein argued that smaller, less established sources also should be easily accessible to promote competition.

Another audience question concerned why Japan, with such high network capacity, still has issues with file-sharing traffic. Saito replied that congestion is still growing rapidly due to increased high-bandwidth services, and Ou clarified that P2P is capable of using any amount of bandwidth available. Ammori concluded with the opinion that the internet should not devolve into the same one-way network as more traditional media sources.