

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

In the Matter of

Wireless E911 Location Accuracy
Requirements

PS Docket No. 07-114

E911 Requirements for IP-Enabled Service
Providers

WC Docket No. 05-196

REPLY COMMENTS OF VONAGE HOLDINGS CORP.

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Vonage Holdings Corp. (“Vonage”) is pleased to provide these reply comments on E911 requirements for VoIP services. As the comments filed in the record before the Federal Communications Commission (“Commission” or “FCC”) in this docket and Vonage’s own extensive testing efforts continue to demonstrate, no autolocation technology available today can provide more accurate and reliable location information to public safety than the Registered Location information required under the FCC’s rules for interconnected VoIP service.

There is simply no evidence that existing autolocation technologies can or will get public safety and first responders to interconnected VoIP subscribers more quickly or reliably than the customer-supplied location information the Commission requires today. For that reason, Vonage reiterates its recommendation that the Commission maintain its existing requirements and adopt new requirements only if and when autolocation technology can deliver demonstrable improvements over the existing regime.

Similarly, the FCC should not expand 911 requirements to cover non-interconnected VoIP service at this time. There is scant evidence that consumers have any expectation that non-interconnected VoIP services should support 911 service. Further, requiring non-interconnected

VoIP application and services, which are often provided on devices that already are able to dial 911, to provide 911 service would be duplicative and inefficient and would introduce possibilities for system conflicts and errors.

Instead of prematurely adopting new regulations, industry and public safety agree that public-private working groups offer the most productive avenue for examining autolocation technology for interconnected VoIP and potential 911 solutions for non-interconnected VoIP. Imposing regulations at this time, when effective, reliable and accurate technology that improves on existing requirements is not yet available, would be premature and risk stifling innovation and development.

I. WIDESPREAD CONSENSUS REFLECTS THAT ADDITIONAL REQUIREMENTS FOR INTERCONNECTED VOIP SERVICE WOULD BE PREMATURE.

The Commission's existing Registered Location requirements for interconnected VoIP providers work well. As PSAPs have long explained, accurate and precise location information, including a street address to which to dispatch emergency service, is of paramount importance to public safety.¹ Additional regulation at this time would be inappropriate because existing technology cannot offer more accurate or reliable location data than the current rules, new rules would impose infeasible technological and commercial burdens on industry and public safety, the limited data in the record, and the rapid evolution of location-based technology and telecommunications services make adopting a single standard premature.

¹ See, e.g., *IP-Enabled Services & E911 Requirements for IP-Enabled Service Providers*, Joint Petition for Clarification of the National Emergency Number Association and the Voice on the Net (VON) Coalition, Docket Nos. 04-36 & 05-196, at 5 (filed July 29, 2005) ("Ensuring that the PSAP is provided an accurate and unambiguous location of an emergency is critical to the functioning of the E9-1-1 system."); Reply Comments of APCO, Docket No. 05-196, at 3 (filed Sept. 12, 2005) ("Any approach that relies upon geographic coordinates will ... fail to take into consideration dense residential/business areas, where a single coordinate (however accurate it may be) could encompass[] multiple addresses.").

Existing technology cannot provide more accurate and precise location information than the user-provided Registered Location data currently used. A number of commenters describe research and development underway to devise methods of improving location accuracy.² Notably, however, none demonstrates that existing technology can reliably, efficiently, and effectively provide more accurate and precise location data than Registered Location data. Certain vendors argue in favor of technologies they created or market, without proving that any of these offers an actual improvement over the current regime.³ More importantly, the groups working most closely on location accuracy standards agree that existing technology requires further development and evaluation before regulation would be appropriate.⁴

Similarly, responding to the FCC's request for information about requiring z-axis location data, TeleCommunications Systems, Inc. notes that although such a requirement is "intuitively compelling," there are "very significant technological" and practical issues with determining and interpreting z-axis data.⁵ Effective and useful z-axis data may implicate zoning requirements and antenna height requirements, and will require very significant public-private work on defining shared understandings about data references and definitions (*e.g.*, should

² *See, e.g.*, Comments of Qualcomm Inc., Docket Nos. 05-196 & 07-114, at 2-3 (filed Jan. 19, 2011) ("Qualcomm Comments"); Comments of Commlabs, Inc., Docket Nos. 05-196 & 07-114, at 4 (filed Jan. 19, 2011) ("Commlabs Comments").

³ *See, e.g.*, Comments of Intrado Inc. and Intrado Communications Inc., Docket Nos. 05-196 & 07-114, at 4-5 (filed Jan. 19, 2011) ("Intrado Comments"); Comments of Dash Carrier Services, LLC, Docket Nos. 05-196 & 07-114, at 9-11 (filed Jan. 19, 2011); Commlabs Comments at 3-6.

⁴ *See, e.g.*, Comments of the Alliance for Telecommunications Industry Solutions, Docket Nos. 05-196 & 07-114, at 3-4 (filed Jan. 19, 2011) ("ATIS Comments"); Comments of the National Emergency Number Association, Docket Nos. 05-196 & 07-114, at 6-7 (filed Jan. 19, 2011); *see also* Comments of AT&T, Inc., Docket Nos. 05-196 & 07-114, at 2 (filed Jan. 19, 2011) (location accuracy proposals in the NOI are premature and raise concerns); Comments of Sprint Nextel Corp., Docket Nos. 05-196 & 07-114, at 4 (filed Jan. 19, 2011) (location accuracy technology still too immature to justify additional regulation).

⁵ Comments of TeleCommunication Systems, Inc., Docket Nos. 05-196 & 07-114, at 5 (filed Jan. 19, 2011) ("TSI Comments").

elevation data be given as a civic address, such as floor number, or height above sea level, or some other topological standard?).⁶

In short, the record demonstrates that current autolocation technology simply cannot offer sufficiently reliable and effective location data to justify alternations to the Commission’s existing requirements. Changing course now would risk stifling innovation vital to economic development and the growth of a robust NG911 system.⁷ Vonage echoes the VON Coalition’s recommendation that the Commission proceed judiciously when contemplating additional E911 obligations on new communications devices, applications and services.⁸ The additional costs in development and rollout will delay new product deployment, reduce resources for economic development, and limit consumer choice, without offering certainty in improved location accuracy data. As Motorola urges, instead of imposing a particular – flawed – technology, “the Commission should focus on . . . supporting the ongoing research and development efforts in this area.”⁹

Accordingly, the most promising and effective path forward is a collaborative process involving industry and public-safety representatives. The comments received reflect a broad consensus in favor of encouraging stakeholders, including network providers, public safety, vendors, and government, to develop and implement best practices and standards.¹⁰

⁶ TSI Comments at 5.

⁷ Comments of the Voice on the Net Coalition, Docket Nos. 05-196 & 07-114, at 11-13 (filed Jan. 19, 2011) (“VON Coalition Comments”).

⁸ *Id.*

⁹ Comments of Motorola Mobility, Inc. and Motorola Solutions, Inc., Docket Nos. 05-196 & 07-114, at 2 (filed Jan. 19, 2011) (“Motorola Comments”).

¹⁰ ATIS Comments at 2; Comments of CTIA—The Wireless Association, Docket Nos. 05-196 & 07-114, at 8 (filed Jan. 19, 2011) (“CTIA Comments”); Qualcomm Comments at 13-15; Comments of Telecommunications Industry Association, Docket Nos. 05-196 & 07-114, at 8-9 (filed Jan. 19, 2011) (“TIA Comments”); TSI Comments

II. THE COMMISSION’S CURRENT RULES FOR INTERCONNECTED VOIP SERVICE SUPPORT THE MOST ACCURATE LOCATION DATA AVAILABLE.

Vonage wishes to clarify certain misunderstandings reflected in the record about its services and about certain proposed location accuracy “solutions.” Vonage has a long record of providing 911 service to its consumers, including location data, as required by the Commission’s rules.

A. CMRS Location Data Requirements Offer No Improvement On Registered Location Data.

Vonage welcomes the commitment of YMax Corporation, maker of Magic Jack, to increased functionality in E911 public safety systems. But Magic Jack’s proposal, which is simply an effort to leverage for YMax’s benefit the requirement that CMRS networks recognize non-service-initiated cellular phones, would benefit YMax’s bottom line at the expense of public safety. As Vonage set forth in its initial comments, CMRS location accuracy requirements are no more accurate than Vonage’s current technology.¹¹ In many instances, in fact, CMRS-style location accuracy is less accurate than Vonage’s user-provided Registered Location data.¹² YMax’s technology, which appears to treat each YMax device as a non-service-initiated cellular phone, may not even enable public safety to call back users in the event of a dropped emergency call. YMax’s approach, therefore, cannot be viewed as improving on the Commission’s current requirements. YMax’s self-serving offer to license its technology, a technology that it asserts

at 6; Comments of Verizon and Verizon Wireless, Docket Nos. 05-196 & 07-114, at 7, 11-13, 17-20 (filed Jan. 19, 2011) (“Verizon Comments”).

¹¹ Comments of Vonage Holdings Corp., Docket Nos. 05-196 & 07-114, at 6-10 (filed Jan. 19, 2011) (“Vonage Comments”).

¹² *Id.* at 7-8 (comparing the margins of error in location accuracy standards for CMRS providers versus Vonage’s subscriber-provided registered user location data).

should not be required of its own services, should be viewed as the revenue-seeking gambit that it is, rather than as a serious contribution to the E911 location standards conversation.

B. Vonage Provides 911 Service, Including Registered Location Data, To Its Customers.

Vonage views the safety of its consumers as of paramount importance. MobileTREC, without explanation, incorrectly lumps Vonage in with non-interconnected VoIP providers such as Skype, in its comments.¹³ To be clear, Vonage is an interconnected VoIP provider that provides 911 service to its interconnected VoIP customers.

C. Registered Location Data Is The Most Accurate Data Available For Interconnected VoIP Calls.

A significant percentage of interconnected VoIP calls are made indoors. Given the difficulties that CMRS and other location technologies confront with indoor environments, user-provided Registered Location data is crucial to providing accurate information to PSAPs in the event of emergency. Some vendors, however, seek to impose extremely detailed and costly location accuracy standards that cannot be met by existing technology. Intrado, for example, urges the Commission to require interconnected VoIP calls from mobile devices to meet the location standard for wireless calls, but offers no explanation for how such a requirement would improve on existing standards.¹⁴ This aspirational suggestion is simply infeasible. CommLabs, for its part, proposes another “solution” that would take location accuracy backwards while imposing high costs and burdens on industry. Without demonstrating that its proposal improves on Registered Location data, Commlabs suggests requiring device manufacturers, carriers, and

¹³ Comments of MobileTREC Corp., Docket Nos. 05-196 & 07-114, at 4 (filed Jan. 19, 2011) (“MobileTREC Comments”).

¹⁴ Intrado Comments at 6.

PSAPs to reverse-engineer their products to support its hybrid WAPS-GPS solution.¹⁵ Such costly solutions, offering little if any improved location accuracy, would serve only to detract from the effort needed for the NG911 transition and the technological development to support that transition.

At this point, network providers are in the best position to access and provide accurate location data to public safety.¹⁶ Standards bodies, recognizing the promise of network end-point location solutions, have been working to develop standards for making network end-point location available for call location purposes.¹⁷ Wireline facilities-based broadband network operators know the physical layout of their networks – including network endpoints – and can correlate these locations with devices on the network via unique device identifiers such as the MAC address of a cable or DSL modem. And as Andrew notes in its comments, network operators have no control over the location accuracy technology in devices roaming on their networks. For that reason, network-based requirements may be the most effective and appropriate option for location determination.¹⁸

III. THE COMMISSION SHOULD NOT IMPOSE ADDITIONAL REGULATION ON NON-INTERCONNECTED VOIP.

Non-interconnected VoIP services should not be subject to 911 requirements at this time. First, there is no evidence that non-interconnected VoIP services serve as a replacement for services like wireline and CMRS voice that offer 911 service. Further, there is no evidence that

¹⁵ See Commlabs Comments at 9-16.

¹⁶ See Comments of Andrew, A CommScope Company, Docket Nos. 05-196 & 07-114, at 4-5 (filed Jan. 18, 2011) (“Andrew Comments”); Vonage Comments at 19-24.

¹⁷ See Vonage Comments at 19-20.

¹⁸ See Andrew Comments at 4-5.

consumers expect non-interconnected VoIP service, which supplements consumers' existing voice services, to provide 911 service. Finally, imposing 911 requirements on non-interconnected VoIP services, particularly on services capable of use from smartphones and other mobile devices, would impair public safety by introducing duplication, inefficiency and confusion.

The Commission required interconnected VoIP services to provide E911 services only after concluding that consumers were using interconnected VoIP as a replacement for traditional PSTN telephone service and had a reasonable expectation of being able to access emergency services when using a telephone-like VoIP device.¹⁹ But this rationale predates the explosive growth in smartphones, mobile devices, and applications allowing new voice-calling capabilities on these devices. Currently, non-interconnected VoIP apps exist for multiple devices and platforms such as tablets (iPad, Galaxy Tab, etc.) and gaming stations (Xbox, Wii, etc.), but there is no evidence that consumers view these innovative new services and devices as substitutes for wireline telephone connections.²⁰

It also would be hard to view non-interconnected VoIP apps as a replacement for CMRS voice services. Instead, most non-interconnected VoIP apps provide supplemental voice services. For example, Vonage for Mobile offers international calling on iPhones and Android phones. This service cannot substitute for CMRS voice service as it does not have any telephone number associated with it and does not allow for inbound calls. Dictating that such a service support 911 would be akin to requiring calling-card service providers to support 911. Further, nothing in the record demonstrates that consumers want or expect to be able to place

¹⁹ *IP-Enabled Services & E911 Requirements for IP-Enabled Service Providers*, First Report and Order and Notice of Proposed Rulemaking, Docket Nos. 04-36 & 05-196, ¶ 23 (rel. June 3, 2005).

²⁰ See VON Coalition Comments at 11-13.

911 calls from non-interconnected VoIP apps or services. Consumers' wireline phones and CMRS devices already provide that service as consumers expect.

Extending E911 calling and location accuracy requirements to additional non-interconnected VoIP apps or services also would be inefficient. For example, requiring applications such as Vonage's Facebook app,²¹ loaded on devices already meeting standard CMRS 911 location accuracy requirements, also to provide CMRS 911 functions would be duplicative and inefficient and, most troubling, would introduce possibilities for system conflicts and errors. This would be particularly challenging for application providers, who typically do not control the networks or devices on which consumers run their applications. Carriers likewise do not expect that the myriad non-interconnected VoIP apps will provide 911 services.

Perhaps most critically, extending the CMRS 911 requirements to non-interconnected VoIP services, devices, and apps would shift compliance burdens onto consumers. This is especially true with mobile device apps. As apps evolve and improve, consumers must continually update them. Many consumers may not do so, perhaps because they do not routinely update apps or perhaps because they did not like the app and ceased using it but did not remove it from their device. Adopting 911 requirements that fail to recognize how consumers use their applications would not advance public safety.

Additionally, the technology changes required to support incorporating CMRS 911 capabilities in mobile apps would be both expensive and difficult. A better approach would be to focus industry on transitioning to NG911. As part of that transition, Vonage believes the Commission, with the assistance of an industry advisory committee, should study technological

²¹ This application allows Facebook friends to have voice conversations with each other. It does not use telephone numbers or support calls to or from the PSTN. It is available for iPhones, Android Phones, iPads, and iPod Touches.

or operational changes that service providers, application developers, and device manufacturers might implement to complement NG911 capabilities. Such changes may include PSAP upgrades, SIP upgrades for selective routers, and inserting new code into mobile applications. Planning now for a robust NG911 network will ensure that PSAPs and consumers can benefit from technological improvements as they become available.

The more efficient, reliable and predictable method for providing emergency calling services to consumers using non-interconnected VoIP applications on their smartphones, tablets, or PCs, is a public education and outreach campaign to educate consumers on the importance of using CMRS or wireline service for emergency calls. Consumers already understand they may use CMRS or wireline service to call emergency services. Education can benefit consumers by making clear that applications and other non-interconnected VoIP services are not equipped to reach 911, and that consumers should continue to rely on their wired and wireless phone service to make emergency calls.²²

IV. CONCLUSION.

In short, altering the existing 911 requirements for interconnected VoIP providers or requiring 911 for non-interconnected VoIP service would be expensive, confusing, and duplicative without reflecting consumer needs or expectations. In an era of government efforts

²² Cf. MobileTREC Comments at 3 (reporting on MobileTREC market research findings that consumers were uncertain about whether soft phone apps provided E911 services). Vonage notes that MobileTREC's characterization of its market research findings is somewhat confusing. One-hundred percent of consumers reportedly believed they could dial 911 from their cell phones. Under current FCC rules, those consumers are correct: their cellular service providers are required to provide E911 service, so they can, in fact, dial 911 from their cell phones. MobileTREC does not specify what percentage, if any, of the consumers surveyed believed they could reach emergency responders from a non-interconnected VoIP app on a mobile device. In fact, later in its comments, MobileTREC makes a markedly less assertive claim, contending without elaboration that "it is highly probable that consumers expect 911 service" on soft phone mobile device apps. *Id.* at 5.

to identify and eliminate needless regulation,²³ adopting regulation without a strong demonstration of need is inappropriate. More importantly, as the VON Coalition has argued,²⁴ needless regulation would stifle innovation, slow product development, and do nothing to advance consumer safety or assist first responders in fulfilling their vital missions.

While Vonage applauds the Commission's examination of 911 requirements for VoIP service, it does not believe that any new requirements are warranted at this time. Instead of pursuing new regulations, the Commission would be better served to encourage public safety and industry to work cooperatively to examine autolocation solutions for interconnected VoIP and 911 solutions for non-interconnected VoIP.

Respectfully Submitted,



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²³ President Barack H. Obama, *State of the Union Address*, Jan. 25, 2011, <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>.

²⁴ VON Coalition Comments at 13.