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People centered systems interoperability

Re: Emergency Alerting Broadcast Economics

Dear Kelly Williams & the National Association of Broadcasters

- 1) While Emergency Alerting currently is not directly of economic benefit to broadcasting, the technology is evolving. As I pointed out at the EAS summit in 2008, the delivery of irrelevant alerts has a deleterious economic value. Therefore delivering alerts selectively would improve this.
- 2) One improvement would be to deliver to the geographic area selected by the Emergency Manager and included in the CAP message from IPAWS. This is not possible with analog technology. My presentation to the ATSC in 2008 led to a definition for A/331 Advanced Emergency Alerting. However, an agreed upon implementation was not agreed upon. A problem is that TV receivers currently normally do not store their physical location, and other details for receiver implementation would only be implemented if a worldwide specification could be defined. As the current version of CAP does not address other aspects that are favorable to Broadcasters economics, this is a problem. That the FCC does not have worldwide jurisdiction is another problem. This has recently changed with the UNDRR initiative EW4All (Early Warnings For All worldwide). This is an opportunity to address issues of concern to Broadcasters.
- 3) I have combined a number of conceptual solutions to a number of problems and suggested these to the OASIS-Open EMTC (Emergency Management Technical Committee) as a draft, which has been rejected. It is likely that this needs improvements and support. One EAS manufacturer is interested in working on this problem.
- 4) CAP is a rather verbose protocol, and as a result, has not been used on analog radio, and a lower data protocol would be preferable for digital radio broadcast. EAS is currently used, and the header can be modified to add the additional CAP data with data compression defined. Also polygons can be added with careful restriction. The FSK modem tones do not need to be included in the header as that would make them unacceptably long. The FSK modem tones provide sufficient data to provide for message identification and triggering receiver functionality, e.g. for earthquake countdown.
- 5) With digital radio, alerting can add other functionality, e.g. a design for a QC system, the ability to cancel a false alarm message if received by the broadcaster before the alert is aired.
- 6) A major issue with Broadcast alerting is that there is no provision for interoperation between the alert message processor and the station automation system. This is a serious problem because Broadcasting is normally a 5 nines

(99.999% uptime) Service Level Agreement (SLA) contract. This means a maximum of 4 minutes per year defect. Force Majeure outage is not accepted without penalty. The penalty may be US \$ 1M. This is apparent when comparing the coverage losses after a hurricane. In the New York – New Jersey area after hurricane Sandy, a large area lost internet and mobile connectivity. The broadcast outage was of one AM radio station that had storm surge flooding their transmitter, and people could easily tune to another broadcaster. Other hurricane comparisons are similar. The desires for improvement for Broadcasters are important.

- 7) Therefore, a protocol is proposed such that CAP Event Terms Spectra are assigned Automation Priority Values (APV) such that 1 and 2 are "Immediate Override" with Master Control Operator decision-making of Playout Pause & Resume (PPR), Feed Record & Delayed play (FRD), and that 1 is for e.g. earthquakes, 2 is for National Activation with recording FRD if an earthquake occurs. Appropriate legislation would be a decision to be made. 3 and 4 are for playout within 7 minutes to avoid an override, 5 and 6 are for 14 minutes to avoid an override, 7 and 8 are to avoid an override within 21 minutes and 9 is to avoid an override within 28 minutes. This is reserved for advisories which are not emergencies as listed for example in some UNISDR Event Codes. The values less than 28 are default values. 0 is reserved for special cases e.g. school closing messages which may be lengthy. This resembles volume control numbering. It can be used for queueing of messages if this occurs.
- 8) If a live event goes into overtime, the pricing and selection of advertising during the intermediate break is likely to be a premium rate. The software to schedule and adjust for this is more complex. In ATSC 3, the display is HTML5. So while an alert tone and text popup on screen is an improvement, the alert could more inconspicuous if the receiver is in the selected area. The receiver location could be determined when entering the product registration. This would determine the latitude and longitude. User preference is also important.
- 9) At a receiver, the default APV setting SHOULD be 5 for alerting the user. Higher values would result in a short beep and a visual display in the text received if selected. This provides a method to provide user preference in more precise manner.
- 10) While CAP does not permit use for advertising, APV 0 for ADV and ADX EEE codes usage inside the local transmitter broadcast distribution is another matter. This is not part of an OET (OASIS Event Term) definition. An example is for if an advertisement is to have a selected area with different audio and video during a particular advertisement. This adds value to the advertisement.
- 11) When an alert is playing, this is considered to be recorded as Public Service Announcement (PSA) time. If the monthly time total exceeds the quota, the excess SHALL be transferred to the next month. If technically practicable, the normal program content SHOULD continue without interruption for receivers outside the selected alert area by polygon, circle or recipient category. Child Abduction Emergencies are relevant to motorists, but probably nobody else as a program override. For mobile users, it could be an added text message. The Number Plate should remain displayed onscreen until cleared.
- 12) The assignment of the EEE (in EAS adapted for CAP) code for radio broadcast and CAP message content for earthquakes (or incoming missiles *Mnn*), would provide for a countdown timer to be announced from the receiver in appropriately expanding octagonal shapes. Inside countdown areas would be muted until the end when a reset EQ0 is sent or some timeout is reached. An octagonal shape adds 11% to the area but is easier to calculate for a small CPU which a radio might have for lower cost, less power consumption and simpler Electromagnetic receiver implementation.
- 13) EWS4All is intended to be worldwide in implementation. In the U.S., New York City has to provide alerts in 13 languages. An outline specification for multilingual keyboards is included in the standard proposal. As consumer electronics

- manufacturers are interested in receiver designs that are compatible worldwide without user modification, this is important to accept worldwide.
- 14) One topic is the reduced AM sensitivity in vehicles that have SIRIUSXM installed. The proposal is to enable a user installable longer antenna. AM has coverage that is filling FM gaps.
  - 15) The proposal includes having an alert heartbeat data on radios every 6 seconds. This is not only to announce that the station has digital alerting and that the locations and frequencies and program type of nearby broadcasters which also do so. This would enable motorists to select a station with their preferred content, and when the radio signal is fading, the radio could automatically switch to a stronger signal.
  - 16) If an FM HD station has an HD3 or HD4 which combines News, Alerts and Warnings (NAW), that would be another heartbeat identifier. If the receiver is in the selected area, the audio could be switched to that stream, or if on another frequency as known to be available.
  - 17) The HD Radio standard provides for switching to game mode where the delay is reduced and HD Radio receivers are switched to HD1 (if receivable. However there is no provision to switch all receivers to analog, though this could be implemented in the future. After this is done, it would be possible to put the alert on the analog and the program on HD1. Then if the selectivity is to avoid the message, HD1 could be selected. That is something to provide for in the future.
  - 18) It may be practicable (e.g. with Software Defined Radios) to have one design that receives also ATSC3, DAB+, SW and DRM for a worldwide market.
  - 19) While 5G Broadcast is competing with ATSC 3, there has not been much interest shown by them in EW4All implementation as described here.

The opportunity to extend the Common Alert Protocol for EW4All for the benefit of Broadcasters is very infrequent. There are a number of serious problems in the world and the US, having pioneered this alerting technology, could benefit from moving forward with this. Also incorporating this into ATSC 3 is an opportunity to expand ATSC adoption worldwide.

I hope that the National Association of Broadcasters would support this. I am prepared to work with engineers who are experienced in standards development and EAS manufacturers as well to make a proposal that is better than what I have assembled conceptual solutions for. This is in the proposed CAP extension attached. While I have made comments to the FCC on occasion, I am of the view that serious and well-engineered solutions would be preferable. The consumer electronics industry would likely prefer such solutions over what might be decided through the FCCs legislative process.

Sincerely,

*Franklin W. BELL*

President & CTO

## Lessons Learned from the Joplin, Missouri tornado in 2011

At the US Chamber of Commerce meeting on Resilience on 2026 May 5-6, there was a presentation made about the Lessons Learned from the 2011 EF5 tornado. The tornado devastated a large portion of the city of Joplin, damaging nearly 8,000 buildings and destroying over 4,000 houses. The damage—which included major facilities like one of Joplin's two hospitals as well as much of its basic infrastructure—amounted to a total of \$2.8 billion (equivalent to about \$4 billion today), making the Joplin tornado the costliest single tornado in U.S. history.

Lessons Leaned include

- 1) Recruit New Allies
- 2) Build Positive Relationships
- 3) Question Assumptions
- 4) Challenge Orthodoxies
- 5) Invite a Diversity of Perspectives
- 6) Foster Convergence of Understanding – with the right Rules of Engagement
- 7) Trust-based Relationships with No Ego, No Blame, Proficiency in Your Lane
- 8) Generosity of Spirit & Action
- 9) Unity of Action.

A transcript of the presentation may be available from the US Chamber of Commerce. Also

Also, a copy of the USChamber\_Allstate\_Climate\_Resiliency\_Report is worth reading.

Communication amid Mega-Crises Table 2.1. Challenges and Recommendations for Communication amid Mega-Crises. ISBN 978-1-041-00746-3  
Deborah D. Sellnow-Richmond & Marta N. Lukacovic 2026 Routledge

<i>Distinguishing characteristics and crises communications challenges</i>	<i>Recommendations for Researchers</i>	<i>Recommendations for Practitioners</i>	<i>Recommendations for Educators</i>	<i>Recommendations for Citizens/Communities</i>
<b>Widespread global impact</b> <i>Necessitates collaboration across nation-states</i>	Establish international collaboration – funding agencies and researchers	Advance effective collaborations between governing bodies and organizations	Build global and cross-disciplinary alliances	Learn about the global implications for mega-crisis exacerbators and potential solutions
<b>Multiple systems</b> <i>Necessitates collaboration across sectors</i>	Establish cross-disciplinary collaboration	Open communication channels to protect global public health, safety, and wellbeing	Build community-inclusive alliances	Participate in community efforts to address systems that exacerbate mega-crisis and/or cultivate inequity in proposed mitigation
<b>Defy manmade boundaries</b> <i>Necessitates collaboration across nation-states and sectors</i>	Address structural barriers	Recognize the limits of national containment and respond in global rather than national manner	Cultivate critical application of systemic problems. Emphasize cross-disciplinary connection	Engage communities and digital activism that addresses the interconnections of advantages in the Global North connected to disadvantage in the Global South.

<i>Distinguishing characteristics and crises communications challenges</i>	<i>Recommendations for Researchers</i>	<i>Recommendations for Practitioners</i>	<i>Recommendations for Educators</i>	<i>Recommendations for Citizens/Communities</i>
<b>Nonlinear</b>  <i>Requires addressing crises outside of a traditional streamlined approach. Complicated by unpredictable and/or cyclical nature</i>	Expand beyond pre-crises, crises, post-crisis framework to understand often unpredictable and/or cyclical nature of mega-crisis. Include diverse epistemologies.	Implement novel and fluid approaches that reflect cyclical and unpredictable trajectories of crises. Accept the necessity to adapt and reinvent frequently.	Cultivate creativity, adaptability, and acceptance of uncertainty. Encourage life-long learning.	Communicate needs to address mega-crises despite across shifting political climates.
<b>Impacts multiple and diverse sociocultural groups.</b>  <i>Requires multiple but consistent messages for diverse cultural groups. Is threatened by multiple competing streams of messages (many of which are malicious)</i>	Expand beyond managerial approach.  Inform policy to address proliferation of crises exacerbators (such as malignant dis-information and malicious use of online platforms).	Mitigate structural contributors to mega-crises. Develop master narrative(s) to reach disparate publics across the globe in culturally attuned ways.	Establish infrastructures for ongoing global and cross-disciplinary thinking. Emphasize the role of vulnerabilities among diverse groups.	Engage in citizen activism to address disparities amid mega-crises in communities.  Emphasize information, media, and AI literacy initiatives.  Empower citizens and communities toward political participation.



# Beyond the Payoff: How Investments in Resilience and Disaster Preparedness Protect Communities

**Resilience Report 2025**

Produced by the U.S. Chamber of Commerce, Allstate,  
and the U.S. Chamber of Commerce Foundation

