

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)
)
Location-Based Routing) **PS Docket No. 18-64**
For Wireless 911 Calls)
)

To: The Federal Communications Commission

COMMENTS OF
MISSION CRITICAL PARTNERS, LLC

Mission Critical Partners, LLC (“MCP”) hereby submits its Comments in response to the Notice of Inquiry in the above-captioned docket (“NOI”)¹ which seeks to determine the best way to avoid delay in the response to some wireless 911 calls that results from the manner in which such calls are currently routed in the 911 system. Pursuant to this, MCP encourages the Commission to promote the uniform adoption of location-based routing technologies, especially with universal transition to Next Generation 911 (NG911). Particularly, the Commission should encourage the implementation of Advanced Mobile Location (AML) or the vendor-specific variations, e.g., Emergency Location Service (ELS), a proven life-saving technology. MCP believes the Commission can support the implementation of location-based routing by removing liability barriers that could be raised by the Commercial Mobile Radio Service (CMRS) providers and NG911 solution providers for using third-party location.

¹ https://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0323/FCC-18-32A1.pdf

I. MISSION CRITICAL PARTNERS

MCP provides executive consulting to clients with public and life safety missions throughout North America. Our client base consists of public safety answering points (PSAPs) in more than half of the United States. The comments herein represent our experiences with, and on behalf of, many of those clients rather than advocacy for a particular product, technology, or other interest.

With a professional staff of almost 100 employees, the MCP team is uniquely qualified to comment on this issue. Most of our consultants are former public safety and PSAP professionals who have held leadership positions. Our experience in the industry has put our professionals in a unique position to understand the challenges and potential solutions to 911 call misroutes².

II. INTRODUCTION

Current wireless Phase 2 location acquisition methodology is approaching its 20-year anniversary and modern location acquisition technologies combined with location-based call routing must be adopted to meet consumer's expectations of the current 911 environment. Misroutes of 911 calls occur in great volumes across the United States every day, as demonstrated in the examples provided in the NOI introduction footnotes pertaining to Snohomish County, Washington and the state of California. Over the past few years, MCP has conducted wireless integrity testing³ in two states, with similar outcomes. For example, testing in one county resulted in 38% misroutes of all test calls.

² As acknowledged in the Notice of Inquiry, the term "misroute" is a misnomer. The wireless caller is being routed to the "correct" PSAP, based on Phase I information.

³ MCP's testing process was evaluated and determined to be statistically-valid by an independent, third-party.

Simply put, call misroutes cost time and put lives at risk. Throughout MCP's wireless integrity testing, it was not uncommon for telecommunicators to be unfamiliar with how to transfer calls to neighboring jurisdictions. In one instance, the call transfer process took several minutes, which could have a detrimental impact on life or property. While this is mostly a telecommunicator training matter, there lies a need to eliminate the root cause of the issue, so that it does not arise in the first place. In some situations, these misroutes may occur on legacy selective router borders, where PSAPs cannot perform a 911 selective router transfer and require the call to be transferred with only audio and no automatic number identification/automatic location information (ANI/ALI) data. Call transfers lacking ANI/ALI data leads to further delays and the potential for error as this information must then be shared verbally and, therefore, subject to transcription error.

Consumers expect and require their 911 call will be delivered to the proper PSAP at the time the call is made and MCP urges the Commission to thoroughly examine this matter and the requisite solutions so that action can be taken to eliminate this issue.

III. ARGUMENT

A. The Industry Should Not Rely Solely CMRS Providers for Location Acquisition.

As CMRS providers' legacy location acquisition techniques, equipment, and technology are likely to be over 15 years old, MCP urges the Commission to consider third-party, commercial database solutions that capture device-based hybrid location. Several European

countries have deployed AML and ELS⁴ to provide more accurate location information for emergency responders with great success.⁵ Pilot projects conducted in the United States by RapidSOS⁶ and West's Safety Services⁷ have also seen success in obtaining more timely and accurate locations.

B. NENA NG911 Standards Provide for the Ability to Perform Location-based Routing.

While the current end-state NENA i3 environment requires originating service providers (OSPs) to deliver calls with location, NENA's transitional solution supports legacy delivery of the 911 call to the emergency services Internet protocol network (ESInet), while the next generation core services (NGCS) queries a location database to obtain location for routing the call. This is essentially cost neutral to carriers, as the CMRS providers' trunks to legacy selective routers are replaced with trunks to legacy network gateways in a transitional ESInet solution, with the only cost being the circuit provisioning process and the soak period in which the old trunks are still in place while the traffic is redirected to the new trunking.

While it's not appropriate in most cases to delay call delivery for more than 20 seconds to obtain a Phase 2 fix, the device-based hybrid location pilot projects have demonstrated the ability to obtain a highly accurate location within 5-6 seconds. These third-party databases and/or the National Emergency Address Database (NEAD) could be queried to obtain a location within a

⁴ www.eena.org/pages/aml

⁵ www.eena.org/pages/aml-stories-around-europe

⁶ <http://info.rapidsos.com/els>

⁷ <https://www.laaser911.com/news/laaser-critical-communications-announces-year-long-pilot-program-with-chatcomm-to-demonstrate-lifesaving-911-caller-location-technology/>

defined timeline. If that threshold is passed, a fallback route based on Phase I cell sector information could be used. In this scenario, the PSAP will have migrated from slow legacy centralized automatic message accounting (CAMA) trunks to a private IP network, eliminating 3-6 seconds of call setup time. The net result is increased potential for accurate location-based call routing in the same amount of time that calls have been delivered for decades.

Further, the same policy routing rules that attempt to obtain a quick fix or device-based hybrid location in a predetermined amount of time can also compare the uncertainty values from these queries against the uncertainty value of the default Phase I cell sector centroid and route the call based on the better of the two. In many cases, the cell sector centroid uncertainty is measured in thousands of meters, so a quick fix or device-based hybrid location with a few hundred feet of uncertainty will provide improved routing, as compared to cell sector routing.

C. This Solution Depends on Two Major Components: deployment of NG911 and AML or the vendor-specific variations, e.g., ELS.

Rapid, nationwide implementation of NG911 is imperative to guard the U.S. from its aging public safety infrastructure and provide new life-saving functionality, such as what could be implemented with location-based routing. NG911 implementation must be rapid with universal functionality to ensure 911 capabilities are the same regardless if a person requiring assistance is in rural Kansas or the nation's capital. NG911 provides for interconnection of multiple data sources and the intelligence to analyze data to make timely, informed decisions on call routing.

The Commission should consider enabling the nationwide implementation of AML for smartphones. As iterated above, Google’s ELS pilot projects⁸ with RapidSOS and West Safety Services/LaaSer show promise.² Further, Apple has made AML available on its latest iOS release 11.3 and together with Android, these two smartphone operating system providers comprise of 99 percent of the U.S. smartphone market share. Wireless calls comprise 80 percent of all 911 calls across the nation, with several states experiencing 86-90 percent.¹⁰ With smartphone penetration approaching 70% of all wireless phones in the US, one could see how use of this technology could improve call routing and emergency response for a majority of the 911 calls made. For those callers that do not have a smartphone, the fallback route using Phase I information will still ensure the call is delivered the same way it has for years.

The Commission should encourage implementation of this potentially life-saving technology by removing liability barriers that could be raised by the CMRS providers and NG911 solution providers for using third-party location. This potential impediment cannot be overemphasized, as CMRS providers will aim to control what location is used. Further, NG911 service providers have stated they will not allow third-party location to be used due to liability concerns if death results. It is imperative these liability barriers be removed to enable an environment where the best location technologies can be utilized.

However, it is critical to understand that this is not simply a technology issue. Enabling an environment for implementation of the technology only solves the problem for some, not all. The U.S. can’t continue implementing 911 technology in a piecemeal manner. Our citizens need

⁸ <https://cdn2.hubspot.net/hubfs/549701/RapidSOS%20ELS%20Pilot%20Project%202-Pager.pdf>

² www.ng911institute.org/tech-showcase-2018

¹⁰ For example, in Tennessee and Colorado.

universal solutions with universal adoption on a common, standards-based platform. For location-based routing, the nation needs AML enabled universally with a universal NG911 system.

D. No Challenges Anticipated with Adoption of Location-Based Routing.

Telecommunicators’ first words to a 911 caller are “911, where is your emergency?” and this will not change in a location-based routing environment. However, what may change is that telecommunicators will have fewer instances where they will need to transfer the call due to a misroute. With location-based routing, uniformity is provided to the telecommunicator in the location being delivered with uncertainty values tied to a pre-set confidence factor. It is critical that the Commission require that any location solution provide uniform confidence values to ensure the NG911 systems and telecommunicators can accurately compare location data. The same pre-set confidence factor must be used with the implementation of alternative location solutions, e.g., device-based hybrid location and NEAD. Utilizing this solution will not be inferior to what is currently being used at present.¹¹

The Commission should require all OSPs to deliver calls via session initiation protocol (SIP) to ESInets within a defined timeline, enabling location to be provided at the time of call delivery through a device-based hybrid, NEAD, their own location acquisition technologies, or future third-party location services. This will lead to a more resilient call delivery method, with an IP network containing multiple paths and faster call delivery. Location delivered at time of call delivery will also enable the use of policy-based routing which can be helpful for disaster recovery and continuity of operations plans.

¹¹ For example, using Phase I routing as a fallback route if better location isn’t available.

IV. CONCLUSION

MCP applauds the Commission for addressing the issue of 911 call misroutes and the promise of new technologies to aid in more timely and accurate results for location-based routing. Implementation of location-based routing will provide value-add incentives for migrating to NG911, further accelerating its adoption and ensuring citizens receive the service they deserve and expect.

Respectfully submitted,

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