PB138 — Markups for Critical Infrastructures

Critical Infrastructures

Emergency Management

Common Alerting Protocol (CAP)

- The Common Alerting Protocol (CAP) is an XML-based data format for exchanging public warnings and emergencies between alerting technologies. CAP allows a warning message to be consistently disseminated simultaneously over many warning systems to many applications, such as Google Public Alerts. CAP increases warning effectiveness and simplifies the task of activating a warning for responsible officials.

Common Alerting Protocol (CAP)

- Flexible geographic targeting by using latitude/longitude “boxes” and other geospatial representations in three dimensions
- Multilingual and multi-audience messaging
- Phased and delayed effective times and expirations
- Enhanced message update and cancellation features
- Template support for framing complete and effective warning messages
- Digital encryption and signature capability
- Facility for digital images, audio, and video.

CAP Characteristics

- **Interoperability** – First and foremost, the CAP Alert Message should provide a means for interoperable exchange of alerts and notifications among all kinds of emergency information systems.
- **Completeness** – The CAP Alert Message format should provide for all the elements of an effective public warning message.
- **Simple implementation** – The design should not place undue burdens of complexity on technical implementers.
- **Simple XML and portable structure** – Although the primary anticipated use of the CAP Alert Message is as an XML document, the format should remain sufficiently abstract to be adaptable to other coding schemes.
- **Multi-use format** – One message schema supports multiple message types (e.g., alert / update / cancellations / acknowledgements / error messages) in various applications (actual / exercise / test / system message).
- **Familiarity** – The data elements and code values should be meaningful to warning originators and non-expert recipients alike.

- **Interdisciplinary and international utility** – The design should allow a broad range of applications in public safety and emergency management and allied applications and should be applicable worldwide.

CAP Example

```
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.1">
    <identifier>AL20110412020900TornadoWarning</identifier>
    <sender>w-nws.webmaster@noaa.gov</sender>
    <sent>2011-04-11T21:18:07-05:00</sent>
    <status>Actual</status>
    <msgType>Alert</msgType>
    <scope>Public</scope>
    <info>
        <language>en-US</language>
        <category>Met</category>
        <event>Tornado Warning</event>looks_one
        <urgency>Immediate</urgency>
        <severity>Extreme</severity>
        <certainty>Observed</certainty>
        <effective>2011-04-11T21:09:00-05:00</effective>looks_two
        <expires>2011-04-11T21:30:00-05:00</expires>
        <headline>Tornado Warning issued April 11 at
        9:30PM CDT by NWS Birmingham</headline>
        <instruction>looks_3
            Do not wait to see or hear the tornado.
        For your protection, move to an interior room on the
        lowest floor of your home or business.</instruction>
        <area>looks_4
            <areaDesc>Cleburne</areaDesc>
            <polygon>33.61,-85.58 33.65,-85.58 33.72,-85.58
            33.81,-85.36 33.7,-85.34 33.7,-85.33 33.68,-85.33
            33.61,-85.58</polygon>
        </area>
    </info>
</alert>
```