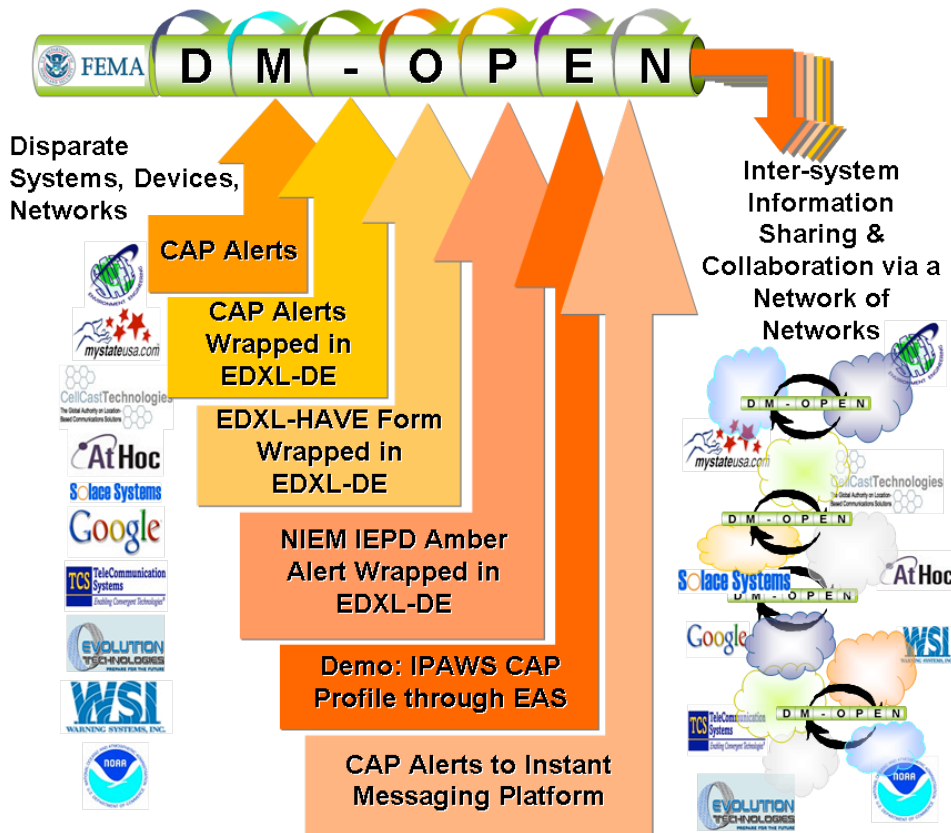




The **Federal Emergency Management Agency (FEMA) Disaster Management (DM) Program** participated in the Department of Homeland Security (DHS) National Information Exchange Model (NIEM) Training Event and Organization for the Advancement of Structured Information Standards (OASIS) Emergency Interoperability Summit in Baltimore September 29-30. The FEMA DM Program worked in close coordination with the DHS Science & Technology (S&T) Directorate Office of Interoperability and Compatibility (OIC), the National Oceanic and Atmospheric Administration (NOAA), OASIS, and 11 vendors to showcase the enhanced response capabilities possible when using the Common Alerting Protocol (CAP) and Emergency Data Exchange Language (EDXL) standards, as well as the value to the practitioner and ultimately the public.

Vendors participating in the Emergency Interoperability Demonstration included: Alertus; AtHoc; CellCast Technologies; Desktop Alert; Evolution Technologies; Google; MyStateUSA; Safe Environment Engineering; Solace Systems; Telecommunication Systems; and, Warning Systems, Inc. (WSI).

The FEMA DM-Open Platform for Emergency Networks (DM-OPEN) was the key factor that provided the interoperability backbone facilitating exchange of Common Alerting Protocol (CAP) Alerts and a demonstration of the Integrated Public Alerts and Warnings (IPAWS) CAP Profile over the Emergency Alert System (EAS); The ability to exchange virtually any type of content by leveraging the Distribution Element (EDXL-DE); Hospital Availability Exchange (EDXL-HAVE) messages; Resource Messaging (EDXL-RM); and NIEM Amber Alerts.





The FEMA Disaster Management Program demonstrated how CAP and EDXL standards can be used by many different authorities, responders, broadcasters, and other services providers to enact a concerted, coordinated emergency response.

The scenario

- A Freight Train crashes resulting in a chemical leak.
 - A chlorine cloud is detected by a handheld wireless sensor that generates a CAP message.
- An EOC receives the alert and incident data and dispatches a HazMat team to the scene.
- The Incident Commander requests a public alert using CAP over EAS for the local community to evacuate.
- The local EOC issues a public warning over the EAS by sending a CAP v1.1 wrapped in an EDXL-Distribution Element (DE)
 - The EAS alert activates sirens, flashing lights, public loudspeakers, radio and TV broadcast messages, e-mail alerts, cell phone alerts, texts messages, and instant messages.
- Responding firefighters are injured and need to be sent to the hospital
 - Emergency Medical Technicians (EMTs) use an EDXL-HAVE message wrapped in the EDXL-DE to determine the best medical facility to transport the firefighters. Embedded style sheets to enable automatic display of content at the distant end as sent.
- Severe thunderstorms with possible tornados are detected.
 - EOCs in the area threatened by the tornado receive the alert and map it using a geographic information system (GIS) polygon which is embedded in the CAP alert.
 - For the first time, NWS created a Tornado CAP Warning sent via DM-OPEN to all types of outlets from individual end user devices such as cell phones, to radio, television, sirens, and public alert systems based on the alert map data
 - Using text-to-voice technology the Alert is transmitted over NOAA Weather Radio (NWR) and the EAS to population within the tornado target area identified by the GIS polygon in the CAP message.
- An AMBER Alert using the NIEM IEPD format containing an embedded photograph is generated and sent wrapped in the EDXL-DE, and is received and displayed by all systems. Using binary data with base 64 encoding allows sending any content including pictures, streaming video, or audio.

Alert and message data was passed from the initiating systems through the internet to DM-OPEN. Alert data was almost instantly available through a wide variety of end-user devices that processed and displayed or played the alerts on cell phones, personal digital assistants (PDAs) and other wireless enabled devices, display screens, over-the-air radio broadcast, computer displays, and set off flashing lights, sirens, audio broadcasts and loudspeakers as well as through instant messaging.

The demonstrations were all conducted live and in real time based on a scenario that featured a Chlorine gas leak from a train wreck compounded by the threat on a possible tornado.



Both the EDXL Standards and DM-OPEN are open, non-proprietary and available at no cost. Most of the participating vendors had never worked with either the EDXL standards or with DM-OPEN until just six weeks prior to the demonstrations. This illustrates the relative ease with which vendors were able to embrace and integrate the standards into their systems and enable the emergency response community to easily collaborate and share information with partners using the systems they already have in place.

DM-OPEN was created to establish information exchange and collaboration between existing emergency preparedness information systems. It is a non-proprietary operational interoperability backbone that provides a set of non-proprietary "level playing field" web services designed to enable disparate third-party applications, systems, networks and devices to share information using open, freely available interoperability standards. As Federal infrastructure, DM-OPEN is designed to support the delivery of real-time data and situational awareness to public emergency responders in the field, at operation centers and across all levels of response management. DM-OPEN also serves as a test bed to facilitate the development of open, non-proprietary consensus standards that support interoperable information sharing for the emergency responder community.

EDXL standards create a low cost approach to standards use and deployment. In conjunction with DM-OPEN, the EDXL standards enhance current infrastructure and systems without extensive updates, upgrades, training or costs, and bridge the gap between the "Past and the Future" of incident response and management.