# Alerts and Standards

## Research, Development, Testing, and Evaluation (RDT&E) and Standards for Public Warning

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# Agenda

- *U.S. Department of Homeland Security Science & Technology Directorate*
- *Public Warning in U.S.*
- *Alerts and Standards Portfolio*

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# DHS Science & Technology

**Science & Technology Directorate (S&T)**

- Enabling capabilities through basic research, innovation, and transition
- Based on requirements of customers, which include local, tribal, state, and Federal homeland security stakeholders

**Command, Control & Interoperability Division (CID)**

**Mission:** Through a practitioner-driven approach, CID creates and deploys information resources to enable seamless and secure interactions among homeland security stakeholders.

***Includes technologies or methodologies to:***

- Gather and collect information
- Manage information
- Analyze and make sense of information
- Share and communicate information
- Protect information and the systems and infrastructure that enable the communication of information.

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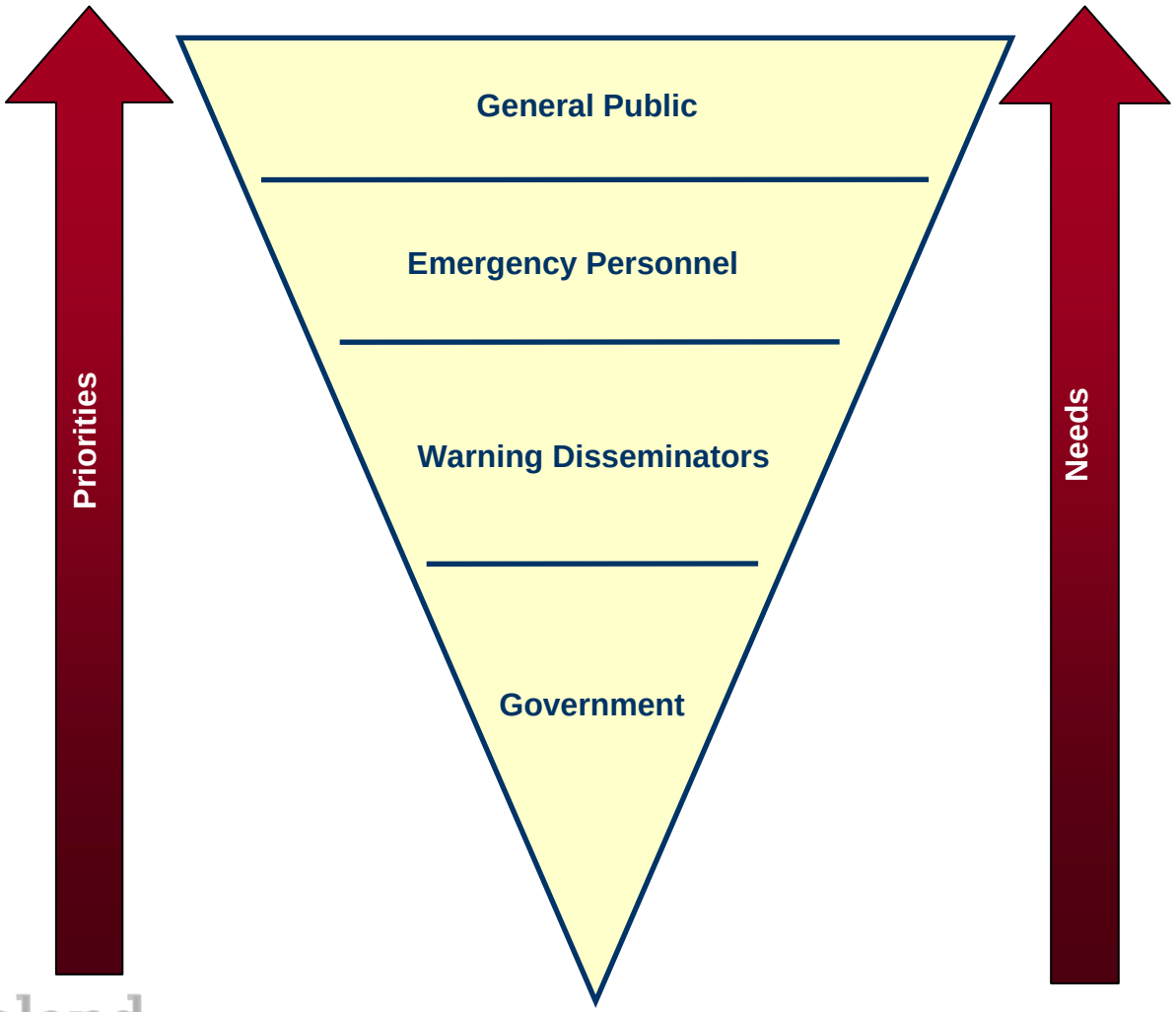
# Stakeholder Driven Approach

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# A History of Public Warning in US


1951 2009

1951 – 1963 CONELRAD

1963 – 1994 Emergency Broadcast System

1994 - 2009 Emergency Alert System

- The first emergency alerting system **CONELRAD** (Control of Electromagnetic Radiation) was created in 1951 to enable the President to communicate with the Nation in the event of a nuclear attack.
- The **Emergency Broadcast System** replaced this system in 1963.
- In 1994, the **Emergency Alert System** replaced the Emergency Broadcast System.

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# Many alerting systems currently exist….

severe weather

AWIPS

EMWIN

NWR

NWWS

HazCollect

tsumanis

TWS

any emergency

EAS

any emergency

NAWAS

cyber threats

US-CERT

hazardous/nuclear materials

CEMS

child abduction

AMBER

health alerts

HAN

chemical & bio contamination

FEMIS

terrorist attacks

HSAS

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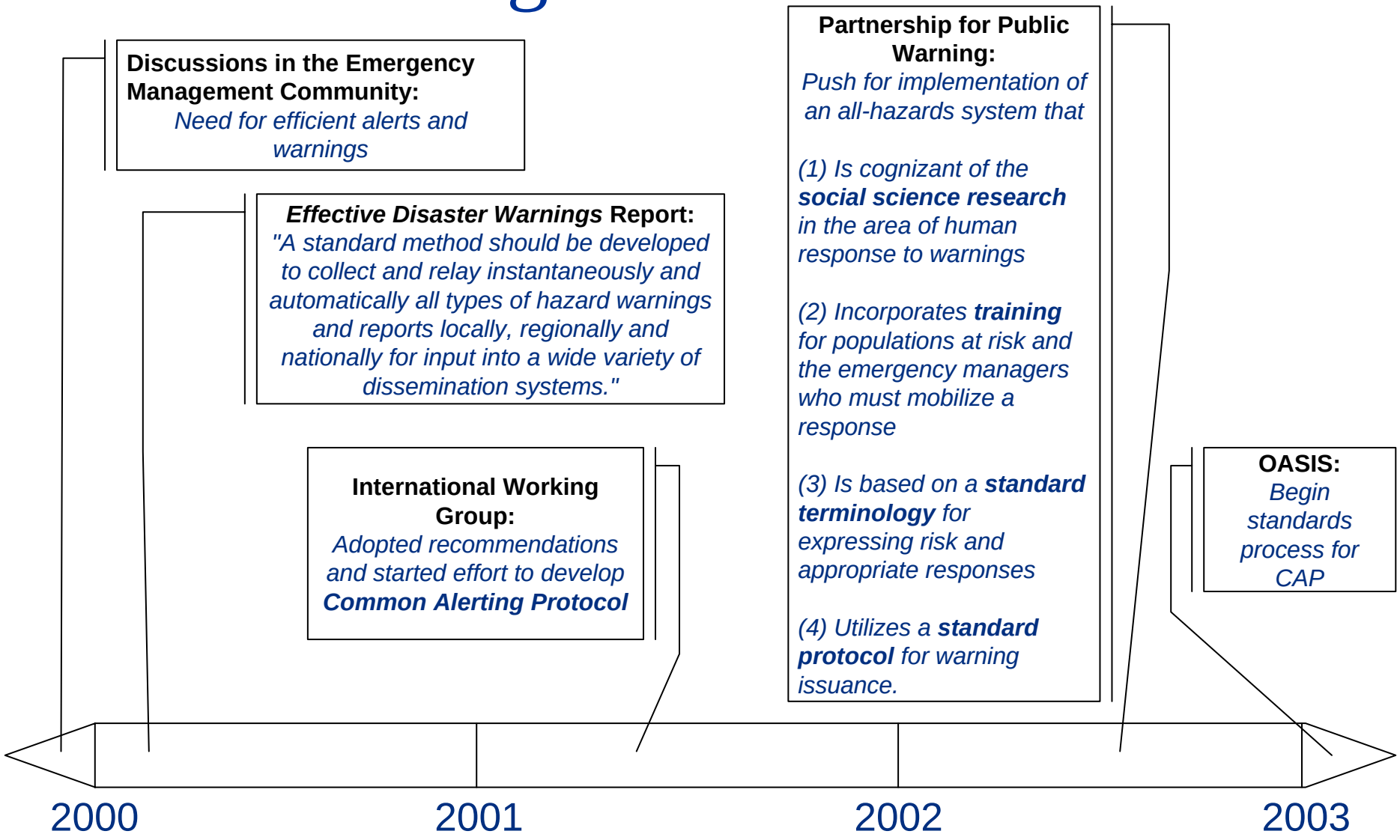
# Public Warning Movement in US

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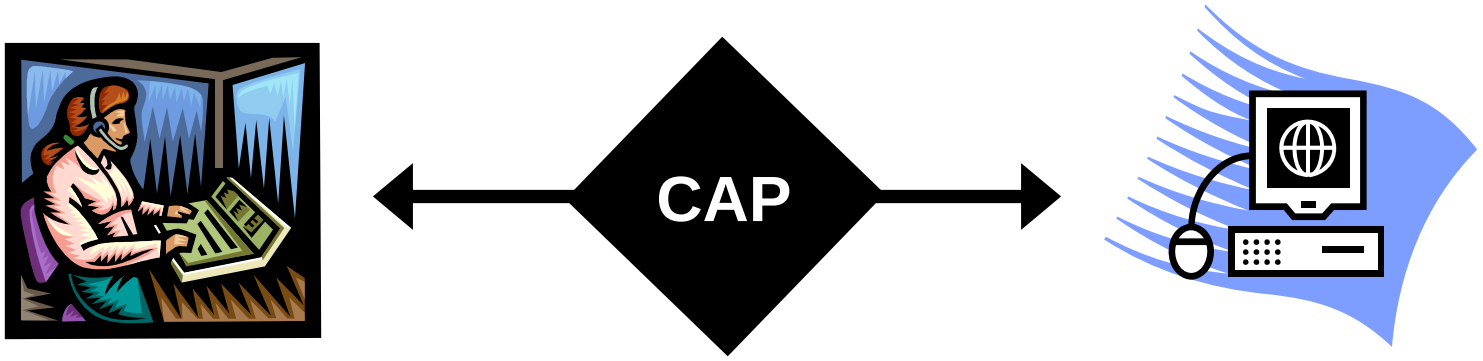
# Common Alerting Protocol

- Needed because of patchwork of various technologies and proprietary systems
- DHS had a role in developing along with consensus of alert and warning community
- Standardizes the use of information to ensure it can be understood by multiple types of systems.

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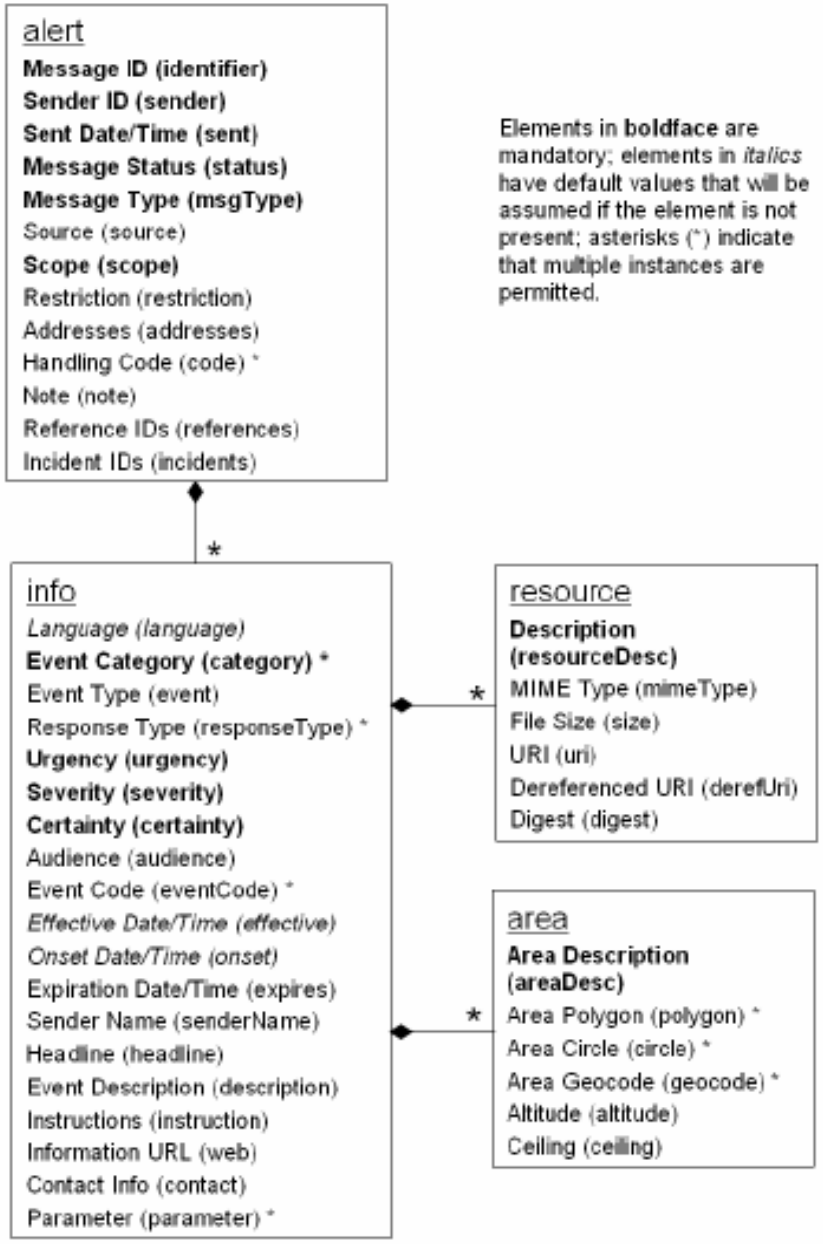
# CAP Structure

CAP provides for:

- Carrying of *meaningful information* to the recipients
- Values for various *routing and filter* processes

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# Recent Public Warning-related Laws

- Executive Order 13407 (2006)
  - Established an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being.

- Warning, Alert, and Response Network Act (2006)
  - Established a Commercial Mobile Alert Service capability to deliver warnings to mobile devices through voluntary participation of wireless operators

# What is S&T doing for IPAWS?

- **Standards Development**
  - Develop and publish standards and protocols to assist IPAWS in its interoperability
- **Product Conformity**
  - Establish an independent testing process whereby a vendor may have its product tested to verify interoperabilty within the IPAWS system-of-systems framework
- **Industry Evaluation**
  - Examine new and promising technological advances and incorporate them into IPAWS
  - Establish process for identifying and tracking industry products that advance the state-of-the-art for the alert and warning community
- **Technology Development**
  - Establish a process for maturing Critical Technologies in order to advance the state-of-the-art for the alert and warning community.


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# CMAS RDT&E Program Foundation

**Warning, Alert, and Response Network (WARN) Act of 2006**

- Established the **Commercial Mobile Alert Service** (CMAS) to provide emergency alerts to mobile devices.
- New service provided to the public through a government-private sector partnership.

**Section 604: Research, Development, Testing, and Evaluation (RDT&E)**

- Utilize recommendations from subject matter expertise of Advisory Committee
- Support customers by leveraging current capabilities while influencing future capabilities to **increase the number of commercial mobile service devices that can receive emergency alerts**.

**Key Program Drivers**

- **Relevance:** Alert delivery based on geographic location, imminence of threat, native language, and accessibility of information.
- **Secure, Trusted, and Timely:** Authenticated alerts that are meaningful, carried through a secure National infrastructure, and delivered in a timely fashion.
- **Usability and Functionality:** Public response to alerts received on mobile devices is favorable to most effective emergency management and public response.

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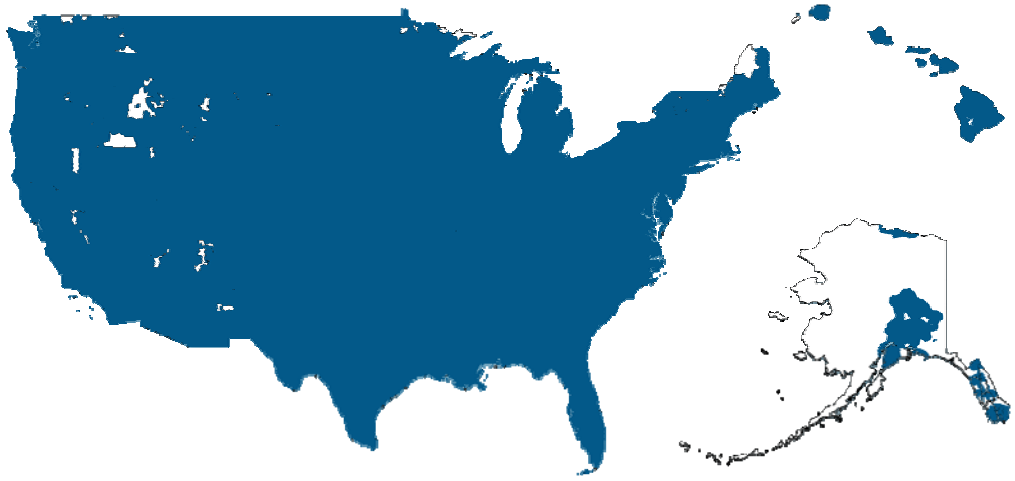
# Why CMAS?

- How do you reach people where they are?
  - Wireless penetration is widespread, even reaching into subways.
  - Estimates show that due to lack of service in areas, less than 1 percent of the U.S. population is unable to access wireless networks.



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# Why CMAS?

- How do we reach people during most of the day?
  - Current emergency alerting media include broadcast radio and television, cable television, and satellite radio.
    - Limited reach
      - Americans spend “only” 11 percent of time watching TV (American Time Use Survey, 2007)
      - 14 percent of Americans 12 years and older listen to commercial radio each day (Arbitron, 2007)
      - 7 percent of Americans 12 years and older listen to NPR in any given week (NPR, 2008)
  - Over 85 percent of the US population subscribes to wireless service.


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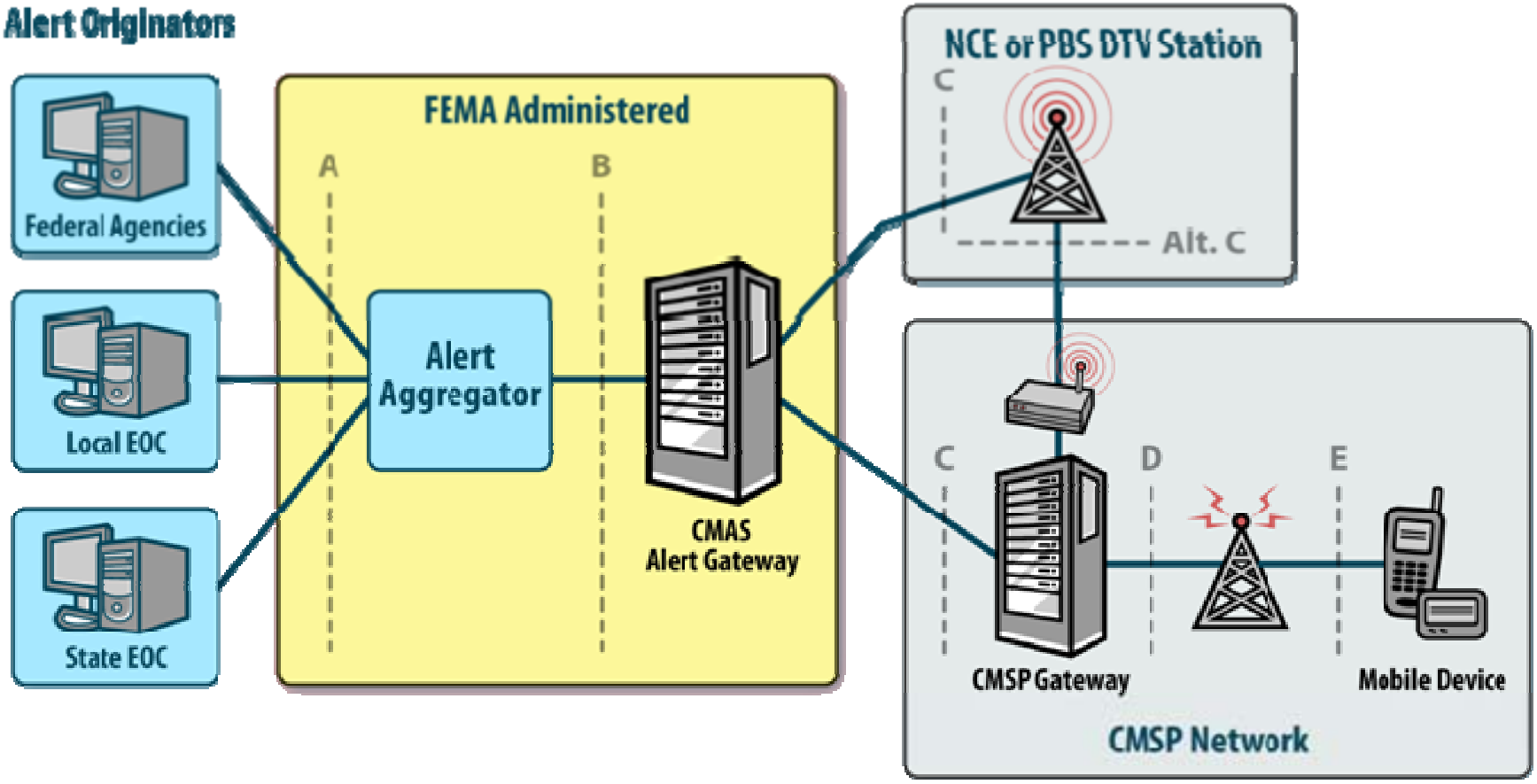
# CMAS Reference Model

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# CMAS RDT&E Initiatives

- **Requirements effort with people authorized to initiate warnings**
- **Design and Development**
- **Working collaboratively with stakeholders to address needs through Action Teams**
- **R&D for future technologies and capabilities**
- **Research into public response to warnings**
- **Innovation in ability to dynamically target warnings to specific geographic areas**

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