

Getting Public Warnings to People Online

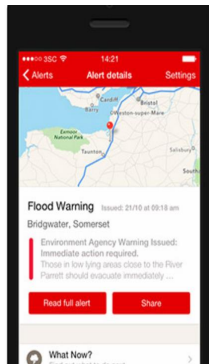
To help disseminate public warnings, alerting authorities have long relied on commercial media, such as newswire services, broadcast radio and television. Many television stations insert "crawl text" with the warning message, and radio stations insert a recording. This public-private collaborative effort requires huge investments in specialized technology, and decades to implement.



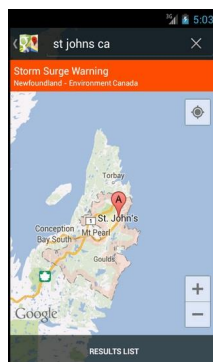
Now people are using cell phones and online media more and more. Do societies worldwide need a new round of huge investments in special technology to get warnings to all these people?

Actually, huge new investments are not necessary. Online media and alerting authorities already have developed effective ways to send warnings to cell phones and people online, and at minimal cost.

The Hazard apps developed by the [Red Cross Global Disaster Preparedness Center \(GDPC\)](#) are an example. As part of the [Universal App Program](#), the GDPC partners with Red Cross/Red Crescent national societies to develop First Aid and Hazard apps. Content for these apps is tailored to the language, culture and context of each country. These Hazards apps provide official, life-critical alerts for free to mobile app users.



Google also displays alerts in the specific alerting area to online users of Google Search, Google Maps and Google Now. This [Google Public Alerts](#) product today shows warnings in the United States, Canada, and [several other countries](#). But, Google and IFRC can provide the same service for warnings from any alerting authority, **world-wide**.



Google and the IFRC Hazards App show alerts in the person's own language. Both are restricted to show only high-priority warnings, and only to people currently in the designated alerting area.

These amazing, free alerting services, and many others like them, have only two requirements: that the alerts are published as Internet-standard news feeds, and that the content of the alerts is in line with the Common Alerting Protocol standard.

The Common Alerting Protocol (CAP)

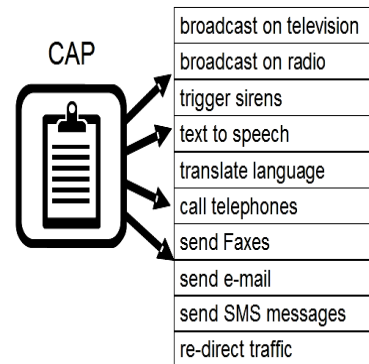
Historically, emergency alert messages have been mostly just text, composed like a news story without much, if any, structured data. This kind of free-form text message makes sense for in-person communication, but it prevents fast and efficient processing.

The problem was that information in emergency messages varied widely across hazard types, and across countries and languages as well. Without an emergency messaging standard, all-hazards public alerting was just impossible to achieve.

The Common Alerting Protocol (CAP) standard is exactly the single standard format needed. It is simple yet flexible enough to convey essential alerting information about any kind of emergency.

Because CAP makes processing much easier, the U.S. National Weather Service responded when users asked for CAP to become their primary alert format for weather. Users of alerts across other natural and man-made hazard types have the same experience: it is much easier to use alerts in the CAP format.

One benefit of CAP is that it is simpler to send alerts. With a single trigger, a sender can activate multiple warning systems (sirens, pagers, e-mail, smart-phone apps, web sites, highway signs, etc). This can greatly reduce the cost and complexity of public alerting.



For emergency managers, CAP is also very useful for compiling alerts from many sources, enabling pattern detection and "situational awareness". On one map, emergency managers can monitor the whole situation: all types of local, regional, and national alerts, easily displayed together thanks to the CAP standard.

CAP is not a complex standard to implement. You can think of CAP as a "standard form"--a page with various fill-in boxes and check boxes giving specific details of the alert. The power of CAP is simply in standardizing those form boxes.

Alerting authorities typically implement CAP as an add-on feature to their current alerting processes. They publish a copy of the alert, in CAP format, on their own Internet news feed. Alert publishers like Google and IFRC then monitor that news feed so they can automatically disseminate critical warnings to online users in the alerting area.

For several years, alerting authorities in the U.S. have been able to send out life-critical CAP alerts that can be picked up by every cell phone in the alerting area. This is enabled by a cellular phone standard known as "Cell Broadcast".

The Cell Broadcast Standard



Cell Broadcast is a standard message delivery service over cellular phone systems. When used in public alerting, a warning message goes to each cellular base station (cell tower) in the alerting area. That base station then sends the warning to the cell phones.

A cell broadcast warning goes to all cell phones in range, whether or not the phone owner subscribes to the particular cellular service. The station sends the warning immediately as a broadcast, which is much faster and more reliable than calling perhaps thousands of phones, one by one. For these reasons, cell broadcast is ideal for severe emergencies, when cellular message traffic is often heavy and the cellular network itself may have been degraded by the emergency.

CAP Alerts and the Official Alerts Hub

The aggregation of CAP alerts across many news feeds is facilitated with a "CAP Alert Hub". But, not all alert news feeds are official sources. A new Official Alerts Hub will be specialized in that it only handles copies of alerts issued by official sources worldwide, as designated in the [Register of Alerting Authorities](#) maintained by the World Meteorological Organization and the International Telecommunication Union.

Implemented on an Internet cloud infrastructure, the Official Alerts Hub will be highly reliable, highly available, and fast enough that an alert can reach online users within two seconds of being issued. This speed is crucial for immediate threats such as earthquakes, tsunami, and tornadoes where seconds can mean the difference between warnings that are life-saving and warnings that arrive too late.

In the event of a disaster, the cloud-based Official Alerts Hub helps keep remote user access from overloading local capacity that could be degraded. This off-loading of demand can be especially crucial for disasters in places with already limited telecommunications capacity.

The Official Alerts Hub will be secured against cyber attack, will assure that alerts are from authenticated sources, and will allow receivers to verify that alerts are the same as what was sent. The Official Alerts Hub will also support analytic capabilities to help alert publishers optimize the dissemination of alerts as the emergency unfolds.

The Opportunity and the Challenge

With the accelerating spread of CAP-based alerting, the cell broadcast standard, the international Register of Alerting Authorities, and the Official Alerts Hub, all the parts are in place to achieve dramatic improvements in public warning for societies worldwide. Nations like Australia, Brazil, Canada, China, Colombia, Germany, Indonesia, Mexico, New Zealand, Philippines, South Africa, the United States of America, and some Caribbean islands already publish CAP news feeds. Across Europe, CAP weather alerts are produced in 35 languages and will be publicly available as news feeds soon. Many other countries are implementing CAP right now as well.

Building on the global Internet infrastructure and amazing innovations such as the IFRC Hazards App, and Google Public Alerts, we see that voluntary public-private collaboration can provide a very powerful public service. The challenge now is for the rest of the world's alerting authorities and media to join in and help save lives and property, wherever and whenever warnings are needed.

For more information, see the online links for CAP References on PrepareCenter.Org at <http://preparecenter.org/resources/common-alerting-protocol-references>