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Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

July 23, 2008

Re: Notice of *Ex Parte* Presentation
Free Press et al. Petition 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" (RM- _____)
and
CC Docket No. 02-33, CC Docket No. 01-337, CC Docket Nos. 95-20, 98-10, GN Docket No. 00-185, CS Docket No. 02-52, WC Docket No. 07-52

Dear Ms. Dortch,

I received a 22-page *ex parte* letter dated July 21, filed by Comcast whose PDF file was named "Comcast Factual Response to Free Press." This "factual response" is filled with factual errors—as well as personal attacks against me. This letter corrects some of the errors in Comcast's letter. It also notes a correction of an error of my own.

Factual Errors on Page 2:

Comcast's choice of "Network Management" is neither Network Management nor Common

Comcast claims its network management is common and they just "followed suit."[1] (I would also like to note that Comcast's latest filing is the first time they have acknowledged in the record the basic fact that they use technology from Sandvine, a fact that I had right from the very first day.) Whatever Sandvine sells to other ISPs, testing by the Max Planck Institute determined that only two ISPs in the nation were using RST

[1] Comcast Ex Parte, July 21, 2008, Attachment A, p. 6; See also Id. p. 8 ("Upon information and belief, the network management technique that we ultimately chose is widely used by broadband ISPs and installed in a variety of networking equipment in the United States and around the world. We looked at other providers that offered similar capabilities, but we ultimately chose Sandvine, which scores of other broadband ISPs have chosen and has a track record of successfully managing network congestion in a minimally intrusive way. Comcast has not made a unique or unusual choice in how it is managing bandwidth on its network.")

flags to interfere with users' choice of application and block P2P uploads. Those ISPs are Comcast Corporation and Cox Communications.

Lack of Competition Drove me to Comcast, and Comcast is Currently not my primary Internet Provider

Comcast points to the fact that Comcast was once my ISP as some kind of “evidence.” I am the person who, in my daily Internet usage, discovered Comcast was blocking peer-to-peer. Naturally Comcast was my ISP. When I first found the problems at Comcast at May 2007, I was a rather happy customer and I was shocked at the "aberration" of their interference with a customer's own uploads. However, my choices of broadband were 6 Mbps/384 Kbps Cable Internet or 768 Kbps/128 Kbps DSL Internet Service. When I moved in March of 2008 to an apartment, I subscribed to Verizon DSL 3 Mbps/768 Kbps as my primary broadband service. It was activated 11 weeks ago. Once this Comcast matter is resolved, I will decide which service I will keep.

After all of the trouble that they have caused, that I would even consider continuing Comcast as my primary ISP should be considered an indicator of a lack of competition in the broadband ISP market, not evidence of anything else.

Comcast Tech Support denied that Sandvine Existed

Comcast claims that Free Press et.al. failed to attempt to gain an understanding of how the network worked. This claim is false. As both Free Press and I have pointed out, perhaps repeatedly, the technology was kept a secret, even from Comcast's own customer support personnel. Efforts to uncover explanations for our testing results were met with denials, diffusions, diversions, and a complete lack of forthrightness on the part of Comcast – a trail of tales, which has been sufficiently documented in previous filings.

Comcast’s Practices are Discriminatory

Comcast discriminated against Internet Protocol content where the payload consisted of any data using a P2P protocol in the upload direction.

Comcast is Blocking

Comcast's insistence that it was not blocking changes none of the facts already presented supporting the assertion that it was. A finding of fact will clarify this point.

Comcast's Network Management is not Reasonable

Comcast's insistence that it was reasonable changes none of the facts already presented supporting the assertion that it was not. A finding of law is required. That said, Comcast points out that its management was "surgical." As surgery goes, it was pretty sloppy. My own legal, slow-speed uploads were blocked and so were tiny uploads consisting of the Holy Bible (Associated Press) and a 500KB file (Electronic Frontier Foundation). Comcast doesn't even consider the current congestion before blocking uploads. Furthermore, despite Comcast's assertion that any "delay" is "frequently less than a minute",[2] I have been unable to upload *anything* on BitTorrent on my connection in any test run since February. Using a blunt, overbroad tool is not good "surgical" practice.

Factual Errors on Page 3:

There exists a comprehensive list of standards governing how the Internet operates.

The Internet Society and the IETF publishes RFC 5000/STD 1, the very list of Standards that Comcast denies exists. It does not cover all situations, but it covers the issues in the Comcast case quite clearly. Where a standard exists, it defines the compatible way or ways to accomplish a goal on the Internet. How to manage congestion on the network is a common theme in the Internet's history, and the very method that Comcast chose is not only unsupported in the IETF documents, but recommended against (IETF BCP 0060). No claim of "reasonableness" should be allowed for a method that is *actively discouraged* by the standards body.

David Reed provided testimony to the fact that Standards are both implicitly agreed to and ought to be supported. When the Cable and Telco companies bought up large swaths of Internet Access providers, and drove the rest out of business by refusing to sell wholesale access, they still did not buy the world-wide Internet. Instead, perhaps without them knowing it, they implicitly agreed to follow Internet Standards.

While BitTorrent isn't an Internet standard, the issue is a red-herring. BitTorrent wasn't the protocol being violated; Transmission Control Protocol (TCP) was violated in that the use of the RST flag was abused. TCP (RFC 793/STD 7 et al) is most-definitely an Internet Standard. Despite Comcast's claim that a RST packet "is the same message that the computer receives when any number of problems occur during a P2P file transfer",[3] these messages originate from the sender or receiver not a third-party forging and injecting into an ongoing transfer. Using the RST packet as Comcast does violates the standard.

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[2] Id., p. 11.
[3] Id., p. 9.

Factual Errors on Page 4:

Comcast blew the meeting, not me

I cancelled the May 29 meeting with Comcast because Comcast changed the nature of our proposed meeting at the last moment. I had just begun consulting for Free Press and Public Knowledge, so I informed those groups about the upcoming meeting. I also informed Comcast that I recently started consulting for Free Press and Public Knowledge. Our meeting was agreed to be a frank "techs only" discussion at Comcast's offices, and I agreed to travel to Philadelphia for the meeting. I would be traveling from Boston, where I would attend an IETF meeting.

With less than 24 hours notice, shortly before my trip to Philadelphia, I was informed that our meeting would include Joe Waz, a very high-level company lawyer and lobbyist who is not an engineer or technologist. While in Boston, I had already met most of the other Comcast CTO technologists to be at the Philadelphia meeting, and one of them lived in Boston. So a trip to Philadelphia to meet the same engineers—plus Joe Waz—for another technical discussion was either not the kind of meeting I had agreed to, redundant, or both. Unable to reach my own people as to whether and how to proceed, and uncomfortable with the last-minute change, I notified Comcast that I elected to reprioritize my day and worked on other matters.

I am surprised not only by Comcast's characterization but also by the mention of this meeting. Both parties had agreed that both the content and *the fact of* the meeting would not be disclosed outside of both organizations. We did so because I was concerned that Comcast would mischaracterize the nature of the meeting.

The meeting was undermined – but not by me or by Free Press. In fact, no staff member of Free Press was ever offered such a meeting, despite Comcast's misleading assertions that they were. Comcast provided neither Free Press nor the Commission with adequate network information.

TTL counters do tell where a device is located in the network

Because I am using surface heuristics to determine what is happening deeper in the network, it is possible that I have changed a few of my initial opinions over time. When I did so, I did not hide the fact, I generally highlighted it.[4] The fact remains that TTL does explain where in the network a device is located, as the TTL counter is decremented by one each time a router is passed.

[4] Example: http://www.dslreports.com/forum/r18918622-

Comcast's statement to the contrary is merely a flat denial of well-established and common network knowledge and the evidence referenced in our last filing indicating that the device was located at the Access Routers and not at the CMTS.

Recent quotes from Comcast question their capacity upgrade assertion

While I only have access to publicly availably information to gain an understanding of the nature of Comcast's upgrades, two recent articles contain noteworthy information that appear to contradict the claims made in Comcast's previous filing and confirm the claims made in the previous Free Press filing.

Today, the Washington Post published an article in which Comcast's CTO states that in the past year the company performed node splits at 10,000 of its 115,000 nodes.[5]

The article does not specify the nature of these node splits, that is whether they were virtual, modular or physical but granting the benefit of the doubt and assuming all of the node splits were physical -- given the fact that the touted double or triple-upstream speed increases occurred across the Comcast network, only upgrading 8.7% nodes does not agree with their previous assertion that they also upgraded the network to support those speed increases.

Furthermore, in responding to the capacity assertion made in the previous Free Press filing Comcast's CTO states that Comcast performs network upgrades when a node reaches "a roughly 70 percent saturation point"[6] not prior to the introduction of speed increases (of course, Comcast is artificially reducing traffic levels through the blocking of <u>all</u> customers P2P traffic in an area, regardless of the size of the file being transferred or the amount of bandwidth they are using).

These recent statements are in conflict with the assertion made in the Comcast declaration that "Comcast recently made a considerable investment to increase the upstream capacity across our network…This is in addition to the nearly daily network upgrades that are performed as a normal course of business."[7]

I would like to remind the FCC that the current situation, where everyone besides Comcast is forced to perform independent research or speculate as to the facts in this case, highlights the need for them to act and to require Comcast and network providers to be forthright and honest with consumers and provide information to the FCC.

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[5] Cecilia Kang, "Call the Cable Guy. Again," Washington Post, July 23, 2008, Available at http://www.washingtonpost.com/wp-dyn/content/article/2008/07/22/AR2008072202685.html.

[6] Stacey Higginbotham, "Comcast Clarifies Its Network Management Efforts Again," GigaOm, July 22, 2008, Available at http://gigaom.com/2008/07/22/comcast-clarifies-its-network-management-efforts-again/.

[7] Comcast Ex Parte, July 21, 2008, Attachment A, p. 4.

On Comcast's position that my affidavit is inconsistent with my present assertions

I did make a mistake and used the wrong device nomenclature. However, taken in context my intent was clear and the affidavit is consistent with the facts. In our initial filing of November 1, 2007, I said *"…the Sandvine device which monitors a given user's connections and injects these packets is located at that user's Cable Modem Termination System (CMTS), which is the location where the user's cable connection, along with that of others users in the area is terminated and converted into an internet connection. A given CMTS can serve thousands or even hundreds of thousands of users."* I should have said "Access Router" and not "CMTS." A CMTS cannot serve hundreds of thousands of users. An "Access Router" can serves tens or hundreds of thousands in a metropolitan area, and that is the device that I intended to identify. I apologize for using the wrong term; the essential facts however are correct. My tests revealed that Comcast places its technology at the Access Router. Clarity and accuracy are hallmarks of quality, and I deeply apologize for using an inaccurate term.

Moreover, my intent in the original was clear and my test to determine that Comcast places its blocking technologies at the Access Router not the CMTS was scientifically reproducible, so any inaccurate word choice can be tested.

Finally, I remain uncertain why this point is not moot, since Comcast has admitted that congestion – at the node or at the gateway – is not a factor. Should we need to pursue this further, Comcast could invite the Commission and consumer groups to examine all of the DPI and blocking technology in the Comcast network and where it is currently placed and show, through change-control records, where the device was placed on the dates in question.

Unable to Refute Facts and Unwilling to Come Clean, Comcast Attacks Me

Unable to handle facts, Comcast has questioned my qualifications. The fact that Comcast is now pointing at my resume—without explaining how it matters to the points I have made through application of sound and reproducible testing—seems to me more mud-slinging than Factual Response.

To begin, I do not stand alone. Since my tests were both sound and repeatable, both the Associated Press and the Electronic Frontier Foundation were able to repeat them. Furthermore, a witness at the Harvard hearing—David Reed, whose credentials as an Internet expert are impossible to question—also testified that he reproduced my tests and results. Regardless of my qualifications, Comcast was caught red-handed.

To continue, Comcast cited my resume, whose contents reflect how I have always represented myself, without any exaggeration or evasion.

At Quarterdeck Office Systems and at Intel Corp., I was primarily responsible for part or all of the test efforts regarding the following networking products: Quarterdeck WebAuthor, Quarterdeck WebServer, QMosaic web browser, Intel ProShare Presenter, ProShare Video Conferencing, Intel ProShare Video Phone, Intel Learning Network, and the Intel Servers and Enterprise Server Managers. I was secondarily responsible in various oversight roles for the Intel 802.11b Centrino wireless networking products, all pre-Y2000 Intel Networking devices including VPN, and internal accounting systems. I participated weekly in corporate Intranet and Extranet change control boards and was considered an internal expert relied upon for testing various upgrades to Intel's desktop networking tools. Intel is a world-wide company with over 80,000 employees and contractors, numerous factories, datacenters, networks and systems. My ASQ Certified Software Quality Engineer (CSQE) certification required 10 years of experience, most of which I completed working in Networking roles. My recognition by Microsoft as a Most Valued Professional in the field of Networking is one not given lightly. It requires recommendation and confirmation of my qualifications.

Oregon has no state certification for network engineers, and is a state that restricts the use of that term by statute. Therefore, I prefer to avoid the term Engineer except when explicitly linked to the ASQ certification or internal job titles, which was Software Engineer or Senior Software Engineer during most of my networking roles at Intel.

I also have wireless engineering and regulatory experience. I was Vice President of the Southern California Digital Communications Committee (SCDCC) which was an FCC recognized coordinating body for Packet Radio stations in the Amateur Radio Service. I not only operated my own packet station and store-and-forward BBS, I also maintained the database of known Packet Radio BBSs throughout California and the surrounding states. I operated on digital radio modes in 1982-83 under the supervision of callsign AH2AR and passed my own Amateur Radio Advanced License exam in 1983 and have operated on digital modes on my own license as AH2AX, KJ6YT, and KJ7RL since then.

During much of my early experience, my employment was not in technology directly, but in Military Service (US Air Force) and Public Safety (Phoenix Police Department, San Clemente PD, and Huntington Beach PD). In the civilian police force, I used my technical skills extensively.

That said, it is true that I have never worked at an Internet Service Provider. In this particular case, the relevance of this particular point escapes me: the subject at hand is Deep Packet Inspection technology that only recently became available to the marketplace able to perform Layer-7 DPI at a Service Provider scale. Evidence and other expert testimony seems to be supporting my case.

Regardless of the sufficiency or lack of sufficiency of my resume, please realize why my resume maters at all. If Comcast had been, or would be, forthright with the public and the FCC, further analysis would be unnecessary. As it is, my analysis has been supported

through application of sound and reproducible testing, whether or not Comcast continues to deny, distract, defy and mudsling.

Sincerely,

/s/

Robb Topolski