Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Broadband Industry Practices	)	WC Docket No. 07-52
	)	
Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC's Internet Policy Statement and Does Not Meet an Exception for "Reasonable Network Management"	)	
	)	
Vuze, Inc. Petition to Establish Rules Governing Network Management Practices by Broadband Network Operators	)	

To: The Commission

REPLY COMMENTS OF CISCO SYSTEMS, INC.

Cisco Systems, Inc. ("Cisco") submits this reply to the comments filed in the above-captioned proceeding.[1] The record generated in this new round of comments demonstrates, as Cisco argued last year,[2] that there is no basis or justification for Commission regulation of broadband network management practices. These practices benefit consumers in many important ways. Moreover, the broadband marketplace is largely competitive, and consumers can make their own decisions about their chosen carriers' network management practices. To

[1] *Comment Sought on Petition for Declaratory Ruling Regarding Internet Management Policies*, WC Docket No. 07-53, Public Notice, DA 08-91 (rel. Jan. 14, 2008); *Comment Sought on Petition for Rulemaking to Establish Rules Governing Network Management Practices by Broadband Network Operators*, WC Docket No. 07-52, Public Notice, DA 08-92 (rel. Jan. 14, 2008).

[2] Reply Comments of Cisco Systems, Inc., WC Docket No. 07-52 (filed July 16, 2007).

this end, broadband network operators should provide customers with clear and meaningful information about their network management practices.

I. THE COMMISSION SHOULD NOT IMPOSE NETWORK MANAGEMENT REGULATION.

The vast majority of parties filing initial comments in this proceeding agree that the Commission should deny the Vuze and Free Press petitions, and decline to impose network management regulations.[3] The comments demonstrate that, as discussed below, appropriate broadband network management techniques are necessary and beneficial to consumers for a variety of reasons.

First, and most fundamentally, network management allows broadband networks to operate effectively, improving consumers' experience overall.[4] Network providers' well-developed and crucial efforts to protect their customers from security threats such as viruses and worms and annoyances such as spam e-mail traffic are fundamental network management functions.[5] The Commission unquestionably must not impose any regulations that might call into question providers' ability to engage in this beneficial activity.

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[3] *See, e.g.*, American Homeowner Grassroots Alliance ("AHGA") comments at 3; AT&T comments at 6-11; Competitive Enterprise Institute comments at 2; CTIA comments at 7-16; Distributed Computing Industry Ass'n comments at 8; Embarq comments at 3; Fiber to the Home Council comments at 10-21; Free State Foundation comments at 3; Information Technology Ass'n of America comments at 2-4; Information Technology and Innovation Foundation comments at 8; LARIAT comments at 4-7; National Black Chamber comments at 1; PFF comments at 2-6; Technology & Democracy Project comments at 1-3; TIA comments at 9-15; USIIA comments at 2-5; U.S. Chamber comments at 5.

[4] AT&T comments at 6-11; CTIA comments at 7; ITAA comments at 2, 4-6; ITIF comments at 8; IPI comments at 4; Tucek comments at 1-2; LARIAT comments at 3; National Grange comments at 2; NTCA comments at 1-2, 9; NBC Universal comments at 4; Qwest comments at 6; TIA comments at 9; Time Warner comments at 4-6; Verizon comments at 26-38; WIPP comments at 1.

[5] *See, e.g.*, AHGA comments at 3; Comcast comments at 12; Embarq comments at 3,7; National Black Chamber comments at 1; Reason Foundation comments at 2; TIA comments at

(continued on next page)

In addition, network operators must have the flexibility to provide quality of service to certain Internet applications that require packet management to operate effectively. Examples include voice over Internet protocol ("VoIP") and streaming video applications that are particularly susceptible to latency or jitter.[6] There are many legitimate applications of this type, such as Cisco's Telepresence product, which provide significant public benefit but only can be offered over the public Internet with appropriate network management.[7]

By the same token, there are other types of Internet traffic that providers should be permitted to prioritize because of their urgent nature, such as traffic involving public safety or emergency medical information.[8] While such traffic usually is carried on private networks (whether virtual or actual), there are instances where it may be carried on the public Internet; in such instances, network operators should remain free to give it appropriate priority.

The record also extensively demonstrates that network operators must be able to manage networks in order to address congestion. In the current environment, a relatively small number of users consume a large percentage of the available bandwidth on broadband networks.[9]

14; U.S. Chamber comments at 6; USTelecom comments at 12; Verizon comments at 3-4; Women Impacting Public Policy ("WIPP") comments at 1.

[6] *See, e.g.*, Comcast comments at 25; CTIA comments at 7; Technology and Democracy Project comments at 1; TIA comments at 10-11; WCA comments at 4.

[7] *See* Reply Comments of Cisco Systems, Inc., WC Docket No. 07-52 (filed July 16, 2007) at 4-5. Cisco's Telepresence product requires symmetrical connections of approximately 12 Mbps, and packets must be managed to ensure they are delivered at the appropriate time, which is impossible on a "best efforts" connection.

[8] *See, e.g.*, CTIA comments at 14; Health Tech comments at 1-2; Institute for Policy Innovation comments at 3; Technology and Democracy Project comments at 1. *See also* NPSTC comments at 5-6.

[9] *See, e.g.*, Comcast comments at 24 (some observers have noted the "80/20 effect" – that 80% of Internet bandwidth is currently being used by 20% of the users using P2P); NBC Universal comments at 1-2 (50% of broadband capacity is taken up by about 5% of users using peer-to-peer networks). *See also* CCIA comments at 5; CTIA comments at 9.

Although expansion of bandwidth capacity will help address network congestion over time, it remains extremely expensive to increase bandwidth on broadband networks.[10] Even if more bandwidth could be added, peer-to-peer ("P2P") applications are designed to use all of the bandwidth that is available.[11] Thus, network management is the only realistic response to the current challenge presented by P2P and other bandwidth-intensive applications.

Even if there were a public policy justification for network management regulation (which there is not), it is unclear where the Commission would draw the authority to prohibit broadband network management. Citations to such authority are tellingly missing from the comments advocating regulation.[12] The Commission may not resort to Title I ancillary jurisdiction to impose common carrier regulation on entities, such as ISPs, that are statutorily exempted from such requirements.[13] The record is similarly devoid of any evidence of broadband network operators' violation of any prior merger condition related to network management practices.[14]

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[10] *See, e.g.*, ITIF comments at 8; Qwest comments at 6; TIA comments at 12-13. Furthermore, as network capacity has grown significantly, traffic has shown a propensity for growing at unexpectedly high rates as well. The increasing use of high quality video will only increase future traffic growth.

[11] *See, e.g.*, Comcast comments at 13-15 (describing "swarming" and "torrent" technology and noting that, "[b]ecause these P2P protocols are designed to devour any and all available bandwidth on the network, it is not possible to build one's way out of the need for reasonable network management"); Time Warner comments at 11-13 ("P2P applications 'relentlessly consume all of the end user's available Internet bandwidth attempting to download chunks of the files from any sources online at the time,'" quoting William B. Norton, The Evolution of the U.S. Internet Peering Ecosystem, at 8 (2003)); Reason Foundation comments at 1. *See also* AT&T comments at 12-13; ITAA comments at 4-6; PFF comments at 4.

[12] *See, e.g.*, CDT comments at 5; CCIA comments at 5; Free Press comments at 16-36; Tucek comments at 1-5; NASUCA comments at 7; New York PSC comments at 1-2; NUSN*n* comments at 1-2; Open Internet Coalition comments at 11.

[13] *Midwest Video Corp. v. FCC,* 440 U.S. 689, 694-95 (1979).

[14] *See* Free Press comments at 24-34.

In sum, there is no legal or policy basis for the Commission to restrict broadband network providers' reasonable efforts to manage their networks.

II. IN A COMPETITIVE MARKET, BROADBAND NETWORK OPERATORS SHOULD PROVIDE CLEAR AND MEANINGFUL NOTICE OF THEIR NETWORK MANAGEMENT PRACTICES.

Rather than lowering a heavy regulatory hand, the Commission should instead rely on market forces to police broadband network management practices. The broadband market is robustly competitive.[15] By the Commission's own count, 91.5 percent of zip codes have access to at least three broadband providers, and 22 percent of zip codes have access to at least ten.[16] Consumers can choose from multiple broadband platforms, including wireline, cable, satellite, and wireless.[17] Thus, consumers can make appropriate decisions given adequate information, and vote with their pocketbooks where they are dissatisfied with those practices.[18]

To that end, broadband network operators should provide consumers with notice of their network management practices. This notice should provide clear and meaningful information for consumers, including what traffic can be affected, under what conditions, and for how long.[19]

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[15] In the event that there are anticompetitive network management practices, there are adequate remedies available under competition law.

[16] *High-Speed Services for Internet Access: Status as of December 31, 2006*, Industry Analysis and Technology Division, Wireline Competition Bureau (October 2007) at Table 16.

[17] Fully 96 percent of customers with access to cable service can receive cable modem broadband, and 79 percent of customers with access to service from incumbent landline providers can receive DSL. *Id.* at Table 14. Wireless carriers are the most rapidly growing providers of broadband, *see id.* at Table 1, and are likely to expand their broadband capabilities substantially once the 700 MHz spectrum is deployed commercially.

[18] *See, e.g.*, ITTA comments at 4.

[19] As commenters note, however, there are practical limitations on disclosures for security and other reasons. *See, e.g.*, Comcast comments at 39; Information Technology and Innovation Foundation comments at 3-4; Labor Council for Latin American Development comments at 1-2; NCTA comments at 11; NTCA comments at 7-8; Part T-15.org comments at 7; PFF comments at 11; Technology and Democracy Project comments at 3-4

The record reflects that broadband network operators are already providing such information, and the trend is toward greater disclosure.[20] The Commission should continue to support clear and meaningful disclosure in order to allow consumers to make informed choices about their broadband providers.

CONCLUSION

The record generated in this proceeding demonstrates that there is neither a factual nor a legal predicate for network management regulation. Broadband network providers should provide meaningful information regarding their network management practices so that consumers can make informed decisions in the competitive broadband services marketplace.

Respectfully submitted,

By: _____/s/_____
Jeffrey A. Campbell
Senior Director, Technology and Communications Policy
CISCO SYSTEMS, INC.
1300 Pennsylvania Avenue, NW
Washington, DC 20004
(202) 354-2920

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[20] *See, e.g.,* AT&T comments at 32-34; Comcast comments at 39-41; NTCA comments at 8; USTelecom comments at 15-16.