

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

<b>In the Matter of</b>	)	
	)	
<b>The Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Reporting to Interconnected Voice Over Internet Protocol Service Providers and Broadband Internet Service Providers</b>	)	<b>PS Docket No. 11-82</b>

**COMMENTS OF SPRINT NEXTEL CORPORATION**

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## TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION AND SUMMARY.....	1
II. DISCUSSION.....	3
A. The Burden That Would Be Imposed on VoIP Providers and Broadband ISPs by the Commission’s Proposed Outage Reporting Requirements Will be Substantial, and the Purported Benefits Do Not Outweigh This Burden.....	3
B. IP Networks Are Vastly Different From Traditional, Circuit-switched Voice Networks and Due to These Differences, Government-mandated Monitoring and Reporting are Unnecessary and, Ultimately, Counterproductive.....	5
C. If Contrary to Sprint’s Arguments the Commission Decides to Impose Outage Reporting Requirements on VoIP and Broadband Backbone ISPs, It Must Ensure that the Proposed Reporting Criteria are Clear and Not Subject to Different Interpretations.....	6
1. VoIP.....	6
2. Broadband Backbone ISPs.....	8
V. CONCLUSION.....	11

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The Proposed Extension of Part 4 of the	)	PS Docket No. 11-82
Commission's Rules Regarding Outage	)	
Reporting to Interconnected Voice Over	)	
Internet Protocol Service Providers and	)	
Broadband Internet Service Providers	)	

**COMMENTS OF SPRINT NEXTEL CORPORATION**

Sprint Nextel Corporation ("Sprint") hereby respectfully submits Initial Comments in response to the Commission's *Notice of Proposed Rulemaking* ("NPRM") in the above-captioned proceeding. As discussed below, subjecting broadband Internet Service Providers and interconnected Voice over Internet Protocol service providers to burdensome outage reporting regulation is neither feasible nor necessary.

**I. INTRODUCTION AND SUMMARY**

In the *NPRM*, (at ¶1), the Federal Communications Commission ("Commission" or "FCC") "propose[s] to extend the outage reporting requirements in Part 4 of [its] rules [47 C.F.R. Part 4] to interconnected Voice over Internet Protocol (VoIP) service providers and broadband Internet Service Providers (ISPs)." According to the FCC, "[t]his action will help ensure that [the] current and future 911 systems are as reliable and resilient as possible and assist [the] Nation's preparedness for man-made or natural disasters such as Hurricane Katrina." *Id.*

The FCC's Public Safety and Homeland Security Bureau started the process of seeking to extend Part 4 rules to VoIP providers and ISPs by issuing a Public Notice (DA 10-1245 July 2, 2010) in ET Docket No. 04-35 *et. al*, seeking comment on whether and how to do so. In its Reply Comments (at 1) Sprint agreed that "[c]ommunications services delivered to end users

over broadband technologies have grown in importance and now carry some of our most vital communications, Public Notice at 1,” but went on to state that this “fact alone does not necessarily mean that the FCC should expand its Part 4 outage reporting rules to cover broadband ISPs and interconnected VoIP service providers.” In this regard, Sprint agreed with nearly all of the parties submitting comments in response to the Public Notice explaining that providers of broadband services had designed networks that were highly reliable resilient and secure; that such networks were the product of a competitive marketplace and not a government mandate; and that, in any event, because of the complexities of the networks necessary to furnish IP-enabled broadband services to end users, it would be difficult, if not impossible, to determine the cause of many, if not all, disruptions in service as perceived by end users, let alone its severity. For these reasons, Sprint urged the FCC to abandon its effort to impose Part 4 outage reporting requirements on VoIP providers and ISPs.

The Commission does appear to recognize that [b]roadband networks operate differently than legacy networks,” NPRM at ¶ 27, and that broadband providers cannot simply be “shoehorned” into the outage reporting regulatory structure designed for providers of services over such legacy networks. Thus it has asked for comments on a number of issues including threshold questions such the definition of a VoIP outage, *NPRM* at ¶ 25; the threshold at which a report needs to be filed, *id.*; whether to apply a concentration ratio to mobile VoIP users, *NPRM* at 28; and, at what point within the network should the outage be measured. *Id.* For ISPs offering Internet access services to end users, the Commission proposes that an outage be defined at “the loss to the end user of generally useful availability and Internet connectivity” *NPRM* at ¶ 40, but also asks how it should measure such outage. *Id.* at ¶¶ 41-42. Similarly, for

broadband backbone ISPs the Commission asks for comments on how the loss of “generally-useful availability and Internet connectivity” should be defined and measured. *Id.* at ¶ 48.

Sprint continues to believe that the imposition of an outage reporting regime on VoIP providers and broadband ISPs is unnecessary. In fact, it would be costly to implement even assuming that the Commission is able to establish objective standards for whatever definition of a VoIP outage it adopts and for its proposed definition of an outage on a broadband ISP network. At the very least, before the Commission imposes regulation and thereby exposes carriers to the possibility of fines if they are unable to comply it should establish a voluntary pilot program to determine whether in light of the complex networks involved an outage reporting scheme is even feasible.

## II. DISCUSSION

### A. **The Burden That Would Be Imposed on VoIP Providers and Broadband ISPs by the Commission’s Proposed Outage Reporting Requirements Will be Substantial, and the Purported Benefits Do Not Outweigh This Burden.**

Several of the comments filed in response to the *Public Notice* explained that the costs and burdens of extending its Part 4 rules to VoIP providers and broadband ISPs outweighed any benefits that possibly could be realized from such a regime. Apparently the Commission was not convinced by these comments. For example, it states that the burden on providers can be mitigated through online, automated reporting mechanisms. *NPRM* at ¶ 21.

However, the method used for actually submitting reports is just one facet – perhaps the easiest facet – of the entire outage reporting process. If the Commission extends its proposed outage reporting requirements to VoIP providers and broadband ISPs, Sprint and other providers will need to determine the cause of the outage. However, given the complex networks used in the provision of Internet-enabled broadband services and the various piece parts that comprise

the cyber eco-system, it may be difficult, if not impossible, to make such determination. As Sprint and others explained in their pleadings on the *Public Notice*, there are a number of factors that could prevent end users from accessing their desired Internet locations which are completely out of the control of the providers involved in providing such access. See, e.g., Sprint's Reply Comments at 3 and the pleadings cited there.

Moreover, in order to realize network efficiencies, Internet access providers that also provide wireline and wireless common carrier services may comingle the traffic for transport over the same trunks. As a result, trunks may be subject to different outage reporting criteria. For example, Sprint's Dedicated Internet Access ("DIA") traffic often is sent over the same trunks used to transport traffic generated by Sprint's wireline and wireless carriers. Today, of course, Sprint need not determine the mix of the different categories of traffic on any given single backbone trunk. It simply applies the current criteria established for reporting outages on wireline networks. Under the Commission's proposed outage reporting requirements, however, Sprint would be faced with determining the mix of the different categories of traffic and monitoring these types of traffic separately solely to meet the outage reporting requirements applicable to each type of traffic.

The Commission apparently believes that the imposition of an outage reporting regime on VoIP providers and broadband ISPs would not be burdensome or costly to implement since the "types of information that would be needed in such outage reporting are already readily available to reporting entities via the normal network management processes." *NPRM* at ¶ 21. While the Commission is correct that most providers monitor network and system failures, it overlooks the fact that the methods employed by these providers may not enable them to meet the specifications outlined in the proposed rules. And if an ISP's method for tracking network

failures does not produce the type of data the Commission has proposed to determine whether an outage is reportable, the broadband backbone ISP will have to expend perhaps significant resources to modify its tracking system to produce such information.

**B. IP Networks Are Vastly Different From Traditional, Circuit-switched Voice Networks and Due to These Differences, Government-mandated Monitoring and Reporting are Unnecessary and, Ultimately, Counterproductive.**

In response to the Public Notice, several parties explained that broadband networks are robust, highly reliable, and engineered for redundancy.<sup>1</sup> IP networks will re-route traffic when a network node fails. In this way, IP networks are inherently more robust and reliable than the public switched telephone network (“PSTN”), which is point-to-point and was not fundamentally designed with such redundancy in mind. In addition, the PSTN is comprised of older infrastructure while IP networks are comprised of newer, more advanced infrastructure deployed more recently. In short, the same weaknesses that exist with respect to the PSTN, which led to the adoption of the existing part 4 outage reporting requirements, are not present with IP networks. Moreover, contrary to the Commission’s belief that “providers are not incentivized” to provide a “nationwide broadband infrastructure that is reliable,” *NPRM* at ¶ 21, the fact is that, as the record below demonstrates, the demands of a competitive marketplace require broadband ISPs and interconnected VoIP service providers to offer a highly reliable service.

There is no demonstrated need for the Commission to impose a mandatory outage reporting regime to foster reliable broadband networks. In fact, such a reporting regime – especially one based on the rather vague definitions of what constitutes an outage<sup>2</sup> – may present

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<sup>1</sup> See Sprint’s Reply Comments at 1-2 citing Comments of the Alliance for Telecommunications Industry Solutions, the Comments of the National Cable & Telecommunications Association and the Comments of the United States Telecom Association.

<sup>2</sup> For example, the Commission’s proposed definition for an broadband ISP network outage is the “loss of generally useful availability and connectivity.” *NPRM* at ¶ 49.

a distorted view of network IP network reliability. As stated, there are multiple factors within the cyber eco-system that could affect the perceived availability of broadband service that are not related to network performance, including end-user equipment and software. Moreover, the complexity of the network architecture associated with broadband networks will make it extremely difficult to determine the source of a network disruption. Whereas traditional circuit-switched communications travel point-to-point, IP networks break up a communication into packets that are then transmitted over multiple pathways in an effort to maximize efficiencies. Thus it is much more difficult to pin-point when and where an outage occurs on the IP network leading to the likelihood that the Commission will not receive any meaningful data.<sup>3</sup>

**C. If Contrary to Sprint's Arguments the Commission Decides to Impose Outage Reporting Requirements on VoIP and ISPs, It Must Ensure that the Proposed Reporting Criteria are Clear and Not Subject to Different Interpretations.**

**1. VoIP**

Under the Commission proposal, VoIP providers would be required to file an outage report, whenever service is “degraded” for 30 minutes or potentially affects generally useful availability and connectivity of at least 900,000 user minutes.<sup>4</sup> Because a reporting standard based on “service degradation” is overly subjective – indeed it could be interpreted to require

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<sup>3</sup> Under a mandatory reporting system, providers could be fined for non-compliance. Thus, they may interpret the Commission’s criteria to require outage reports for even minor events thereby creating an inaccurate overall picture regarding network reliability.

<sup>4</sup> See *NPRM* at ¶ 29 (A VoIP outage is reportable whenever there is “a significant degradation of interconnected VoIP service exists and must be reported when an interconnected VoIP service provider has experienced an outage or service degradation for at least 30 minutes: (a) on any major facility (e.g., Call Agent, Session Border Controller, Signaling Gateway, CSCF, HSS) that it owns, operates, leases, or otherwise utilizes; (b) potentially affecting generally useful availability and connectivity of at least 900,000 user minutes (e.g., average packet loss of greater than one percent for 30,000 users for 30 minutes); or (c) otherwise potentially affecting special offices, or special facilities, including 9-1-1 PSAPs.”

“outage reports” based on call quality issues – Sprint recommends that the Commission require the filing of outage reports only in the event of a complete loss of service.<sup>5</sup>

The Commission asks whether Real-time Transport Control Protocol (“RTCP”) and Session Initiation Protocol (“SIP”) Event Package for Voice Quality Reporting provide guidance for suitable metrics.<sup>6</sup> Although RTCP is becoming prevalent in the industry, not all VoIP interconnected providers or SIP Application Server vendors support the protocol. Also, vendor equipment within the VoIP carrier network currently does not have the ability to apply metrics notifications on voice quality in “real time.” Thus putting in place measures to allow real time analysis of RTCP sessions would result in significant vendor development costs. With respect to how to count the number of affected users, the number of actual registered users as compared to the number of typical registered users could indicate a reportable outage, but it could also indicate a problem outside the VoIP provider’s control. For example, there could be an issue with an interconnected partner’s or underlying ISP’s facilities.

With respect to the requirement that an outage be reported for any major facility that a provider owns, operates, leases or otherwise utilizes, this is unlikely to be an easy determination for VoIP providers to make. A VoIP provider would not have direct knowledge regarding an outage that occurs on a facility that it “leases or otherwise utilizes.” The underlying facilities owner/operator may not provide the VoIP provider information about outages that fall within the proposed criteria. Traffic is often re-routed in the event of an outage and there may be minimal customer impact. As a result, a VoIP provider may not be aware of an outage. In addition, ISPs

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<sup>5</sup> Because of the dynamic and redundant nature of IP networks, traffic is frequently re-routed with minimal customer impact. Therefore, Sprint recommends adopting parameters such as those outlined by the Commission only when there is a failure of redundant facilities. In this regard, the 30-minute threshold would not be sufficient to take into account re-routing.

<sup>6</sup> *NPRM* at ¶ 27.

are not always aware of how their networks are being used by customers and may not be aware that a facility is being utilized for VoIP service.

The Commission requests comments on, "... the costs, burdens and benefits of our proposed rules on outage reporting by interconnected VoIP service providers, and whether the proposed rules would promote the reliability, resiliency and security of 9-1-1 and other communications over interconnected VoIP service and the networks that support such service;"<sup>7</sup> Any requirement for the underlying ISP to report when their inter-connected VoIP partners are down or to report on call quality issues using statistics would require significant additional work by third-party vendors and would be costly to ISPs, to VoIP providers, and ultimately to customers.

## 2. Broadband Backbone ISPs

For broadband backbone ISPs the Commission seeks comment on how to define "generally-useful availability and Internet connectivity."<sup>8</sup> The Commission then seeks comment on various factors that could be used to determine whether a degradation or outage should be reported. Because the criteria the Commission has proposed for determining whether an outage is subject to reporting contains multiple variables that are not clearly defined, at a minimum, further clarification regarding these variables is needed. Sprint Nextel fears, however, that even with these clarifications the criteria are too subjective and could lead to misinterpretation. Alternatively, the Commission should consider requiring reporting only where a complete loss of service occurs.

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<sup>7</sup> *NPRM* at ¶ 30.

<sup>8</sup> *NPRM* at ¶¶ 47-48. For purposes of its Initial Comments, Sprint is limiting its discussion to the regulations proposed for VoIP providers and broadband backbone ISPs, although Sprint recognizes that the *NPRM* also contains proposed regulations for broadband Internet access service providers.

The Commission seeks comment on requiring a broadband backbone ISP to submit outage reports when it experiences an outage or service degradation for at least 30 minutes: (a) on any major facility (*e.g.*, POP, Exchange Point, core router, root name server, ISP-operated DNS server, or DHCP server) that it owns, operates, leases, or otherwise utilizes; (b) potentially affecting generally-useful availability and connectivity for any Internet POP-to-Internet POP (POP-to-POP) pair for which they lease, own or operate at least one of the POPs where the “loss of generally useful availability and connectivity.”<sup>9</sup> With respect to the question of whether an ISP should be required to submit outage reports when it experiences an outage or degradation in service lasting 30 minutes, Sprint Nextel recommends that reporting be required only when an event lasts 60 minutes. Because IP networks are inherently diverse with dynamic routing capabilities, a longer event duration is necessary to take into account re-routing that may occur with minimal customer impact. Otherwise, over-reporting of “outages” with no customer impact is likely to occur.

Sprint does not believe that the failure of core routers should be reportable because such a failure would cause minimal customer impact. If a router fails, it is unclear whether a provider would be expected to report on the customer impact (number of customers) or the individual circuits that failed. Under the Commission’s existing Part 4 rules, carriers report failures of individual circuits. This does not mean the router has failed; rather it means that only that some of the individual circuits have failed. If providers are expected to report failures of the individual circuits under the proposed rules, reporting failures of the core routers would result in double-reporting.

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<sup>9</sup> *Id.* at ¶ 49.

The Commission seeks comment on defining “loss of generally useful availability and Internet connectivity” as “(1) an average packet loss of one percent or greater; (2) average round-trip delay of 100 ms or greater; or (3) average jitter of 4 ms or greater with measurements taken in each of at least six consecutive five-minute intervals as measured from source to destination POP.”<sup>10</sup> Further clarification of these metrics is necessary. At a minimum, Sprint recommends modifying (1) to state: “(1) an average packet loss of one percent or greater of the entire bandwidth available between Points of Presence.” This clarification is necessary because the infrastructure between POPs may be made up of many circuits and packet loss associated with one that does not have the same impact as packet loss across all circuits. Sprint also recommends modifying the second criterion to state that average round-trip delay of 300 ms or greater.” It is fairly common for an issue to arise that requires traffic to be re-directed that results in round-trip delays of 100 ms or more. Using a measurement of 300 ms would be less likely to trigger reporting of minor outages.

In addition, clarification is needed regarding the meaning of the word “average” in the context of the criteria in (2) and (3). For example, does the Commission intend “average” to mean the average across six consecutive 5 minute intervals or the average across all members of a multi-member trunk group connecting POPs? With respect to the Commission’s proposal to use Exchange Point data as a possible metric for measuring degradation in service, Sprint believes that the definition of “Exchange Point” is overly broad. An alternative to the Commission’s proposed criteria of packet loss, latency and jitter would be to consider a less subjective threshold. For example, reporting could be required where there is “complete loss of service between internet POPs causing loss of Internet connectivity.”

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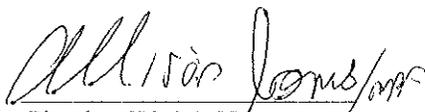
<sup>10</sup> *Id.*

Even if the technical questions concerning outage reporting metrics are addressed and clarified, it is unclear how the Commission would be able to use these data to make an accurate assessment regarding the reliability of the networks involved. The data the Commission receives will represent just one piece of the cyber eco-system. As Sprint explained in its previous comments many, if not all, disruptions in service are beyond a broadband Internet backbone provider's control and thus it is highly problematic that the providers of such services would be able to determine the cause of many, if not all, disruptions in service as perceived by end users let alone its severity.

## V. CONCLUSION

For the reasons set forth above Sprint recommends that the Commission forgo imposing an outage reporting regime on VoIP providers and broadband ISPs or the alternative establish a voluntary pilot program to determine whether in light of the complex networks involved an outage reporting scheme is even feasible.

Respectfully submitted,



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