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

In the Matter of	
Wireless E911 Location Accuracy Requirements	PS Docket No. 07-114
911 Requirements for IP-Enabled Service Providers	WC Docket No. 05-196

REPLY COMMENTS OF THE VOICE ON THE NET COALITION IN RESPONSE TO PART III.B OF THE NPRM

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I. INTRODUCTION AND SUMMARY

Like virtually every other commenter, the Voice on the Net Coalition ("VON") believes strongly in the Commission's goal of continuing to improve emergency service and ensuring that first responders receive the critical information they need. Indeed, the evolution of interconnected VoIP services has already brought significant public safety benefits.[1] Against this backdrop, the comments reveal the nearly unanimous view that the Commission should not mandate autolocation for interconnected VoIP services. Such a mandate may jeopardize existing progress and imperil public safety. As public safety commenters and other commenters point out, applying CMRS accuracy requirements to interconnected VoIP services may decrease public safety because such requirements

[1] *See* Comments of the VON Coalition at 16-22 (filed Aug. 20, 2007).

would often require delivery of less accurate location information – a result that runs directly counter to the Commission's stated purpose in this proceeding.[2]

Moreover, no evidence indicates that such a mandate could be met. The record confirms that there is *no* existing commercially-ready technology that would allow interconnected VoIP service providers to meet the E911 autolocation accuracy requirement proposed by the Commission. A few vendors claim that their technologies could, when fully developed, commercialized, and deployed, meet the CMRS accuracy requirements, at least in some geographies. But each of these proposed solutions has serious failings, and none will be ready for commercial deployment anytime soon. Also, many of the proposed solutions are geared for CMRS networks, which, because CMRS carriers operate their own radio frequency networks, is an entirely different technical environment than that in which many interconnected VoIP service providers operate. In fact, none of the vendors address how their solutions could be implemented for softphones or other methods of using interconnected VoIP services that have no unique interconnected VoIP hardware. As the history of CMRS location technology development has shown, the Commission needs to be very careful before basing new rules on vendor promises of what can be delivered.

The Commission may not require interconnected VoIP providers to comply with technically infeasible requirements. Further, imposing the proposed new accuracy and autolocation mandates notwithstanding their technical infeasibility would slow implementation of innovative VoIP solutions as interconnected VoIP service providers

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[2] *See Wireless E911 Location Accuracy Requirements; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Association of Public-Safety Communications Officials-International, Inc. Request for Declaratory Ruling; 911 Requirements for IP-Enabled Service Providers*, PS Docket No. 07-114, CC Docket No. 94-102, WC Docket No. 05-196, Notice of Proposed Rulemaking ¶ 6 (rel. June 1, 2007) ("NPRM").

would have to pull precious resources away from existing, *functioning* E911 programs to address an unmeetable objective. Apart from diverting critical resources, an autolocation mandate would also chill incentives for further innovation in this area. Faced with the prospect of guaranteed non-compliance with a technically unachievable regulatory requirement, some developers and providers will be obliged to refrain from expanding deployment or introducing new products and services. Software-defined services and applications, which lack specialized hardware, would be particularly harmed, and the flexibility of all services would likely be constrained.

The comments make clear that further study and analysis is necessary to evaluate how best to provide public safety with the most reliable location information in the majority of circumstances. For example, some public safety entities request different forms of location information for interconnected VoIP service provided via wireline Internet access and interconnected VoIP service provided via wireless Internet access. But an interconnected VoIP service provider will likely be unaware of the end user's method of Internet connection, especially if the provider is not also providing the Internet access. Thus, such a requirement would result in another impossible mandate.

The comments also demonstrate broad agreement with the other core arguments VON presented in its initial comments. In particular, many commenters concur that:

(1) The Commission should not impose E911 technology mandates (*i.e.*, a specific technology or technological standard) on interconnected VoIP service providers – for example, specifying a "hybrid" autolocation solution would, as a practical matter, both outlaw softphones and constrain the market's ability and flexibility to develop new ways of meeting regulatory mandates;

(2) Any new interconnected VoIP service autolocation requirements – in the event they are deemed necessary following careful study by a technical advisory committee – should apply only to devices specially designed to provide telecommunications service or interconnected VoIP service; and

(3) Many PSAPs are not prepared to receive E911 call data from interconnected VoIP service providers.

For all of these reasons, VON and many others urge the Commission to reject suggestions that it impose an autolocation standard on interconnected VoIP services.

II. PUBLIC SAFETY ENTITIES AND INDUSTRY AGREE THAT THE COMMISSION SHOULD NOT IMPOSE AN AUTOLOCATION MANDATE ON INTERCONNECTED VOIP SERVICE PROVIDERS.

Mirroring the fundamental message of VON's initial comments,[3] a wide array of commenters unequivocally urge the Commission that it should *not* impose a blanket mandate requiring interconnected VoIP services to provide autolocation information to PSAPs.

Public safety organizations – the very entities most directly served by robust E911 rules[4] – are nearly unanimous on this point. The National Emergency Number Association ("NENA"), for instance, states that it "cannot agree" with the Commission's tentative conclusion to impose the CMRS autolocation mandate on nomadic interconnected VoIP services.[5] Likewise, the Association of Public-Safety Communications Officials-International, Inc. ("APCO") – the organization that prompted the Commission to issue the Notice of Proposed Rulemaking in this proceeding – notes that the proposed blanket autolocation accuracy requirement does not comport with the

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3 *See, e.g.*, Comments of the VON Coalition at 2 (filed Aug. 20, 2007).

4 *See id.* ¶ 6 ("[T]the goal of our E911 rules is to provide meaningful automatic location identification information that permits first responders to render aid.")

5 Comments of the National Emergency Number Association at 11 (filed Aug. 20, 2007) ("We cannot agree, at this time, with the FCC's tentative conclusion that, for example, nomadic VOIP service "must employ an automatic location technology that meets the same accuracy standards" applicable to CMRS services. ").

nature of interconnected VoIP service.[6] The approach APCO advocates – requirements that vary depending on the nature of network access – is unworkable, as many interconnected VoIP service providers have no way of knowing how their subscribers access the Internet, much less any way of deriving or delivering different location information depending on the nature of a subscriber's connection. Nevertheless, APCO's underlying conclusion that a single mandate is inappropriate for all interconnected VoIP services is undoubtedly correct.[7]

Similarly, the Texas 9-1-1 Alliance, which recognizes that no single solution fits all varieties of interconnected VoIP service,[8] highlights the benefits of the Commission's existing requirement that interconnected VoIP service providers deliver subscriber-reported street addresses. Under the existing rules, interconnected VoIP service providers must transmit 911 callers' automatic number identification ("ANI") and registered locations to the applicable PSAP.[9] Replacing the current requirement with the CMRS E911 requirements would disserve public safety because it would often supply first responders autolocation information that is *less accurate* than the registered street address information they receive under the current VoIP 911 rules.[10]

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6 *See* Comments of the Association of Public-Safety Communications Officials-International, Inc. at 5 (filed Aug. 20, 2007).

7 *See also* Comments of the State of Washington Enhanced 911 Program at 2, 13 (filed June 22, 2007).

8 *See* Comments of the Texas 9-1-1 Alliance and the Texas Commission on State Emergency Communications at 12-14 (filed Aug. 20, 2007).

9 *See* 47 C.F.R. § 9.5.

10 *See* Comments of the Texas 9-1-1 Alliance and the Texas Commission on State Emergency Communications at 13 (filed Aug. 20, 2007) (noting that "it is preferable to have a specific MSAG-validated ALI record of the emergency caller's location when such can be provided").

Commenters representing nearly all affected industry segments – traditional incumbent carriers,[11] interconnected VoIP providers,[12] broadband access providers,[13] E911 service providers,[14] and equipment suppliers[15] – all oppose application of the CMRS E911 rules to VoIP. AT&T Inc., for instance, opposes the Commission's "tentative conclusion" on the ground that the Commission failed to "explain why location accuracy standards developed for mobile *wireless* services would be appropriate for all nomadic interconnected VoIP services."[16] After noting that the Commission has previously acknowledged the infeasibility of an autolocation solution for all interconnected VoIP services, and highlighting the absence of any evidence to contrary in this proceeding, AT&T reasons correctly that "the Commission cannot change course and adopt a tentative conclusion that is directly at odds with its own prior findings."[17] In the same vein, Verizon opposes any new automatic location requirement for interconnected VoIP service providers, particularly since the Commission lacks a clear understanding of "what capabilities are technically and commercially feasible."[18]

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11 *See* Comments of AT&T Inc. at 14 (filed Aug. 20, 2007); Comments of Verizon at 1 (filed Aug. 20, 2007); Comments of Qwest Communications International Inc. at 2-5 (filed Aug. 20, 2007).

12 *See* Comments of Vonage America, Inc. at 11-14 (filed Aug. 20, 2007).

13 *See* Comments of Clearwire Corporation at 1-2 (filed Aug. 20, 2007) ("Clearwire submits that automatic location capabilities for portable VoIP services do not yet exist.").

14 *See* Comments of TeleCommunications Systems, Inc. at 3 (filed Aug. 20, 2007).

15 *See* Comments of Nokia Inc. and Nokia Siemens Networks at 6 (filed Aug. 20, 2007) ("Nokia believes that [interconnected VoIP] services should not be subject to the Commission's CMRS E911 location requirements without ensuring that time is taken to study location technologies that can be used when a wireless 911 call is made using VoIP, standards are developed for delivering location technology over the Internet when a wireless VoIP 911 call is made, and technologies to be utilized for location are tested and finally deployed.").

16 Comments of AT&T Inc. at 14 (filed Aug. 20, 2007).

17 *Id.*

18 Comments of Verizon at 1 (filed Aug. 20, 2007).

Viewed as a whole, the comments filed by the public safety community and representatives of the affected industry segments send an overwhelmingly clear message: due to the wide variety of interconnected VoIP services and the infeasibility of a technical solution, the Commission should not impose an autolocation mandate on interconnected VoIP services.

III. COMPLIANCE WITH THE CMRS AUTOLOCATION ACCURACY MANDATE WOULD BE TECHNICALLY INFEASIBLE FOR INTERCONNECTED VOIP SERVICES.

A. The Comments Demonstrate that Compliance Is Not Technically Feasible.

Commenters' firm opposition to a CMRS-accuracy autolocation requirement for interconnected VoIP services reflects the essential fact, expressed in no uncertain terms by VON and numerous others,[19] that compliance simply is not possible. No existing, commercially-ready technology would enable interconnected VoIP service providers to meet the proposed rule's accuracy requirements. The commenters' articulations of this point are notably uniform: "there are no known solutions,"[20] there is nothing "feasible in the foreseeable future,"[21] "there is presently no single, comprehensive solution."[22] In

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[19] *See* Comments of the VON Coalition at 5-10 (filed Aug. 20, 2007); *see also* Comments of Qwest Communications International Inc. at 3-4 (filed Aug. 20, 2007) ("Given the still developmental state of interconnected VoIP applications and processes, particularly in the nomadic environment, there is no evidence that they can support [CMRS] accuracy standards even as they currently exist, let alone to the PSAP-level as the *Notice* proposes."); Comments of AT&T Inc. at 14 (filed Aug. 20, 2007) ("Absent any evidence to disprove this determination of infeasibility – and there is no such evidence in the record here – the Commission cannot change course and adopt a tentative conclusion that is directly at odds with its own prior findings."); Comments of the Information Technology Industry Council at 5 (filed Aug. 20, 2007) ("[T]here are no currently available autolocation technologies that can locate users of certain types of VoIP or that can locate all devices running VoIP software."); Comments of TeleCommunications Systems, Inc. at 4 (filed Aug. 20, 2007) ("Currently available autolocation technologies are unsuitable for nomadic VoIP service."); Comments of Vonage America, Inc. at 11-14 (filed Aug. 20, 2007); Comments of Clearwire Corporation at 2 (filed Aug. 20, 2007); Comments of the Alliance for Telecommunications Industry Solutions at 9 (filed Aug. 20, 2007); Comments of the Wireless Communications Association International at 5-14 (filed Aug. 20, 2007).

[20] Comments of Sprint Nextel at 19 (filed Aug. 20, 2007).

[21] Comments of Motorola, Inc. at 2 n.2 (filed Aug. 20, 2007).

light of this unequivocal record, the Commission must refrain from imposing a mandate that requires the impossible. Indeed, the record demonstrates that CMRS providers are unable to meet the autolocation requirements for their own networks and services.[23] Superimposing this infeasible CMRS regulatory mandate onto a wholly unrelated service lacks any reasonable justification and results in an unachievable requirement. As VON explained in its initial comments, imposing infeasible regulations constitutes arbitrary and capricious agency action that violates the APA.[24]

B. The Comments Highlight the Failings of Each Proposed Technology Solution.

Despite the rosy claims of their developers, all of the autolocation "solutions" proposed for interconnected VoIP services suffer from fundamental shortcomings. As numerous commenters explain, none of the ostensible solutions – either singly or in combination with each other – would enable interconnected VoIP services to meet the requirements the Commission has proposed. Indeed, even if the solutions worked as a technical matter with interconnected VoIP services, they would all result in PSAPs receiving *less accurate location information* in many instances than the registered location information PSAPs receive under the current rules. For instance, due to the laws of physics, all radio-frequency-based solutions will have ranges of accuracy that are, in many instances, too broad to dispatch help to a particular street address.[25] Unlike

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[22] Capstone Project (University of Colorado at Boulder), E911 Caller Location of Indoor Cellular and VoIP Devices at 23 (April 2, 2007) (attached to Comments of AT&T Inc., filed Aug. 20, 2007) ("CU E911 Analysis").

[23] *See, e.g.*, Comments of the VON Coalition at 2 n.4 (filed Aug. 20, 2007).

[24] *See id.* at 9-10, 13-14.

[25] Moreover, none of the proposed solutions would provide reliable altitude location – a parameter that the Commission is considering for CMRS providers. *See* NPRM ¶ 12. However, it is not clear that

registered location information, therefore, the proposed autolocation solutions could not give first responders the critical information necessary to determine which door to kick down in a burning apartment building.

While vendors want to rely on the results of limited testing, no solution can be considered viable for something as crucial as emergency services until it has demonstrated its efficacy in thorough testing in an appropriate range of neutral environments that are not unrealistically managed by the technology vendor. Moreover, many of the vendors are notably coy about whether their solutions are designed for CMRS services or interconnected VoIP services. Their silence on this issue is meaningful, because CMRS and interconnected VoIP rely on radically different technologies, and a "solution" developed for one likely has no logical application to the other. At this stage, as AT&T notes, "it would be premature – and potentially harmful to public safety and consumers – for policymakers to advocate [these solutions'] deployment in interconnected VoIP services available to American consumers."[26] A brief review of some proposed technologies underscores this point.

S5 Wireless proposes a radio-frequency triangulation solution in which small transmitter chips embedded in handsets would send signal bursts in the unlicensed 900 MHz band to a proposed nationwide network of S5 Wireless receivers.[27] This ambitious proposal suffers from several core flaws:

- Perhaps most fundamentally, S5 Wireless's proposed solution calls for nationwide deployment of a receiver network that currently exists only on paper (and in a single test location in Utah). Researchers at the University

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there is any technically feasible way to provide elevation that would be useful, given the limitations of the GPS service.

[26] Comments of AT&T Inc. at 15 (filed Aug. 20, 2007).

[27] *See* Comments of S5 Wireless, Inc. at 1-2 (filed Aug. 20, 2007).

of Colorado question the viability of such a system because "a stand alone infrastructure will need to be built, with no existing technology or infrastructure to leverage."[28]

- S5 Wireless's transmitter-chip solution has no logical application for interconnected VoIP service consumers who use softphones or other devices not specially dedicated to interconnected VoIP service. And, interconnected VoIP users are less likely to have mobile handsets than CMRS users.

- S5 Wireless has tested its solution only in a single *suburban* setting. There is no evidence to suggest that it would work effectively in urban canyons or rural areas.

- Because it would operate on unlicensed spectrum in the crowded 900 MHz band, the S5 Wireless system would face substantial (and growing) threats of interference.[29] Taking such a risk with public safety communications is needlessly reckless.

Rosum Corporation proposes a CMRS-autolocation solution in which a tuner and antenna installed in handsets would triangulate a caller's location based on broadcast television signals.[30] As with S5 Wireless's proposal, there are a number of major flaws with Rosum's suggested solution, particularly in its proposed application to interconnected VoIP services:

- As with all other handset-based systems, the Rosum solution depends on incorporation of specialized hardware into end-user devices, and therefore should not be expected to work with softphones or similar VoIP applications that run on laptops or other equipment that is not specially designed to provide interconnected VoIP service.

- Rosum has never explained how the requisite hardware (tuner and antenna) would be installed in all VoIP handsets, for those that do have them, much less in softphones or other VoIP equipment. Indeed, Rosum has not indicated whether the hardware would even fit inside a standard handset, or whether it would require design changes to a device's shell.[31]

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[28] CU E911 Analysis at 19.

[29] *See id.*

[30] Comments of Rosum Corp. at 3 (filed Aug. 20, 2007).

[31] *See., e.g.*, Comments of Vonage America, Inc. at 29 (filed Aug. 20, 2007).

- While a broadcast network exists across much of the country, many rural areas and in urban canyons have poor or nonexistent coverage.[32]

- The Rosum solution cannot work without additional network upgrades (*e.g.*, installation of timing reference servers), as broadcast signals are not currently locked to known time references.[33]

TruePosition proposes a solution for CMRS based on a hybrid deployment of U-TDOA and A-GPS technologies. While it proclaims the general effectiveness of its proposal, TruePosition admits that it "undoubtedly is true" that "no existing or anticipated technology would achieve the Commission's accuracy standards in *every* case."[34] TruePosition also disparages all competing solutions, explaining that they are "not capable of producing the desired improvements in location estimates."[35] A hybrid of U-TDOA and A-GPS suffers from numerous other shortcomings:

- TruePosition does not explain, and it is not at all clear, how a solution that depends on the provider's operation of the CMRS radio frequency network can possibly be used by interconnected VoIP service providers, the vast majority of which do not operate such a network or any other radio frequency network.[36]

- GPS and A-GPS technologies do not work effectively indoors because there is no direct line-of-sight to the satellites that triangulate location.[37]

- As the 911 Industry Alliance observes, "TDOA and A-GPS each have strengths and weaknesses," but "[s]imply combining the two, absent more advancement, will not result in the improvements necessary to achieve universal PSAP level compliance."[38]

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[32] *See* CU E911 Analysis at 19.

[33] *See* Comments of Vonage America, Inc. at 28-29 (filed Aug. 20, 2007).

[34] Comments of TruePosition, Inc. at 1-2 (filed Aug. 20, 2007).

[35] *Id.* at 13.

[36] *See id.*

[37] *See* Comments of Vonage America, Inc. at 25 (filed Aug. 20, 2007); CU E911 Analysis at 13.

[38] Comments of the 911 Industry Alliance at 4 (filed Aug. 20, 2007).

YMax proposes another handset-based solution that would incorporate a cellular transceiver within devices designed for interconnected VoIP service.[39] The transceiver would remain inactive unless the user called 911, at which point it would begin transmitting and the CMRS network would treat it like any other CMRS emergency call. YMax's shortcomings include the following:

- The system is still in an early developmental stage, as neither the YMax device nor the underlying transceiver is yet available.[40]
- Pushing emergency calls to the CMRS network as YMax proposes will lead to less accurate location information in many cases. Even where the CMRS call is delivered over a network that uses network-derived location information, that information is likely to be less accurate than the caller's Registered Location, which will be a specific street address. YMax evidently will be unable to deliver any location information beyond cell site when it routes over a CMRS network that relies on handset hardware to derive user location.[41]
- YMax's solution would not provide any coverage in areas without CMRS signal reception.
- YMax apparently has not undertaken any effort to coordinate or test its solution with the network providers and PSAPs that could be affected, and does not address contractual, compensation, or other arrangements for using CMRS networks to deliver YMax's emergency calls.

Wi-Fi Positioning , the technology underlying another proposed solution, would determine a caller's location based on the registered locations of wireless access points ("WAPs"). Because WAPs are uniquely identifiable based on their base station addresses, a device that knows the location of multiple WAPs can in theory provide a fairly accurate estimate of its location. But Wi-Fi positioning suffers from as many flaws as the proposals discussed above:

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39 *See* Comments of YMax Corp. at 5.

40 *See id.* at 5-6.

41 *See, e.g.,* Comments of Vonage America, Inc. at 8-9 (filed Aug. 20, 2007); Comments of TeleCommunications Systems, Inc. at 3, 7 (filed Aug. 20, 2007).

- WAP coverage is inadequate on a nationwide basis. While coverage is improving in major metropolitan areas, it may always be poor in rural areas.[42]

- A Wi-Fi solution would entail enormous equipment upgrade costs (and a long timeline) to ensure that devices currently lacking Wi-Fi connectivity could use the technology.

- A database of WAP locations would nearly always be out of date because, as unlicensed and unregulated devices, WAPs can be moved without notice.[43]

- Since a Wi-Fi positioning solution would operate on unlicensed spectrum in the 802.11 band, communications would lack interference protections, and interference threats would increase with time as the band becomes more crowded. As with S5 Wireless's proposed use of unlicensed spectrum, this is an unduly dangerous proposition for emergency communications.[44]

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At bottom, for each proposed "solution" there are fundamental shortcomings that cannot be resolved simply through additional testing and deployment. The lack of any commercially-ready and technically-feasible solution should compel the Commission to reject any autolocation mandate for interconnected VoIP services.

IV. IMPOSING AN AUTOLOCATION MANDATE WILL SLOW PROGRESS TOWARD E911 SOLUTIONS AND THREATEN DEVELOPMENT AND DEPLOYMENT OF INNOVATIVE SERVICES.

In its opening comments, VON demonstrates that imposing an autolocation mandate on interconnected VoIP service providers notwithstanding current technical infeasibility would slow the impressive progress already made by the VoIP industry in the provision of emergency services.[45] Other commenters agree.

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[42] *See, e.g.*, CU E911 Analysis at 15; Comments of Vonage America, Inc. at 30 (filed Aug. 20, 2007).

[43] *See* Comments of Vonage America, Inc. at 30 (filed Aug. 20, 2007).

[44] *See* CU E911 Analysis at 15-16.

[45] *See* Comments of the VON Coalition at 1-2 (filed Aug. 20, 2007).

Verizon, for example, indicates that "[i]f the Commission were now to adopt rules requiring interconnected VoIP providers to implement the wireless requirements . . . it could result in a significant delay in the availability of any capability to automatically detect a caller's location."[46] In particular, Verizon explains, "the industry would need to divert its resources and efforts from the current standards work, and start anew on developing a method for providing latitude and longitude and transmitting that information to PSAPs." Qwest similarly states that "VoIP providers are still implementing prior E911 mandates with respect to their product offerings. A location accuracy mandate would divert capital and human resources from the fundamental E911 provisioning efforts."[47] In short, as Clearwire concludes, "[p]remature imposition of additional portable VoIP E911 obligations may serve to undermine the progress that is being made."[48]

Plainly, imposing unrealistic new autolocation requirements will not only delay progress toward E911 solutions, but will also deter development of innovative new VoIP services more broadly. Nokia, for example, cautions that "the Commission should take care not to impose unachievable regulatory obligations on [interconnected VoIP] services that may hinder their development and the great promise they show for U.S. consumers."[49] The Telecommunications Industry Association ("TIA") points out that "regulation cannot keep pace with today's advances in technology – and that excessive regulation (such as technology mandates) merely stifles technological innovation.

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46 Comments of Verizon at 4 (filed Aug. 20, 2007).

47 Comments of Qwest Communications International Inc. at 5 (filed Aug. 20, 2007).

48 Comments of Clearwire Corporation at 5 (filed Aug. 20, 2007).

49 Comments of Nokia Inc. and Nokia Siemens Networks at 6 (filed Aug. 20, 2007).

Industry, not the government, is in the best position to proffer cutting-edge solutions for meeting the emergency response needs of consumers and public safety authorities."[50] Indeed, "if the Commission imposes heightened autolocation requirements on these new and emerging services, it will likely stop these services in their tracks."[51]

In its opening comments, VON gives a specific example of how regulation imposing an autolocation mandate could stop a particular kind of service "in [its] tracks," stating that such a mandate would likely "limit the commercial availability of VoIP softphones because they cannot incorporate E911 autolocation hardware."[52] The Information Technology Industry Council ("ITIC") makes the same point, arguing that "[a]ttempts to apply one set of CMRS E911 rules to all types of VoIP will make it difficult, if not impossible" for companies offering "innovative, low-cost, software-based access" to interconnected VoIP services "to do business in the U.S."[53] Elimination of softphones in the U.S. would, in turn, not only harm interconnected VoIP service providers, but would also place American businesses and consumers at a severe disadvantage in the global economy.

V. FURTHER STUDY IS NEEDED TO EVALUATE HOW TO PROVIDE PUBLIC SAFETY ENTITIES WITH THE MOST RELIABLE LOCATION INFORMATION UNDER REAL-WORLD CONDITIONS.

VON explains in its opening comments that interconnected VoIP service providers offer a broad variety of services and service configurations.[54] The highly

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50 Comments of the Telecommunications Industry Association at 5 (filed Aug. 20, 2007).

51 *Id.* at 7.

52 Comments of the VON Coalition at 12 (filed Aug. 20, 2007).

53 Comments of the Information Technology Industry Council at 6 (filed Aug. 20, 2007).

54 *See* Comments of the VON Coalition at 10-11 (filed Aug. 20, 2007) (citing six broad categories of service offering, while acknowledging that "we cannot set forth every variation of interconnected VoIP services here").

differentiated nature of VoIP service offerings makes it particularly challenging to analyze what kind of location information will improve on the Commission's current requirements. But that challenge cannot simply be ignored, as new or different mandates should not be adopted unless they will improve public safety overall. The Commission must therefore analyze the costs and benefits of different approaches to determining location information for specific services before imposing any kind of autolocation or accuracy mandate. At present, however, the record does not include the information necessary for such an analysis.

VON's opening comments set forth numerous specific issues on which additional information is needed.[55] Other commenters similarly highlight the need for better information before factually and legally sound decisions regarding possible autolocation or accuracy requirements may be made. Motorola states that the "E911 automatic location issues facing CMRS and VoIP providers are numerous and complex. *Currently, there is insufficient information available to establish an achievable 911 location accuracy standard on a forward-looking basis*."[56] Nokia urges that autolocation requirements not be imposed until "time is taken to study location technologies that can be used when a wireless 911 call is made using VoIP, standards are developed for delivering location technology over the Internet when a wireless VoIP 911 call is made, and technologies to be utilized for location are tested and finally deployed."[57]

Misguided suggestions by public safety entities for dealing with the differences among interconnected VoIP services serve only to underscore the need for further study.

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[55] *See id.* at 23-24.

[56] Comments of Motorola, Inc. at 4 (filed Aug. 20, 2007) (emphasis added).

[57] Comments of Nokia Inc. and Nokia Siemens Networks at 6 (filed Aug. 20, 2007).

For example, two public safety entities suggest that MSAG data is sufficient for "wired" interconnected VoIP services, but that autolocation should be required for nomadic interconnected VoIP services.[58] While this approach might appear reasonable at first blush, it flatly ignores the fact that interconnected VoIP service providers often have no way to know their customers' mode of Internet access, much less of delivering different location information as the nature of the customer's access changes. Accordingly, the public safety entities' proposal seems unlikely to survive real-world fact-gathering and testing. This, of course, is just one example of the obstacles that arise from the variety of interconnected VoIP service offerings and Internet access possibilities, and it underscores the importance of studying potential E911 solutions more carefully.

VI. THE FCC SHOULD CONVENE AN ADVISORY COMMITTEE TO UNDERTAKE FURTHER STUDY.

The comments display a striking uniformity on the question of how to move forward and obtain additional information necessary for the Commission to make a reasoned decision regarding emergency calls generated from an interconnected VoIP service customer. Specifically, commenters agree that the FCC should charter an interconnected VoIP-focused technical advisory committee or task force to conduct rigorous scientific and engineering evaluations of possible solutions and to weigh the relative costs and benefits of any new accuracy standards. As Commissioner Copps has noted, the Commission should proceed "on a sound technical footing" as it addresses autolocation.[59] It is particularly important that the Commission take this step now, at the

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[58] *See* Comments of the Association of Public-Safety Communications Officials-International, Inc. at 5-6 (filed Aug. 20, 2007); Comments of the Texas 9-1-1 Alliance and the Texas Commission on State Emergency Communications at 12-13 (filed Aug. 20, 2007).

[59] Separate Statement of Commissioner Michael J. Copps, Wireless E911 Location Accuracy Requirements; Report and Order (FCC 07-166) (Sept. 11, 2007).

earliest stages of this inquiry, so the Commission can be assured of the technical feasibility of any new requirements in advance of their adoption.

The Wireless Communications Association International suggests that "[r]ather than risk the adoption of arbitrary and potentially counterproductive VoIP location accuracy requirements, the Commission should give all the relevant stakeholders the opportunity to discuss and eventually identify the approaches that are best suited for provisioning reliable ALI for portable and mobile interconnected VoIP service."[60] TIA argues that "[t]his type of forum, with all stakeholders working together to accomplish a common goal" would "enable a complete discussion of the critical issues raised by this proceeding" by "combining the resources and knowledge of all parties that will be directly affected by the outcome."[61] And, individual commenters from all sides of the issue, including service providers, equipment manufacturers, and even autolocation solution providers all recognize the benefits of an independent task force.[62]

VII. COMMENTERS CONCUR WITH VON ON OTHER CORE ISSUES.

A. If the Commission Does Impose an Autolocation or Accuracy Mandate, It Should Not Adopt Any Specific Technology Mandate.

VON maintains that while *any* autolocation or accuracy mandate threatens to harm public safety and create unreasonable costs for interconnected VoIP service providers, if the Commission nonetheless decides to impose such a mandate, it should at

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60 Comments of the Wireless Communications Association International at 14-15 (filed Aug. 20, 2007).

61 Comments of the Telecommunications Industry Association at 9 (filed Aug. 20, 2007).

62 *See, e.g.*, Comments of Sprint Nextel at 20 (filed Aug. 20, 2007); Comments of AT&T Inc. at i, 13 (filed Aug. 20, 2007); Comments of Qwest Communications International Inc. at 10 (filed Aug. 20, 2007); Comments of Nokia Inc. and Nokia Siemens Networks at 6 (filed Aug. 20, 2007); Comments of S5 Wireless, Inc. at 9 (filed Aug. 20, 2007).

least avoid requiring the use of any specific technology or technological standard.[63] Such a mandate would be counterproductive both because regulation cannot keep pace with technological advances in location solutions and because – as a result of the differences among interconnected VoIP services – there can be no single technological solution effective for all interconnected VoIP services.[64]

Numerous commenters mirror VON's concern that the Commission must avoid technology mandates. ITIC succinctly summarizes the problems with technology mandates:

- "There is no one-size fits all technological solution for potential policy challenges such as VoIP E911";[65]
- Technology mandates may "slow, disrupt, or distort [the] innovation" currently taking place;[66]
- Government regulation cannot "keep up with the pace of technological advances in the IP marketplace";[67] and
- "Congress clearly supports such a technology neutral approach to regulation" since "[e]very significant piece of legislation moving in the 109th and 110th Congresses contains language prohibiting the Commission from imposing a "specific technology" or "technological standard."[68]

TIA "strongly opposes the imposition of regulations that would require a specific location technology or technological standard."[69] Indeed, it emphasizes that "if the Commission imposes a mandatory location technology, it will impede the development and

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63 *See* Comments of the VON Coalition at 14-15 (filed Aug. 20, 2007).

64 *See id.* at 10-15.

65 Comments of the Information Technology Industry Council at 3-4 (filed Aug. 20, 2007).

66 *Id.* at 4.

67 *Id.*

68 *Id.* (citing various bills considered by the 109th and 110th Congresses).

69 Comments of the Telecommunications Industry Association at 4 (filed Aug. 20, 2007).

deployment of the most technologically effective E911 location technology solution(s)."[70]

B. *If the Commission does Impose any Autolocation or Accuracy Mandates, They Must be Limited to Devices Specially Designed to Provide Telecommunications Service or Interconnected VoIP Service.*

The *NPRM* does not appear to contemplate extending any eventual autolocation or accuracy mandate beyond "providers of interconnected VoIP services."[71] At least one commenter, however, dangerously suggests that the FCC could apply such requirements to "other . . . technology providers or manufacturers that enable or facilitate interconnection to the PSTN."[72]

As the ITIC argues, however, "[t]o the extent the Commission imposes any E911 autolocation requirements on telecommunications devices used to provide E911, it should narrowly impose such requirements *only* on telecommunications equipment or customer premises equipment (CPE) that is *specially designed* to provide telecommunications services or interconnected VoIP service."[73] ITIC also correctly points out that the Commission should be guided by its earlier decision applying disability access obligations only to "[telecommunications] equipment or CPE specially designed to provide interconnected VoIP service and that is needed to effectively use an interconnected VoIP service."[74] The Commission's disability access order thus

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[70] *Id.; see also* Comments of Intrado Inc. at 12 (filed Aug. 20, 2007); Comments of Clearwire Corp. at 8-9 (filed Aug. 20, 2007).

[71] *NPRM* ¶18.

[72] Comments of Intrado Inc. at 12 (filed Aug. 20, 2007). Intrado even ponders whether E911 obligations could extend to text messages sent via the Internet. Plainly, however, consumers could not reasonably expect emergency response to a text message, and PSAPs have no systems in place to handle such requests.

[73] Comments of the Information Technology Industry Council at 7 (filed Aug. 20, 2007).

[74] *IP-Enabled Services*, Report and Order, 22 FCC Rcd. 11,275 ¶¶ 16, 20 (2007).

recognizes that the manufacturer's specific intent to offer equipment for the provision of interconnected VoIP service is a requirement for regulation, and the Commission should follow that precedent here.

C. Many PSAPs are not Ready to Receive E911 Call Data from Interconnected VoIP Service Providers.

A consistent theme of the comments is that the Commission should not race to "set an arbitrary date on which it will begin enforcing a requirement that cannot be met,"[75] but should instead take a measured approach ensuring the development of reliable emergency services. A number of commenters point out that it is not only service providers and E911 technology vendors who must evolve and modernize to ensure such services – PSAPs must also be given time to implement new systems.

Clearwire, for example, observes that despite "substantial industry efforts . . . to provide a more robust, reliable E911 service for portable VoIP subscribers, many PSAPs are not capable of receiving VoIP dynamic ALI information."[76] In other words, while a interconnected VoIP service subscriber's emergency call may reach the appropriate PSAP through the wireline E911 network, the PSAP may not have adopted the technology necessary for processing the information received. That is not, of course, to say that PSAPs are unwilling to embrace necessary technological change – rather, as ITIC points out, "PSAPs are already struggling with the expense and complexity of deploying technology to receive E911 information from mobile operators."[77] It is thus simply common sense that "there should not be a rush by the Commission to force

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75 Comments of Qualcomm Inc. at 2 (filed Aug. 20, 2007).

76 Comments of Clearwire Corp. at 5 (filed Aug. 20, 2007).

77 Comments of the Information Technology Industry Council at 7 (filed Aug. 20, 2007).

PSAPS to deploy a not-yet developed E911 technology requirement for the interconnected VoIP industry."[78]

VIII. CONCLUSION

The comments filed in response to Part B of the Commission's NPRM highlight widespread opposition to the proposed autolocation requirement for interconnected VoIP services. As commenters explain, there is no existing, commercially available technology that would enable compliance with such an obligation, and there does not appear to be a workable technical solution anywhere on the horizon. Imposing such a mandate despite the impossibility of compliance would have a predictable and highly negative impact: rather than benefit public safety entities (as the Commission properly intends), an autolocation mandate would chill innovation and, in many instances, leave PSAPs with less accurate information than they receive under the existing rules. Accordingly, VON joins the chorus of commenters that urges the Commission to refrain from adopting an autolocation requirement for interconnected VoIP services.

Respectfully submitted,

/s/

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[78] *Id. See also* Comments of Vonage America, Inc. at 10 (filed Aug. 20, 2007) ("[A] number of PSAPs can accept validated street addresses but not latitude/longitude, either because they are not equipped to accept location information delivered in latitude/longitude format or because they do not have adequate mapping capabilities to dispatch help on the basis of x,y coordinates.").