

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 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
	)	

**COMMENTS OF TWILIO, INC.**

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Twilio, Inc. (“Twilio”) submits these comments in response to the Federal Communications Commission’s *Second Further Notice of Proposed Rulemaking*<sup>1</sup> seeking additional comment on the whether to apply text-to-911 obligations on “over-the-top” (“OTT”) texting-application providers.

## I. INTRODUCTION AND SUMMARY

The Commission has proposed rules that would require text-to-911 capabilities in certain texting applications by recognizing that (1) data transmissions are increasingly a significant method by which Americans who own wireless mobile devices communicate, and that (2) text messaging generally provides a means of contacting 911 for those who cannot place voice calls.<sup>2</sup> Twilio appreciates the increasing growth of communication via IP-based mobile data networks and the need for meaningful and effective 911 service access for individuals with disabilities. However, the Commission’s proposed rules for interconnected OTT text-messaging-application providers do not effectively address either of these issues, and instead provides a solution to a problem that does not exist. Applying text-to-911 obligations on OTT text-messaging-application providers is both unnecessary and infeasible given current technology and how CMRS providers permit IP-based communications providers to interoperate with their networks. Even more so, the Commission should refrain from applying these obligations to intermediaries like Twilio that simply transmit the data and instructions they receive without alteration and have no relationship with the individuals sending text messages.

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<sup>1</sup> *In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications Framework for Next Generation 911 Deployment*, Policy Statement and Second Further Notice of Proposed Rulemaking, 59 Communications Reg. (P&F) 1033 (F.C.C. Jan. 31, 2014) (“*FNPRM*”).

<sup>2</sup> *Id.* at ¶ 1.

Thus, Twilio urges the Commission to clarify that intermediaries that simply maintain the transmission path of a text message sent by a text-messaging-application provider or its users are not subject to text-to-911 obligations and are not subject to liability as long as they transmit the text messages in accordance with the information provided to them by the sending application and the carriers. Twilio further urges the Commissions to refrain from imposing text-to-911 obligations on interconnected OTT text messaging services, as (1) the obligations may subject the service providers to liability for privacy violations, (2) consumers do not expect to send text messages to emergency services through interconnected OTT text messaging applications, and (3) text-to-911 message delivery is currently infeasible for OTT text messaging services. Last, Twilio asks that the Commission refrain from extending the proposed text-to-911 obligations to non-interconnected OTT text messaging services.

## **II. BACKGROUND**

### **A. Twilio's Role In The Modern Telecommunications Network**

Twilio was founded in 2007 as an innovative Internet-based cloud software company that is reinventing communications by abstracting traditional telecommunications into a web programmable interface that resides in the cloud. Twilio provides an application programming interface, or "API," to developers who use the API to create customer-facing web services, applications, and programs that communicate. An API is a software language and message format used to communicate with an operating system or other application programs. APIs are typically pre-fabricated blocks of software code which perform certain low-level, but crucial functions, such as displaying text or graphics on a computer screen. APIs let developers and programmers create more sophisticated programs and applications from the base of the relatively simple APIs.

Twilio's API allows a developer to integrate traditional phone service and SMS

with existing programming languages. Developers can create new applications or add features to existing products to allow those applications to make and receive phone calls and text messages. Using Twilio's API, web developers and businesses can build sophisticated unified communications solutions such as call centers, office phone systems, call tracking tools, SMS alerts, and more that interoperate with multiple telephone networks. Twilio's API works simultaneously across platforms, allowing web browsers, mobile phones, and tablets running iOS or Android to communicate seamlessly. Over 200,000 developers have used Twilio to integrate telecommunications into their applications and products.

Although Twilio's API enables others to make and receive phone calls and SMS, Twilio does not direct, influence or control how its customers' applications send or receive messages. Instead, Twilio's API acts as a conduit between the traditional telecommunications infrastructure and users of applications developed to transmit messages via Twilio's API. When Twilio receives information from applications utilizing the Twilio API, Twilio forwards that information without alteration either directly to downstream telecommunications carriers or to aggregators. Aggregators facilitate the transmission of information from Twilio to downstream telecommunications carriers. Further, Twilio's API standing alone does not function as a communications program. Rather, the API is simply the building block of the application created and used by Twilio's customers to enable message transmission. In other words, Twilio's API is not a finished product. Finally, Twilio's API plays no part in what telephone numbers, if any – including 911 – that an application user can select to call, as any dialing capabilities are controlled and programmed by the application developer.

#### **B. Twilio's Role In Message Delivery**

As discussed above, Twilio's API acts as an intermediary between the traditional telecommunications infrastructure and application developers. This intermediary role results

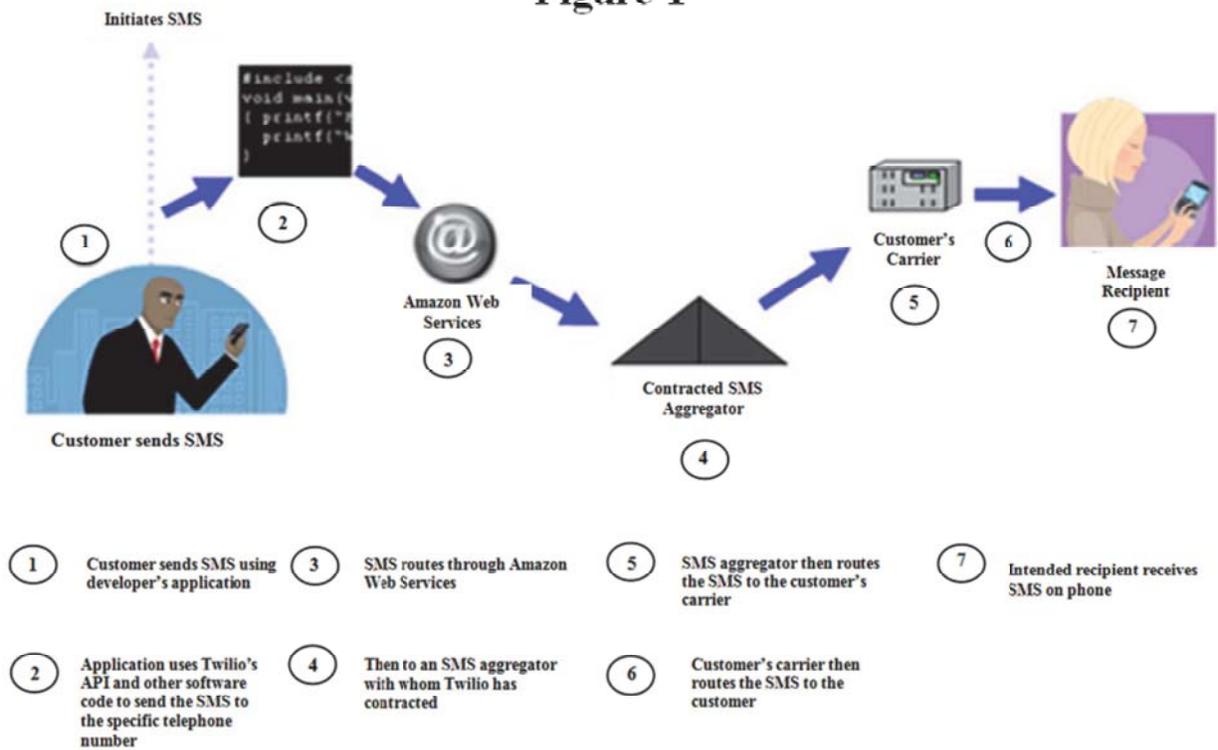
from Twilio's agreements with Amazon Web Services, a cloud hosting company, traditional telecommunication carriers, like Bandwidth.com and Level 3 Communications, and SMS aggregators, like Syniverse and Sybase, among others. Twilio's API allows a developer to interact with all of these entities as necessary to hear from or reach a consumer through calls and SMS, but the developer does not need any direct relationship with those parties. Twilio's API facilitates the call or SMS path through those entities as necessary and as directed by the developer's application.

As an example, a Twilio application-developer customer might create an application that allows a consumer to transmit text messages between cell phone users, such as a group texting application. Here, the path of these text messages initiated by the application users would be as follows:

- 1) Customer sends SMS using developer's application
- 2) Application uses Twilio's API and other software code to send the SMS to the specific telephone number
- 3) SMS routes through Amazon Web Services
- 4) Then to an SMS aggregator with whom Twilio has contracted
- 5) SMS aggregator then routes the SMS to the customer's carrier
- 6) Customer's carrier then routes the SMS to the recipient customer
- 7) Developer's customer receives SMS on phone

This path is represented in **Figure 1** below.

**Figure 1**



In sum the developer's application is the interface to the user and the user is the starting point for each instance where a text message is sent to the intended recipient. Further, the dialing capabilities are provided by the developer's application and any agreement concerning what information the developer is permitted to disclose, such as the developer's privacy policy, is between the developer and the users of its application. Twilio serves only as an intermediary by simply transmitting the content of the user's message and the instructions sent by the developer's application, and has no relationship with the application user.

### III. DISCUSSION

#### A. The FCC Should Clarify That Text-To-911 Obligations Do Not Apply To Intermediaries Like Twilio

The Commission should clarify that entities in the transmission path (1) are not covered text providers subject to the text-to-911 obligations being considered by the Commission and (2) are not subject to liability as long as they transmit all information provided to them by

the carriers and developers and route the text message as determined by the information provided.

As mentioned above, Twilio does not direct or control how its customers' applications send or receive messages, nor does Twilio control the type of information each of its customer's applications will collect from their users. Twilio's role is to forward the information it receives from its customers' applications, without alteration, either directly to downstream telecommunications carriers or to aggregators. Thus, if a customer's application were to send Twilio a user's text message intended for a PSAP without the necessary identifying information, location information, or routing information, Twilio would be unable to do more than forward the message downstream as is. As such, the Commission should clarify that Twilio has no independent obligation *of its own* (1) to recognize that an application's user is sending a text to 911; (2) to obtain a user's identifying or location information independently of being sent this information by the customer's application; or (3) route the message to the appropriate PSAP independently of instructions from the relevant carrier or customer application. Intermediaries such as Twilio should be able to rely on information from the sending application and from carriers, and they should not face liability when they simply maintain the transmission path of a message initiated by a customer's application or its users.

**B. The Commission Should Not Set Rules That Will Subject Twilio Or OTT Messaging Service Providers To Liability For Disclosures And Privacy Violations**

The Commission's proposed rules would require OTT text-messaging-service providers to obtain and disclose user location information in delivering texts to 911. However, OTT applications may only access user's location information if a user so chooses and obtaining such information is technically feasible. Many OTT services are accessible on multiple platforms (e.g., smartphones, tablets, laptops, and/or desktop computers), some of which may or

may not have access to location-based information. An OTT application's ability to access and provide accurate location information may also be limited by whether it is connected to a cellular data or Wi-Fi network, and by the user's preferences to restrict an application's access to location information. Indeed, how each OTT application collects and shares a user's location information – if it is granted permission to collect this information – and a user's identifying information is typically governed by each application's privacy policy. The Federal Trade Commission (FTC) has taken action against companies that use or share information in violation of their privacy policies or that collect information without proper disclosures.<sup>3</sup>

The Commission's proposed rules may require an OTT text messaging service provider to collect and/or disclose a user's location and identifying information in a manner inconsistent with the user's choices or the OTT application's privacy policy. The OTT text messaging service providers would take a risk that, in complying with the Commission's proposed rules regarding text-to-911, they may be subject to enforcement actions by the FTC or class action litigation. Moreover, Twilio's customers' OTT applications would be sending the text message and information through Twilio, which does not create or control its customers' privacy policies or data collection practices. The Commission should not place OTT text messaging service providers and intermediaries like Twilio in such an impossible position unless adequate liability protections are in place.

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<sup>3</sup> See, e.g., <http://www.ftc.gov/news-events/press-releases/2011/03/ftc-charges-deceptive-privacy-practices-googles-rollout-its-buzz>; <http://www.ftc.gov/news-events/press-releases/2011/11/facebook-settles-ftc-charges-it-deceived-consumers-failing-keep>; and <http://www.ftc.gov/news-events/press-releases/2013/02/ftc-approves-final-order-settling-charges-against-competite-inc>.

**C. Consumers Do Not Expect To Be Able to Reach Emergency Services Through Use Of OTT Text-Messaging Applications**

The Commission’s proposed application of text-to-911 obligations on interconnected OTT text-messaging-service providers is a solution in search of a problem. Consumers do not expect OTT text-messaging applications to support text-to-911. In fact, to apply this obligation to OTT service providers would likely cause detrimental consumer confusion.

Consumers do not consider OTT text messaging applications to be replacements for CMRS-provided voice calling and SMS, nor do OTT applications actually replace native calling or SMS applications on mobile devices themselves. Instead, the majority of contemporary OTT text-messaging applications are akin to instant messaging applications like AOL Instant Messenger and Yahoo Messenger, where users may use convenient identifiers as handles for communication. As such, consumers are likely to look to native voice and SMS applications for core communications services during times of emergency. In fact, applying text-to-911 obligations on an admittedly small group of interconnected OTT text-messaging services that meet a rather technical definition<sup>4</sup> – a definition that consumers are unlikely to know – would likely cause consumer confusion, resulting in greater harm than good. The Commission’s own statements in the *NPRM* highlight this issue. The Commission relies heavily on the number of WhatsApp users and the volume of text messages sent through WhatsApp to illustrate the

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<sup>4</sup> “Interconnected text applications [are those] that use IP-based protocols to deliver text messages to a service provider, which the service provider then delivers . . . to destinations identified by a telephone number” and that “that enable a consumer to send text messages to all or substantially all text-capable U.S. telephone numbers and receive text messages from the same”. *FNPRM* at ¶ 62 (internal quotation marks omitted). In May 2013, the Commission estimated that there were only approximately thirty interconnected text messaging services. *See In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications*, 28 FCC Rcd. 7556, ¶26 (2013).

popularity of OTT text messaging services.<sup>5</sup> Yet, WhatsApp is the very type of application that the Commission’s definition of “interconnected text messaging service” would explicitly exclude.<sup>6</sup>

The Commission should heed current consumer preferences and refrain from imposing unnecessary obligations on OTT text messaging service providers.

**D. It Is Not Feasible For OTT Text Messaging Service Providers To Deliver Text-to-911 Messages To PSAPs**

OTT applications are, by their nature, separate from the national telecommunications infrastructure. This is consistent with the preferences of consumers, who prefer these services to use their data plans, rather than their voice or text messaging plans. In the *FNPRM*, the Commission suggested four possible approaches for OTT text-messaging-service providers to deliver text messages to 911.<sup>7</sup> However, none of these approaches provide feasible methods of integrating OTT applications with the national telecommunications framework in a manner that would allow for effective message delivery as well as continued innovation and growth.

First, in response to the Commission’s first suggested approach,<sup>8</sup> no CMRS currently allows wireless devices on their network to expose their native SMS API to OTT

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<sup>5</sup> *FNPRM* at ¶ 6.

<sup>6</sup> See *FNPRM* at ¶ 62 (noting that the Commission had previously categorized as “non-interconnected applications that only support communication with a defined set of users of compatible applications but do not support general communication with text-capable telephone numbers”); *In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications*, 28 F.C.C. Rcd. 7556, ¶ 40-41 (2013) (“[T]he definition of interconnected text does not extend to text messages that are directed by IP-based messaging applications that support communication with a defined set of users of compatible applications but that do not support general communication with all or substantially all text-capable telephone numbers.”).

<sup>7</sup> *FNPRM* at ¶ 24-33.

<sup>8</sup> *Id.* at ¶ 25 (“[A]n OTT texting application can be programmed to recognize that the user is sending a text message to the text short code ‘911’ and automatically invoke the wireless

applications. Even if a CMRS did allow this sort of access and it were possible for an OTT application to “automatically invoke wireless device’s native SMS application programming interface (API) for sending SMS messages,”<sup>9</sup> the costs this may impose on the OTT service provider<sup>10</sup> could deter future innovation.

As for the second method the Commission proposed,<sup>11</sup> it’s unclear how the OTT application would be certain that the end user’s identifier for the application is the same as the phone number for their device. Most OTT applications use phone number simply as a way to assign a numeric identity to an account. However, even if the phone number for the user’s device and the phone number used as an identifier for the OTT application are initially the same, there is no guarantee that it will stay this way. End users may switch phone numbers assigned to them by their wireless carriers for a variety of reasons, but this change often does not make its way back to the OTT service provider. Thus, this approach is an unreliable means of delivering text-to-911 messages.

Last, the Commissions third and fourth suggested approaches<sup>12</sup> contain unresolved issues for consumer privacy. The third approach may require an OTT application to

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device's native SMS application programming interface (API) for sending SMS messages. . . . Upon invoking the native SMS texting application, the text-to-911 message will be handled by the underlying wireless carrier, *i.e.*, the text will be routed through the carrier's (or its agent's) Text Control Center (TCC), which is the functional element of the Short Message Service Center (SMSC) dedicated to routing texts to the appropriate Public Safety Answering Point (PSAP).”

<sup>9</sup> *Id.* at ¶ 25

<sup>10</sup> The Commission left open the possibility that OTT service providers would need to compensate CMRS for use of this method. *Id.* at ¶ 28.

<sup>11</sup> Approach two “assumes that the OTT application uses the same phone number as the device itself. In this case, the OTT service provider receives the text at its server and passes the originating phone number and message to a third-party TCC . . . . The TCC draws location from a commercial location service, just as for the CMRS SMS service, to acquire the location of the mobile device.” *Id.* at ¶ 31.

<sup>12</sup> For approach three, “the texting application invokes a system call on the API, obtains the phone number of the mobile device and conveys it via the protocol message sent to the OTT

obtain a user's phone number, even though that user has not disclosed this information to the OTT application or granted permission for the OTT application to obtain it. The fourth approach presents many of the same privacy policy issues detailed in Section B above, as it depends on OTT applications being able to access user location information from the user's mobile device. The serious possibility of liability engendered by these two approaches would inhibit growth and innovation in the OTT text messaging service market.

As the above demonstrates, it is not feasible for OTT text messaging service providers to deliver text-to-911 messages. As such, the Commission should not impose these obligations on OTT service providers.

**E. Further Expansion of Text-to-911 Obligations to Non-Interconnected OTT Applications Is Impracticable and Would Stifle Innovation**

As noted above, the Commission's current definition of "interconnected text messaging service" only applies to a limited number of OTT text messaging services.<sup>13</sup> The Commission should not expand the text-to-911 obligations to cover a wider variety of OTT messaging services, especially those text messaging services it currently defines as "non-interconnected."<sup>14</sup>

The breadth of OTT applications that allow their users to communicate is enormous, with new applications being created every day. Attempting to regulate across all OTT

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provider's server. The provider, as before, then sends the message through a third party TCC, which in turn invokes the commercial location service and routes the text to the appropriate PSAP." *Id.* at ¶ 32. Approach four "relies on the location API in the mobile device" and suggests that the "OTT text application include[] GPS-based location information with the text content and route[] the text through its server to the TCC." *Id.* at ¶ 33.

<sup>13</sup> See *In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications*, 28 FCC Rcd. 7556, ¶26 (2013).

<sup>14</sup> See *FNPRM* at ¶ 62; *In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications Framework for Next Generation 911 Deployment*, 27 FCC Rcd. 15659, ¶ 91 (2012) (categorizing applications that "only support communication with a defined set of users of compatible applications but do not support general communication with text-capable telephone numbers" as "non interconnected").

applications that allow for text messaging is simply not practicable, and likely beyond the Commission's jurisdiction. Additionally, given the wide variety of ways these OTT applications allow their users to communicate via text, it would be incredibly difficult to clearly define which applications must provide text-to-911 capabilities and which applications do not. For instance, with much of the new growth happening in machine to mobile, how do we decide which devices and OTT applications need to support text-to-911? Other complications arise in cases where applications assign phone numbers to customer service agents, applications allow only in-bound or out-bound texting, or applications use phone numbers only as identifiers for their account holders, divorced from any real connection to the phone number for the device. Moreover, OTT applications are created in and made available from countries across the globe. It is unclear how these foreign applications would be effectively regulated.

Even more so than interconnected OTT text message service providers, non-interconnected application providers are markedly different from the underlying wireless providers. As the Commission recognizes, these applications are built to allow users to communicate only with users of other specified OTT applications. These applications do not replace native texting or calling applications. Rather, consumer use of these applications is highly context specific. Thus, consumers are even less likely to expect to use these OTT applications to reach emergency services. Indeed, Twilio is not aware of a single individual that has filed comments expressing a desire to utilize text-messaging applications to contact 911.

In light of the impracticality of expanding the proposed text-to-911 obligations to non-interconnected OTT text messaging services – and the complete lack of consumer intent to do so – the Commission should refrain from extending any obligations it does adopt to any additional types of OTT text messaging services.

#### IV. CONCLUSION

In sum, Twilio urges the Commission to clarify that intermediaries that maintain the transmission path of a text message sent by a text-messaging-application provider or its users are not subject to text-to-911 obligations and are not subject to liability as long as they transmit the information provided to them by the carriers and sending application and route text message as determined by the information provided. Also, in light of customer preference and the complex and innovative nature of the OTT text messaging application market, Twilio further urges the Commission to refrain from imposing text-to-911 obligations on interconnected and non-interconnected OTT text messaging services.

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