

13 June 2016

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington D.C. 20554

RE: Notice of Ex Parte Communication: P.S Docket No. 16-32, Public Safety and Homeland Security Bureau Seeks Comments on Ways to Facilitate Earthquake-Related Emergency Alerts.

Dear Ms. Dortch,

On June 13, 2016, Michael Maginity, Allen Studer, and Adam Jones of Trilithic Incorporated participated in a teleconference with David Munson, Rasoul Safavian, Behzad Ghaffari, Steven Carpenter, Yoon Chang, James Wiley, and Gregory Cooke of the Public Safety and Homeland Security Bureau. The purpose of the conference call was to discuss the feasibility of using the Emergency Alert System to deliver earthquake-related emergency alerts to the public within three seconds.

The gating factor for receiving alerts from the IPAWS-OPEN Atom feed is the polling interval. Trilithic's EASyCAP Encoder/Decoder allows the polling interval to be configured in seconds, and is typically configured for 30-60 seconds. This interval could be set lower, however anything less than 30 seconds could cause problems with the feed, resulting in the IPAWS-OPEN service going down or being unable to consistently accept client connections, which would cause more delay than the 30 second interval. It would also burden EAS participants with more network traffic and bandwidth that is otherwise unnecessary for EAS messages. Rather than reducing the polling interval for the IPAWS-OPEN Atom feed, a push mechanism could be used to minimize the delivery time of emergency messages. The Trilithic EASyCAP Encoder/Decoder currently receives CAP message that are pushed across a TCP port, and additional interfaces can be added to the software as needed.

Following are Trilithic's responses to the IPAWS-OPEN related questions asked during the conference call:

- Trilithic's EASyCAP Encoder/Decoder currently allows operators to configure the IPAWS-OPEN Atom feed polling interval between 30 and 900 seconds. The default is 60 seconds.
- When the EASyCAP polls the IPAWS-OPEN feed, it typically takes 250-500 milliseconds to retrieve CAP messages.
- Digital signatures are validated in less than 100 milliseconds.
- The time to retrieve the CAP message audio resource varies depending on network latencies and file size.
- Producing text-to-speech audio, if required, can take 1-8 seconds depending on the text length.

After a CAP message and the audio resource has been retrieved, the Trilithic EASyCAP Encoder/Decoder can process the alert, produce the content, and retransmit the emergency message in under a half second. If MPEG streams are configured, which is commonly used by MVPDs, it takes three to four seconds to produce the content before retransmitting the message. Trilithic's EAS equipment, as well as equipment from other manufacturers, is responsible for producing the content and interfacing or controlling the equipment necessary to present the emergency message audio and video to subscribers. For this reason, the EASyCAP supports a variety of interfaces and protocols, which have different timing and synchronization requirements. Due to different architectures and equipment used to support EAS, it can take anywhere from 5 to 120 seconds to present alert information to all subscribers.

Following are Trilithic's responses to the questions relating to how long it takes to process CAP alerts:

- After a CAP message (and audio) is retrieved, Trilithic's EASyCAP Encoder/Decoder can produce the content and retransmit the message in under a half second. However, in most cases additional time is required to deliver alerts to the public.
- The EASyCAP Encoder/Decoder can provide MPEG content, which requires additional time to encode the media. When MPEG content is required, it takes three to four seconds to produce the content and retransmit the message
- Configuration is provided to allow each individual EAS event to be setup for immediate retransmission or to wait for a configured amount of time for manual intervention.
- A variety of architectures and equipment is used by EAS Participants to deliver alert messages to subscribers, requiring anywhere from 5 to 120 to delivery alerts to all subscribers.

EAS was not designed to deliver emergency information to the public within the three second time period that is desired for an earthquake early warning system. Traditional EAS sources require fifteen seconds per hop through the daisy-chain before EAS equipment can receive an emergency message, while CAP sources can be optimized to deliver alerts to EAS devices within a few seconds. Regardless of how fast an alert can be delivered to EAS equipment, the EAS Participant's systems were not designed to present emergency information to the public within three seconds, and a complete overhaul and redesign would be needed to meet such a requirement. If an earthquake early warning system must alert the public within three seconds, a new system will be needed, including the pathways to the public. It is unlikely that service providers will be able to accommodate the low latency timing requirements being proposed.



Respectfully submitted,

Michael Maginity
EAS Engineering Manager
Trilithic Inc.

cc: David Munson
Rasoul Safavian
Behzad Ghaffari
Steven Carpenter
Yoon Chang
James Wiley
Gregory Cooke