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Cell broadcasts could help avert catastrophe

By Steve Mollman
For CNN

(CNN) -- Natural disasters like tsunamis or floods will always claim lives, but in the near future some of those lives will be saved by cell phone warnings, thanks to increasing use of a technology called cell broadcast.

Cell broadcasts could reach all mobile phone owners and wouldn't be restricted by network congestion.

The result of the technology -- a text message warning on your cell phone -- makes it seem similar to SMS. But differences in how it reaches you are matters of life and death in an emergency.

With cell broadcast, thousands (or millions) of potential victims can be reached in minutes because messages are sent indiscriminately to every mobile phone in the receiving area of chosen cell towers.

As with a TV broadcast, which isn't slowed down by a large number of viewers, a cell broadcast is basically immune to the problem of network congestion.

Part of the low-level signaling that goes on between handsets and networks, it's a point-to-multipoint mode of communication that requires neither switching nor specific addresses.

By contrast, SMS (point-to-point) needs both, leading to possibly fatal congestion and delays during a disaster.

The 2004 Asian tsunami was a "seminal event" in terms of focusing attention on cell broadcast, says Mark Wood, CTO of CellCast Technologies, which helps companies with location-based communications.

"Thinkers all over the world noticed that SMS was not scalable up to sufficient size to cover such a large population in such a short time."

The result? Many died who might otherwise have lived. Now, cell broadcast is in various stages of planning, testing or implementation around the world.

South Korea launched the first nationwide system in recent years, and Japan now has services as well. For now those are the main examples, but Wood expects about a dozen nations will have joined the cell broadcast club by the end of this year.

John Tacken, managing consultant at Conict Consultants, has been advising for the Dutch government on cell broadcast.

"It's an ideal platform for a government to use for public warning systems," he says.

One reason is that detailed instructions can be sent. A siren indicates danger, but not what kind of danger.

Consider industrial fires that produce poisonous gases. The best thing to do is stay inside your home, close the windows, and turn on the radio. But the Dutch government found that sounding the siren caused people to go outside to see what's going on.

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It's been testing cell broadcast over the past few years and is now tendering contracts for a larger system. Operators will be required to transmit emergency cell broadcasts, and the government will help cover costs related to setting up their systems.

Other European governments are following Holland's lead.

In the U.S., the WARN Act recently set out rules encouraging carriers to participate in government emergency warnings sent out to cell phones. It doesn't specify cell broadcast, but carriers don't have a lot of other options, notes Tacken.

U.S. carriers not cooperating with the WARN Act will have to prominently indicate it on consumer packaging at the point of sale. Fear of this competitive disadvantage has persuaded operators large and small to indicate they will participate (though some have declined to).

Japan and South Korea are ahead of the curve, as they often are in wireless technologies. Customers of Japan's NTT DoCoMo, for instance, can opt in to a free offering called the Area Mail Disaster Information Service.

Different approaches

There's much that still needs to be worked out with emergency cell broadcasts, and slightly different approaches will be taken in different places. One question is whether consumers should have to opt in to receive warning messages or get them automatically unless they opt out.

Area Mail customers must opt in, which requires a few easy steps on their handsets. But many experts believe opt-out is a better approach for public safety.

Also open for debate is whether to allow marketers to also use cell broadcast. The governments in Holland and South Korea have decided against it. But some argue it could help with the cost of deploying cell broadcast, especially in larger nations.

"Commercial and public uses can sit side by side without interfering with each other," says Wood, whose company is counting on it.

Few would disagree that all commercial messages should be strictly opt-in. Nobody wants spam broadcasts on their cell phones. Wood feels an education program "to inform citizens that cell broadcast does not intrude on their privacy and does not transmit spam" should be done.

Not fail proof

Cell broadcast does have some vulnerabilities. For instance if the cell tower itself is destroyed -- possible in an earthquake -- messages won't go out. And if your phone is off during the broadcast, you won't get the information even if you turn it back on minutes later, unless it's resent.

Cell broadcast has also met with resistance from carriers, some of whom complain about the costs (relatively marginal) of setting it up or their liabilities if a message fails to go out.

Indeed carriers have generally ignored cell broadcast, though most handsets can receive it and it's long been available as a standard part of GSM networks. (For other types networks some tweaking might be necessary.)

One reason is that they can't track and charge for each message, which possibly eats into their profits.

Such protests, though, ring increasingly hollow with each new tragedy in a world full of mobile phones that could save lives. Cell broadcast now seems poised for widespread if uneven adoption in public safety across the globe.

The upshot? Your cell phone might just save your life some day. Pack it in your beach bag.

STORY HIGHLIGHTS

Cell broadcast sends a message to all phones on all networks
Unlike SMS cell broadcast is not affected by network congestion
Could prove invaluable in warning people of natural disaster; tested by governments

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