

Before the Federal Communications Commission

IN RE

FACILITATING THE DEPLOYMENT OF TEXT-TO-9-1-1
AND OTHER NEXT GENERATION 9-1-1 APPLICATIONS

FRAMEWORK FOR NEXT GENERATION 9-1-1 DEPLOYMENT

ON THIRD FURTHER NOTICE OF PROPOSED RULEMAKING

**COMMENTS OF THE
NATIONAL EMERGENCY NUMBER ASSOCIATION**

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The National Emergency Number Association (“NENA”) respectfully submits the following comments in response to the *Third Further Notice of Proposed Rulemaking* adopted by the Commission on August 8th, 2014.

COMMENTS

Text-to-9-1-1 support has been required in major carriers’ networks for less than six months, yet preliminary indications are that its rollout is proceeding ahead of expectations. Local Public Safety Answering Points are working diligently to enable text, Text Control Center (TCC) providers are addressing interoperability challenges, and carriers are responding to PSAP service requests with laudable speed. It is therefore timely and appropriate that the Commission consider related issues such as location determination, roaming, and non-interconnected text services.

I. The Commission should require all covered text platforms in operation after a date certain to support voice-equivalent location determination.

As a general proposition, NENA wholeheartedly supports the Commission's efforts to ensure that consumers who contact 9-1-1 – by whatever originating service – can be found. Yet, while the terms of the Carrier-NENA-APCO Agreement with respect to Text-to-9-1-1 are silent as to the location determination requirements for existing platforms (e.g., SMS), the Agreement was not concluded without some foreknowledge of the significant limitations thereof. Consequently, NENA encourages the Commission to consider adopting two-pronged approach in the structure of its final Text-to-9-1-1 location rules.

First, the Commission should (preferably) establish a general proposition that all 9-1-1-enabled originating services (e.g., voice, video, text, etc.) offered to consumers after some relatively near-term date certain must provide location determination capabilities equivalent to those required for voice 9-1-1 calls placed on wireless networks. Alternatively, the Commission could establish such a general proposition only for integrated text originating services, as described in the Third Further Notice, and announce an intention to consider the broader proposition suggested above in a separate proceeding. Either of these approaches will, as a first prong, put all text OSPs on notice that location determination capabilities must be part of future text platforms, and of present text platforms they intend to continue operating past the established deadline.

Second, however, the Commission should permit integrated text OSPs to extend the deadline for compliance by a reasonable but limited time after giving notice to the Commission of a date past which text service on a covered legacy platform (e.g., SMS) will no longer be offered. This prong would provide a powerful incentive for the deployment of NG9-1-1-ready text platforms capable of supporting more advanced location determination capabilities, and would provide a safeguard against stranding investments

in location technologies for platforms that phase an imminent phase-out.

Assuming the Commission were to adopt this two-pronged approach, NENA believes that the two-year initial timeframe proposed in the Notice would be appropriate. Similarly, NENA believes that a maximum of two additional years should be afforded to providers who commit to proceed by upgrading to a newer, more location-aware text platform. This approach is consistent with T-Mobile's request, which NENA supported and the Commission has not rejected, to be excused from Text-to-9-1-1 obligations on its legacy-MetroPCS network, which T-Mobile committed to turning-down within 18 months of its request. Moreover, it is also consistent with the recently-accelerating pace of network upgrades set by the major carriers.

Whatever approach the Commission ultimately adopts, NENA supports the Commission's effort to encourage, if not require, the transmission of best-available location information for texts to 9-1-1 originated on networks with advanced location capabilities. Further, NENA vigorously applauds the efforts of carriers and TCC vendors to implement and support such systems. These improvements will have significant benefits for public safety. That they have come about without the imposition of a regulatory mandate is an encouraging sign. The fraction of text "calls" for which such enhanced location information is available, however, remains quite small relative to the total SMS text call volume. Consequently, the Commission should carefully monitor the state of the market to ensure that these efforts are not abandoned.

A. The performance capabilities of broadly-deployed Commercial Location-Based Services should serve as an evolving floor for future location accuracy requirements.

Shifting from the near term to the intermediate, NENA believes that the Commission should establish a naturally-rising floor for location determination performance, pegged

to the capabilities of commonly-available Commercial Location-Based Services (CLBS). Such an approach would provide much sought-after regulatory certainty for wireless carriers *and* equally sought-after improvements in location determination capabilities for the public safety community. Additionally, it would create a continuous-time framework for the improvement of wireless location determination capabilities, and reduce the Commission's own overhead associated with periodically evaluating the feasibility of ever-tighter accuracy requirements.

Should the Commission proceed along such a path, however, it will be important to ensure that its rules incorporate some mechanism to ensure that future CLBS platforms incorporate certain aspects of existing control-plane 9-1-1 location systems that are central to the effective and efficient delivery of 9-1-1 service to the public. For example, the integrity and availability of location data derived from such sources must be assured. NENA believes that existing technologies can support these features, if it is made clear that they are required, with only minimal changes to CLBS platforms. Considering the benefits to all parties, this minimal effort should not serve as a significant barrier to the introduction of CLBS for text (and voice) 9-1-1 location determination.

B. Confidence and uncertainty estimates should be required, and calculated in accordance with relevant standards or agreements.

Consistent with the Commission's requirements in the voice 9-1-1 realm, NENA firmly believes that text OSPs that are required (or voluntarily commit) to provide enhanced location data for text calls should be required to include confidence and uncertainty estimates for those fixes. Many modern PSAP hardware and software components already support intuitive visual representations of wireless location information, and the advent of standards-based Next Generation 9-1-1 systems predicated on the existence of underlying Geospatial Information Systems (GISs) will

greatly expand the deployment of that technology. Confidence and uncertainty estimates are valuable tools for telecommunicators and field responders, as they help to establish initial, high-value search areas when a caller is unable to communicate or confirm by voice or text her or his location. This is especially the case for visual representations, as the uncertainty value, in particular, can be easily visualized as an ellipse around the caller's estimated location.

In order to prevent confusion, however, NENA is convinced that the Confidence level must be conclusively established, in advance, at a single value that is consistent across all carriers' networks. Without this consistency, PSAPs are less able to easily interpret the meaning of a particular location estimate. Additionally, inconsistencies in the confidence value can lead to confusion about the relative location accuracy performance of different wireless carriers. In accordance with NENA's previous comments in Docket No. 07-114, we reiterate our support for a near-term standard of 90% confidence, with an eye toward an eventual migration to a 95% confidence level. While this approach does result in larger uncertainty ellipses than would, say, a 67% confidence standard, it nevertheless reduces the potential for field responders to regard locations relayed from 9-1-1 centers as "inaccurate" when callers are found "outside the circle." That problem, in particular, could grow substantially as location-visualization technology become more common in police cruisers, fire trucks, and ambulances. Eventually, alignment with the IETF's PIDF-LO standard, which states a preference for the 95% confidence level, may be justified as location determination systems improve or their error distributions become more linear. For now, however, NENA recommends that the Commission adopt the 90% confidence level generally accepted by carriers and the public safety community as the applicable regulatory requirement.

C. While additional standards work may be needed, it should not long delay the implementation of comprehensive location rules.

The primary architectural standard for NG9-1-1, i3, has been stable for more than three years now. In that time, active development of that standard and its progeny has continued at a rapid clip, just as PSAPs and 9-1-1 authorities around the country have moved aggressively to support it. Developments on the carrier side, however, have not been as rapid. This has been so despite the fact that the i3 standard supports common, IETF-based standards for location determination and delivery. NENA therefore cautions the Commission against permitting an indefinite delay for standards development. To the extent that carriers' internal originating service standards must evolve, that process should be quick, should fully consider the requirements of the public safety community and the reasonable expectations of the public, and should focus on overcoming the limitations of existing standards and legacy origination platforms (if required, based on timing).

1. J-STD-036 should not be the sole vehicle for further location-related standards development.

While NENA agrees with TCS that J-STD-036 is likely the *fastest* available standards vehicle under which internal carrier network processes for text delivery could be updated to support enhanced location determination and delivery capabilities, we are concerned that it may not be the *best*. J-STD-036 was developed at a time when location determination systems were in their infancy, and its use as the sole framework for future developments risks importing suboptimal mechanisms that were originally developed to deal with network constraints that are no longer applicable. To cite just one example, J-STD-036 uses a binary polynomial binning function to represent uncertainty values in as few as seven bits. This process, though reasonable in light of the significant data constraints of 1G and 2G cel-

lular networks, now represents a material barrier to improvements in data representation within PSAP systems that is no longer strictly required by the more data-centric architecture of carrier networks.

Rather than importing constraints like binning, NENA would rather see a focus on developing enhanced location mechanisms centered around newer and more flexible IETF standards such as PIDF-LO. In addition to removing legacy limitations, such an approach could also serve to level the playing field between integrated and interconnected text providers by providing more equal access to location determination capabilities. Finally, such an approach is also consistent with the Commission's long-term goal of transitioning all access networks and originating services to NG9-1-1 ready platforms, since IETF standards like PIDF-LO undergird the i3 architecture.

2. *The best path to robust location determination capabilities for WiFi-only devices is through the deployment of Location Information Servers in all carrier networks.*

NENA has vocally supported the transition to NG9-1-1, and the deployment of the infrastructure requisite to that transition. Our support in the text realm is no less full than that in the voice. Consequently, we reiterate our belief that the best way to ensure that consumers can reach 9-1-1 from any compatible originating service operating on any device on any access network would be for the Commission to require the deployment of standards-based Location Information Servers in all access networks. Even before end-to-end NG9-1-1 functionality can be made available on a widespread basis, the deployment of Location Information Servers can improve the 9-1-1 service available to consumers by allowing non-integrated text services to determine a more accurate location for the caller when a 9-1-1 session is initiated from a non-CMRS device. That information could then be relayed through the text OSP's TCC provider to the appropriate PSAP. NENA believes this approach can best

ensure the delivery of enhanced location with text sent to 9-1-1 from non-CMRS devices.

D. Consumers understand the trade-off between privacy and security inherent in requesting help through 9-1-1.

NENA appreciates the Commission's continued focus on ensuring consumer privacy. Our members are frequently required to defend that privacy against potential encroachments by well-meaning officials in other public safety disciplines, so they well understand the delicate balance required in the formulation of location-related rules. As a general principle, however, our members indicate that the communities they serve understand the need to lower location privacy expectations when emergency assistance is requested.

Consumers in danger *need* to be found quickly and efficiently, and are more than willing to see their default privacy settings overridden when they make a 9-1-1 call. As the types of originating services that can access 9-1-1 expand, so will this consumer expectation. Consequently, NENA believes it is important that the Commission begin, now, to signal that requirements for location privacy overrides in the 9-1-1 context must become universal. Of course, we recognize that adding such override mechanisms to handsets and control-plane location technology is not a trivial matter. We are convinced, however, that the long-term success of both Text-to-9-1-1 specifically, and NG9-1-1 more generally, depends on this capability. We therefore urge the Commission to adopt a rule requiring location determination system access for 9-1-1 enabled text services on a prospective basis, without regard to a consumer's handset location privacy settings.

II. The Commission should not impose an affirmative requirement for MMS-to-9-1-1.

Although NENA broadly supports the inclusion of multimedia services within the Commission's 9-1-1 rules, we do

not believe that the Commission should affirmatively require carriers with MMS networks to support the multimedia features of that service. Neither do we believe that the Commission should require carriers to deploy MMS service if they have not already done so. Although the picture and video messaging capabilities of MMS systems are attractive, NENA recognizes that these systems are nearing the end of their useful lives. Rather than retrofitting such systems to support Multimedia-to-9-1-1 at a time when a majority of PSAPs are not yet NG9-1-1 ready, NENA believes that the Commission should establish a broader principle that future multimedia platforms must support NG9-1-1 service in accordance with established standards. As with other aspects of this proceeding, this short-term deference to the ongoing network transition must not be allowed to linger longer than necessary: If the Commission adopts our suggested approach, NENA believes that, once again, the Commission must set an outer limit past which its deference will not extend. This would have the secondary benefit of encouraging the transition from MMS to GTT and other MMES originating services.

In one narrow case, however, NENA does believe that the Commission should consider short-term MMS-related rules. Presently, it is possible for a consumer to originate an MMS that contains, in addition to its picture or video payload, a text message. Most often, the user is unaware that a message containing mixed media will necessarily be routed over the MMS – rather than SMS – platform. Consequently, the user is unlikely to understand that such a message will necessarily fail. NENA's preference would be for the Commission to resolve this problem by requiring carriers to strip-out the text portion of such a message, if sent to 9-1-1, and forward only that part to the serving TCC. When such a message is sent, the carrier could also supply a service-specific bounce-back message indicating that support for pictures and video is not yet available, and that the consumer should make a voice or text-only 9-1-1 call. This approach will allow carriers, TCC operators, and PSAPs to adequately recoup their investments in text-only

systems while also incentivizing the turn-up of true NG9-1-1-ready multimedia originating services. Alternatively, the Commission could require only a bounce-back message that explains that multimedia messages cannot be sent to 9-1-1, and that the user should send the message again using only the text.

III. The Commission should clarify that all appropriate originating services must support 9-1-1 regardless of whether they are carried on a Home or Roaming access network.

To reduce the need for repetitive and contentious rule-makings, NENA believes that the Commission should clarify the responsibility of all integrated originating services offered by multiple providers to include support for roaming. Such a principle would put both carriers and standards bodies on notice that future originating services must be designed and implemented with consumer access to 9-1-1 service clearly in mind.

As NENA noted in response to the *Second Further Notice of Proposed Rulemaking*, consumers often have no indication of when their device is attached to their home provider's network and when it is attached to that of a roaming partner. That said, NENA entered the Carrier-NENA-APCO agreement with an understanding that existing SMS-based text platforms covered by the agreement would not support roaming access to 9-1-1, at least initially. We are aware, however, that certain carriers and TCC providers have voluntarily begun work on a roaming solution for those platforms. In the spirit of the voluntary agreement, then, NENA recommends that the Commission temporarily refrain from imposing a text roaming requirement. This approach could encourage carriers and the public safety community to collaborate on consensus-based voluntary agreements in the future, consistent with the Commission's support for such agreements expressed in the recent Wireless Location Accuracy proceeding. Should the voluntary roaming development efforts fail to proceed or should non-roaming-enabled SMS platforms remain in use

for more than 3-4 years, the Commission could always revisit the question of whether such a requirement should apply to those platforms.

IV. Non-interconnected text OSPs should be encouraged to incorporate Text-to-9-1-1 capabilities through the deployment of low-cost, standards-based NG9-1-1 mechanisms.

NENA wholeheartedly supports the Commission’s proposal to extend Text-to-9-1-1 obligations to those non-interconnected text OSPs whose services have created a reasonable and widespread consumer expectation that they are functional substitutes for integrated text messaging platforms. As we transition to an NG9-1-1 environment, NENA expects the trend toward disaggregation of ANP and OSP services to accelerate. Consequently, consumers will increasingly rely on non-interconnected text OSPs to handle routine text messaging and, further, will come to expect that such services will allow them to reach 9-1-1. We have previously emphasized, however, that such platforms should not have an expectation that the existing SMS infrastructure of underlying CMRS carriers will remain available to them indefinitely. While those platforms are a near-term solution for fallback Text-to-9-1-1 support, NENA believes that the Commission should facilitate the transition of covered, non-interconnected text providers to a truly NG9-1-1 environment. By making available the ANP facilities, protocols, and interfaces required to support native Text-to-NG9-1-1, the Commission can minimize the level of effort and investment required to expand Text-to-9-1-1 to users of these popular services.

A. *A “terms-of-service” disclosure with respect to 9-1-1 limitations is insufficient: a bounce-back message should be required.*

NENA is aware of several non-interconnected text messaging applications that make terms-of-service (ToS) disclosures with respect to their lack of support for Text-to-9-1-1. Our experience has shown, conclusively, however, that

such disclosures are not effective at warning consumers that their communications made through such services cannot reach 9-1-1. Because consumers often contact 9-1-1 at a time of dire emergency, it is imperative that they receive a clear indication of whether a particular “call” has been completed. In the case of non-interconnected text applications, such an indication can best be provided by means of a bounce-back message. Importantly, bounce-back messages provided by applications can be implemented locally on a user’s device, obviating the need for costly network or protocols changes and reducing potential data transmission cost impacts on OSPs and consumers. Moreover, such messages can be customized to refer to the specific text messaging application(s) on a user’s device or operating system that *can* be used to text 9-1-1 when the user is in an area where text is supported. NENA is convinced that requiring anything less than a bounce-back message sent or triggered when a user attempts to text 9-1-1 in an unsupported circumstance will lead to serious consumer confusion at the worst possible moment, and could greatly delay access to 9-1-1 and vital field response units. We therefore encourage the Commission to require such a message.

CONCLUSION

The Commission should adopt the proposed rules with modifications consistent with the above comments.

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