



Common Alerting Protocol (CAP)

Learning Objectives

On completion of this session, you should be able to:

1. Describe the opportunity and challenge of public alerting, from a broad perspective.
2. Describe the major role of an alerting authority and give examples of authorities.
3. State why CAP is needed and list some of its expected benefits.
4. Describe an alerting process in terms of information flow: from input, through processing, to output.
5. Describe the role of an Alert Hub and how it simplifies access to CAP alerts at global scale.



Presentation Outline

- 101.1 Opportunity and Challenge
- 101.2 Alerting Authorities
- 101.3 Benefits of CAP
- 101.4 Features of a CAP Message
- 101.5 CAP-enabled Alerting Systems
- 101.6 CAP Alert Hubs--
Free, Fast, Reliable, Secure



Warnings Via Commercial Media

Commercial TV
and radio send
warnings as
"crawl text"
and/or audio

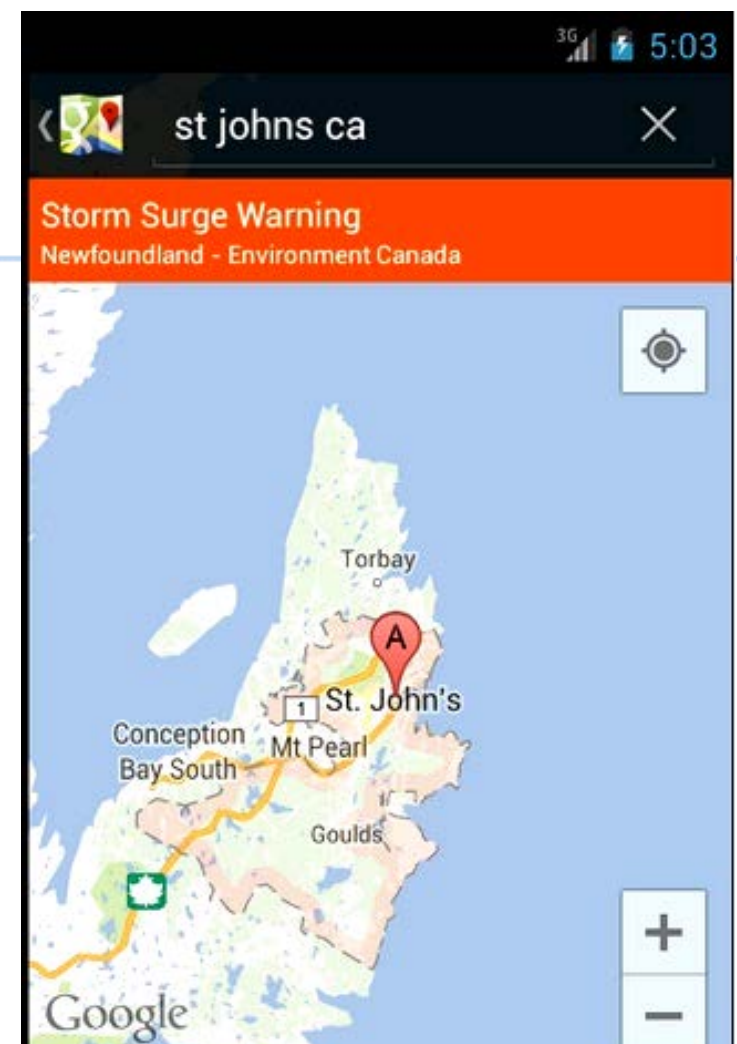
What about
online media
users?





An Opportunity

Online media (e.g, Google, the Federation for Internet Alerts...) are using their own capabilities to help alerting authorities send warnings to people using the Internet, at no charge



The National Weather Service has issued a
TORNADO WARNING
TAKE SHELTER IMMEDIATELY

KENT, MCCOMB, HARRIS, OTTOWA COUNTIES...
UNTIL WED, 5:18 PM EST **READ MORE »**

THIS IS AN EXTREMELY DANGEROUS AND LIFE THREATENING SITUATION. IF YOU ARE IN THE PATH OF THIS LARGE AND... DESTRUCTIVE TORNADO TAKE COVER IMMEDIATELY.





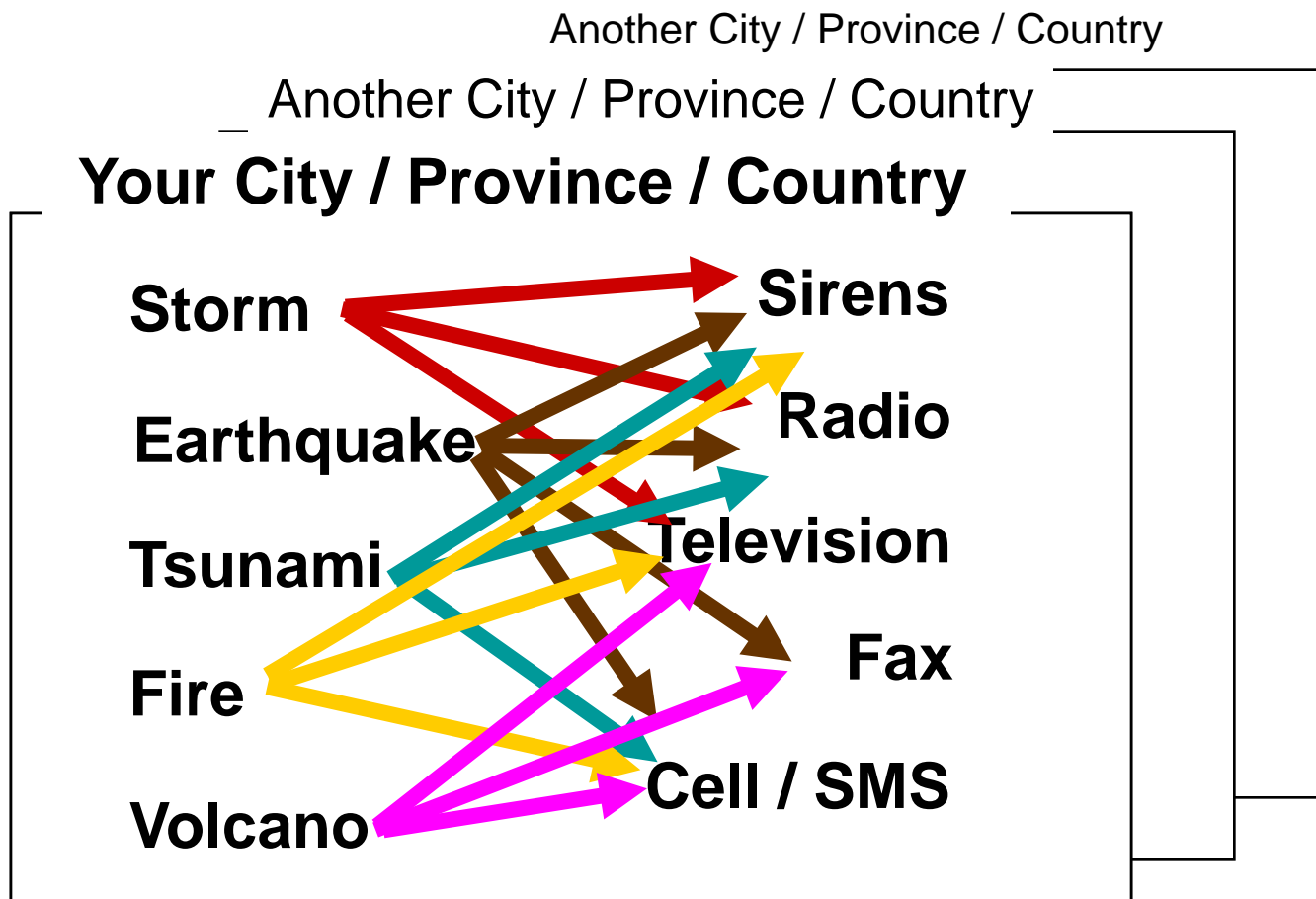
The Challenge of Alerting

All governments have various public alerting systems:

- **Earthquakes/tsunami** by e-mail, news wire, Web sites, pagers, telephone calls ...
- **Weather** by news wire, fax, radio, television, e-mail, SMS text on cell phones ...
- **Fire, Security, Transportation** by television, radio, sirens, police with bullhorns...



Across communities, nations, regions— a “public alerting patchwork”





What is CAP?

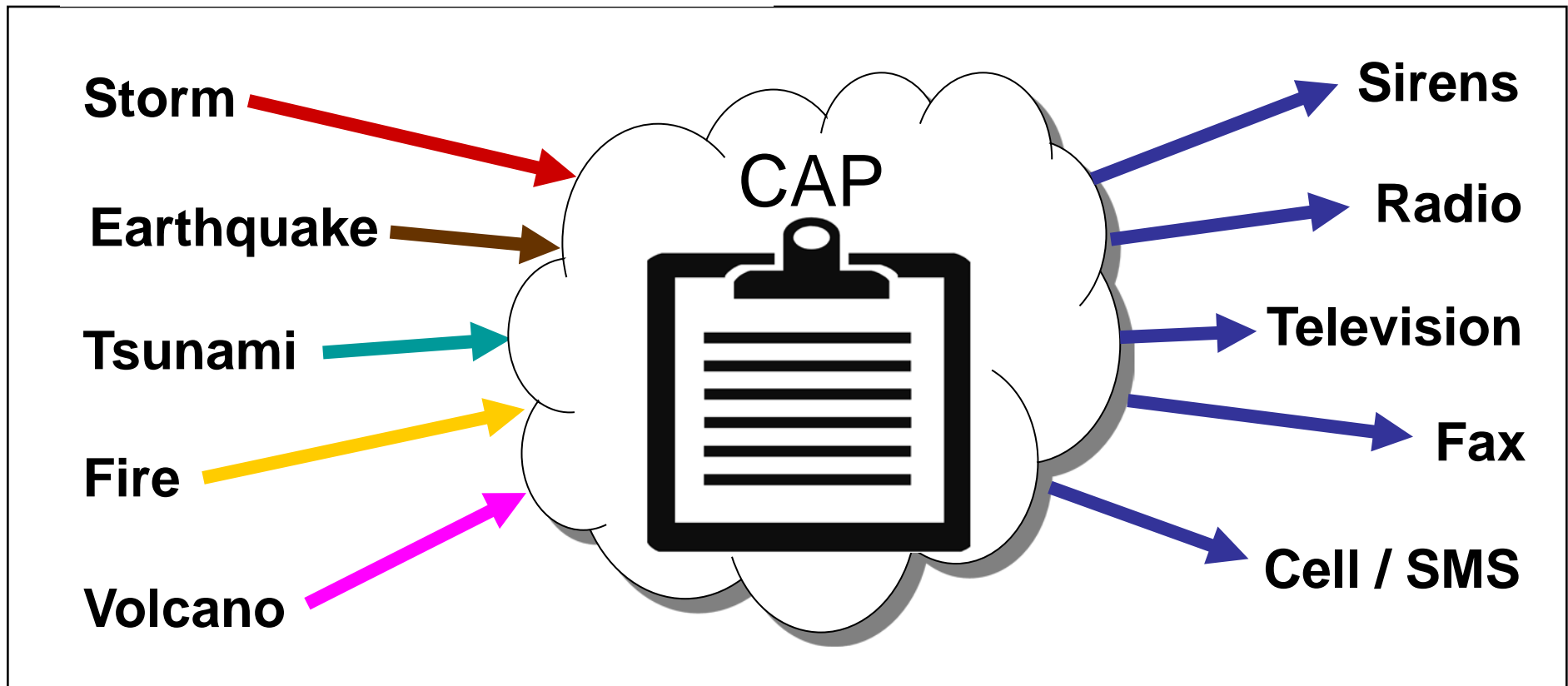
The Common Alerting Protocol (CAP) is a standard message format designed for All-Media, All-Hazard, communications:

- **over any and all media** (*television, radio, telephone, fax, highway signs, e-mail, Web sites, RSS "Blogs", ...*)
- **about any and all kinds of hazard**
(*Weather, Fires, Earthquakes, Volcanoes, Landslides, Child Abductions, Disease Outbreaks, Air Quality Warnings, Transportation Problems, Power Outages ...*)
- **to anyone:** the public at large; designated groups (civic authority, responders, etc.); specific people



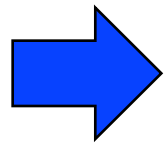
All-Hazards, All-Media Message Format

Any City / Province / Country



Presentation Outline

101.1 Opportunity and Challenge



101.2 Alerting Authorities

101.3 Benefits of CAP

101.4 Features of a CAP Message

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What is an Alerting Authority?

Official alerting authority could be:

- National Meteorological or Hydrological Service
- Emergency Management Agency
- any other organization authorized to perform the function of alerting



The Need for a Register


- Aggregators and other intermediaries may lack direct knowledge needed to distinguish an authoritative source of alert messages
- This lack becomes critical as alerting makes use of large public networks
- The international Register of Alerting Authorities fills that knowledge gap
- Each entry asserts a particular alerting source as authoritative, with its typical hazard types and its typical alerting area



Register of Alerting Authorities

<http://www.wmo.int/alertingorg>

Print | Bookmark | RSS or ATOM | Zoom | Share | Recommend | GMap | Save page as PDF



World Meteorological Organization
Working together in weather, climate and water

WMO Search

HOME CONTACT US TOPICS LINKS UN SYSTEM FAQs HELP

Public Weather Services established this register of information about alerting authorities as identified by Members. For questions, please contact us. This page is using nested navigation, but is available without frames as well. Select a country to get started.

Alerting authorities by WMO Member or Organization

To monitor updates to this Register, subscribe to the [RSS](#) or [ATOM](#) news feed.

<input type="radio"/> Afghanistan	<input type="radio"/> Albania	<input type="radio"/> Algeria	<input type="radio"/> Angola	<input type="radio"/> Antigua and Barbuda
<input type="radio"/> Argentina	<input type="radio"/> Armenia	<input type="radio"/> Australia	<input type="radio"/> Austria	<input type="radio"/> Azerbaijan
<input type="radio"/> Bahamas	<input type="radio"/> Bahrain	<input type="radio"/> Bangladesh	<input type="radio"/> Barbados	<input type="radio"/> Belarus
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<input type="radio"/> Bosnia and Herzegovina	<input type="radio"/> Botswana	<input type="radio"/> Brazil	<input type="radio"/> Brunei Darussalam	<input type="radio"/> Bulgaria
<input type="radio"/> Burkina Faso	<input type="radio"/> Burundi	<input type="radio"/> Cambodia	<input type="radio"/> Cameroon	<input type="radio"/> Canada
<input type="radio"/> Cape Verde	<input type="radio"/> Central African Republic	<input type="radio"/> Chad	<input type="radio"/> Chile	<input type="radio"/> China
<input type="radio"/> Colombia	<input type="radio"/> Comoros	<input type="radio"/> Congo	<input type="radio"/> Cook Islands	<input type="radio"/> Costa Rica
<input type="radio"/> Cote d'Ivoire	<input type="radio"/> Croatia	<input type="radio"/> Cuba	<input type="radio"/> Cyprus	<input type="radio"/> Czech Republic
<input type="radio"/> Democratic People's Republic of Korea	<input type="radio"/> Denmark	<input type="radio"/> Djibouti	<input type="radio"/> Dominica	<input type="radio"/> Dominican Republic
<input type="radio"/> Ecuador	<input type="radio"/> Egypt	<input type="radio"/> El Salvador	<input type="radio"/> Eritrea	<input type="radio"/> Estonia
<input type="radio"/> Ethiopia	<input type="radio"/> Fiji	<input type="radio"/> Finland	<input type="radio"/> France	<input type="radio"/> French Polynesia

WMO Register of Alerting Authorities [home]

OID: 2.49.0.0.840.0 WMO Member: United States of America ISO 3166: US USA 840

Issuing Organization: National Oceanic and Atmospheric Administration (NOAA), National Weather Service

Hazard Categories: Geo Met Fire Health Env CBRNE

Authorization Basis: The National Weather Service Organic Act of 1890, currently codified as amended in section 313 of title 15 of the federal statutory code (called the United States Code) authorizes the National Weather Service to issue and distribute warnings of environmental hazards. The authority is summarized as: The National Weather Service (NWS) provides weather Act, codified as amended sections 5121 to 5206 of title 42 of the United States Code.

CAP Feed URL(s):
Language: English URL: <https://alerts.weather.gov/cap/us.php?x=0>

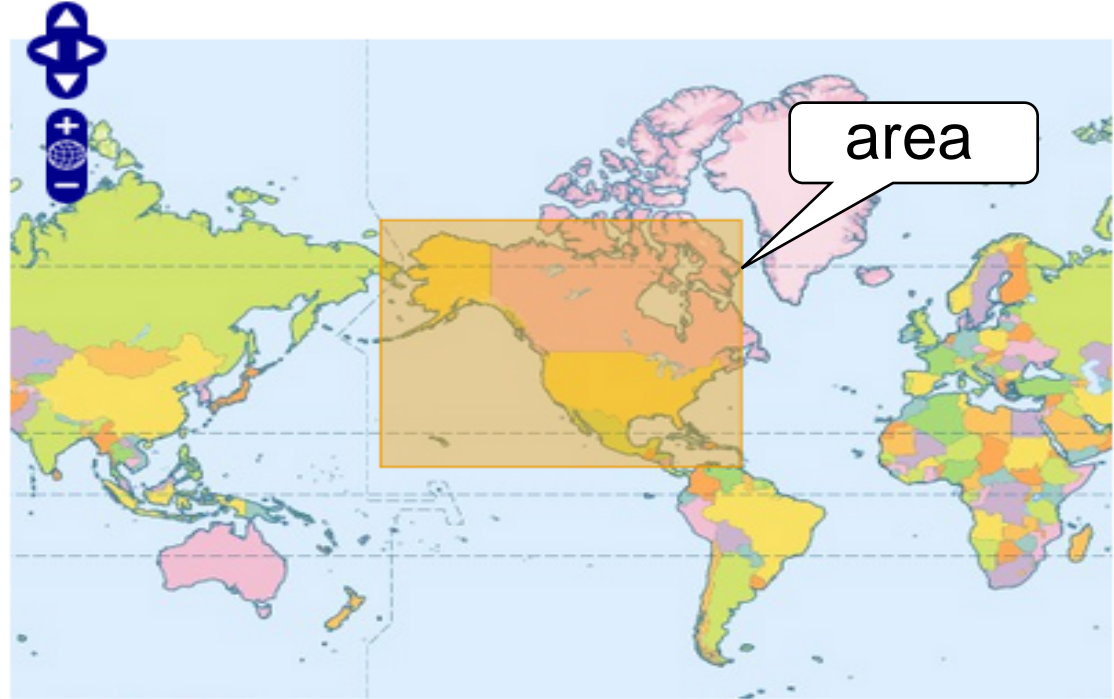
Forecasts URL: <http://www.worldweather.org/093/m093.htm>

Alerting Area (NWSE): 73 -176 11 -61

hazards

CAP feed URL

Map view of the typical area for this alerting authority.



area

- Hazard Categories
- Geo:** Geophysical (earthquakes, volcanoes, tsunamis, etc., includes landslide)
 - Met:** Meteorological (weather, storms, etc. includes flood)
 - Safety:** General emergency and public safety
 - Security:** Law enforcement, military, homeland and local/private security
 - Rescue:** Rescue and recovery
 - Fire:** Fire suppression and rescue
 - Health:** Medical and public health
 - Env:** Pollution and other environmental
 - Transport:** Public and private transportation
 - Infra:** Utility, telecommunication, other non-transport infrastructure
 - CBRNE:** Chemical, Biological, Radiological, Nuclear or High-Yield Explosive threat or attack
 - Other:** Other events

The screenshot shows the NOAA National Weather Service website. The top navigation bar includes 'Site Map', 'NewsOrganization', a search box, and links for 'NWS' and 'All NOAA'. The main content area is titled 'NWS Public Alerts in XML/CAP v1.1 and ATOM Formats' and includes an 'Overview' section. A table lists various states with links to their respective CAP and ATOM feeds.

NWS Public Alerts in XML/CAP v1.1 and ATOM Formats

Overview

This page provides access to NWS watches, warnings, advisories, and other similar products in the Common Alerting Protocol (CAP) and Atom Syndication Format (ATOM).

Use of ATOM and CAP with Traditional and Emerging Technologies

NWS CAP and ATOM feeds can be used to launch Internet messages, trigger alerting systems, feed mobile device (e.g., cell phone/smart phone and tablet) applications, news feeds, television text captions, highway sign messages, and synthesized voice over automated telephone calls or radio broadcasts.

The ATOM and CAP feeds are updated about every two minutes.

More information on NWS CAP and ATOM feeds is available in the [Service Description Document for NWS Watches, Warnings, and Advisories using CAP and ATOM based Formats](#).

State (Zone List County List)	ATOM
National (all)	ATOM
Alabama -- (Zone List County List)	ATOM
Alaska -- (Zone List County List)	ATOM
America Samoa -- (Zone List County List)	ATOM
Arizona -- (Zone List County List)	ATOM
Arkansas -- (Zone List County List)	ATOM
California -- (Zone List County List)	ATOM
Colorado -- (Zone List County List)	ATOM

<http://alerts.weather.gov/>

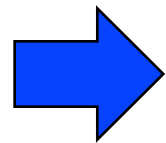
How is the Register Maintained?

- Register of Alerting Authorities established by WMO and ITU
- WMO Member countries register alerting authorities they recognize
- WMO Permanent Representative designates editor to maintain entries

Presentation Outline

101.1 Opportunity and Challenge

101.2 Alerting Authorities



101.3 Benefits of CAP

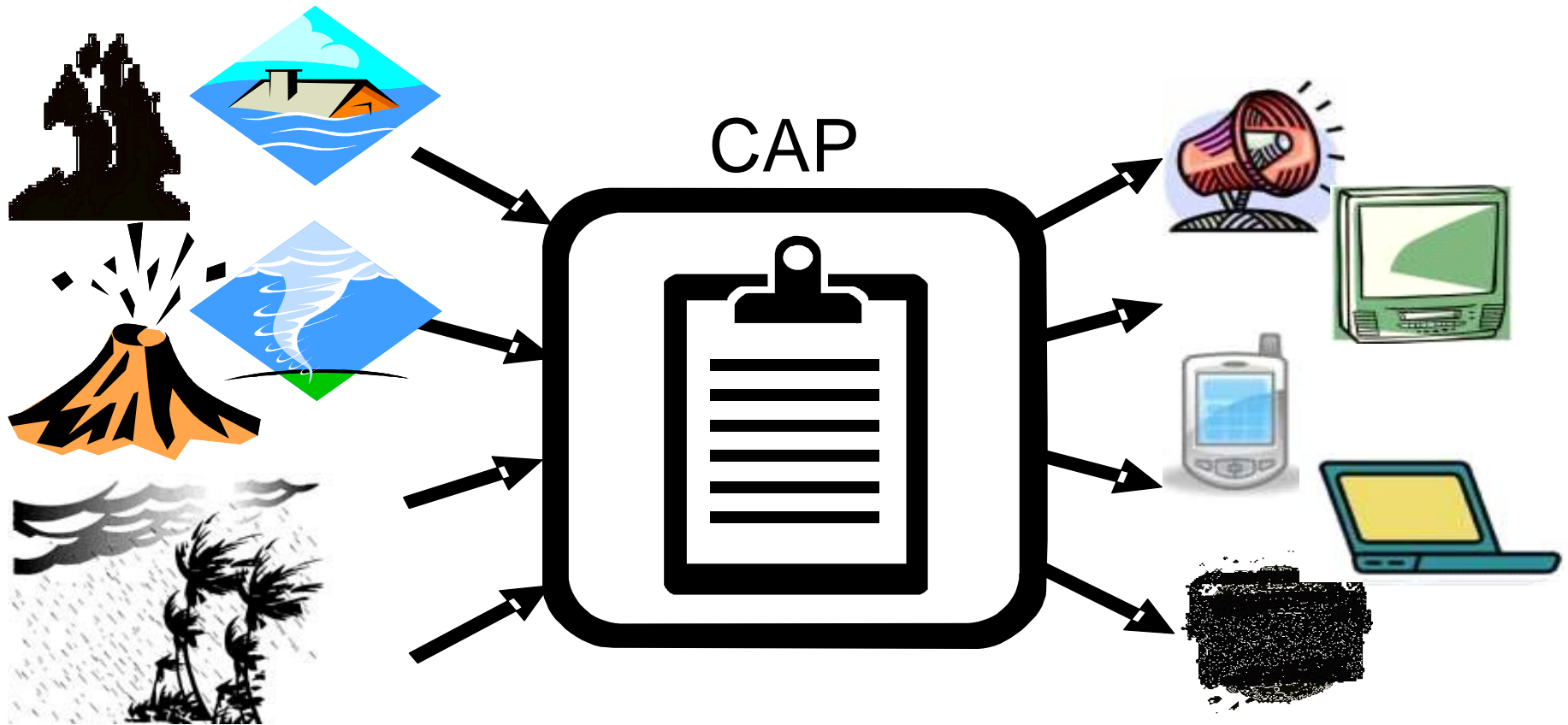
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101.5 CAP-enabled Alerting Systems

101.6 CAP Alert Hubs--
Free, Fast, Reliable, Secure



All-Hazards, All-Media





Alerting the Target Audience

- People can reduce damage and loss of life if alerts are timely and appropriate
- Alerts should reach everyone who needs them, and only those who need them
- Alerting authorities rely on public media and CAP leverages online public media



Consistency and Compatibility

- CAP provides consistency over multiple channels, allowing exact corroboration of alert information
- CAP defines a digital message format compatible with all kinds of existing and emerging systems--data networks as well as broadcast radio and TV
- CAP useful for multilingual and special-needs populations.



Reducing Cost and Complexity

- A CAP message sender can activate multiple alerting systems with a single input
- Standardized alerts from many sources can be compiled for "situational awareness"
- Managers can monitor the whole picture across all types of local, regional, and national alerts (public alerts as well as messages among emergency personnel)



Common Operating Picture

Get Directions My Maps

Save to My Maps

Displaying content from pb-masas.ess-host.com

The content displayed below and overlaid onto this map is provided by a third party, and Google is not responsible for it. Information you enter below may become available to the third party.

New Brunswick MA-SAS KML Feed

- [Be On the Look-Out For a 2008 Yellow Hummer \(H3\)](#)
Sent: 3/23/2010 10:12:41 AM (GMT) Sender:
- [Accident](#)
Sent: 3/23/2010 7:48:19 AM (GMT) Sender: Denis
- [Gondola Point Ferry Service Reduction](#)
Sent: 3/22/2010 6:33:06 AM (GMT) Sender:
- [New Missing Person Symbol](#)
Sent: 3/23/2010 6:11:36 PM (GMT) Sender:
- [Bedford City Airport Closure](#)
Sent: 3/23/2010 11:13:26 AM (GMT) Sender:
- [test_002](#)
Sent: 3/23/2010 1:05:10 AM (GMT) Sender: Denis
- [Air Canada Flight](#)
Sent: 3/23/2010 6:42:02 PM (GMT) Sender:
- [Miramichi Airport Snow Clearing](#)
Sent: 3/22/2010 8:37:08 AM (GMT) Sender:
- [AMBER Alert](#)
Sent: 3/23/2010 6:54:58 PM (GMT) Sender:
- [High Tides - Alama](#)
Sent: 3/22/2010 8:55:00 AM (GMT) Sender:
- [test_003](#)
Sent: 3/23/2010 7:44:26 AM (GMT) Sender: Denis
- [Sour Gas release](#)
Sent: 3/23/2010 7:20:10 PM (GMT) Sender:
- [Sent: 3/23/2010 9:21:26 AM \(GMT\) Sender:](#)
- [Fire - Forest Fire, Jacques Doiron, Exercise](#)
Sent: 3/23/2010 5:22:28 PM (GMT) Sender:
- [Explosion](#)
Sent: 3/22/2010 3:26:12 AM (GMT) Sender: PEI
- [causeway closed](#)
Sent: 3/22/2010 12:02:59 PM (GMT) Sender:
- [417 East Bound Closed at Boundary Road](#)
Sent: 3/22/2010 3:42:58 PM (GMT) Sender:

View in Google Earth Print Send Link

Traffic More... Map Satellite Terrain

Confederation Bridge Wind Watch

Sent: 3/23/2010 5:34:09 AM (GMT)
Sender: Trans@GNB
Status: Actual
Scope: Public
Description: Commencing approximately 22:00hrs, March 23, 2010 winds are projected in the 60-80KM range gusting to 90KM. Forecast indicates conditions will remain the same until approximately 10:00hrs, March 24, 2010.
Instruction: wind conditions on March 23, 2010 may result in restrictions of traffic on the Bridge.
Download: [CAP XML](#) [HTML](#)
[Directions](#) [Search nearby](#) [Save to...](#) [more](#)

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Breakthrough Standard

- Technical innovation ([~300 U.S. Patents](#))
- CAP alerts are being used to reach
 - landline and cellular telephones
 - radio and television sets
 - alerting sirens and lights
 - digital signage (highways, etc)
 - pagers of emergency responders
 - networks of law enforcement
 - "home all-hazards alarm" (next generation of today's home fire alarm)

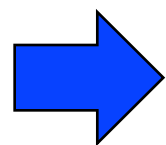


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Sample CAP Message

```
<?xml version="1.0" encoding="UTF-8"?>
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.1">
  <identifier>KSTO1055887203</identifier>
  <sender>KSTO@NWS.NOAA.GOV</sender>
  <sent>2003-06-17T14:57:00-07:00</sent>
  <status>Actual</status>
  <msgType>Alert</msgType>
  <scope>Public</scope>
  - <info>
    <category>Met</category>
    <event>SEVERE THUNDERSTORM</event>
    <responseType>Shelter</responseType>
    <urgency>Immediate</urgency>
    <severity>Severe</severity>
    <certainty>Observed</certainty>
    <expires>2003-06-17T16:00:00-07:00</expires>
    <senderName>NATIONAL WEATHER SERVICE SACRAMENTO CA</senderName>
    <headline>SEVERE THUNDERSTORM WARNING</headline>
    <description> AT 254 PM PDT...NATIONAL WEATHER SERVICE DOPPLER RADAR
      INDICATED A SEVERE THUNDERSTORM OVER SOUTH CENTRAL ALPINE
      COUNTY...MOVING SOUTHWEST AT 5 MPH. HAIL...INTENSE RAIN AND STRONG
      DAMAGING WINDS ARE LIKELY WITH THIS STORM. </description>
    <instruction>TAKE COVER IN A SUBSTANTIAL SHELTER UNTIL THE STORM
      PASSES.</instruction>
    <contact>BARUFFALDI/JUSKIE</contact>
  - <area>
    <areaDesc> EXTREME NORTH CENTRAL TUOLUMNE COUNTY IN CALIFORNIA,
      EXTREME NORTHEASTERN CALAVERAS COUNTY IN CALIFORNIA,
      SOUTHWESTERN ALPINE COUNTY IN CALIFORNIA </areaDesc>
    <polygon>38.47,-120.14 38.34,-119.95 38.52,-119.74 38.62,-119.89 38.47,-
      120.14</polygon>
    </area>
  </info>
</alert>
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```
<?xml version="1.0" encoding="UTF-8"?>
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.1">
  <identifier>KSTO1055887203</identifier>
  <sender>KSTO@NWS.NOAA.GOV</sender>
  <sent>2003-06-17T14:57:00-07:00</sent>
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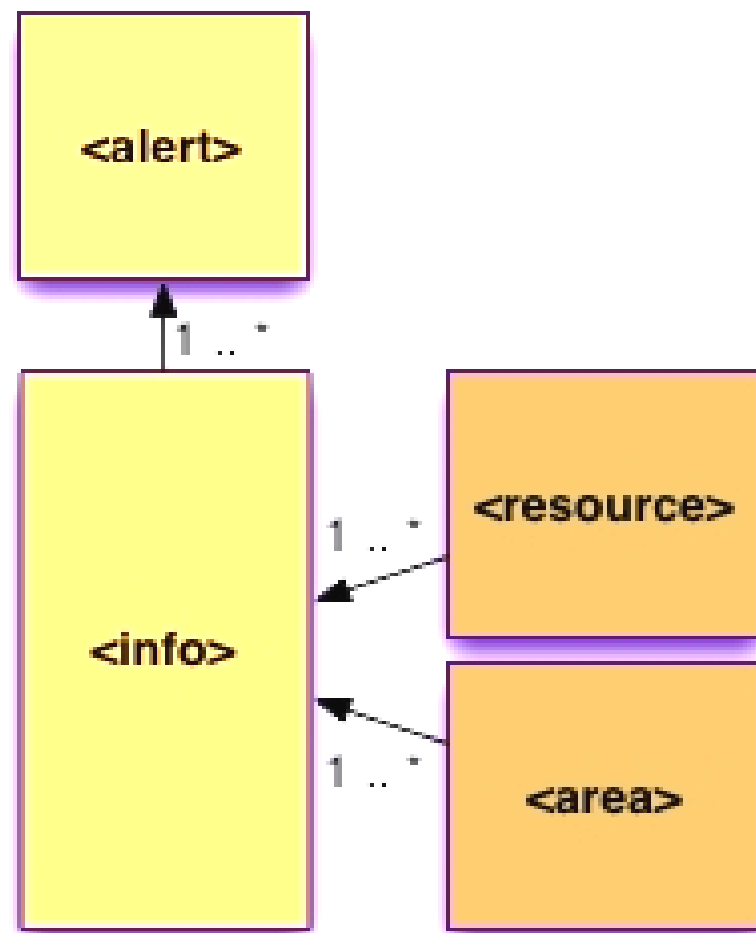
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</alert>
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Structure of a CAP Message

CAP Messages contain:

- Text values for human readers, such as "headline", "description", "instruction", "area description", etc.
- Coded values useful for filtering, routing, and automated translation to human languages



- **Event Categories**
(*Geo, Met, Safety, Security, Rescue, Fire, Health, Env, Transport, Infra, Other*)
- **Urgency:** Timeframe for responsive action
(*Immediate, Expected, Future, Past*)
- **Severity:** Level of threat to life or property
(*Extreme, Severe, Moderate, Minor*)
- **Certainty:** Probability of occurrence
(*Very Likely, Likely, Possible, Unlikely*)



Using CAP Sources

weather.gov

NOAA

NATIONAL WEATHER SERVICE

Watches, Warnings or Advisories for the United States Marine Zones

Site Map News Organization Search ONWS

Local forecast by "City, St"

City, St Go

Sign-up for Email Alerts

XML RSS Feeds

Warnings

Current

By State/County...

UV Alerts

Observations

Radar

Satellite

Snow Cover

Surface Weather...

Observed Precip

Forecasts

Local

Graphical

Aviation

Marine

Hurricanes

Severe Weather

Space Weather

Fire Weather

Text Bulletins

By State

By Message Type

Home > Alerts > the United States Marine Zones

Watches, Warnings or Advisories for the United States Marine Zones

This page shows alerts *currently* in effect for the United States Marine Zones and is normally updated every two-three minutes. Please see [here](#) for other state and listing by county.

Last updated: 02:46 PDT on 09-08-2017

<p>Small Craft Advisory Issued: September 08 at 12:04AM AKDT Areas affected: Cross Sound</p>	<p>Urgency: Expected Status: Actual</p>
<p>Small Craft Advisory Issued: September 08 at 12:04AM AKDT Areas affected: Northern Chatham Strait</p>	<p>Urgency: Expected Status: Actual</p>
<p>Small Craft Advisory Issued: September 08 at 12:04AM AKDT Areas affected: Southern Chatham Strait</p>	<p>Urgency: Expected Status: Actual</p>
<p>Small Craft Advisory Issued: September 08 at 12:04AM AKDT Areas affected: Frederick Sound</p>	<p>Urgency: Expected Status: Actual</p>

<http://alerts.weather.gov/cap/mzus.php?x=1>




CAP News Feed (MS Internet Explorer)

Current Watches, Warnings and Advisories for the United States Marine Zones Issued by the National Weather Service

You are viewing a feed that contains frequently updated content.

When you subscribe to a feed, it is added to the Common Feed List. Updated information from the feed is automatically downloaded to your computer and can be viewed in Internet Explorer and other programs. Learn more about feeds.

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Displaying 88 / 88

All 88

Sort by:

Date

Small Craft Advisory issued September 08 at 2:46AM PDT until September 09 at 12:00PM PDT by NWS

Today, September 08, 2017, 49 minutes ago | w-nws.webmaster@noaa.gov

...SMALL CRAFT ADVISORY REMAINS IN EFFECT FROM 3 PM THIS AFTERNOON TO NOON PDT SATURDAY... * WINDS...N INCREASING TO 20 KT BY LATE THIS AFTERNOON AND CONTINUING THROUGH SATURDAY MORNING. * WAVES...STEEP N BUILDING TO 5 TO 7 FT AT 7 SECONDS BY TONIGHT WITH A W TO NW SWELL OF 5 FT AT 13 SECONDS.

Small Craft Advisory issued September 08 at 2:46AM PDT until September 10 at 5:00AM PDT by NWS

Today, September 08, 2017, 49 minutes ago | w-nws.webmaster@noaa.gov

...SMALL CRAFT ADVISORY NOW IN EFFECT FROM 3 PM THIS AFTERNOON TO

<http://alerts.weather.gov/cap/mzus.php?x=0> viewed with Microsoft Internet Explorer



CAP News Feed (Firefox)



Subscribe to this feed using Live Bookmarks

Always use Live Bookmarks to subscribe to feeds.

Subscribe Now

Click here to subscribe

Current Watches, Warnings and Advisories for the United States Marine Zones Issued by the National Weather Service

[Small Craft Advisory issued September 08 at 12:04AM AKDT by NWS](#)

Friday, September 08, 2017, 4:04 AM

Southeast Alaska Coastal Waters from Dixon Entrance to Cape Suckling out 100 nm Wind forecasts reflect the predominant speed and direction expected. Sea forecasts represent the average of the highest one-third of the combined windwave and swell height. UPDATED

[Small Craft Advisory issued September 08 at 12:04AM AKDT by NWS](#)

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[Small Craft Advisory issued September 08 at 12:04AM AKDT by NWS](#)

<http://alerts.weather.gov/cap/mzus.php?x=0> viewed with Firefox browser



Satellite Alert Channel

Sample web page
containing a volcanic
ash CAP message



EUMETSAT Volcanic Ash CAP Alert

Volcanic ash detection report

Summary

Identifier: EUM.MET09.VASH.1
 Sender: cap@eumetsat.int
 Sent: 2008-09-26T11:35:00-00:00
 Status: Actual
 Message Type: Alert
 Scope: Public

Additional Details:

Category: Geo
 Event: Volcanic ash
 Urgency: Immediate
 Severity: Moderate
 Certainty: Likely
 Effective: 2008-09-26T11:15:00-00:00
 Expires: 2008-09-26T11:30:00-00:00
 Sender Name: EUMETSAT
 Headline: Volcanic ash detection report
 Description: Volcanic ash has been detected in the region of 50.0 deg North, 9.8 deg East at 8:56 PM Universal Time Coordinated on Friday, September 26, 2008. (This is a computer generated report and has not been reviewed by a human.)
 Web: http://www.eumetsat.int/Home/Main/Access_to_Data/Meteosat_Meteorological_Products/Product_List/SP_1195473535618?len
 Parameter: Volcano type Stromboli
 Parameter: Plume coverage 1800 ha
 Parameter: Plume orientation 321 deg
 Description: 1800 ha (2 pixels) with centre of mass located at 50.0 deg North, 9.8 deg East
 Polygon: 49.9750,9.7875 49.9750,9.8125 50.0000,9.8125 50.0000,9.7875 49.9750,9.7875
 Polygon: 50.0000,9.7875 50.0000,9.8125 50.0250,9.8125 50.0250,9.7875 50.0000,9.7875



Page Last Modified: October 2008



Presentation Outline

101.1 Opportunity and Challenge

101.2 Alerting Authorities

101.3 Benefits of CAP

101.4 Features of a CAP Message

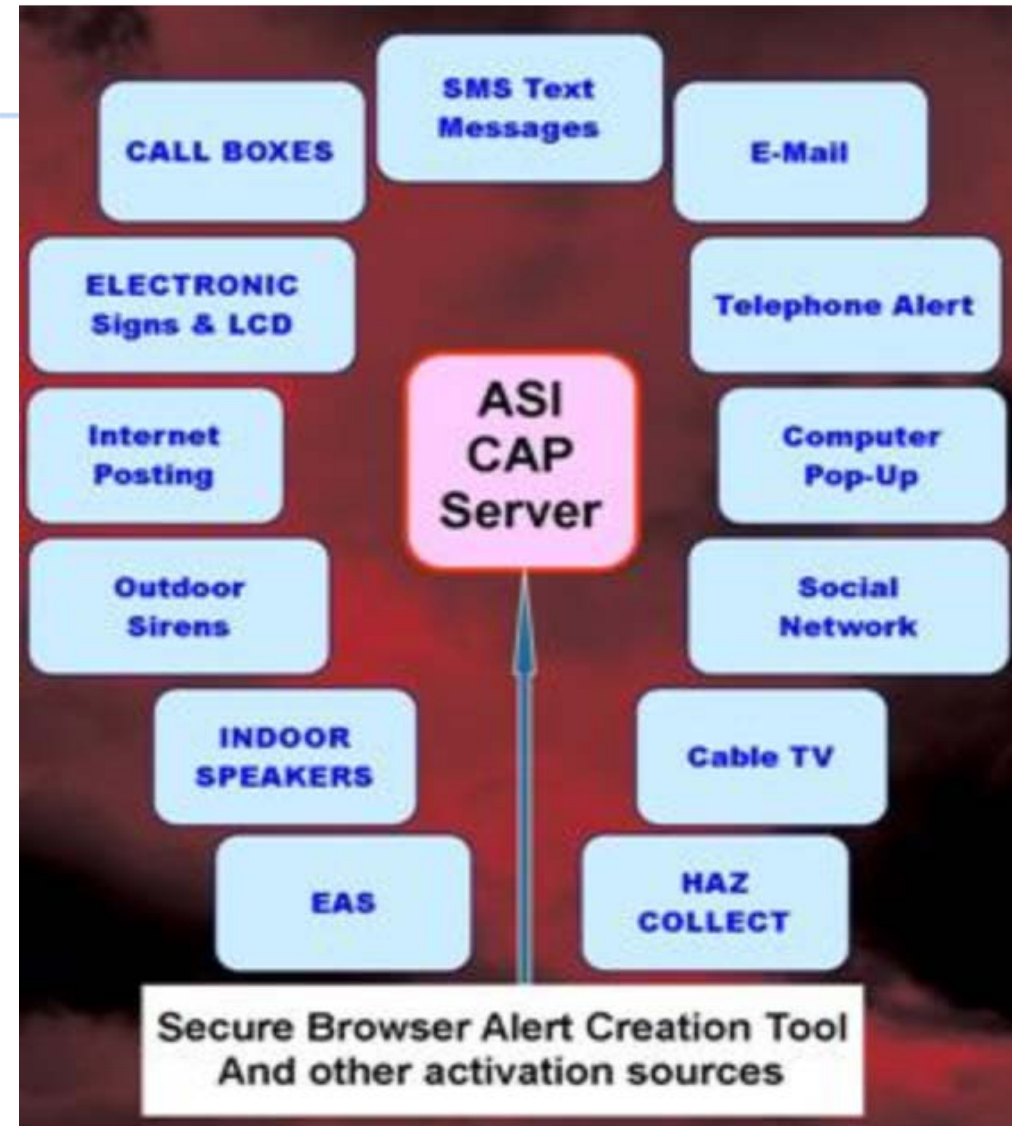
 101.5 CAP-enabled Alerting Systems

101.6 CAP Alert Hubs--
Free, Fast, Reliable, Secure

Typical CAP-based Alerting System

Based on CAP, [Alerting Solutions Inc](#) (ASI) supports many delivery methods:

U.S. Emergency Alert System (EAS), local radio station, local cable TV, sirens, strobe lights, e-mail, SMS, voice telephone, intercom / digital telephony, computer pop-up's, Web sites, social media (Twitter, Facebook, Myspace...), Emergency Call Boxes, reverse Weather Radio, building loudspeakers, voice fire speakers, police car loudspeakers, 800 Number/Hotline, LED signs and LCD screens



CAP Implementations

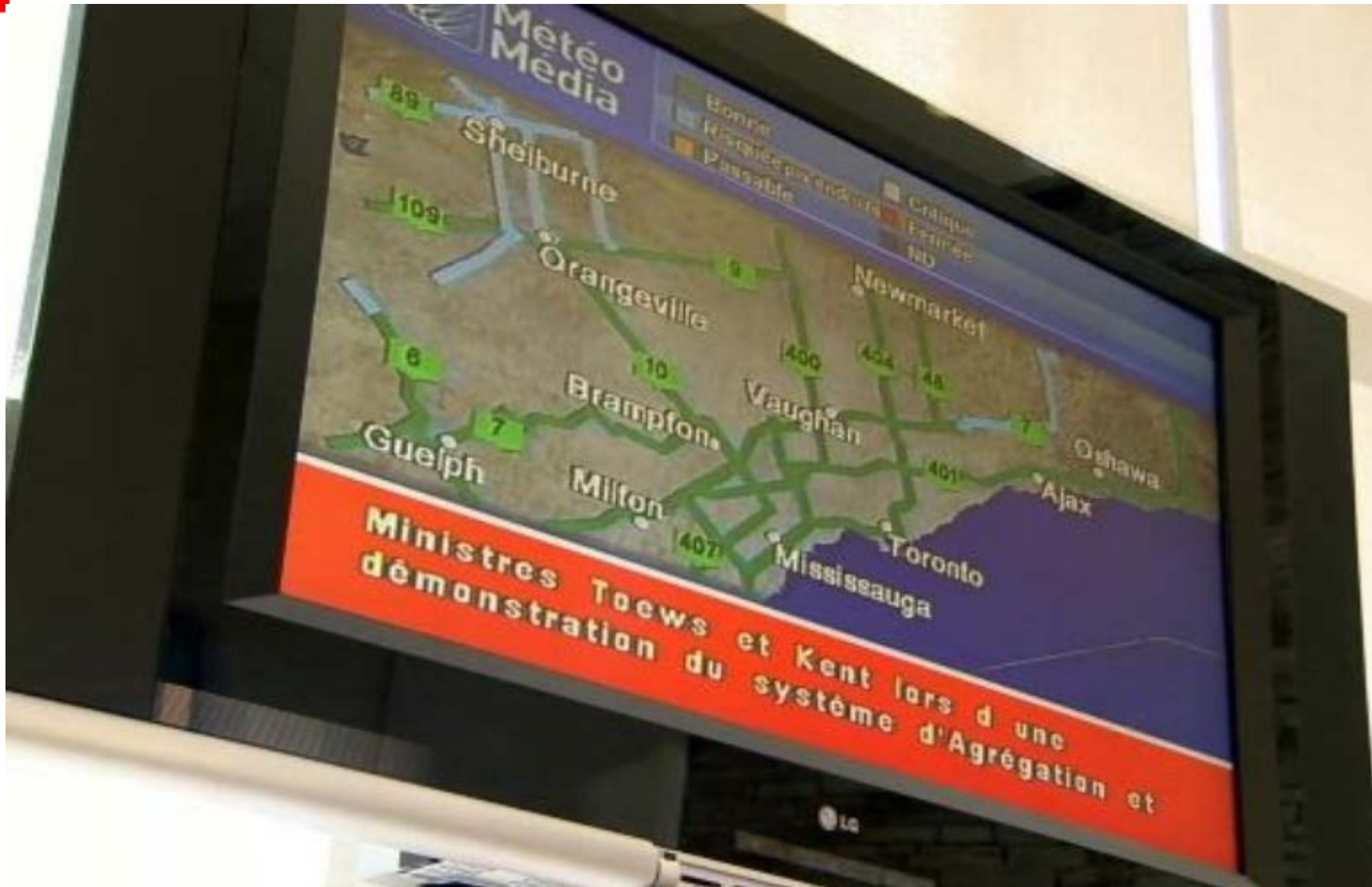
- National Systems
 - Americas
 - Europe, Middle East, Africa
 - Asia/Pacific
- NGO and Commercial

Americas

Anguilla (UK), Antigua and Barbuda, Argentina, Aruba (Netherlands), Brazil, Canada, Chile, Colombia, Cuba, Dominica, Guyana, Jamaica, Mexico, Montserrat (UK), Puerto Rico (US), Sint Maarten (Netherlands), Trinidad and Tobago, United States, US Virgin Islands

Pelmorex Alerting System

(TV and radio test alerts sent 10 Oct 2012)



United States of America

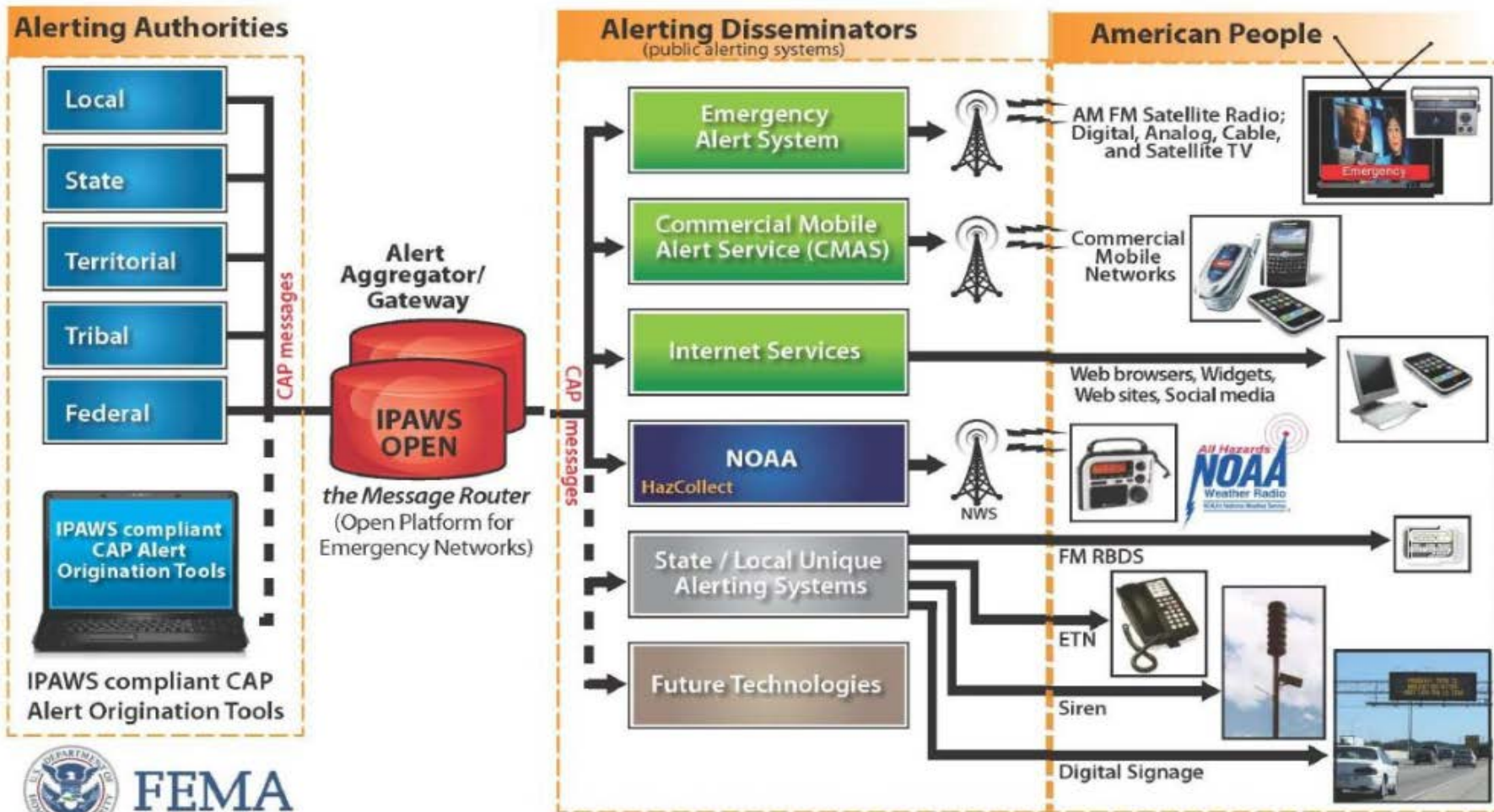
- National Oceanic and Atmospheric Administration (NOAA), National Weather Service
- NOAA National Tsunami Warning Center
- United States Geological Survey (USGS), Earthquakes
- USGS Volcano Hazard Program
- Environmental Protection Agency, Air Quality Alerts
- Federal Emergency Management Agency, Integrated Public Alert and Warning System (IPAWS)



U.S. Integrated Public Alert and Warning System (IPAWS)

IPAWS Architecture

Standards based alert message protocols, authenticated alert message senders, shared, trusted access & distribution networks, alerts delivered to more public interface devices





USA Wireless Emergency Alerts

Hurricane Sandy Wireless
Emergency Alerts



During Hurricane Sandy, Wireless Emergency Alerts appear on the Verizon Galaxy Nexus and iPhone 5. (Google | Apple)

Cell Broadcast

- Standard cellular phone service
- Broadcast from cell tower to all cell phones in alerting area; no service subscription is needed
- Message is immediately broadcast to all; not one-at-a-time like SMS messages
- Cell Broadcast adopted for public warning in: Canada, Chile, China, Israel, Japan, Lithuania, Netherlands, South Korea, Taiwan, Turkey, USA





Mexico

- 2013: Interior Ministry to implement Mexico's National Alert System
- National Civil Protection Coordination was lead agency with CAP use supported by CIRES (Centro de Instrumentación y Registro Sísmico) A.C.
- Now - IFT (Intituto Federal de Telecomunicaciones) has lead role for CAP in Mexico, supported by CIRES, CONAGUA-SMN, and Others

CAP Feed URL:

[CONAGUA - Servicio Meteorologico Nacional de Mexico](#)

- ❖ *Creates CAP group for Mexico: IFT, CONAGUA-SMN, CIRES, others*
- ❖ *IFT will be leading to continue sponsoring the use of CAP in Mexico.*



Americas - Caribbean

- Anguilla
- Antigua and Barbuda
- Aruba
- Bahamas
- Barbados
- Cuba
- Dominica
- Jamaica
- Montserrat
- Puerto Rico
- Sint Maarten
- Trinidad and Tobago
- U.S. Virgin Islands

Americas - South America

- Argentina: Servicio Meteorologico Nacional
- Brazil: Alert-AS
- Chile
- Colombia: UNGRD (National Unit for Disaster Risk Management)
- Guyana: Hydrometeorological Service

Europe, Middle East, Africa

Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Burundi, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kenya, Kuwait, Latvia, Lithuania, Luxembourg, Macedonia, Malawi, Malta, Mauritius, Moldova, Montenegro, Netherlands, Nigeria, Norway, Poland, Portugal, Romania, Rwanda, Serbia, Slovakia, South Africa, Spain, Sweden, Switzerland, Tanzania, Togo, United Kingdom, Zimbabwe

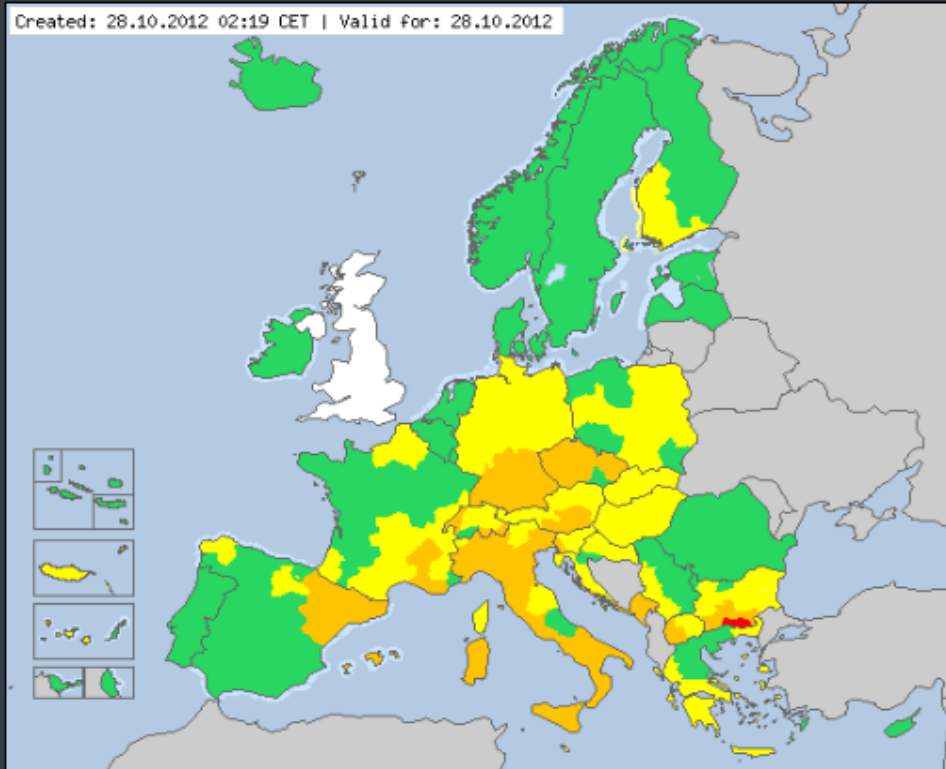
France

- France: [Information Alert System for People \(SAIP\)](#)
- Free smartphone application,
Will soon be CAP-enabled
- Alert users to terrorist attacks,
nuclear incidents, dam failures,
or other exceptional events

MeteoAlarm

» Europe:

Created: 28.10.2012 02:19 CET | Valid for: 28.10.2012



Weather warnings: Europe



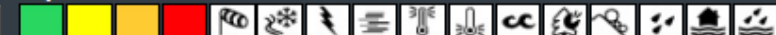
Awareness Reports - You can find detailed information about the warnings in the awareness reports issued for each country. Select the relevant country.

AT						IT				
BE						LU				
BG						LV				
CH						ME				
CY						MK				
CZ						MT				
DE						NL				
DK						NO				
EE						PL				
ES						PT				
FI						RO				
FR						RS				
GR						SE				
HR						SI				
HU						SK				
IE						UK				
IS										

awareness types:

Display:

Caption:





CAP Operational or In-Progress

Africa

Botswana, Burundi, Kenya,
Malawi, Mauritius, Nigeria,
Rwanda, South Africa,
Tanzania, Togo, Zimbabwe



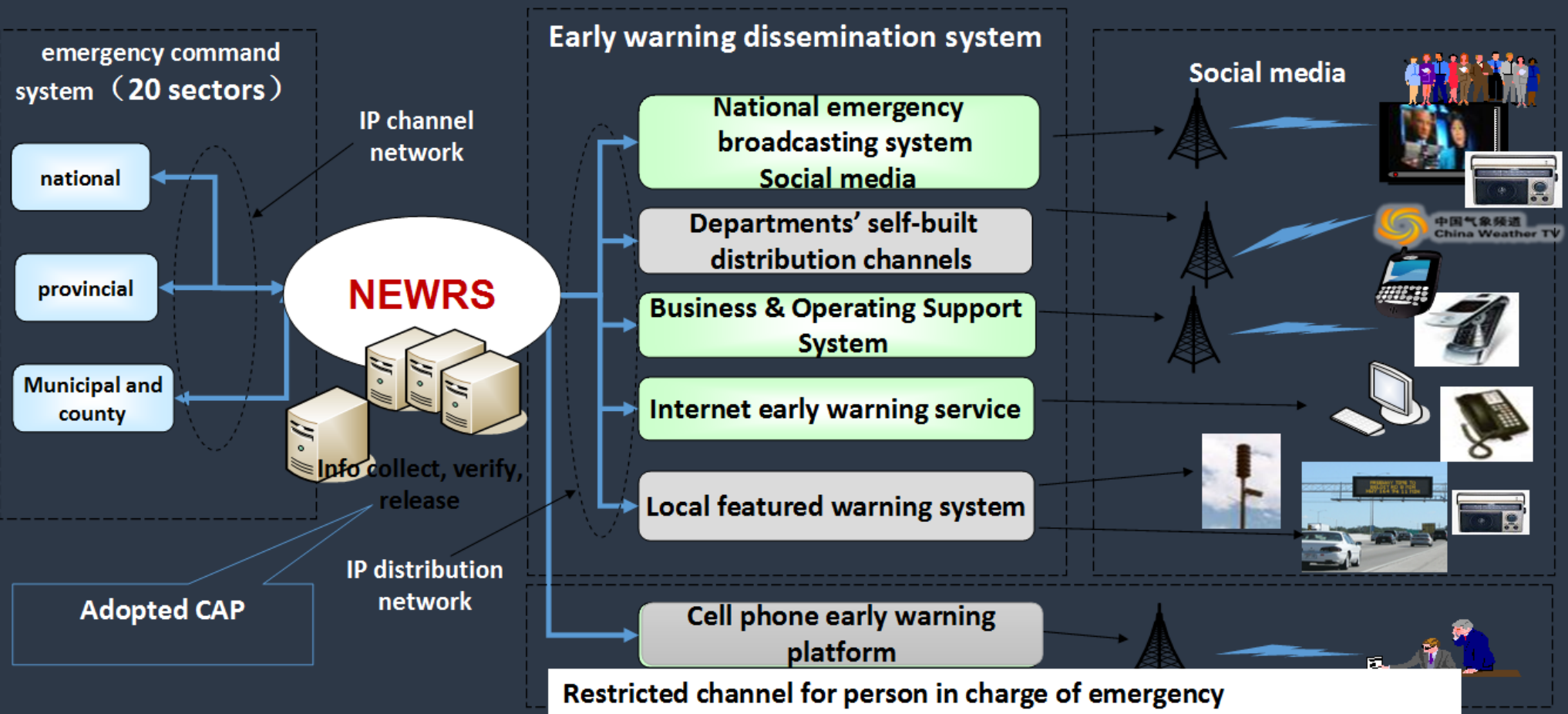
CAP Operational or In-Progress

Asia/Pacific

Australia, China, Fiji, Hong Kong, India, Indonesia, Kazakhstan, Kyrgyzstan, Maldives, Madagascar, Myanmar, Nepal, New Zealand, Papua New Guinea, Philippines, Russia, Samoa, Solomon Islands, Sri Lanka, Taiwan, Tajikistan, Thailand, Tonga, Uzbekistan, Vanuatu

CAP in China

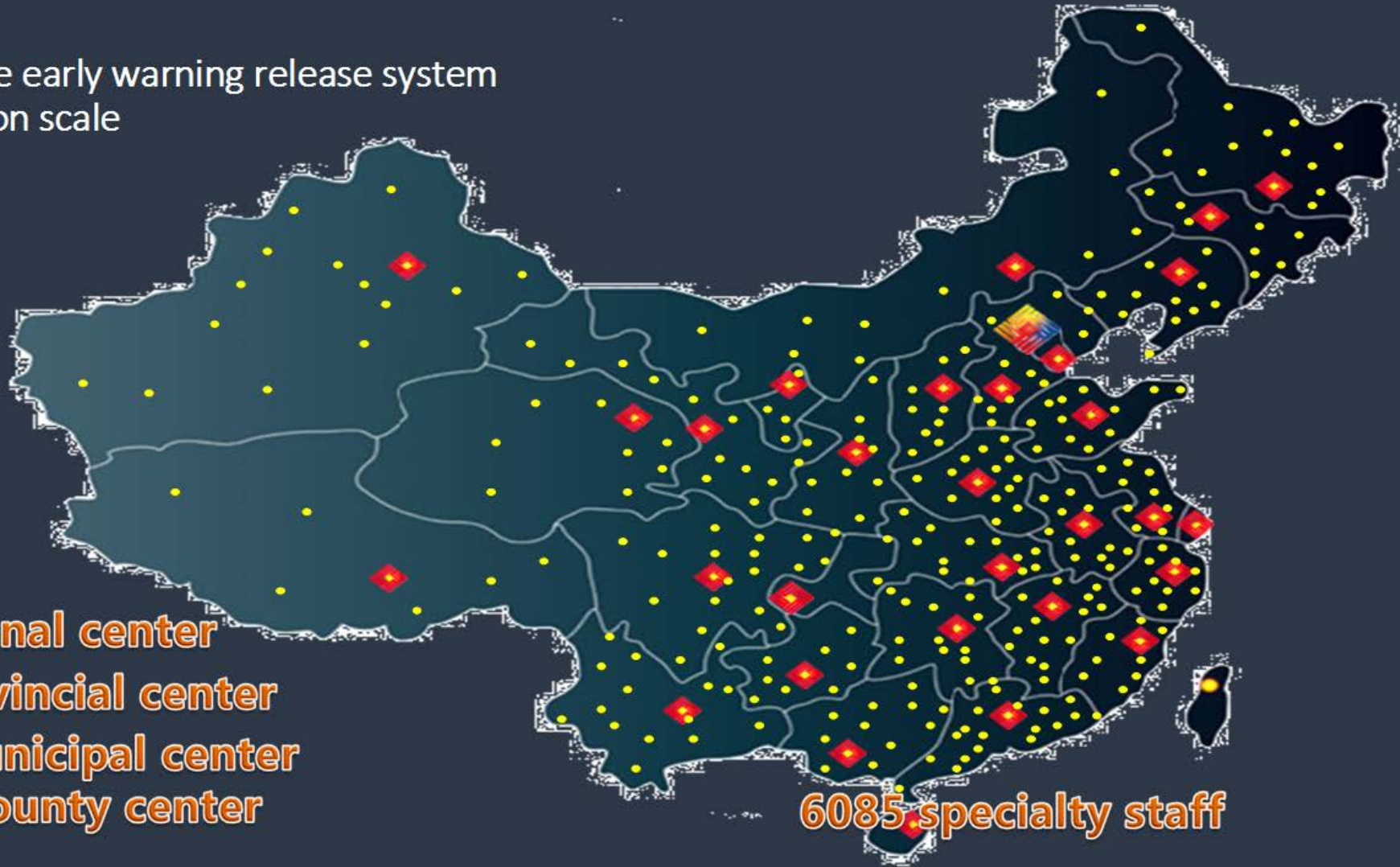
NEWRS relationship and structure



CAP in China

Nationwide early warning release system
construction scale

1 national center
31 provincial center
343 municipal center
2015 county center



Asia/Pacific - Smart Alert (FMI)

Finnish Meteorological Institute
SmartAlert freeware

- Fiji (testing)
- [Papua New Guinea](#)
- [Samoa](#)
- [Solomon Islands](#)
- [Tonga](#)
- [Vanuatu](#)

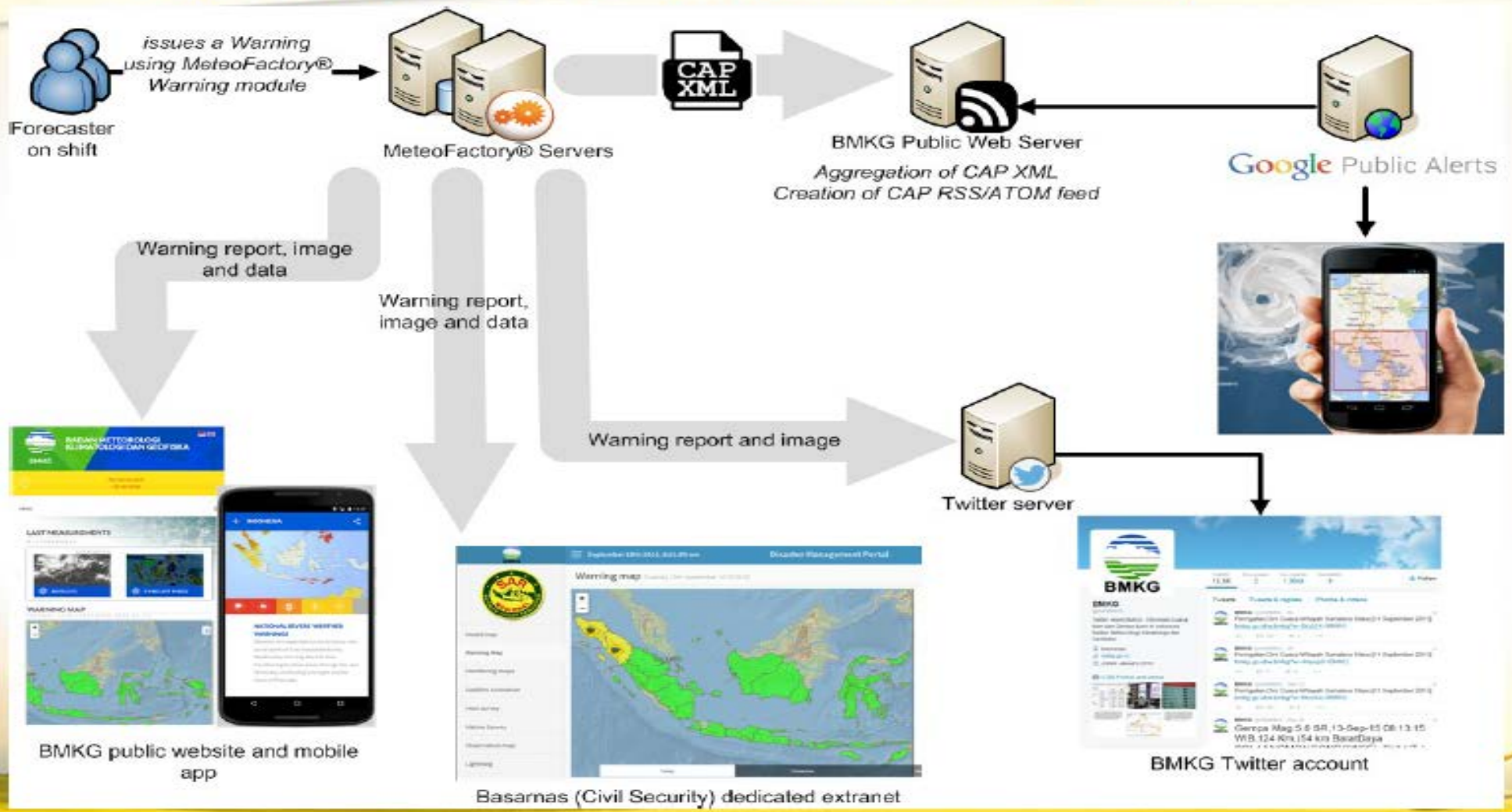


Indonesia: Earthquakes CAP Feed



Indonesia (2015):

Using CAP protocol to publish alerts widely



Elsewhere in Asia/Pacific

- Australia
- Hong Kong
- India
- Maldives
- Myanmar Department of Meteorology and Hydrology
- Nepal
- New Zealand MetService
- GNS Science (earthquakes)
- Philippines
- Sri Lanka
- Taiwan
- Thailand

CAP Implementations

- National Systems

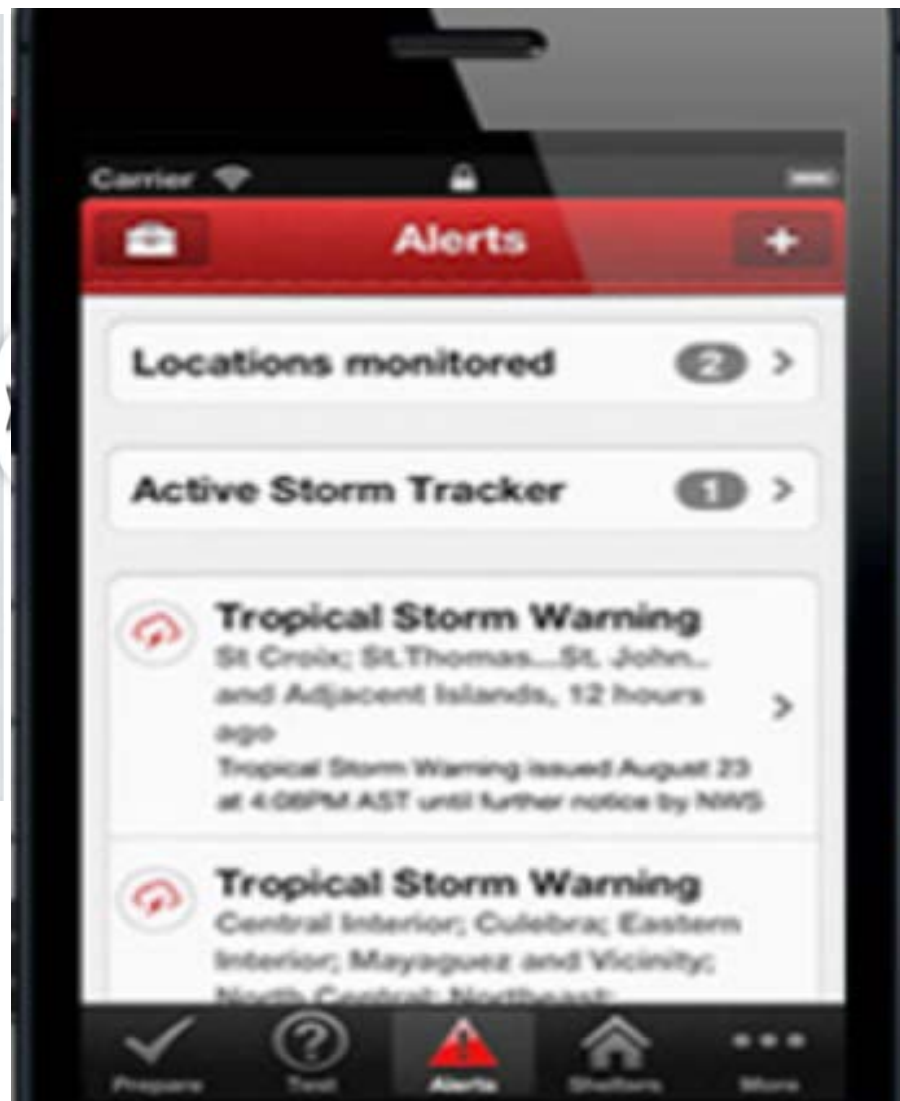
 - Americas

 - Europe, Middle East, Africa

 - Asia/Pacific

- ➔ NGO and Commercial

IFRC Universal App Program

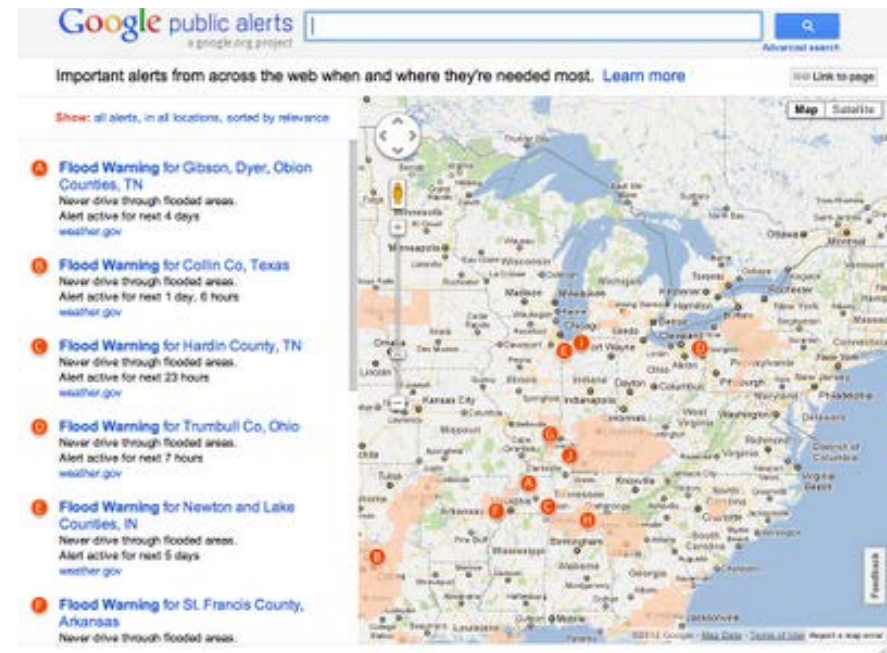


American Red Cross Mobile Apps (example)

Google Public Alerts

- Platform designed to bring users relevant emergency alerts when and where they are using Google tools
- Whether user sees an alert depends on search query, which alerts are active, and the event importance
- To see all active alerts, go to homepage →

<http://www.google.org/publicalerts>





What Now Service (IFRC + Google)

- Data feed of actionable and contextualized messages on how to prepare and respond to local hazards
20 hazards; 78 languages; 192+ countries
- Designed specifically to complement CAP messages
- Uses [IFRC Public Awareness and Public Education Messages](#), for example:

1. Prepare to evacuate, and know when and where to evacuate
2. Turn off utilities and gas tanks. Unplug small appliances
3. Never try to drive through flood waters. Turn around and go the other way



Unattended Emergency Broadcasting

- [OpenBroadcaster](#) - open source suite of tools for unattended CAP messaging over broadcast radio, TV, streaming, and digital signage
- Used extensively throughout Canada
- Provides an important community service, especially for isolated regions



Commercial Weather Alerting

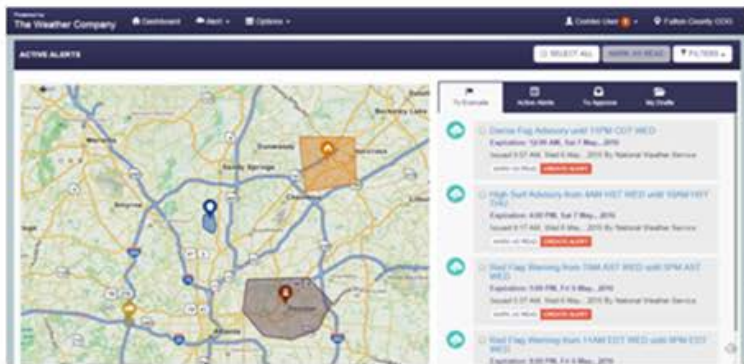
- AccuWeather
- MeteoFrance Vigilance
- MeteoFrance International, MeteoFactory
- The Weather Company



The Weather Company Local Alerts Platform

1) WMO Registry of Alerting Authorities (HKO)

Authenticates authorized alert creators



2) Local Alerts Platform

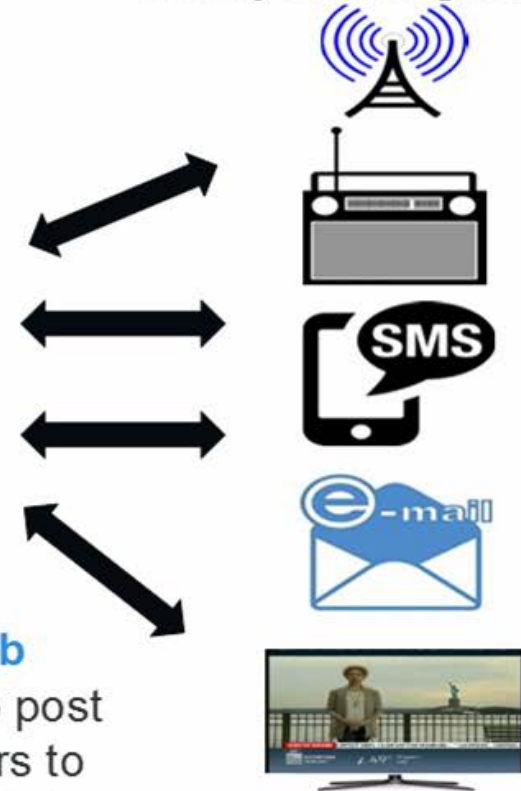
Authorized users create/approve alerts on the Local Alerts Platform which attributes Alerting Authority as source and distributes alerts to Alert Hub



3) WMO Alert Hub

Enables Publishers to post alerts and Subscribers to receive Authority's alerts

Alert Subscribers & Citizens receive alerts from their country's Alerting Authority(s)





Sensors that Emit CAP Alerts

- In-home monitors becoming all-hazard alarms
 - Halo+ smoke alarm
 - Speck sensor
- Earth Networks (lightning detection)
- Earthquake Building Damage Assessment



Federation for Internet Alerts



Advertising companies overlay online ads to show high-priority warnings from official alerting authorities



CAP in Pinkerton's



Moderating twitter filtered queue:

Category: Security

Order by: Highest score, Newest articles

csepeasy

0 Edit Text · 1 Show Original

US: Phoenix, AZ - Police search activity|

Sep. 22, 2015 02:15 AM PDT

<p>Source: https://twitter.com/csepeasy/statuses/646250548384043008</p><p> Note: Pinkerton is not responsible for the content contained in external sites.</p>

2

3 Category: Safety

4 Urgency: Immediate

5 Severity: Moderate

6 Certainty: Possible

33.4875641 -112.030219100000

9 Lookup address: Osborne & 24th Pho

Latitude Longitude

9 Lookup address

Ignore Escalate Done

CAP production described in: "Providing alerts based on unstructured information methods and apparatus" [Patent US 20160119370 A1](#)



Other CAP-based Systems

- IBM Intelligent Operations Center for Smarter Cities
- Microsoft CityNext
- Hate Group Monitoring
- Neighborhood Watch
- RSOE Emergency and Disaster Information Service

RSOE EDIS Alert Map



The information is updated every 5 minutes. There is no need to reload the page.



Current Emergencies



Presentation Outline

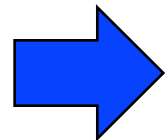
101.1 Opportunity and Challenge

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101.4 Features of a CAP Message

101.5 CAP-enabled Alerting Systems



101.6 CAP Alert Hubs--
Free, Fast, Reliable, Secure

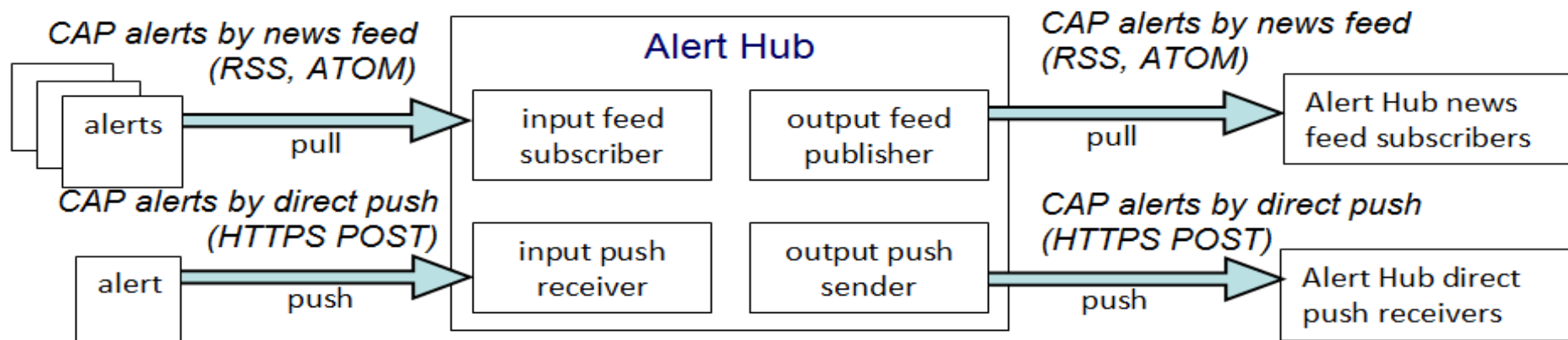


CAP Alert Hubs

- Free service aggregating alerts and other emergency information, can push updates to all subscribers
- The WMO Alert Hub will have alerts from official sources as listed in the Register of Alerting Authorities
- Benefits :
 - Speed
 - Scale (performance, reliability, availability)
 - Redundancy
 - Security and Authenticity
 - Analytics

Filtered Alert Hub

- Free service offers CAP alerts filtered by location, language, and other criteria (e.g., "official-only")
- Cloud-based: Highly Available, Reliable, Secure
- To minimize delay, sources can push alerts to the Hub, and the Hub can push to subscribers



Free Tool for CAP Alert Creation and Publishing

identifier

sender

msgType **scope** **language**

status **category** **responseType**

event

urgency **severity** **certainty**

sent **expires**

[Text templates for headline, description, instruction.](#)

headline


description

instruction

areaDesc

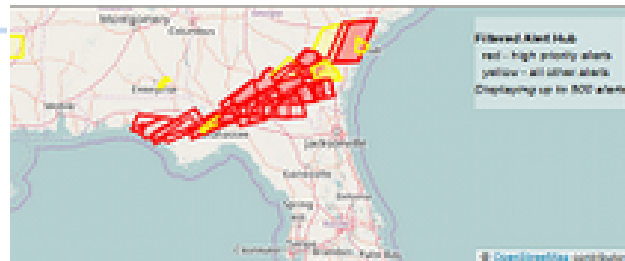
circle
polygon

lat,long<space>radius SW SE NE NW SW (lat,lon points)



The map shows the Geneva region with a red polygon highlighting the area from the airport to the lake and river. Key locations labeled include Ornex, Collex-Bossy, Bellevue, Pregny-Chambésy, Genève Aéroport, Grand-Saconnex, Meyrin, Vernier, and Geneva. Major roads like E62 and D78 are also visible.

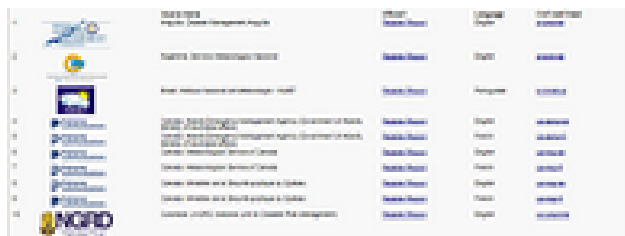
Filtered Alert Hub <http://alert-hub.org>



The cloud-based Filtered Alert Hub aggregates emergency alerts worldwide. Click [here](#) for recent alerts.



This Hub allows for filtering aggregated alerts to fit a particular purpose. For example, the prototype now makes a separate news feeds containing official, public, high-priority alerts in a specific language for each country and each of 1870 cities. Click [here](#) for these feeds.



At present, the prototype gathers alerts from 20+ sources, and more are expected in the coming months. Click [here](#) for current alert sources.



Development of the Filtered Alert Hub is part of the NOAA Big Data Project. Click [here](#) for the project Wiki, and to access the free, open source software.



Part of NOAA's Big Data Project



- Collaborative project with working prototype now
- Open Commons Consortium, AccuWeather, Amazon Web Services, IBM, and The Weather Company have already joined; others are welcome
- Core components are *Free Open Source Software*
- [Contact Project Lead \(Eliot Christian\)](#)

WMO Alert Hub Prototype



- WMO Alert Hub prototype aggregates alerts across feeds published by sources in the International Register of Alerting Authorities
- WMO Alert Hub prototype is based on the Filtered Alert Hub freeware



Review of Key Points

- Opportunity and Challenge
- Alerting Authorities
- Benefits of CAP
- Features of a CAP Message
- CAP-enabled Alerting Systems
- CAP Alert Hubs--
Free, Fast, Reliable, Secure



What have you learned?

1. Describe some challenges of public alerting, from a broad perspective.
2. Describe the major role of an alerting authority and give examples of authorities.
3. State why CAP is needed and list some of its expected benefits.
4. Describe an alerting process in terms of information flow: from input, through processing, to output.
5. Describe the role of an Alert Hub and how it simplifies access to CAP alerts at global scale.



CAP Implementation Workshops

Link	Host	City	Co-sponsors
2017	Italian National Fire Corps	Rome. Italy	IAEM, IFRC, ITU, OASIS, WMO
2016	Asian Institute of Technology	Bangkok, Thailand	IFRC, ITU, OASIS, WMO
2015	Italian National Fire Corps	Rome. Italy	IFRC, ITU, OASIS, WMO
2014	LIRNEasia	Negombo, Sri Lanka	ITU, OASIS, WMO
2013	WMO	Geneva, Switzerland	ITU, OASIS, WMO
2012	Environment Canada	Montreal, Canada	ITU, OASIS, WMO
2011	WMO	Geneva, Switzerland	ITU, OASIS, WMO
2009	WMO	Geneva, Switzerland	ITU, OASIS, WMO
2008	WMO	Geneva, Switzerland	ITU, OASIS, WMO
2006	ITU	Geneva, Switzerland	ITU, OASIS



CAP Information Resources

- [CAP Implementations by Country](#)
- [CAP References \(PrepareCenter.Org\)](#)
- [CAP Video \(10 minutes, made by IFRC\)](#)
- [Guidelines for Implementation of CAP-Enabled
Emergency Alerting \(PWS-27\) *free to download*
in \[English\]\(#\) \[Arabic\]\(#\) \[French\]\(#\) \[Russian\]\(#\) \[Spanish\]\(#\)](#)
- CAP Training Courses - contact me
Eliot Christian eliot.j.christian@gmail.com