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

In the Matter of	)	
	)	
Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications	)	PS Docket No. 11-153
	)	
Framework for Next Generation 911 Deployment	)	PS Docket No. 10-255

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COMMENTS OF COMCAST CORPORATION

Comcast Corporation ("Comcast") hereby submits these comments in response to the Second Further Notice of Proposed Rulemaking ("*Further Notice*") released by the Federal Communications Commission ("FCC" or "Commission") in the above-captioned proceeding.[1]

I. INTRODUCTION AND SUMMARY

The Commission rightly recognizes that "access to 911 is a core value that translates across communications platforms . . . and should not be lost or devalued as technology changes."[2] Comcast, therefore, supports the Commission's conclusion that all text messaging providers, including interconnected over-the-top ("OTT") text messaging service providers such as Comcast, eventually must support text-to-911 capabilities. As the Commission notes, however, interconnected text providers will face "unique technical complexities" in

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1 *Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications; Framework for Next Generation 911 Deployment*, Policy Statement and Second Further Notice of Proposed Rulemaking, PS Docket Nos. 11-153; 10-255, FCC 14-6 (rel. Jan. 31, 2014) ("*Further Notice*").

2 *Id*. ¶ 2.

implementing text-to-911 capabilities.[3] The *Further Notice* describes several potential technological proposals intended to enable OTT providers to route text messages and "coarse" 911 location information to Public Safety Answering Points ("PSAPs").[4]

Comcast's engineers conducted a thorough technical analysis of whether these proposed models could be implemented with Comcast's OTT messaging service, XFINITY Connect – an application that can be downloaded on iOS and Android devices that, among other functions, enables XFINITY Voice Unlimited customers to send OTT text messages using their home phone numbers.[5] Based on their analysis, it appears unlikely that Comcast could implement any of these models with XFINITY Connect in a seamless and consumer-friendly manner today.

Indeed, if the Commission requires OTT text messaging providers to implement a text-to-911 solution by the December 31, 2014 deadline it has proposed,[6] only one model – the CMRS network-based model – potentially may be technically feasible for Comcast to install by that date. This solution, however, is far from ideal for the consumer. A Comcast customer using this option in conjunction with iOS, for example, would find it significantly more difficult and confusing to complete a 911 message to the appropriate PSAP than a consumer using the CMRS provider's text service. Moreover, the lack of certainty regarding ubiquitous implementation of text-to-911 by all CMRS providers could make the model an unreliable solution for some consumers.

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3 *Id.* ¶ 20.

4 *Id.* ¶¶ 23-33.

5 *See* Learn, XFINITY Connect, http://xfinity.comcast.net/learn/internet/xfinityconnect/ (last visited April 2, 2014).

6 *Further Notice* ¶ 18.

Comcast explains in these comments the various technical impediments that prevent it from implementing any of the other three proposed models by the December deadline. Some of these problems are caused by inherent differences among the designs of interconnected text applications. Others stem from the fact that operating systems do not make available all of the information that Comcast and similarly situated OTT providers would need to route an emergency text message to the proper PSAP. Still other technical impediments arise from the fact that one of the proposed solutions requires access to a wireless device's Global Positioning System ("GPS") information, and users may not grant, or may independently revoke at any time, permission for an OTT text messaging provider to obtain that information. OTT providers working with the wireless industry and operating system vendors may be able to find solutions to these technical problems, but that process will require more than a few months to complete.

In light of these technical problems and the associated risk of user confusion,[7] it would be prudent for the Commission to refrain from establishing a deadline for interconnected OTT text messaging providers to implement a text-to-911 solution at this time.[8] Instead, because a modified version of the CMRS network-based option appears to hold the greatest promise for a consumer-friendly, near-term solution, the Commission's immediate focus should be on encouraging the various industry stakeholders to resolve through a collaborative effort the implementation issues discussed below that currently would hamper the ability of some OTT

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[7] *Id.* ¶ 20 (seeking comment on whether the technical complexities that OTT providers face "weigh in favor of interconnected text providers being subject to an alternative timeframe" for text-to-911).

[8] *See* Reply Comments of Comcast at 6 (noting that, based on the technical impediments OTT application providers face, it would be "premature for the Commission to establish a deadline for interconnected text message providers to equip their services with a text-to-911 mechanism"). (Unless otherwise noted, all comments referenced herein were filed in PS Docket No. 11-153 on March 11, 2013, and all reply comments were filed in the docket on April 9, 2013.)

application users to send a text-to-911 message.[9] In Comcast's view, eliminating those technical obstacles would facilitate the expeditious deployment of a reliable, consumer-friendly text-to-911 solution for OTT providers.

II. OVER-THE-TOP TEXT MESSAGING PROVIDERS MAY BE ABLE TO IMPLEMENT THE CMRS NETWORK-BASED MODEL IN A TIMELY FASHION, BUT THE USER EXPERIENCE WOULD NOT BE SEAMLESS

The Commission's first proposal for delivering OTT text messages to PSAPs builds on the Commission's conclusion that OTT providers can "utilize SMS-based protocols and route the text [to 911] over the underlying carrier's SMS network."[10] Under this approach, the OTT texting application would "be programmed to recognize that the user is sending a text message to the text short code '911' and automatically invoke the wireless device's native SMS application programming interface (API) for sending SMS messages."[11] Because this option permits an OTT provider to use the existing wireless SMS API to send a 911 message, Comcast believes that it potentially could implement this solution in time to meet the proposed December 31, 2014 deadline. Adopting that deadline, however, likely would not be an effective way to advance the Commission's public safety goals with respect to applications that operate like Comcast's XFINITY Connect text messaging service.

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9 Notably, the staff working group's *Report on Process Reform* recommended that the Commission "[c]onsider expanding use of multi-stakeholder mechanisms." *Report on Process Reform*, Federal Communications Commission, GN Docket No. 14-25, at 36-38 (rel. Feb. 14, 2014). As Comcast noted in the *Process Reform* proceeding, expanding the "use of multi-stakeholder mechanisms to inform the Commission's policy development and rulemaking processes. . . can further the Commission's underlying policy goals, provide for a smoother and more efficient rulemaking process, and result in a workable regulatory construct for the industry." Comments of Comcast, GN Docket No. 14-25, at 7 (March 31, 2014).

10 *Further Notice* ¶ 25.

11 *Id.*

First, OTT text providers could use the CMRS network-based model only if the user's underlying CMRS carrier has both implemented a text-to-911 capability and made its SMS platform accessible to OTT applications. Today, however, only the four largest nationwide carriers have agreed to provide a text-to-911 capability. The Commission has proposed to require all remaining CMRS providers to begin offering a text-to-911 capability by December 31, 2014. If the Commission requires OTT text providers to implement such a capability simultaneously, there would be no transitional period during which OTT text providers could test and address any compatibility or other technical concerns that may arise in light of a CMRS provider's text-to-911 implementation method. Moreover, as the Commission has recognized, a number of CMRS carriers currently do not make their SMS platforms accessible to OTT services and may have to "devote technical and product management resources" in order to do so.[12]

Second, the operating system that runs on the user's mobile device may hamper the user's ability to transmit a 911 message successfully when the CMRS network-based model is utilized. Specifically, if this model were implemented today, Apple's iOS operating system would impose an additional step on users that attempt to send a text-to-911 message using an application like Comcast's OTT service. The user would compose the 911 text message in the application and press "send." The message would not, however, be transmitted. Instead, the OTT application would invoke the native messaging application for composing text messages on the user's device. The user would see the OTT application close and the native messaging application open. The user then would be required to press "send" a second time in the native messaging application in order to transmit the message through the CMRS provider's SMS

12 *Id.* ¶ 27.

platform.[13] This additional confirmation requirement introduces a significant risk of consumer confusion and human error – concerns that are heightened in the context of an emergency situation.[14]

Before a deadline is set for OTT application providers to enable text-to-911, CMRS providers and operating system vendors should work cooperatively with OTT providers to resolve this "send twice" problem as well as other issues that affect an OTT application provider's ability to deliver texts to 911.[15] For example, the industry may be able to improve upon the CMRS-network based model by developing an API solely for emergency services. This dedicated API could enable the OTT application to invoke the native messaging application and retrieve the user's location and other relevant information. The native messaging application then could send the message automatically to the appropriate PSAP using the CMRS provider's SMS platform. None of these steps would be visible to the user, which would eliminate any potential for consumer confusion.

Absent further industry efforts, however, it is difficult to assess whether this solution or any alternative proposals would be feasible and how quickly a given solution could be developed and implemented. As Comcast noted in the record last year, most of the industry's text-to-911 efforts to date have focused on developing an interim text-to-911 mechanism for CMRS

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[13] Conversely, the Android operating system would not require this additional confirmation.

[14] Consumer confusion and varying expectations regarding the ability to contact 911 emergency services are dangerous and could prove deadly. *See*, *e.g.*, Remarks of Commissioner Ajit Pai, Federal Communication Commission, *9-1-1 Goes to Washington Conference*, Arlington, VA, at 1 (March 24, 2014), http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0324/DOC-326214A1.pdf (discussing the consequences of consumer confusion that arise when multi-line telephone systems require users to "press 9 before dialing 911").

[15] *See supra* note 9.

providers.[16] In contrast, very few resources have been devoted to developing a reliable text-to-911 mechanism for interconnected text messaging service providers. OTT providers simply cannot solve this "send twice" issue or other text-to-911 implementation challenges without the cooperation of, and input from, other industry stakeholders, including CMRS providers and operating system vendors. In order to expedite the development of a solution that meets its goals, the Commission should: (1) require the relevant stakeholders to form a collaborative, inclusive working group to develop a text-to-911 solution based on the CMRS network-based model that is reliable and less prone to human error; and (2) commit to deferring action on establishing a text-to-911 compliance date for OTT providers until the industry has had an opportunity to do so.[17] To ensure that the industry begins this work in a timely fashion, the Commission also may want to impose a date certain, such as June 30, 2015, by which the multi-stakeholder group must file a report outlining its findings.

III. AT THIS TIME, THE SERVER-BASED MODELS THE COMMISSION PROPOSES ARE NOT TECHNICALLY FEASIBLE FOR ALL INTERCONNECTED TEXT PROVIDERS

In addition to the CMRS-based model, the Commission proposes three additional models that an interconnected OTT text provider could use to route a 911 text message to the appropriate PSAP: (1) a basic server-based model that assumes that the OTT application uses the same

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16 Reply Comments of Comcast at 2, 10.

17 Of course, until that time, all OTT text providers, including XFINITY Connect, are required to transmit a bounce-back message when users attempt to send a text message to 911, a measure that allows "persons who attempt to send emergency text messages to know immediately if their text cannot be delivered to the proper authorities." *Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications; Framework for Next Generation 911 Deployment*, Report and Order, 28 FCC Rcd 7556, ¶ 13 (2013). As the Commission recognized, this automatic feedback mechanism may save lives by "allowing a person in need of assistance to immediately seek out an alternative means of communicating with emergency services providers." *Id*. ¶ 16.

phone number as the underlying device; (2) a server-based model that relies on using the underlying device's phone number to route the text to 911; and (3) a server-based model that relies on the location API in the mobile device to obtain the user's location.[18] For the reasons outlined below, none of these options represents a technically feasible solution to the complexities created by OTT text-to-911 routing for Comcast and similarly-situated OTT text messaging providers.

Basic Server-Based Model. Under this approach, the OTT service provider would receive the 911 text message at its server, its server would recognize that the text message is addressed to 911, and the server then would interact with a third-party Text Control Center ("TCC"), which would route the text to a PSAP.[19] As the Commission recognizes, this model "assumes that the OTT application uses the same phone number as [the number assigned by the CMRS provider to] the device itself."[20] This assumption, however, is not true for all applications. For example, Comcast's interconnected text application uses the customer's home telephone number rather than the number assigned by the customer's wireless carrier. In Comcast's case, modifying the phone number used in the texting application would require a fundamental technical reconfiguration and would eliminate a key customer benefit of the application: the ability to send text messages from the customer's home telephone number. Because other possible text-to-911 models under consideration would be far less disruptive, the Commission should not adopt a text-to-911 model that is incompatible with the primary product attributes that benefit Comcast's customers.

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18 *Further Notice* ¶¶ 31-33.

19 *Id.* ¶ 31.

20 *Id.*

Server-Based Model Relying on Device Phone Number. The *Further Notice* also proposes a server-based model that relies on using the device's phone number to route the text message. Pursuant to this model, the OTT application would obtain the mobile device's native phone number, convey that number to its server, and then send the number to a third-party TCC for routing to a PSAP.[21] At this time, however, Apple's iOS operating system does not permit an OTT application provider like Comcast to look up the mobile device's native telephone number. Accordingly, unless Apple updates its operating system well in advance of the proposed December deadline, this model could not feasibly be implemented for OTT applications such as Comcast's XFINITY Connect that do not use the telephone number assigned to the mobile device.

Server-Based Model Relying on Location API. The Commission's final proposed model would require the OTT application provider to obtain GPS-based location information from the user's device and transmit that information to the third-party TCC for routing to the appropriate PSAP.[22] Although the Commission seems to suggest that collecting this information would be simple because "[m]any OTT text applications already obtain the user's location for non-emergency purposes,"[23] Comcast's application does not have this feature.

The Commission further overlooks the fact that there are several restrictions on an OTT provider's ability to obtain a user's location information for emergency purposes, all of which are beyond the OTT provider's control. As an initial matter, this model would work only if the OTT application provider has both requested and obtained explicit consent from the consumer to

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21 *Id.* ¶ 32.

22 *Id.* ¶ 33.

23 *Id.*

access his or her location information.[24] Requesting consent in the midst of an emergency situation, such as by implementing a pop-up screen requiring consent in order to send a text-to-911 message, likely would create consumer confusion and delay the user's ability to send a message as quickly as possible.[25]

Providers such as Comcast that do not currently request access to this information could modify their text-to-911 applications to request advance consent to access location data for emergency purposes the first time the updated application is used. That change to the application, however, would not necessarily solve the problem. First, existing users may not download the update, and existing or new users may decline to grant access to this information. Second, even if a user granted the necessary permission, the user could withdraw consent at any time or disable GPS on his or her device. For example, a user may disable "the location feature of his mobile device to protect his privacy or to extend the device's battery life."[26] In either case, an OTT provider would not be able to complete a 911 message to the appropriate PSAP under this approach. Because of these numerous obstacles to an OTT service provider's ability to gather a user's GPS-based location information in an emergency, in Comcast's view, this potential approach is unlikely to lead to a reliable solution for routing text-to-911 messages.

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[24] *See* Reply Comments of Comcast at 7-9; Reply Comments of the Information Technology Industry Council at 3-4 (recognizing that the text-to-911 functionality is limited by a "user's preferences to restrict an application's access to location information" and "relies on far too many variables beyond the control of the OTT application provider").

[25] *See* Comments of Sprint Corporation at 9 (recognizing that "[c]urrent smartphone platforms require that the user modify their current privacy settings to allow third-party interconnected text clients to access location information on the device . . . which requires multiple manual steps, [and] leaves the user open to potential mistakes that can impact emergency communication").

[26] Comments of TechAmerica at 10-11.

In sum, none of the server-based models would enable Comcast or similarly situated OTT text messaging providers to implement an effective text-to-911 solution by December 31, 2014, if at all. Moreover, as discussed above, although the CMRS network-based model may, with modifications, be a realistic solution, there currently are significant technical problems that must be resolved before Comcast and similarly situated OTT application providers could offer consumers a reliable text-to-911 capability. The Commission's short-term focus, therefore, should be on facilitating industry efforts to develop and deploy solutions that would address the current problems with the CMRS-network based model and enable OTT application providers to deploy text-to-911 functionalities in a seamless manner.

IV. CONCLUSION

For the foregoing reasons, the Commission should refrain at this time from imposing a compliance deadline on interconnected OTT text messaging service providers to support text-to-911 capabilities. Instead, the Commission should encourage the industry to convene promptly a working group that includes representatives from CMRS carriers, operating system vendors, and OTT service providers. This multi-stakeholder group should submit a plan to the Commission no later than June 30, 2015 that outlines how the industry will eliminate the technical impediments OTT providers face in implementing the CMRS network-based model to deliver text-to-911 messages.

Respectfully submitted,

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