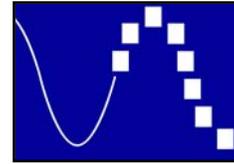


March 14, 2008



**VIA ECFS**

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street SW  
Washington, DC 20554

**Re: 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;" WC Docket No. 07-52**

Dear Secretary Dortch:

The Voice on the Net Coalition ("VON Coalition")<sup>1</sup> respectfully submits these views regarding the petition filed by Free Press et al. (Petitioners), seeking a declaratory ruling "*that the practice by broadband service providers of degrading peer-to-peer traffic violates the FCC's Internet Policy Statement*" and that such practices do not meet the Commission's exception for reasonable network management.

Ensuring consumers can obtain and use the content, applications, and devices they choose is critical to unlocking the vast potential of the Internet. The petition and the questions it raises bear directly upon a consumer's ability to utilize the innovative potential of peer-to-peer VoIP applications and services.

In their comments, a range of parties pointed out: that applications like VoIP are particularly sensitive to degradations in network performance;<sup>2</sup> that a VoIP-affecting degradation in network performance could impede compliance by VoIP providers with important Commission policies;<sup>3</sup> that consumers benefit from meaningful information about the capabilities and

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<sup>1</sup> The Voice on the Net or VON Coalition consists of leading VoIP companies, on the cutting edge of developing and delivering voice innovations over Internet. The coalition, which includes AT&T, BT Americas, CallSmart, Cisco, CommPartners, Covad, EarthLink, Google, iBasis, i3 Voice and Data, Intel, Microsoft, New Global Telecom, PointOne, Pulver.com, Skype, T-Mobile USA, USA Datanet, and Yahoo! works to advance regulatory policies that enable Americans to take advantage of the full promise and potential of VoIP. The Coalition believes that with the right public policies, Internet based voice advances can make talking more affordable, businesses more productive, jobs more plentiful, the Internet more valuable, and Americans more safe and secure. Since its inception, the VON Coalition has promoted pragmatic policy choices for unleashing VoIP's potential. <http://www.von.org>.

<sup>2</sup> See, e.g., Comments of the Wireless Communications Association International, Inc. at 4.

<sup>3</sup> See, e.g., Comments of Vonage Holdings Corp. at 6.

limitations of their broadband service;<sup>4</sup> that the Commission should be particularly skeptical of the use of “network management” practices that cause consumer harm;<sup>5</sup> and that the Commission should resolve questions about the legitimacy of particular network management practices on a case-by-case basis as they arise.<sup>6</sup> The VON Coalition wishes to elaborate on these important points.

The predominant and prevalent VoIP protocols used by all major VoIP providers are based upon peer-to-peer traffic communication. While reasonable network management can promote the interests of consumers, discriminatory practices that go beyond reasonable network management could harm consumers and prevent Interconnected VoIP providers from complying with important Commission policy objectives. For these reasons, the Commission should make clear that degradation of VoIP traffic is a violation of the Internet Policy Statement, enforce its Internet Policy Statement on a case-by-case basis, and ensure that consumers receive meaningful information about their broadband access capabilities and limitations in their terms of service.

## **I. Predominant and Prevalent VoIP Protocols Constitute Peer-To-Peer Traffic**

Peer-to-peer traffic represents a broad class of interesting and innovative Internet technologies that include VoIP; it is not synonymous with BitTorrent or file-sharing. In fact, the predominant VoIP protocols used today all generate peer-to-peer traffic (including SIP, H.323, and Skype’s own peer-to-peer protocol among others.)

VoIP as a peer-to-peer application is well known. For example in its *Pulver Order*, the Commission recognized that VoIP’s SIP protocol “*merely facilitates peer-to-peer communication.*” Likewise as Wikipedia describes it, “*SIP is a peer-to-peer protocol.*”<sup>7</sup> H.323, another common VoIP communication protocol, is also a peer-to-peer communication protocol<sup>8</sup> supporting user-to-user communications without a centralized controlling entity.<sup>9</sup> Skype, too, utilizes peer-to-peer protocols to empower consumers with new ways to communicate.<sup>10</sup>

As such, these VoIP protocols require only a simple core server for user lookup, while the intelligence is distributed to the network edge, embedded in endpoints (terminating devices built in either hardware or software) to enable peer-to-peer communication. These VoIP protocols, in turn, enable a broad array of different Internet communication applications that allow consumers

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<sup>4</sup> See, e.g., Comments of Verizon and Verizon Wireless at 15.

<sup>5</sup> See, e.g., Comments of the Open Internet Coalition at 8-9.

<sup>6</sup> See, e.g., Comments of AT&T Inc. at 24-27.

<sup>7</sup> [http://en.wikipedia.org/wiki/Session\\_Initiation\\_Protocol](http://en.wikipedia.org/wiki/Session_Initiation_Protocol).

<sup>8</sup> “The [H.323 VoIP] protocol was developed to allow intelligent clients to establish connections to other intelligent clients, using a peer-to-peer protocol.” *available at* [http://www.bandwidth.com/wiki/article/SIP\\_or\\_MGCP\\_%3F](http://www.bandwidth.com/wiki/article/SIP_or_MGCP_%3F).

<sup>9</sup> See <http://www.tmcnet.com/it/0801/0801radv.htm>.

<sup>10</sup> “An Analysis of the Skype Peer-to-Peer Internet Telephony Protocol,” Salman A. Baset and Henning G. Schulzrinne Department of Computer Science Columbia University.

to communicate in new and exciting ways over the Internet by incorporating voice and real-time video communication into instant messenger applications, web sites, blogs, widgets, video games, as well as Interconnected VoIP services.<sup>11</sup>

## **II. Degrading Peer-To-Peer VoIP Traffic, By Delaying Packets, Can Have The Effect Of Blocking A VoIP Conversation**

Comcast's terms of service, by way of example, indicate that "during periods of high network congestion" its network management activities may include "delaying peer-to-peer sessions" or "limiting the number of peer-to-peer sessions."<sup>12</sup> Delay discrimination hurts some peer-to-peer applications more than others. Applications like VoIP, which rely upon a steady stream of real-time communication packets, can be especially harmed by temporarily delaying peer-to-peer sessions (or sessions using other applications or protocols).

Limiting or delaying a peer-to-peer VoIP session can be tantamount to blocking a VoIP call. Unlike BitTorrent, peer-to-peer VoIP traffic degradation could significantly harm the consumer's ability to effectively use the application of their choice. The quality of peer-to-peer VoIP communications could be degraded, or indeed blocked, if its communication packets are slowed or its peer-to-peer traffic is suspended. Even when VoIP packets are delayed a mere 250 milliseconds, the lag is noticeable.<sup>13</sup> For example, the International Telecommunication Union ("ITU") provides "Guidance on one-way delay for voice over IP" applications in Recommendation G.114. The ITU recommends "that a one-way delay of 400 ms should not be exceeded."<sup>14</sup> While delays may merely slow a file transfer in some applications, for VoIP applications it can have the effect of garbling or dropping a conversation entirely and making the application unusable.

The Commission's Policy Statement announced that consumers are entitled to access the lawful content of their choice; to run applications and use services of their choice; and to benefit from competition among network providers, application and service providers, and content providers.<sup>15</sup> If Comcast degraded VoIP's peer-to-peer traffic, as described in Comcast's terms of service describes for all peer-to-peer traffic, it likely would be violating the Commission's Policy Statement.

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<sup>11</sup> Examples of innovative VoIP applications and the benefits they deliver can be found at <http://www.vonplus.org/benefits/Benefits%20webpage/benefits.html>.

<sup>12</sup> See <http://www6.comcast.net/terms/use/>.

<sup>13</sup> See "Voice Quality of Service," By Alfredo DeLorenzo, Internet Phone Writer  
Published: May 23, 2006 available at:  
[http://www.voip.com/voip\\_articles/Voip\\_Quality\\_of\\_Service.aspx](http://www.voip.com/voip_articles/Voip_Quality_of_Service.aspx).

<sup>14</sup> See ITU-T Recommendation G.114, Recommendations on the transmission quality for an entire international telephone connection, <http://www1.cs.columbia.edu/~andrea/new/documents/other/T-REC-G.114-200305.pdf>. See also "Understanding Delay in Packet Voice Networks," available at <http://www.cisco.com/warp/public/788/voip/delay-details.html>.

<sup>15</sup> Federal Communications Commission, Policy Statement, Aug. 5, 2005, available at [http://fjallfoss.fcc.gov/edocs\\_public/attachmatch/FCC-05-151A1.pdf](http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf).

### **III. VoIP Applications Do Not Consume An Unreasonable Amount Of Bandwidth And Thus, Are Illegitimate Targets Of Degrading Network Management Practices**

A network provider is presumably throttling BitTorrent peer-to-peer traffic because some file sharing applications generate large amounts of network traffic. However, peer-to-peer VoIP traffic generally represents just a trickle in today's growing broadband pipes. For most VoIP codecs, 90 kbps upstream and downstream is sufficient. A 90 kbps stream is often sufficient for users utilizing a G711 codec, 30kbps for a G729 codec, while some narrowband fixed rate VoIP codecs can operate at minimum speeds as low as of 13.3 kbps.<sup>16</sup> These are just a small trickle of traffic in a 200kbs or even multi-megabit broadband connection. They do not consume an unreasonable amount of bandwidth and thus are illegitimate targets for packet throttling.

### **IV. Degrading Peer-To-Peer VoIP Traffic Could Impede Interconnected VoIP Provider Compliance With Commission Objectives And Rules**

Interconnected VoIP providers take seriously the regulatory responsibilities the Commission has bestowed upon them. Impeding peer-to-peer VoIP traffic could imperil an Interconnected VoIP provider's ability to meet Commission regulatory responsibilities.

**Impeding Disability Access.** As the VON Coalition and disability groups have pointed out, network conditions can impede Interconnected VoIP providers in their ability to comply with their obligations under Section 225 of the Act to enable 711 and TTY dialing for people with disabilities.<sup>17</sup> For example, when utilizing an analog TTY system over an Interconnected VoIP service, a significant amount of dropped packets or jitter can lead to a garbled message and the possibility of a garbled TTY digit. As experts have demonstrated, losing a 20ms VoIP packet within the 165ms TTY character would destroy that whole TTY character making the network unusable for TTY devices. Thus, delaying peer-to-peer Interconnected VoIP traffic could impede disability TTY access, and prevent Interconnected VoIP compliance with a Commission mandate.

**Harming Public Safety.** Interconnected VoIP providers also have a responsibility to route 911 calls to the appropriate public safety answering points. To provide E911 capability, Interconnected VoIP providers have gone to extraordinary lengths to make astonishing progress under a very ambitious timetable. As a result of this unprecedented effort, Americans who dial 911 using interconnected VoIP services can now rest assured they can reach help in an emergency.

However, limiting peer-to-peer VoIP traffic in a manner such as that potentially described in Comcast's terms of service, would be counter to the Commission's intent in its *VoIP E911 Order* to ensure that consumers can always reach 911. In its *VoIP 911 Order*, the Commission reaffirmed its "obligation to promote 'safety of life and property' and to 'encourage and facilitate the prompt deployment throughout the United States of a seamless, ubiquitous, and reliable end-

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<sup>16</sup> See <http://www.speex.org/comparison/> and <http://www.voip-info.org/wiki/index.php?page=Wideband+VoIP>.

<sup>17</sup> VON Coalition comments filed December 3, 2007 at [http://www.von.org/usr\\_files/Disability%20--%20Comments%20on%20Waiver%2012-3-07.pdf](http://www.von.org/usr_files/Disability%20-%20Comments%20on%20Waiver%2012-3-07.pdf).

to-end infrastructure' for public safety." <sup>18</sup> Ensuring a reliable broadband infrastructure upon which Interconnected VoIP emergency calls can be routed depends upon enforcement of the Commission's Policy Statement and the assurance that peer-to-peer Interconnected VoIP packets are not degraded by network management policies that seek to delay or limit peer-to-peer VoIP sessions.

As the VON Coalition has explained previously, "the Commission should never tolerate or permit blocking of any calls under any circumstances."<sup>19</sup> Experts warn that Internet traffic could spike in the wake of a terrorist attack, flu pandemic, or other natural emergency that suddenly causes millions of people to turn to the Internet.<sup>20</sup> It is precisely during periods of high network congestion that an Interconnected VoIP user might need to place a 911 call using a peer-to-peer VoIP session and not a time to be delaying peer-to-peer sessions or limiting the number of peer-to-peer sessions.

## **V. Consumers Should Receive Meaningful Information Regarding Their Broadband Service Plans**

The HighTech Broadband Coalition's ("HTBC") original connectivity principles included a requirement that consumers receive clear, meaningful disclosure of service plan capabilities and limitations. That principle was not explicitly included in the Commission's Policy Statement. Unless consumers are informed in plain English of the capabilities and limitations of the broadband offerings available to them, they cannot possibly make informed choices in the marketplace.

Full disclosure was an important cornerstone of the original connectivity principles. Many broadband offerings today disclose no more about their capabilities and limitations than a theoretical peak bandwidth number which may in actuality only be attained on a limited basis. For example, quantity, duration, and time-of-day limitations that affect the quality of the bandwidth should be plainly disclosed. Any known application and device limitations (such as are deemed necessary to protect the integrity of the network that would impact the customer's usage) and known impacts of network management practices should also be disclosed so that the connectivity principles can work together. Such disclosure helps create an environment where market forces and regulatory oversight could more readily distinguish between acceptable network management practices and behavior that harms consumers.

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<sup>18</sup> *E911 Requirements for IP-Enabled Service Providers*, First Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 10245 at 4 (2005) ("*VoIP E911 Order*").

<sup>19</sup> The VON Coalition has opposed the blocking of VoIP calls in a number of different proceedings. For example in the FCC's Phantom Traffic proceeding the VON Coalition asserted that , "the Commission should never tolerate or permit blocking of any calls under any circumstances." *available at* [http://www.von.org/usr\\_files/ICC%20--%20Phantom%20Traffic%20Comments%20-%20final.pdf](http://www.von.org/usr_files/ICC%20--%20Phantom%20Traffic%20Comments%20-%20final.pdf).

<sup>20</sup> Patrick Thibodeau, Flu pandemic could choke Internet, requiring usage restrictions, ComputerWorld, Feb. 12, 2007, *available at* (<http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9011125>) (quoting Renate Noone, vice president of professional services at SunGard's Availability Services unit, and Bernard O'Neill, vice president and chief network officer at Prudential Financial Inc.).

In addition to preventing network operators from using network management techniques that harm consumers, the VON Coalition respectfully urges the Commission to take the additional step of making disclosure, along the lines set out by the HighTech Broadband Coalition, an explicit principle of its broadband policy. By doing so, the Commission would signal to all broadband providers that it expects them to provide consumers with all material information about the capabilities and limitations of their service.

## **VI. The Commission Should Expeditiously Address Conduct that Harms Consumers**

The Commission should expeditiously address any discrimination that violates its Policy Statement on a case-by-case basis. Such a decision process will be more fact-based and better evaluate the potential trade-offs in particular cases. The Commission should actively monitor the broadband Internet access market for conduct that violates the Policy Statement that cannot be addressed appropriately by the Commission on a case-by-case basis.

With regard to network management services by broadband Internet access providers, providers should be able to engage in management as follows: Broadband Internet access providers should be able to use pro-competitive network management techniques to alleviate congestion and ameliorate capacity constraints. However, broadband Internet access providers should apply these network management service tools in a nondiscriminatory manner that does not adversely or beneficially impact any one type of application, including peer-to-peer VoIP services.

## **VII. The Commission Should Act On A Case-By-Case Basis**

Given the important competition and innovation interests described above, the VON Coalition supports a compromise approach to protecting a consumer's Internet communications experience. Neither a prescriptive, too-regulatory approach nor an overly-narrow enforcement approach is sufficient for the Commission to protect consumer choice on the Internet. Thus, the VON Coalition suggests a case-by-case proposal as a balanced compromise amongst the competing interests described in the record. An overly-prescriptive rule in this area may anticipate some anti-consumer behavior but, because of its specificity, exclude other anti-consumer conduct. Similarly, a narrow enforcement approach may involve substantial costs to bring enforcement actions to the Commission and it may also take too long for consumers to receive a remedy. Network operators have contended that rules in this area will rob them of necessary incentives to invest or of capabilities necessary to protect consumers. On the other hand, application developers and consumer interests contend that the public policy balance has shifted too far in favor of network operator investment incentives, creating uncertainty for consumers and raising the risk of blocking behavior as described by Free Press and others.

A case-by-case approach recognizes that network operator and application provider incentives to invest should be balanced in a way that maximizes consumer choice. Indeed, even network operators support a case-by-case approach. The VON Coalition recognizes that a case-by-case approach is not perfect; but instead represents a reasonable accommodation to all available alternatives. No party – network operator or application provider – will experience complete satisfaction from the following proposal. Instead, this approach splits the uncertainty difference: if the Commission adopts this approach, application developers, network operators, and consumers will face equal levels of uncertainty regarding, for example, whether a given

application will run as intended or conversely, whether certain network management techniques will be permitted or alternatively, prohibited.

A case-by-case approach to enforcing the Commission's Policy Statement is the most efficient method of balancing the network operator, application developer, and consumer interests presented in the record. As Commissioner Copps recently explained at a recent Commission Open Meeting, a tree grows strongest when it grows from the roots up. Adopting the enforcement approached advocated by the VON Coalition will ensure that the Commission's Policy Statement is strengthened from the ground up and remains an important safeguard designed to protect consumers of Internet communications services.

### **VIII. Conclusion**

For these reasons, the Commission should make clear that anti-consumer degradation of VoIP traffic is a violation of the Commission's Internet Policy Statement, enforce its Policy Statement on a case-by-case basis, and ensure that consumers receive meaningful information about the capabilities and limitations of their broadband access in their terms of service.

Sincerely,

/s/ Angela M. Simpson  
**The VON Coalition**

Angela M. Simpson  
President