Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	CG Docket No. 16-145
Transition from TTY to Real-time Text Technology	)	
	)	
Request for Comment on Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-time Text Technology; and Petition for Waiver of Rules Requiring Support of TTY Technology	)	GN Docket No. 15-178

REPLY COMMENTS OF MICROSOFT CORPORATION

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I. INTRODUCTION

Microsoft Corporation ("Microsoft") hereby submits these reply comments in response to the Notice of Proposed Rulemaking ("NPRM")[1] in the above-captioned proceeding which seeks comment on proposed rules to facilitate a transition from TTY to real-time text ("RTT") for IP-based wireless voice services.[2] Microsoft agrees with the Federal Communications Commission ("Commission") and other commenters in this proceeding that TTY is outdated, and we support the Commission's proposal to replace existing TTY requirements with new RTT requirements.

Given that over-the-top ("OTT") applications operate over best effort networks, Microsoft urges the Commission to ensure that its regulations recognize the inherent characteristics and limitations of those solutions to meet the performance criteria proposed in the NPRM. Other commenters support this approach.[3] The Commission states in the NPRM that an OTT solution "will be sufficient to constitute compliance with the RTT requirement by December 31, 2017."[4] We agree and interpret the NPRM to mean the Commission would allow for OTT RTT applications on wireless devices to satisfy the proposed requirements.

The Commission should clarify that it does not intend to extend RTT requirements to all interconnected and non-interconnected Voice over Internet Protocol ("VoIP") services and applications. If, however, the Commission does intend to place new obligations on interconnected and/or non-interconnected VoIP services and applications,[5] it should be mindful

[1] *Transition from TTY to Real-Time Text Technology*, CG Docket No. 16-145, GN Docket No. 15-178 (rel. Apr. 29, 2016) ("NPRM").

[2] *Id.* at ¶ 2.

[3] Comments of AT&T at 11 (filed July 11, 2016); Comments of the Consumer Technology Association F/K/A the Consumer Electronics Association at 6-7 (filed July 11, 2016), Comments of CTIA at 16 (filed July 11, 2016).

[4] NPRM at ¶ 31.

[5] As noted below, the Commission's proposal to require compliance with applicable 911 obligations could not extend to non-interconnected VoIP offerings because 911 requirements do not apply to non-interconnected VoIP offerings.

that these offerings will likely use OTT RTT solutions that are dependent on the best effort internet and therefore will not be able to meet 911 and prescriptive quality of service requirements proposed in the NPRM.[6]

Lastly, Microsoft reads the Commission's proposal as focusing on wireless phones as well as those wireless services that enable voice communications and are currently required to support TTY but not on all voice services or devices.[7] As this proceeding moves forward, we ask that the Commission make clear which services, applications and devices are covered by its rules. Clarity and legal certainty will assist industry in efficiently tailoring its offerings and will provide necessary guidance to consumers about what offerings they can expect to support RTT.

II. DISCUSSION

OTT services and applications, by definition, operate over the open, unmanaged internet. As a result, the OTT provider does not have control over the type of underlying network or connection a user chooses. Skype is an OTT application that provides VoIP capabilities over the open internet. Skype does not control the network,[8] and thus, issues of latency and packet loss can vary significantly depending on the user's internet connection (DSL, cable, T1, wireless, satellite) and the amount of traffic on the network. Without control over network conditions, specified quality of service levels cannot be guaranteed.[9] Instead, all users receive "best effort

[6] See n. 3, *supra.*

[7] We recognize that the FCC has asked whether its rules should apply to wireline voice services (see NPRM at ¶ ¶ 95-99)

[8] https://www.microsoft.com/en-us/servicesagreement/ (last accessed July 22, 2016) ("Terms of Use") Section 4.b ("To use many of the Services, you'll need an internet connection and/or data/cellular plan… You are responsible for providing all connections, plans, and/or equipment needed to use the Services...").

[9] *Id.* Section 6.b ("We strive to keep the Services up and running; however, all online services suffer occasional disruptions and outages, and Microsoft is not liable for any disruption or loss you may suffer as a result."); Comments of AT&T at 5 and 11 (noting that service providers cannot guarantee performance on networks outside their control).

delivery"[10] and Skype's terms of use clearly state that it is not a replacement for regular telephone service.[11]

In addition, there are inherent characteristics and limitations of best effort OTT applications such as Skype that would make it infeasible to meet some of the obligations[12] proposed in the NPRM. In particular,

- A best effort application cannot guarantee the latency and error rate requirements proposed in §67.2(d)(3),[13] features that consumers consider critical for RTT to be an acceptable replacement for TTY.[14]

- The Commission and consumer advocates deem access to 911 emergency services to be of "the utmost importance"[15] and the NPRM references compliance with applicable 911 rules. However, non-interconnected VoIP offerings are not subject to the FCC's emergency calling requirements. Accessing 911 using best effort OTT applications such as Skype raises complex issues related to reliability, location accuracy, and the ability to reestablish communications in the case of a disconnected call.[16] Microsoft agrees with the Consumer Technology Association that to the extent those issues are addressed by the Commission, they should be resolved in the Next Generation 911 proceeding.[17]

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[10] https://en.wikipedia.org/wiki/Best-effort_delivery (last accessed July 22, 2016) ("Best-effort delivery describes a network service in which the network does not provide any guarantees that data is delivered or that a user is given a guaranteed quality of service level or a certain priority. In a best-effort network all users obtain best-effort service, meaning that they obtain unspecified variable bit rate and delivery time, depending on the current traffic load...The Internet protocol offers a best-effort service of delivering datagrams between hosts. Those may be lost, arbitrarily delayed, corrupted, or duplicated.").

[11] Terms of Use Section 14.d.i ("There are important differences between traditional telephone services and Skype...You acknowledge and agree that: ... (ii) Skype is not a replacement for your primary telephone service.").

[12] NPRM at Appendix A §67.2 Service Provider and Manufacturer Obligations; Minimum Functionalities.

[13] See n. 9, *supra*.

[14] Comments of Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI) *et al*. at 14 (filed July 11, 2016); Comments of the Deaf/Hard of Hearing Technology RERC, Universal Interface and IT Access RERC, and Omnitor ("Wireless RERCs and Omnitor") at 47 (filed July 11, 2016) (proposing a significantly shorter latency than that proposed by the Commission to make RTT latency comparable to that of voice communication).

[15] NPRM at ¶ 39; Comments of Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI) *et al*. at 14; Comments of the Wireless RERCs and Omnitor at 21.

[16] *Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications*, PS Docket Nos. 11-153, 10-255, Reply Comments of Microsoft Corporation (filed May 5, 2014) (explaining these complexities); Comments of the National Association of State 911 Administrators at 2 (filed July 11, 2016) (noting that to be considered an acceptable solution "OTT applications must guarantee direct access to 911 deliver location and call-back information"); Comments of the National Emergency Number Association at 5 (filed July 11, 2016) (noting the lack of a current solution for obtaining location information from an OTT application).

[17] Comments of the Consumer Technology Association F/K/A the Consumer Electronics Association at 2-3.

- Users are discouraged from using Skype for making emergency calls, because reliability cannot be guaranteed.[18] Moreover, Skype does not offer a PSTN feature that enables two-way (*i.e.*, inbound plus outbound) calling or messaging and, therefore, cannot support RTT for 911 emergency communications as proposed in the NPRM.[19]

Because enhanced reliability is one of the main benefits of RTT over existing text-based solutions,[20] the benefit is diminished by requiring RTT on OTT applications that use the best effort internet. Commenters and Commissioner Pai have stated that SMS, another best effort service, is not suitable as a replacement for TTY, because delivery cannot be guaranteed.[21] Similar quality of service limitations apply to a best effort OTT RTT solution.

The current NPRM appears to reach telecommunications and VoIP services and applications that run entirely on managed networks and not to best effort applications such as Skype. This makes sense because Voice over LTE ("VoLTE") and cable VoIP offerings operate over managed networks under the service providers' control and as such, have the potential to deliver a reliable RTT experience.[22] While Microsoft supports allowing service providers to

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[18] https://support.skype.com/en/faq/FA29/can-i-call-an-emergency-number-from-skype (last accessed July 22, 2016) and Terms of Use Section 14.d.i ("Skype's software and products are not intended to support or carry emergency calls to any type of hospitals, law enforcement agencies, medical care units or any other kind of services that connect a user to emergency services personnel or public safety answering points ("Emergency Services"). You acknowledge and agree that: (i) it is your responsibility to purchase traditional wireless (mobile) or fixed-line telephone services that offer access to Emergency Services…").

[19] NPRM at ¶ 69 ("the implementation of RTT in IP networks must be capable of transmitting ***and*** receiving RTT communications to ***and*** from any 911 PSAP served by the network in a manner that fully complies with all applicable 911 rules) (emphasis supplied) and Appendix A, §§20.18(c) and 67.2(d)(2); Comments of TracFone Wireless Inc. at 7 (filed July 11, 2016) ("the Commission should require access to 911 via RTT only if such access is achievable").

[20] NPRM at ¶ 37.

[21] *Id.* at ¶ 38 and Statement of Commissioner Ajit Pai ("SMS messages can be delayed, lost, or delivered out of sequence.").

[22] Comments of the National Cable & Telecommunications Association at 5 (filed July 11, 2016) (noting that cable VoIP is a managed service unlike cable broadband offerings); Comments of AT&T at 11 (noting that the NPRM's proposed performance criteria are only appropriate for RTT transmitted over service providers' managed networks); Comments of Comments of the Consumer Technology Association F/K/A the Consumer Electronics Association at 6-7 ("Any rules involving prescriptive quality of service benchmarks should be invoked only when RTT apps are operating under normal managed network conditions, not over the best efforts Internet.").

leverage OTT RTT solutions, the Commission must recognize the limitations of such solutions and make clear to what and whom its RTT rules apply.

III. CONCLUSION

In short, the technical characteristics of best effort OTT voice applications indicate that the proposed RTT regulations cannot be applied to such offerings without substantial modification. Should the Commission consider expanding RTT requirements to best effort OTT applications such as Skype, Microsoft requests that it issue a Further Notice of Proposed Rulemaking to consider how the RTT obligations should be modified to account for these technical realities. The Commission must also make clear what applications, services and devices are subject to the RTT rules.

Respectfully submitted,

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