

CAP

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CSI Telecommunications, Inc.

What is "CAP" ?

- **"Common Alerting Protocol"**

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- CAP allows a warning message to be consistently disseminated simultaneously over many warning systems to many applications. CAP increases warning effectiveness and simplifies the task of activating a warning for responsible officials.

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(Thank you Wikipedia...)

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History

- CONELRAD

History

- CONELRAD
 - CONTRol of ELEctromagnetic RADiation
 - Designed to frustrate Russian attempts to DF on broadcast stations
 - Never worked
 - Completely manual system
 - Included ability for the President to speak to the citizens of the U.S.

History

- CONELRAD
- Emergency Broadcast System

History

- CONELRAD
- Emergency Broadcast System
 - Completely manual system
 - 1 kHz Attention Signal followed by three 1 second carrier breaks
 - Voice message followed Attention Signal
 - Included ability for the President to speak to the citizens of the U.S.

History

- CONELRAD
- Emergency Broadcast System
- EBS Version II

History

- CONELRAD
- Emergency Broadcast System
- EBS Version II
 - Completely manual system
 - Two-tone Attention Signal
 - Voice message followed Attention Signal
 - Included ability for the President to speak to the citizens of the U.S.

History

- CONELRAD
- Emergency Broadcast System
- EBS Version II
- Emergency Alert System

History

- CONELRAD
- Emergency Broadcast System
- EBS Version II
- Emergency Alert System
 - Mostly manual system
 - Some automatic functionality
 - Digital text with limited information
 - Voice message
 - Included ability for the President to speak to the citizens of the U.S.

Emergency Alert System

§11.31 EAS protocol.

- [PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLLL-
(one second pause)
- [PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLLL-
(one second pause)
- [PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLLL-
(at least a one second pause)
- (transmission of 8 to 25 seconds of two-tone Attention Signal)
- (transmission of audio, video or text messages)
- (at least a one second pause)
- [PREAMBLE]NNNN
(one second pause)
- [PREAMBLE]NNNN
(one second pause)
- [PREAMBLE]NNNN
(at least one second pause)

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Emergency Alert System

§11.31 EAS protocol.

[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLLL-

- [PREAMBLE] This is a consecutive string of bits (sixteen bytes of AB hexadecimal [8 bit byte 10101011]) sent to clear the system.
- ZCZC--This is the identifier, sent as ASCII characters ZCZC to indicate the start of ASCII code.
- ORG--This is the Originator code and indicates who originally initiated the activation of the EAS.
- EEE--This is the Event code and indicates the nature of the EAS activation.
- PSSCCC--This the Location code and indicates the geographic area affected by the EAS alert.
- +TTTT--This indicates the valid time period of a message.
- JJJHHMM--This is the day in Julian Calendar days (JJJ) of the year and the time in hours and minutes (HHMM)
- LLLLLLLL--This is the identification of the EAS Participant

Emergency Alert System

§11.31 EAS protocol.

The only originator codes are:

<u>Originator</u>	<u>ORG Code</u>
EAS Participant	EAS
Civil authorities	CIV
National Weather Service	WXR
Primary Entry Point System	PEP

Emergency Alert System

§11.31 EAS protocol.

The following Event (EEE) codes are presently authorized:

National Codes (Required):

<u>Nature of Activation</u>	<u>Event Codes</u>
Emergency Action Notification (National only)	EAN
Emergency Action Termination (National only)	EAT
National Information Center	NIC
National Periodic Test	NPT
Required Monthly Test	RMT
Required Weekly Test	RWT

Emergency Alert System

§11.31 EAS protocol.

The following Event (EEE) codes are presently authorized:

State and Local Codes (Optional): partial list

Nature of Activation

Event Codes

Child Abduction Emergency

CAE

Civil Danger Warning

CDW

Civil Emergency Message

CEM

Earthquake Warning

EQW

Evacuation Immediate

EVI

Law Enforcement Warning

LEW

Local Area Emergency

LAE

Shelter in Place Warning

SPW

Emergency Alert System

§11.31 EAS protocol.

The following Event (EEE) codes are presently authorized:

State and Local Codes (Optional): weather-related partial list

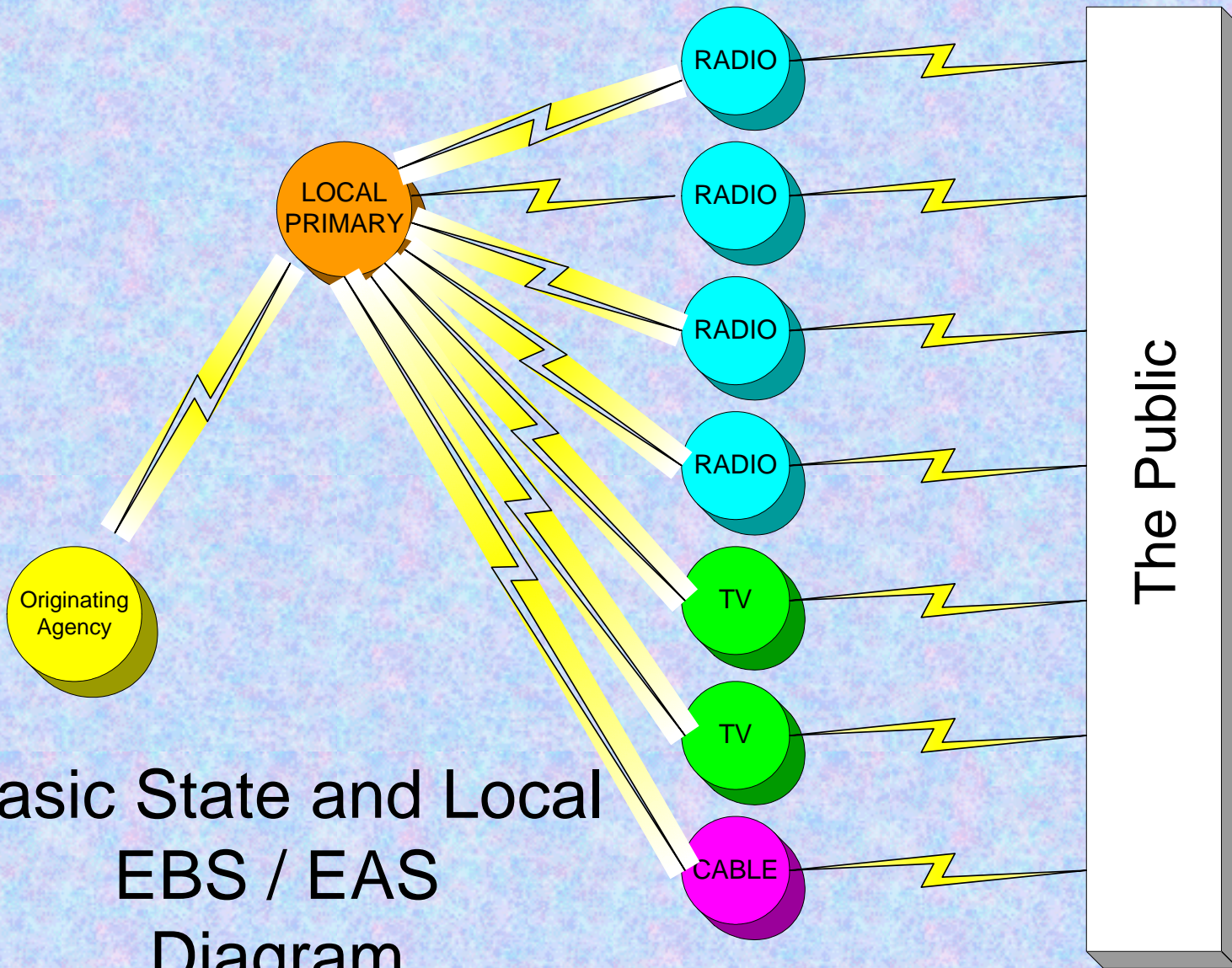
<u>Nature of Activation</u>	<u>Event Codes</u>
Flash Flood Warning	FFW
Flash Flood Watch	FFA
Flash Flood Statement	FFS
Flood Warning	FLW
Flood Watch	FLA
Flood Statement	FLS
Tornado Warning	TOR
Tornado Watch	TOA
Winter Storm Warning	WSW
Winter Storm Watch	WSA

Emergency Alert System

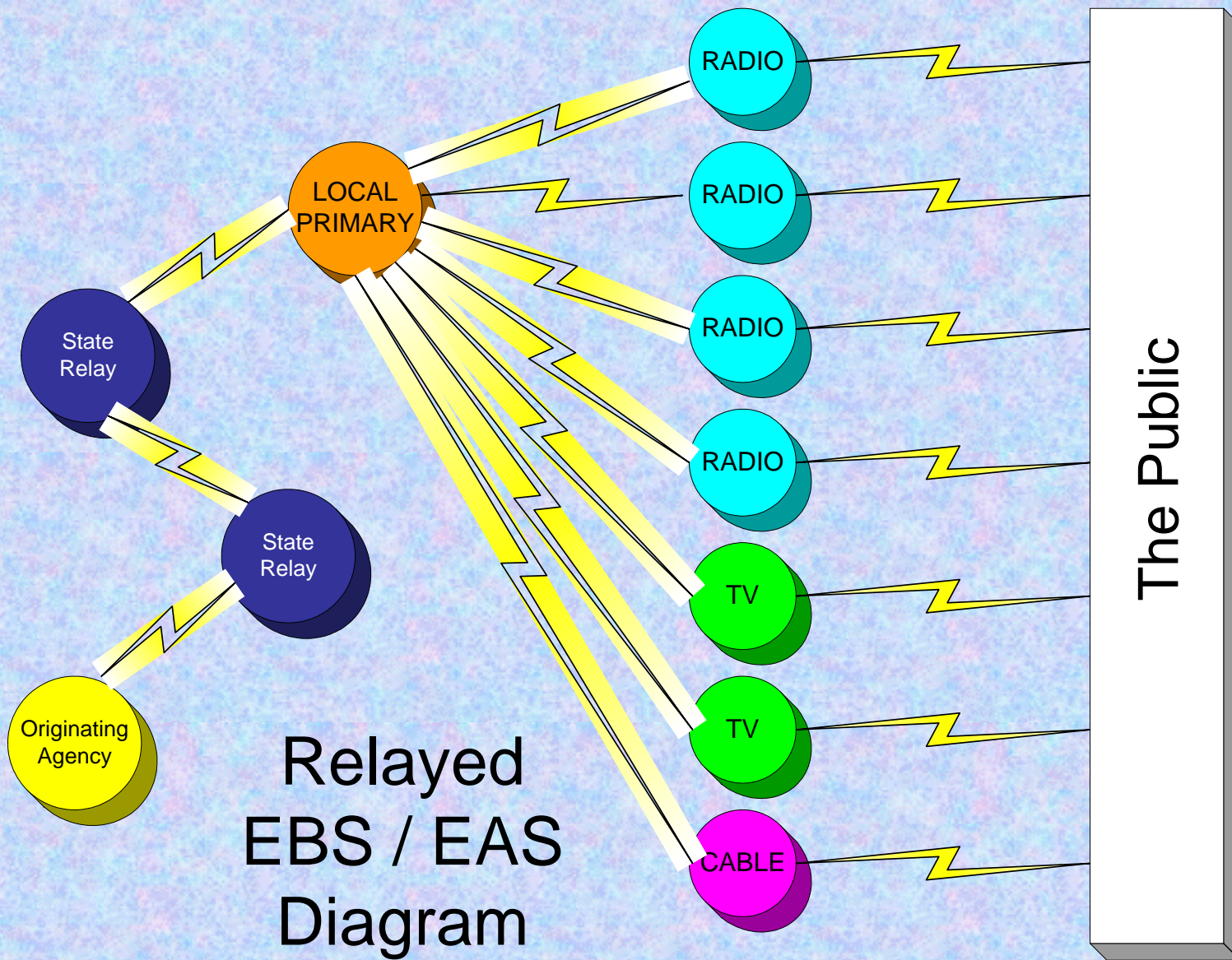
§11.31 EAS protocol.

PSSCCC Location Code

- P defines county subdivisions as follows: 0 = all or an unspecified portion of a county, 1 = Northwest, 2 = North, 3 = Northeast, 4 = West, 5 = Central, 6 = East, 7 = Southwest, 8 = South, 9 = Southeast.
- SS = State FIPS Code. "06" for California.
- CCC = Country FIPS Code as listed in the state EAS Plan



Basic State and Local EBS / EAS Diagram



Relayed EBS / EAS Diagram

CAP Message Format

- ALERT
- INFO
- RESOURCE
- AREA

CAP Message Format

- **ALERT**
 - **Message ID**
 - **Sender ID**
 - **Sent Date/Time**
 - **Message Status**
 - **Message Type**
 - Source
 - **Scope**
 - Restriction
 - Addresses
 - Handling Code
 - Note
 - Reference Ids
 - Incident IDs

CAP Message Format

- INFO
 - Language
 - **Event Category**
 - **Event Type**
 - Response Type
 - **Urgency**
 - **Severity**
 - **Certainty**
 - Audience
 - Event Code
 - Effective Date/Time

CAP Message Format

- **INFO** (cont'd)
 - Onset Date/Time
 - Expiration Date/Time
 - Sender Name
 - Headline
 - Event Description
 - Instructions
 - Information URL
 - Contact Info
 - Parameter

CAP Message Format

- RESOURCE
 - **Description**
 - MIME Type
 - File Size
 - URI
 - Dereferenced URI
 - Digest

CAP Message Format

- AREA
 - **Area Description**
 - Area Polygon
 - Area Circle
 - Area Geocode
 - Altitude
 - Ceiling

CAP Message Speculative Example

```
<?xml version = "1.0" encoding = "UTF-8"?>
<alert xmlns = "urn:oasis:names:tc:emergency:cap:1.2">
  <identifier>KAR0-0306112239-SW</identifier>
  <sender>KARO@CLETS.DOJ.CA.GOV</sender>
  <sent>2003-06-11T22:39:00-07:00</sent>
  <status>Actual</status>
  <msgType>Alert</msgType>
  <source>SW</source>
  <scope>Public</scope>
  <info>
    <language>en-US</language>
    <category>Rescue</category>
    <event>Child Abduction</event>
    <urgency>Immediate</urgency>
    <severity>Severe</severity>
    <certainty>Likely</certainty>
    <eventCode>
      <valueName>SAME</valueName>
      <value>CAE</value>
    </eventCode>
    <senderName>Los Angeles Police Dept - LAPD</senderName>
```

CAP Message Speculative Example, cont'd

```
<headline>Amber Alert in Los Angeles County</headline>
<description>DATE/TIME: 06/11/03, 1915 HRS. VICTIM(S): KHAYRI DOE JR. M/B BLK/BRO
  3'0", 40 LBS. LIGHT COMPLEXION. DOB 06/24/01. WEARING RED SHORTS, WHITE T-
  SHIRT, W/BLUE COLLAR. LOCATION: 5721 DOE ST., LOS ANGELES, CA.
  SUSPECT(S): KHAYRI DOE SR. DOB 04/18/71 M/B, BLK HAIR, BRO EYE. VEHICLE: 81'
  BUICK 2-DR, BLUE (4XXX000).</description>
<contact>DET. SMITH, 77TH DIV, LOS ANGELES POLICE DEPT-LAPD AT 213 485-
  2389</contact>
<area>
  <areaDesc>Los Angeles County</areaDesc>
  <geocode>
    <valueName>SAME</valueName>
    <value>006037</value>
  </geocode>
</area>
</info>
<info>
  <language>es-US</language>
  <category>Rescue</category>
  <event>Abducción de Niño</event>
  <urgency>Immediate</urgency>
  <severity>Severe</severity>
  <certainty>Likely</certainty>
```

CAP Message Speculative Example, cont'd

```
<eventCode>
  <valueName>SAME</valueName>
  <value>CAE</value>
</eventCode>
<senderName>Departamento de Policía de Los Ángeles - LAPD</senderName>
<headline>Alerta Amber en el condado de Los Ángeles</headline>
<description>DATE/TIME: 06/11/03, 1915 HORAS. VÍCTIMAS: KHAYRI DOE JR. M/B
  BLK/BRO 3'0", 40 LIBRAS. TEZ LIGERA. DOB 06/24/01. CORTOCIRCUITOS ROJOS
  QUE USAN, CAMISETA BLANCA, COLLAR DE W/BBLUE. LOCALIZACIÓN: 5721 DOE ST.,
  LOS ÁNGELES. SOSPECHOSO: KHAYRI DOE ST. DOB 04/18/71 M/B, PELO DEL
  NEGRO, OJO DE BRO. VEHÍCULO: 81' BUICK 2-DR, AZUL (4XXX000)</description>
<contact>DET. SMITH, 77TH DIV, LOS ANGELES POLICE DEPT-LAPD AT 213 485-
  2389</contact>
<area>
  <areaDesc>condado de Los Ángeles</areaDesc>
  <geocode>
    <valueName>SAME</valueName>
    <value>006037</value>
  </geocode>
</area>
</info>
</alert>
```

Entering A CAP Message

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Entering A CAP Message

- No, you do not have to type all of it in!
- There are programs that provide a GUI interface to XML.
- Once message types are identified a template can be made and stored that only will need specific items to be updated and included to send a CAP message.

Hardware Required for CAP

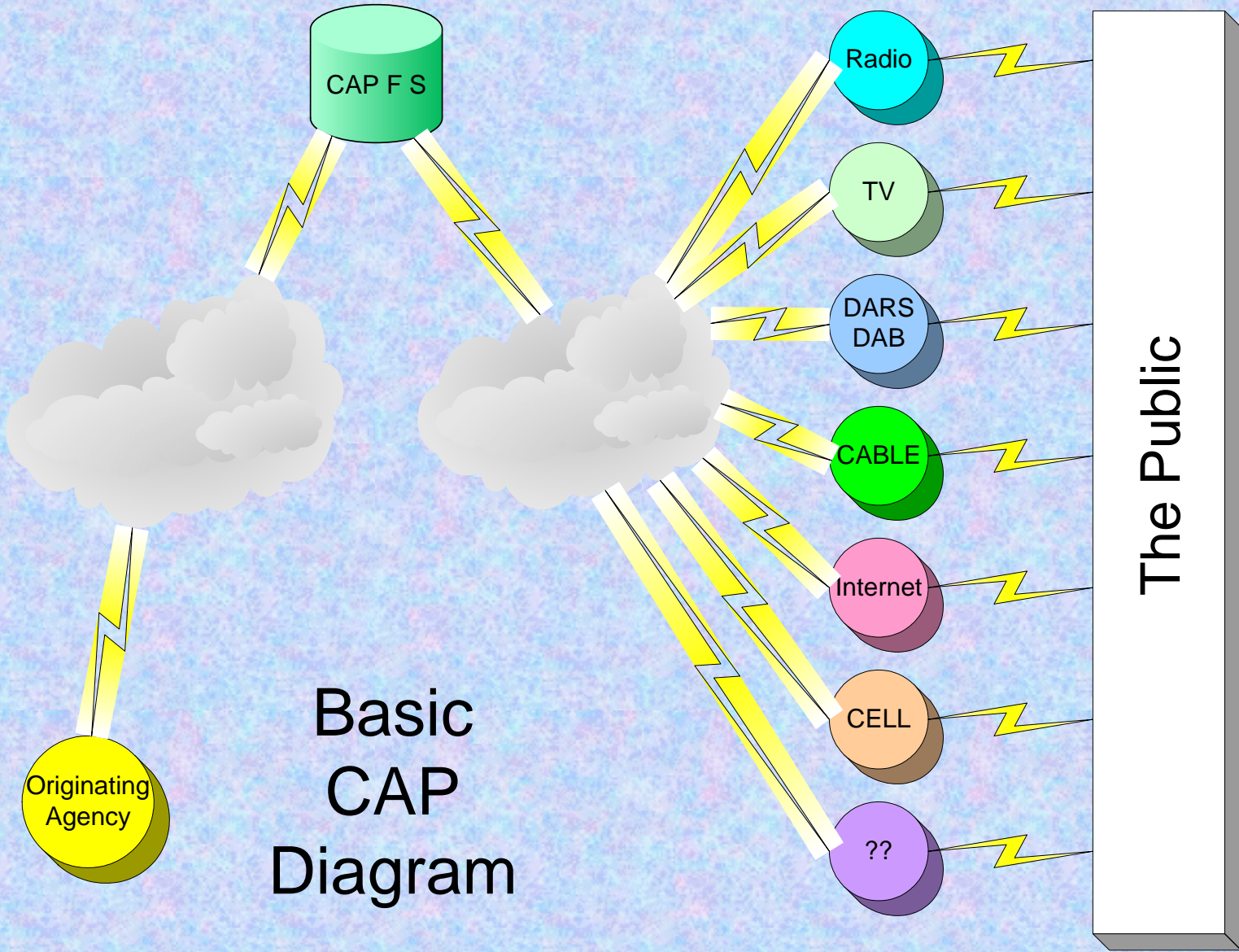
- All that is necessary to initiate a CAP message is a web-enabled device that is connected to the Internet.

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- Any existing computer can be used.

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- All that is necessary to initiate a CAP message is a web-enabled device that is connected to the Internet.
- Any existing computer can be used.
- Many hand-held devices (e.g. iPod) can also be used.



Basic CAP Diagram

Cellphones?

- Warning, Alert and Response Network (WARN) Act, part of the larger port security bill, the Safe Accountability for Every Port Act of 2006 (SAFE Act)

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- Based on user's location when message is received

Cellphones?

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- Nationwide system planned for cell phone and pager alerting (includes PDAs with cellular service)
- Voluntary system: Carriers may elect not to participate/send alerts
- Based on user's location when message is received
- Subscribers won't need to sign up, but may elect not to receive alerts

Integrated Public Alert and Warning System (IPAWS)

The President signed Executive Order 13407, in June 2006, to create a more comprehensive and integrated national alert and warning system.

The Emergency Alert System (EAS) sends messages by way of TV and radio. IPAWS expands upon the traditional EAS through the use of 21st century technology.

Integrated Public Alert and Warning System (IPAWS)

What IPAWS Will Do

- IPAWS will allow the President of the United States to speak to the American people under all emergency circumstances, including situations of war, terrorist attack, natural disaster, or other hazards.
- IPAWS will build and maintain an effective, reliable, integrated, flexible, and alert and warning comprehensive system
- IPAWS will enable Federal, State, territorial, tribal, and local alert and warning emergency communication officials to access multiple broadcast and other communications pathways for the purpose of creating and activating alert and warning messages related to any hazard impacting public safety and well-being
- IPAWS will reach the American public before, during, and after a disaster through as many means as possible
- IPAWS will diversify and modernize the Emergency Alert System (EAS).

Integrated Public Alert and Warning System (IPAWS)

What IPAWS Will Do (Continued)

- IPAWS will create an interoperability framework by establishing or adopting standards such as the Common Alerting Protocol (CAP).
- IPAWS will enable alert and warning to those with disabilities and to those without an understanding of the English language.
- IPAWS will partner with NOAA to enable seamless integration of message transmission through national networks.

Integrated Public Alert and Warning System (IPAWS)

- December 7, 2009 the FCC issues a news release announcing the adoption of standards for wireless carriers to receive and deliver emergency alerts via mobile devices.
- As part of IPAWS the Commercial Mobile Alert System (CMAS) will be able to send alerts and warnings to the public.

Why IPAWS in Today's Electronic Media Environment?

Historically, the public depended exclusively on radio and television to receive alerts, but current research shows that the reach of radio and TV is less than 40% of the populace during the work day.

While less than 12% of the population is watching TV in the middle of the night, an even smaller number is listening to the radio, at 5% of the populace.

Television and radio will continue to be valuable sources of public information, but their reach is decreasing.

Further, these information sources can only target a state or regional sized area and do not encompass alerting for people who do not speak English or those with disabilities, including the 29 million suffering from hearing impairment.

FCC Rules Part 11

§11.1 Purpose. - This part contains rules and regulations providing for an Emergency Alert System (EAS). The EAS provides the President with the capability to provide immediate communications and information to the general public at the National, State and Local Area levels during periods of national emergency.

....

The EAS may be used to provide the heads of State and local government, or their designated representatives, with a means of emergency communication with the public in their State or Local Area.

FCC Rules Part 11

§11.51 EAS code and Attention Signal Transmission requirements.

- (a) Analog and digital broadcast stations **must** transmit, either automatically or manually, **national level** EAS messages and required tests by sending the EAS header codes, Attention Signal, emergency message and End of Message (EOM) codes using the EAS Protocol.

State and Local EAS Plans

§11.21 State and Local Area Plans and FCC Mapbook.

The FCC requires state and local area plans to be written and approved by the Chief, Public Safety and Homeland Security Bureau, prior to implementation to ensure that they are consistent with national plans, FCC regulations, and EAS operation.

Broadcast Participation in EAS

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- The President signs a “finding” each year giving him (and only him) the authority to interrupt all broadcasting.
- Broadcast participation in State and Local EAS is voluntary.

Tasks to Implement CAP

1. Broadcasters must install new CAP equipment.

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3. Local EAS Plans must be revised to include CAP.
4. Originating agencies need to implement procedures to use CAP and train all of their personnel to use CAP.

Resources

- Wikipedia

http://en.wikipedia.org/wiki/Common_Alerting_Protocol

- CAP COOKBOOK

http://www.incident.com/cookbook/index.php/Main_Page

- COMMON ALERTING PROTOCOL Version 1.2

<http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.pdf>

- FEMA / IPAWS

http://www.fema.gov/emergency/ipaws/vpdf/emergency/ipaws/ipaws_tri_fold_final_sept2010.pdf

- APCO Issue Paper on the WARN Act

<http://www.apcointl.org/new/government/documents/WARNacIssuePaper.pdf>

NAPCO and SBE

When the time is right I will offer to set up a joint meeting between NAPCO and SBE Chapter 43 (Sacramento) and SBE Chapter 40 (San Francisco) to encourage all EAS participants to best utilize the alerting tools available to best serve our public.

Questions ?

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Thank You

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