

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, DC 20554**

<b>In the Matter of</b>	)	
	)	<b>GN Docket No. 09-191</b>
<b>Preserving the Open Internet</b>	)	
	)	
<b>Broadband Industry Practices</b>	)	<b>WC Docket No. 07-52</b>

**COMMENTS OF COMPTTEL**

COMPTTEL, through undersigned counsel, hereby submits its comments in response to the Commission’s Notice of Proposed Rulemaking issued in the above captioned proceedings on October 22, 2009.<sup>1</sup> COMPTTEL supports the Commission’s proposal to adopt net neutrality rules that incorporate general standards of conduct and to resolve any alleged violations of those rules through case by case adjudications. Such an approach will allow Internet access service providers the flexibility to engage in reasonable network management practices necessary to maximize the value of the Internet experience for their customers while ensuring that end users are able to access, run and make available the content, services and applications of their choice and preserving an environment that allows competition among application, service and content providers.

Codifying and clarifying the *Internet Policy Statement* will go a long way toward eliminating any ambiguity about the Commission’s authority to enforce the existing net neutrality principles.<sup>2</sup> COMPTTEL addresses below the Commission’s proposal to adopt a new

---

<sup>1</sup> *In the Matter of Preserving the Open Internet*, GN Docket No. 09-191, Notice of Proposed Rulemaking, FCC 09-93 (rel. Oct. 22, 2009).

<sup>2</sup> *See Comcast Corporation v. FCC*, Case No. 08-1291 (D.C. Cir.), Opening Brief for Petitioner Comcast Corporation at 21 (arguing that statement of agency policy does not establish binding legal standards and is therefore unenforceable).

nondiscrimination rule and the implications of that rule for managed or specialized services, including facilities-based VoIP services.

The Commission’s proposed nondiscrimination rule reads as follows: “Subject to reasonable network management, a provider of broadband Internet access service must treat lawful content, applications, and services in a nondiscriminatory manner.”<sup>3</sup> The nondiscrimination rule applies to the broadband transmission connection between the end user and the Internet.<sup>4</sup> COMPTTEL supports the Commission’s proposed definition of reasonable network management to include, *inter alia*, reasonable practices employed by a provider of broadband Internet access service “to reduce or mitigate the effects of congestion on its network or to address quality-of-service concerns; and address traffic that is unwanted by users or harmful.”<sup>5</sup> Both network service providers and consumers are routinely subject to malicious Internet sourced or destined traffic, including denials of service (DoS), distributed denials of service (DDoS), worms, viruses, malware and spam, that cause congestion and outage situations. Permitting network providers the freedom and flexibility to employ software and hardware to filter and prioritize such traffic based on industry standard policies and practices is, as the Commission recognizes, critical to providing a safe and secure Internet experience for their customers.<sup>6</sup>

The Commission acknowledges that some services, such as services provided to enterprise customers and facilities-based VoIP services, “may be provided to end users over the same facilities as broadband Internet access service, but may not themselves be an Internet

---

<sup>3</sup> NPRM at ¶104.

<sup>4</sup> *Id.* at ¶105.

<sup>5</sup> NPRM at Appendix A, §8.3 Definition of Reasonable Network Management.

<sup>6</sup> NPRM at ¶108.

access service.”<sup>7</sup> The Commission also correctly acknowledges that Internet technologies have changed considerably with the evolution of the Internet marketplace.<sup>8</sup> Historically, the Internet has relied upon an open architecture in which network operators use “best efforts” to deliver packets to their intended destinations without quality of service guarantees.<sup>9</sup> In effect, all packets have an equal right to the network resources of the Internet. This is an acceptable model as long as network congestion can be addressed easily and efficiently through additions of capacity or other means.<sup>10</sup> Many services and applications widely available today, however, including real time voice and video, will depend on quality of service guarantees, especially as demand for capacity on the Internet grows.

The Commission has recently requested comment on whether it should issue a Notice of Inquiry relating to the appropriate policy framework to facilitate and respond to the market-led transition in technology and services from the circuit switched public telephone network (PSTN) to an IP-based communications network.<sup>11</sup> All commenting parties agreed that the transition to IP technology is rapidly underway with AT&T going so far as to call for a deadline for

---

<sup>7</sup> *Id.* at ¶108; see also ¶148 (“we recognize that there are and will continue to be Internet-protocol based offerings . . . often provided over the same networks used for broadband Internet access service. . .”).

<sup>8</sup> *Id.* at ¶56.

<sup>9</sup> *Id.*

<sup>10</sup> Because most initial Internet connections were used by governmental or academic institutions, congestion was not an issue as these institutions were able to readily add capacity.

<sup>11</sup> FCC Public Notice, *Comment Sought on Transition From Circuit-Switched Network to All IP Network*, GN Docket Nos. 09-47, 09-51, 09-137, National Broadband Plan Public Notice #25, DA 09-2517 (rel. Dec. 1, 2009).

retirement of the PSTN.<sup>12</sup> In light of these developments, the Commission’s examination of the need for and proposed text of net neutrality rules must reflect the fact that the IP technology being deployed by network operators today supports a full convergence between the Internet and the PSTN.<sup>13</sup>

A central feature of IP technology is the ability to establish different class of service priorities for different types of packets, thereby allowing the same physical networks to support multiple different services. Indeed, the International Telecommunications Union has identified end-to-end quality of service as a fundamental characteristic of packet-switched IP networks and described issues involving the migration of voice services to the IP infrastructure to include “Quality of Service related to real-time voice services (with guaranteed bandwidth, guaranteed delay, guaranteed packet loss, etc.). . . .”<sup>14</sup> As all traffic migrates to converged IP platforms, packets will be able to be prioritized according to specific characteristics and transmission needs and the prioritization will direct the IP network to manage the network behavior and quality of service for different types or categories of traffic.<sup>15</sup>

---

<sup>12</sup> Comments of AT&T Inc. on the Transition From the Legacy Circuit-Switched Network to Broadband – NBP Public Notice #25, filed in *In the Matter of A National Broadband Plan For Our Future*, on December 21, 2009 at 3.

<sup>13</sup> Many of the Commission’s existing policies are premised on a bright-line distinction between the Internet and the PSTN. Any such distinction is rapidly fading and will eventually disappear. While the Internet and the PSTN may continue to operate as separate *logical* networks, the Commission should no longer base its policies on a presumed physical distinction between the two.

<sup>14</sup> See , ITU-T Series Y Recommendation Y.2001: Global Information Infrastructure, Internet Protocol Aspects and Next Generation Networks (Dec. 2004) at 3-4.

<sup>15</sup> The concept of packet prioritization is not new and, in fact, was envisioned very early in the development of the Internet Protocol. The original developers of Internet Protocol recognized the need to classify traffic according to type, and then to prioritize data packets based upon that classification. See Jonathan B. Postel, “Internetwork Protocol Specification Version

There is clearly a critical nexus between the issues raised in this NPRM and those raised in the Broadband Plan proceeding relating to the inevitable transition from the circuit-switched PSTN to an all IP-based network. The Commission must ensure that any nondiscrimination net neutrality rules it adopts do not discourage the convergence of managed services (such as the VoIP services that will replace the TDM-based voice services of today's PSTN) and "best efforts" non-managed Internet services onto the same physical technology platform.

### **The Future Will Be Defined by Managed Networks**

As the Commission notes, the best-efforts architectural model of the Internet has fostered an environment of unprecedented innovation. COMPTEL supports the Commission's commitment to ensuring that a provider of broadband Internet access service treats lawful content, applications, and services in a nondiscriminatory manner, at least for those categories of traffic for which a best-efforts model is the appropriate approach. There is no question, however, that IP technology is fundamentally changing how "Internet" and "traditional phone" services are being provided and the Commission's rules must accommodate these changes.

Because of the evolution of IP technology, "the Internet" will be only one *use* on modern, multi-service, IP networks relying on prioritization to support convergence. In recognition of the evolution of IP technology and networks, the Commission should more precisely define exactly what the composition of the *logical* network it calls "the Internet" is before promulgating nondiscrimination rules. For purposes of this proceeding, the Commission proposes to define the Internet as "the system of interconnected networks that use the Internet Protocol for communications with resources or endpoints (including computers, web servers, hosts, or other

---

4", Internet Experiment Notes #41, June 1978, p. 18. In a discussion concerning the Type of Service (ToS) bits in the IP packet header of this first draft of IPV4, Postel states "In the future this field is to carry information about priority, and Service Class. Current thinking suggests that service classes might be characterized by terms like Interactive, Bulk, and Real Time."

devices) that are reachable, directly or through a proxy, via a globally unique Internet address assigned by the Internet Assigned Numbers Authority.”<sup>16</sup> COMPTEL submits that that this definition of “the Internet” is inappropriately broad. Internet Protocol is extensively used in both public and private networks, with many private networks relying on public IP addresses for routing and encryption for security. Thus, the Commission’s definition of the Internet would apply to *any* network that relied upon IP as its Layer-3 protocol and tunneled through or inter-networked with the Internet.

In order to avoid any questions with respect to the applicability of any nondiscrimination rules, the Commission should not define the best-efforts Internet by its *physical* characteristics or components -- including, importantly, what the NPRM calls the broadband transmission connection between an end-user and the Internet<sup>17</sup> – so much as by its *logical* requirements. The technology framework of the future will give rise to fundamentally different network services riding on a common network platform. To the extent that the Commission adopts rules to preserve the best-efforts character of the Internet and to prohibit Internet access service providers from charging content, application or service providers for enhanced or prioritized access to their subscribers, it must state explicitly that such rules do not apply to managed traffic so as not to interfere with the quality of the VoIP or other managed services to which a consumer may subscribe. The key will be developing policies that encourage investment and expansion of the Internet Protocol technology framework while recognizing that a mix of traffic, which may

---

<sup>16</sup> NPRM at ¶48.

<sup>17</sup> *Id.* at ¶105.

call for a mix of regulatory policies,<sup>18</sup> will be transmitted over the networks deploying that technology.

**Net Neutrality Rules Should Be Designed  
To Preserve and Encourage Innovation over IP Networks**

As explained above, networks of the future will carry Internet traffic as only one application alongside multiple other services, including managed services. The transition to managed networks that support multiple applications and uses should be encouraged. The Commission's concern that the growth of managed services "might supplant or otherwise negatively affect the open Internet"<sup>19</sup> ignores an important consideration. That is, that the Commission's rules should *encourage* the deployment of IP networks, so that more and more managed applications are able to share the same physical network facilities used to provide access to the Internet.

The emergence of and transition to IP technologies and networks creates an environment in which innovation in the development of managed and other services can thrive. The Commission should ensure that its policies encourage the deployment of the IP technology framework and preserve the continued openness of one *use* of that framework (i.e., the Internet), while at the same time fostering competition in the development of managed services, including the VoIP services that are rapidly replacing the circuit switched voice service carried over the PSTN.

---

<sup>18</sup> See e.g., the Comments COMPTTEL filed in response to National Broadband Plan Public Notice #25 emphasizing the need for continued regulatory oversight of interconnection and traffic exchange as the PSTN migrates from TDM-based technology to IP networks. Comments Of Cbeyond, COMPTTEL, COVAD, Intrado, NuVox And tw telecom In Response To NBP Public Notice # 25, GN Docket Nos. 09-47, 09-51 and 09-137 filed December 21, 2009. See also, September 22, 2009 Letter from Cbeyond, COMPTTEL, et. al. to Marlene H. Dortch, filed in GN Docket No. 09-51 ("*IP Interconnection Ex Parte*").

<sup>19</sup> NPRM at ¶ 149.

The Commission's characterization of managed services as "specialized" services<sup>20</sup> ignores the reality that the largest "managed service" will be what is today circuit-switched PSTN voice service. Latency, jitter and packet loss must be minimized on IP voice services through prioritization in order to ensure that the quality of the call is not unacceptably degraded. As the IP technology framework and the prioritization it enables allow TDM-quality services to be provided over managed networks, the PSTN will be phased out. As noted above, AT&T has gone so far as to urge the Commission to adopt a date-certain to "turn off" the PSTN, recognizing that all of its services will ultimately be provided over IP networks.<sup>21</sup> Because of the convergence of the Internet and the PSTN to a common platform, the Commission must carefully coordinate any rules it adopts here with any action it takes in the proceeding addressing the transition from a circuit-switched to an all IP network.

### **Edge-Based Prioritization Will Promote Innovation**

Preserving a free and open Internet, where all packets are delivered to their destinations on a best-efforts basis, is not inconsistent with the packet prioritization necessary to maximize the value of certain managed services, including VoIP. The Commission's interest in protecting the openness of the logical Internet network should not prevent the emergence of other logical networks that fully exploit the capabilities of contemporary technology.

One way to promote innovation is to encourage the development of edge-based prioritization. As the nation transitions from a circuit-switched to an all IP network, end-to-end prioritization and quality of service guarantees will be necessary for packets carrying voice

---

<sup>20</sup> *Id.*

<sup>21</sup> *See n. 12 supra.* In calling for a date-certain decommissioning of the PSTN, AT&T makes no distinction between the widely-accepted and looming obsolescence of circuit switches, and the premature retirement of highly effective and broadband-capable copper loops. This is not only anti-competitive in nature but is analogous to throwing the baby out with the bath water.

traffic in order for service quality to remain at the levels that customers take for granted today. Edge-based prioritization will not be possible, however, unless and until network providers cooperate and respect the prioritization schemes and quality of service guarantees of other networks. End-to-end packet prioritizations will have to be implemented together with IP-based interconnection arrangements that will facilitate the routing of voice packets between networks with the appropriate priority.<sup>22</sup> Prioritization schemes should be open to various application providers.

### **Conclusion**

As the Commission considers the adoption of nondiscrimination rules, it must focus not only on how to protect best-efforts routing in the free and open Internet, but also on how to encourage the implementation of priority-routing schemes for more sophisticated services in the most pro-competitive manner possible. COMPTTEL urges the Commission to use this opportunity to adopt rules that will allow open networks, such as the Internet, and innovation-based private, managed networks, to mutually coexist on the same physical network under a regulatory regime that maximizes the efficacy of both.

January 14, 2009

Respectfully submitted,

/s/

Mary C. Albert  
COMPTTEL  
900 17<sup>th</sup> Street N.W., Suite 400  
Washington, D.C. 20006  
(202) 296-6650

---

<sup>22</sup> See *IP Interconnection Ex Parte*, n. 18, *supra*.