

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of	)	
	)	
Restoring Internet Freedom	)	WC Docket No. 17-108
	)	

**REPLY COMMENTS OF NOMINUM, INC.**

**I. Introduction**

Nominum, Inc. (“Nominum”), by its attorneys, hereby submits these reply comments in response to the Notice of Proposed Rulemaking adopted in the above-referenced proceeding.<sup>1</sup> As Nominum explained in its initial comments, it is the leading developer and provider of DNS-based services, handling more than 1.6 *trillion* transactions every day for its more than 125 Internet service providers (“ISP”) customers in over 40 countries. Nominum understands that in making many of the key determinations in this proceeding, it is important for the Federal Communications Commission (“Commission”) to understand the role of DNS and other information services that are offered by ISPs as part of their broadband offerings. Nominum is participating in this proceeding to help ensure that the Commission has a well-developed record on the function of DNS in the broadband services ISPs offer their subscribers, and to express support for a flexible regulatory framework that ensures consumers can access the sites and content of their choosing without degradation, impairment, or blocking and that provides consumers with clear and effective disclosure.

In these reply comments, Nominum underscores, that DNS is a core function of the broadband service offering provided by ISPs as stated in its initial comments, and that the capabilities DNS provides for

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<sup>1</sup> *In re Restoring Internet Freedom*, WC Docket No. 17-60, Notice of Proposed Rulemaking and Order, 32 FCC Rcd. 4434 (rel. May 23, 2017) (*Restoring Internet Freedom NPRM*).

ISPs and subscribers go well beyond management and control of telecommunications service.<sup>2</sup> In addition, as Nominum stated and a wide range of commenters agree, the Commission must provide for a reasonable and flexible network management regime, that provides ISPs discretion, free from crippling doubt, to improve customer experiences and decide how best to invest and innovate to meet rapidly changing threats to the security and safety of their own networks and operations, and of the consumers they serve.

## **II. DNS Performs a Core Function for ISPs Broadband Services and Its Role Goes Well Beyond Management, Control and Operation of Telecommunications Systems**

As the Commission considers again whether to classify broadband internet access service as an “information service” or as a “telecommunication service,” a number of parties have discussed the role DNS performs in providing broadband service to consumers.<sup>3</sup> There are two components to the determination of whether a service meets the definition of an information service.<sup>4</sup> The first component is whether the service generates, acquires, processes, retrieves, utilizes or makes information available via telecommunications, which unlike information service, involves the transmission of information of the user’s choosing without change in the form or content of the information.<sup>5</sup> The second component is the so-called telecommunications management exception, whether it is used “for the management, control, or operation of a telecommunications system or the management of a telecommunications service.”<sup>6</sup> For services like DNS (as well as caching and other functionalities), commenters focus on the first component

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<sup>2</sup> *NPRM*, 32 FCC Rcd. at 4446, para. 37.

<sup>3</sup> See e.g. Comments by AT&T, Attorneys General of the States, Comcast, US Telecom, Verizon, Reason Foundation, Free State Foundation, INCOMPAS, Information Technology and Innovation Foundation, John Peha, Sandvine, and Writers Guild of America West.

<sup>4</sup> 47 U.S.C. § 153(24) (*defining* information service as “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications” but excluding information services used for “for the management, control, or operation of a telecommunications system or the management of a telecommunications service.”).

<sup>5</sup> 47 U.S.C. § 153(50) (*defining* telecommunications as “the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received.”).

<sup>6</sup> 47 U.S.C. § 153(24).

of the determination to consider whether DNS is *functionally integrated* into the service such that its presence is dispositive of whether DNS and other features makes broadband an information service. Commenters discuss the second component to determine whether DNS is the type of service that fits within the “telecommunications management exception” and therefore should not influence the Commission’s determination of whether broadband is properly classified as an information service.

**DNS is a fully integrated function of broadband service.** Regarding the first component, as Nominum noted in its initial comments, DNS is essential to operating ISP broadband services. Absent DNS, consumers would be reduced to navigating the Internet via the use of IP addresses.<sup>7</sup> As AT&T notes, “DNS is what allows ‘click through’ access from one web page to another, and its computer processing functions analyze user queries to determine which website (and server) would respond best to the user’s request...Virtually all consumers today rely on their broadband ISP to include DNS look-up functionality as an integral part of broadband Internet access service.”<sup>8</sup> Similarly, Comcast explains that broadband internet access service offers end users the capability to access information online consistent with information service definition in the statute, and “does so through functionally integrated information-processing functions, such as DNS, that are part and parcel of the offering.”<sup>9</sup>

Some commenters assert in the record that DNS is not an integral part of the ISP’s broadband offering, claiming instead that it is “an extraneous service” or a “useful convenience.”<sup>10</sup> Nominum strongly disagrees with this characterization. DNS is much more than a useful convenience-- it has made the Internet, which relies on IP addresses, accessible to everyone by converting words into IP addresses. IP addresses are cumbersome to use in as much as the common representation for an IPv4 address is the dot-decimal notation, which is neither obvious or intuitive to consumers and consists of four octets of the address expressed individually in decimal numbers and separated by periods (e.g. 76.21.4.149). DNS

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<sup>7</sup> Nominum comments at 4.

<sup>8</sup> AT&T comment at 74.

<sup>9</sup> Comcast comment at 8, 14.

<sup>10</sup> John Peha comments at 19.

allows the Internet to be accessible in our language, not the other way around. As AT&T notes, “consumers would find broadband service without DNS utterly useless.”<sup>11</sup> Sandvine explains “customers view the automatic assignment of ISP DNS servers to be an integral part of the Internet service. Failure to assign DNS servers for customers would result in their functional inability to use their Internet service and widespread customer complaints.”<sup>12</sup> And Comcast, citing a recent D.C. Circuit Court decision notes that “without DNS websites are effectively invisible.”<sup>13</sup>

Notwithstanding, Nominum is aware, as some commenters note, that there are providers of DNS services that are independent of the ISPs.<sup>14</sup> However, as Nominum stated in its initial comments, approximately 97 percent of consumers receive their DNS service through their ISP’s broadband offering.<sup>15</sup> Very few do otherwise and the small percentage that do so often are very technologically sophisticated consumers who rely on independent DNS service options during outages or degradation of the DNS service offered by their ISPs. This also is not a frequent occurrence in part because of the superior performance and reduced latency of the DNS services offered by ISPs and because the DNS service is difficult to maintain separate and apart from the broadband offering itself. This sky-high adoption of and reliance on the DNS service provided by ISPs, particularly when there are other alternatives on the market, many of which are free, indicates that consumers want and expect their broadband service to include DNS.<sup>16</sup> Much as consumers expect to purchase a car with a steering wheel and tires, consumers expect a turnkey broadband service from their ISPs and that includes DNS services.<sup>17</sup>

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<sup>11</sup> AT&T comments at 74.

<sup>12</sup> Sandvine comments at 2.

<sup>13</sup> Comcast comments at 15.

<sup>14</sup> Writers Guild of America West comments at 6; INCOMPAS comments at 56; John Peha comments at 18-19.

<sup>15</sup> Nominum comments at 4.

<sup>16</sup> *Restoring Internet Freedom NPRM*, 32 FCC Rcd. at 4446, para. 37.

<sup>17</sup> Sandvine comment at 2; Comcast comment at 18.

**DNS offered by ISPs is much more than a management tool.** DNS services that are provided by ISPs to their customers are essential to the offering of broadband and go well beyond the types of information services that fit within the “telecommunications management exception” of the definition of information services. DNS-based services, as Nominum explained in its original comments, also provide many other features that ensure broadband subscribers have a safer, more efficient Internet experience.<sup>18</sup> Nominum itself also offers a suite of products that include functionalities that enhance safety of the network through threat detection and mitigation (Threat Avert and ThreatAvert Global Intelligence Xchange)<sup>19</sup> as well as operational efficiencies (CDN caching). And importantly for the Commission’s determination on whether DNS is more than a management tool, Nominum offers services like its N2™ Secure Consumer that allow ISPs to offer their subscribers greater protection from malware, bots, phishing, virus protection and other exploits, as well as parental control capabilities and other consumer-based controls.<sup>20</sup> These features of DNS-based services are focused on enhancing the consumer’s Internet experience and go well-beyond what is needed for the management and control of a telecommunications system.<sup>21</sup>

As T-Mobile notes in its comments, the network management exception “applies only to functionalities that merely facilitate *transmission* and do not provide enhanced capabilities to the user. In contrast, caching and DNS are themselves valuable to consumers, and facilitate the provision of an information service.”<sup>22</sup> Nominum’s products demonstrate the validity of that position and underscore the point that DNS services are far more than simple tools to facilitate transmission.

Nominum agrees with those commenters that support the conclusion that DNS services are a core function that is fully integrated into the broadband service ISPs offer their consumers and that DNS

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<sup>18</sup> Nominum comments at 2-4.

<sup>19</sup> *Id.* at 3.

<sup>20</sup> *Id.* at 3.

<sup>21</sup> *Id.* at 4; AT&T comments at 79; Comcast comments at 19.

<sup>22</sup> T-Mobile comments at 14.

capabilities are indicative of the types of capabilities ISPs offer that go well-beyond management and control of the telecommunications system.

### **III. The Record Supports Adoption by the Commission of a Framework that Continues to Promote Transparency, Prohibits Blocking and Throttling, and Provides ISPs Flexibility to Reasonably Manage Their Networks**

The record developed in this proceeding demonstrates support for the Commission to adopt a framework that promotes transparency, prohibits blocking and throttling, and allows carriers flexibility to manage their networks. In its initial comments, Nominum offered its support for these principles.<sup>23</sup> As Nominum stated, no-blocking and no-throttling are essential elements of a framework designed to protect consumers and assure a free and open Internet.<sup>24</sup> Nominum agreed with the Commission that effective disclosure of ISP' network management practices, performance, and commercial terms of service o promotes competition, innovation, investment, end-user choice and broadband adoption.<sup>25</sup>

A broad range of commenters agree that the Commission should maintain a prohibition against blocking and throttling. Comments provided by a group of various states' attorneys general, for example, are united in calling for no blocking and no throttling.<sup>26</sup> ISPs highlighted their public support for not engaging in these practices, noting that their customers expect to have unfettered access to all lawful content.<sup>27</sup> Nominum reiterates its support for the Commission's adoption of a framework that supports no blocking and no throttling of consumer access to lawful content, subject to reasonable network management practices by ISPs as discussed below, and for innovations that are offered to consumers as a

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<sup>23</sup> Nominum comments at 4-8.

<sup>24</sup> *Id.* at 5.

<sup>25</sup> *Id.* at 6.

<sup>26</sup> Revised comments of the Attorneys General of the States of Illinois, California, Connecticut, Hawaii, Iowa, Maine, Maryland, Massachusetts, Mississippi, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia at 18.

<sup>27</sup> Comcast comments at 54-55; AT&T comments at 3.

matter of choice, and empower them by providing greater end user control, such as parental controls and time-restricted access.<sup>28</sup>

Likewise, Nominum notes broad agreement in the record for retention of a transparency requirement to ensure that consumers have the information they need to make informed decisions and understand the ISPs practices.<sup>29</sup> As the Information Technology Industry Council explains in its comments “there is a need to maintain a transparency rule which, at a minimum, provides consumers specific and accurate information about the performance of the broadband internet access service offering they are purchasing.”<sup>30</sup> T-Mobile urges reforms to the current formulation but agrees that transparency “has been important for T-Mobile and its success in the competitive marketplace.”<sup>31</sup> Comments filed by the Telecommunications for the Deaf and Hard of Hearing, Inc. and other disabilities rights organizations stress the importance of transparency in “ensur[ing] that consumers with disabilities can better understand how BIAS providers’ plans, terms, and practices will affect their ability to use the applications and services of their choice.”<sup>32</sup>

Such broad agreement demonstrates the importance of this concept to the framework and its importance in ensuring that consumers have the information they need to make informed decision. Nominum thus urges its inclusion in whatever framework the Commission ultimately creates.

Nominum recognizes that the record diverges on how the Commission should implement these protections and understands that consensus is harder to reach on these decisions. Nominum believes,

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<sup>28</sup> *Supra* at 9.

<sup>29</sup> *See e.g.*, AT&T comments at 3 (“a baseline prohibition on blocking and throttling merely codifies standard industry practice and thus satisfies any cost-benefit analysis because it represents a minimal intrusion into free market dynamics.”); Cox comments at 20 (“a wide array of BIAS providers (including Cox) and their industry associations have made prominent and unequivocal commitments to remain transparent and to refrain from blocking, throttling, or other anticompetitive conduct.”); Information Technology Industry Council (“ITI supports maintaining two brightline rules discussed in the NPRM, namely a “no-blocking” rule and a “no-throttling” rule.”); Telecommunications for the Deaf and Hard of Hearing, Inc. et al. at 9 (“A no-blocking rule not only remains necessary, but has proven effective since its inception.”).

<sup>30</sup> Information Technology Industry Council comments at 5.

<sup>31</sup> T-Mobile comments at 18.

<sup>32</sup> Telecommunications for the Deaf and Hard of Hearing, Inc., et al. comments at 7.

however, that there is a significant consensus supporting adoption of some framework, whether rules-based or otherwise, that would codify these protections and urges that the Commission move forward with a framework that ensures consumers are protected and that provides ISPs clarity as to their obligations.<sup>33</sup>

Concerning the “reasonable network management” exception, Nominum reiterate its support for a framework that recognizes that there are network management practices and innovations that would benefit from a network management exception better designed to promote innovation. AS CTIA states in its comments, “the narrow flexibility” provided under “several of [the] bright line rules for ‘reasonable network management’ undermine a provider’s ability to evolve and manage its network for the betterment of the entire subscriber base.”<sup>34</sup> CTIA goes on to note the importance of recognizing that “network management decisions are influenced by a mix of technical and business considerations” and therefore flexibility is needed.<sup>35</sup> Nominum urges the Commission to adopt a formulation that allows for practices that are transparent, recognizes innovations for greater end user control, promotes a safer and more secure environment, and is application-agnostic.<sup>36</sup> Such a formulation would protect against the concerns the Commission has expressed of an overly-broad exception, while affording ISPs and companies like Nominum an incentive to continue to research and invest in new and better products designed to provide benefits to consumers and ISPs.<sup>37</sup>

#### **IV. Conclusion**

Nominum appreciates this opportunity to reply to comments made in the record and offer additional information on the role of DNS in providing broadband service to consumers. Nominum agrees with many of the commenters in this proceeding that there is a need for a framework that ensures that a free

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<sup>33</sup> Nominum comments at 5; AT&T comments at 10.

<sup>34</sup> CTIA comments at 16.

<sup>35</sup> *Id.* at 16.

<sup>36</sup> Nominum comments at 8.

<sup>37</sup> *Id.* at 8.



and open Internet continues to thrive and inclusion of a few key components to ensure: no blocking, no throttling, effective transparency requirements, and a reasonable network management exception that promotes innovation for both the services offered by the ISPs and greater end user controls.

Respectfully submitted,

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