ONE2MANY

Wireless Emergency Alerts
Worldwide implementations & Technology comparison

one2many - the leading cell broadcast company

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FEMA advertisement WEA (0:30)

ONE2MANY Cell Broadcast based Wireless Emergency Alerts - worldwide

Wireless
Emergency
Alerts

CMAS

EU-Alert

nl-alert

Earthquake &
Tsunami
Warning
System

Personal Message
Rocket alert

Taiwan
CMAS

'**LAT-Alert**'
Earthquake & Tsunami Warning

NEMA

Korea - KPAS

- **Wireless Emergency Alerts:**
  - Location specific
  - Reach
  - Timing
  - Should always work (congestion)
  - Privacy
  - Security
  - Call for action
  - Standardized (international proof)

Short Message Service (SMS)	Characteristic	Cell Broadcast (CELL BROADCAST)
Messages sent **point-to-point**	Transmission type	Messages sent **point-to-area**
Required. Requires specific phone numbers to be known	Mobile Number dependency	**Independent.** Does not require phone numbers to be known
No. Only pre-registered numbers will be notified; message will be received regardless of actual location	Location based targeting	**Yes.** All phones within a targeted geographical area (cells) will be notified.
Static messages will be sent to pre-registered numbers.	Message type	**Location specific.** Tailored messages can be sent to different areas.
Direct. Users can receive messages and respond directly to the sender via SMS.	Bi-directionality	**Indirect.** The message should contain a URL or number to reply.
Subject to network congestion. Delivery is queued. Congestion can occur	Congestion and delay	CELL BROADCAST is **always available**.
140-160 characters. Longer 'concatenated' messages are supported.	Message length	**93 characters.** Longer 'multiple page' messages are supported.
Poor authenticity. The source of the message cannot be verified.	Security	**Good security.** Only the mobile operator can broadcast messages.
No barring.	Service barring	**Yes.** Users can turn off CELL BROADCAST reception or a specific channel.
By default. When phone is turned on messages can be received.	Reception	**Requires action.** CELL BROADCAST needs to be turned on in order to receive messages.
Yes. Senders can request delivery confirmation.	Delivery confirmation	**No.** Confirmation of delivery to the handset is not available, however actual broadcast in the network is.
No repetition rate.	Repetition rate	**Yes.** Can be repeated between 2 seconds and 32 minutes.
No. Identical to all receivers.	Language selection	**Yes.** Messages can be broadcasted in subscriber's preferred language
Yes.	Message storage	**Handset dependant.**

- **Wireless Alerts are**
  - a guidance to safety;
  - in a specific area;
  - during a certain period of time

- **People move around**
  - even during a crisis….
  - advice should be up to date and related to their location

- **A WEA is a continuous guidance to safety in an area**
  - During the duration of an emergency situation
  - (So not an one-off message)

## Reach - all networks & all phones
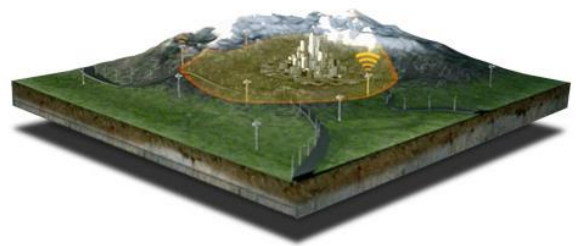
- **Networks**
    - Cell Broadcast included in early GSM specifications
    - Continued support in UMTS and LTE
- **Handsets**
    - Drivers
        - CMAS in the United States
        - EU-Alert in Holland
    - All mayor OS:
        - Android
        - iOS
        - Windows 8
    - Localization
        - Top 20 phones in The Netherlands support PWS from the shop.
   - The phones' PWS functions are available and can be turned on by request to the manufactures
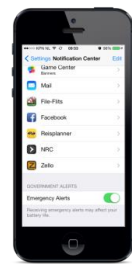
- **Time is of the essence!**
  - Earthquake
  - Tsunami
  - Bomb threats
  - Flash-fires etc.

- **The target audience can range from hundreds to millions**
- **High volume/impact scenario's like tsunamis require low latency dissemination**

- **Mobile networks are built and dimensioned for spread use**
  - Eg. New Year's Eve or sports stadium

- **'The weakest link….'**
  - Signaling air capacity at the cells

- **Delivery efficiency**
  - One to many -> broadcast
  - One to one -> everyone in its turn

- **During a crisis/event networks get congested**
  - people trying to call for help
  - people outside of the area try to reach loved ones in an affected area.
  - People in a stadium cannot be reached at all.

- **The general public does not want 'the government' tracking them**
  - Eg. NSA phone META-data debate

- **Delivering content based on subscribers location**

  VS

- **Delivering content in a certain area**

- **LBS based solutions are keeping track of subscribers location**
  - based on network signaling information
  - Eg. SMS

- **Location based broadcasts do not require subscribers information**
  - Eg.Cell Broadcast
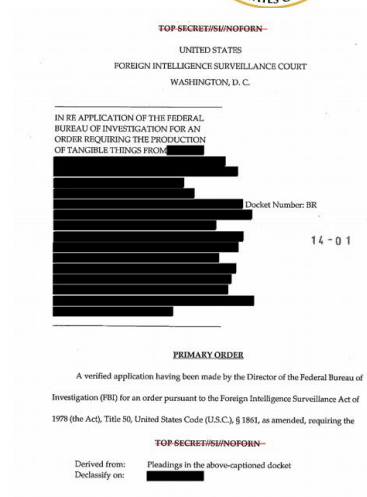
Secure

- The public needs to be sure that Wireless Emergency Alerts originates from the government

- Cell Broadcast is part of serving mobile network
  - Only wireless messaging service which is as secure as the network itself.
  - The mobile networks / crisis management organizations are the only ones which can broadcast Emergency Alerts.

- Eg. SMS can easily be spoofed
  - so anyone can pretend to be from the government, giving false guidance, potentially harming people.
    - How to: http://en.wikipedia.org/wiki/SMS_spoofing,
    - Tooling: http://fogmo.com/
    - Number database: http://wheretobuyemaillists.com/email-lists/australian-mobile-phone-sms-database-au-2013/

Home / News / Technology / Security

India, Pakistan shut down networks after panic

Powered by SC Magazine SC

By Juha Saarinen on Aug 21, 2012 5:30 AM
Filed under Security

Updated: Electronic whisper campaign of terror.

Indian authorities have ordered internet service providers to block websites and restrict bulk SMS sending for two weeks after a campaign of threatening messages created mass panic in the country.

The restrictions, which applied for 15 days from Saturday 19 August, restricted users to sending a maximum of five SMS messages a day and blocked all bulk MMS messages.

All MMSes with attachments larger than 25KB were also blocked.

About 160 websites were blocked under the Government's orders, according to the IDG News Service.

Internet Service Providers Association of India president Rajesh Chharia said ISPs had been instructed by the Government to remove access to the websites

Tags

india, pakistan, sms, online, facebook, twitter

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Latest Comments

- ## How to get noticed…?

- ## Wireless Emergency Alerts need
  - a specific Ringtone and vibration
  - (overriding silent settings)

WhatsApp Inc. ✔
@WhatsApp

Follow

new daily record: 20B messages sent (inbound) and 44B messages received (outbound) by our users = 64B messages handled in just 24 hours.

3:24 AM - 2 Apr 2014

581 RETWEETS **288** FAVORITES

Emergency alert
This is Cell Broadcast technology from www.one2many.eu
OK

a day in our global **DIGITAL LIFE**

30% of the Global population is online[1]

250 million Tweets sent every day[2]

800 million Facebook updates every day[3]
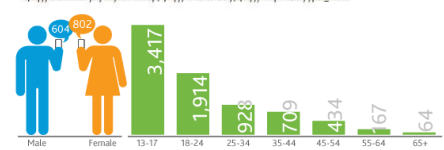
1 billion Google Searches every day[4]

4 billion YouTube Videos viewed every day[5]

The number of **SMS messages** sent every day **exceeds the population of the planet**[6]

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*Statistics: 1) & 6) ITU: 2010 Facts & Figures - retrieved from: http://www.itu.int/ITU-D/ict/facts/2011/index.html; 2) http://blog.twitter.com; 3) http://newsroom.fb.com/Key-Facts/Statistics-8b.aspx; 4) http://www.comscore.com/; 5) http://www.youtube.com/t/press_statistics

		13-17	18-24	25-34	35-44	45-54	55-64	65+
604	802	3.417	1.914	928	709	434	167	64
Male	Female							

Source: Nielsen

nielsen

- People travel.. Across borders..

- 3GPP Standardized Wireless Emergency Alerts service
  - 3GPP has standardized public warning service (PWS) in requirements specification TS 22.268.
  - PWS is a generic warning service with some local variants:
    - ETWS (Japan) – Cell Broadcast
    - CMAS (United States) – Cell Broadcast
      - ATIS / TIA; J-STD-100/101/102
    - EU-Alert (Europe) – Cell Broadcast
      - ETSI; TS 102 900
    - KPAS (Korea) – Cell Broadcast
- Local formal specifications
  - Chile and Taiwan
  - China (ongoing)
  - Canada (ongoing)
- Other countries where Cell Broadcast is used for PWS, without formal specifications
  - Lithuania
  - Israel

- **Why <u>not</u> SMS?**
  - Reach
    - Every phone supports SMS fully ✓
  - Timing
    - Sending a message to millions takes valuable time ✗
    - Wireless network have limited (signalling) capacity
  - Congestion
    - Wireless network are dimensioned for spread use ✗
    - Eg New years eve, events, sports stadium
  - Location
    - Guidance to safety depends on the location where people are ✗
    - A LBS is required to query subscribers' locations
  - Privacy
    - A LBS is tracking and tracing of subscribers ✗
    - Governments' tracking people is a NO-GO discussion
  - Security
    - SMS can be spoofed easily ✗
    - Criminals can pretend to be the government
  - Call for action
    - SMS or WA end-up on the pile of messages ✗
  - Costs
    - SMS / LBS based infrastructure costs are 5 times higher ✗
  - Not standardized

- Why is Cell Broadcast defacto?
  - Reach
    - Cell Broadcast is supported by all OS, however needs to enabled
  - Timing
    - Sending a message to millions takes seconds
  - Congestion
    - Cell Broadcast always works
  - Location
    - Cell Broadcast disseminates on individual cell sectors
    - So inherently location based
  - Privacy
    - The network is unaware of subscribers receiving alerts
    - Cell Broadcast is like radio truly broadcast
  - Security
    - Only the serving mobile network is able to send Cell Broadcast
    - Cell Broadcast is as secure as the network
  - Call for action
    - All OS have a WEA client with a dedicated ringtone and vibration
  - Costs
    - Cell Broadcast infrastructure is below 1 Million USD investment
  - Fully standardized
    - All standardized Wireless Emergency Alerts standards are Cell Broadcast based
    - CMAS, EU-Alert, KPAS
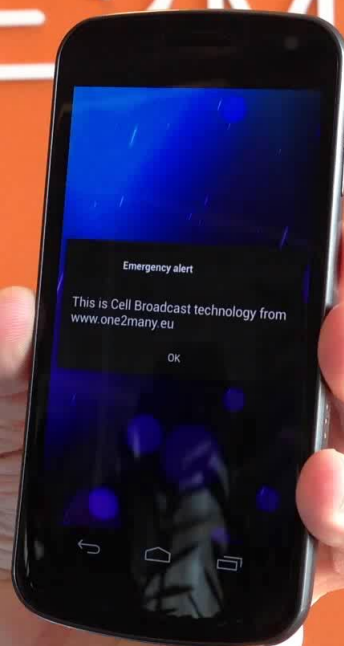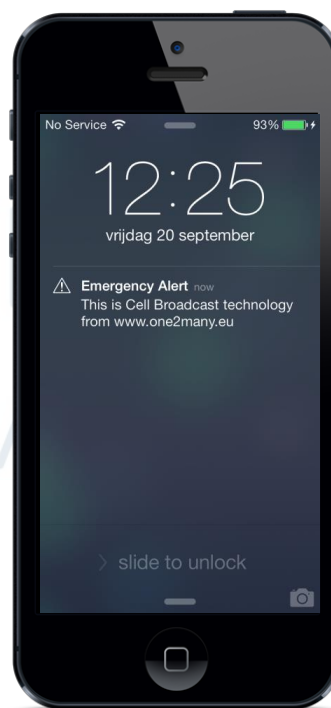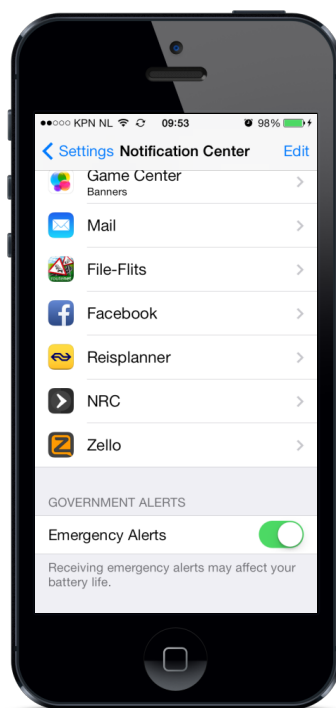
NL-Alert on Google Galaxy Nexus (00:03)
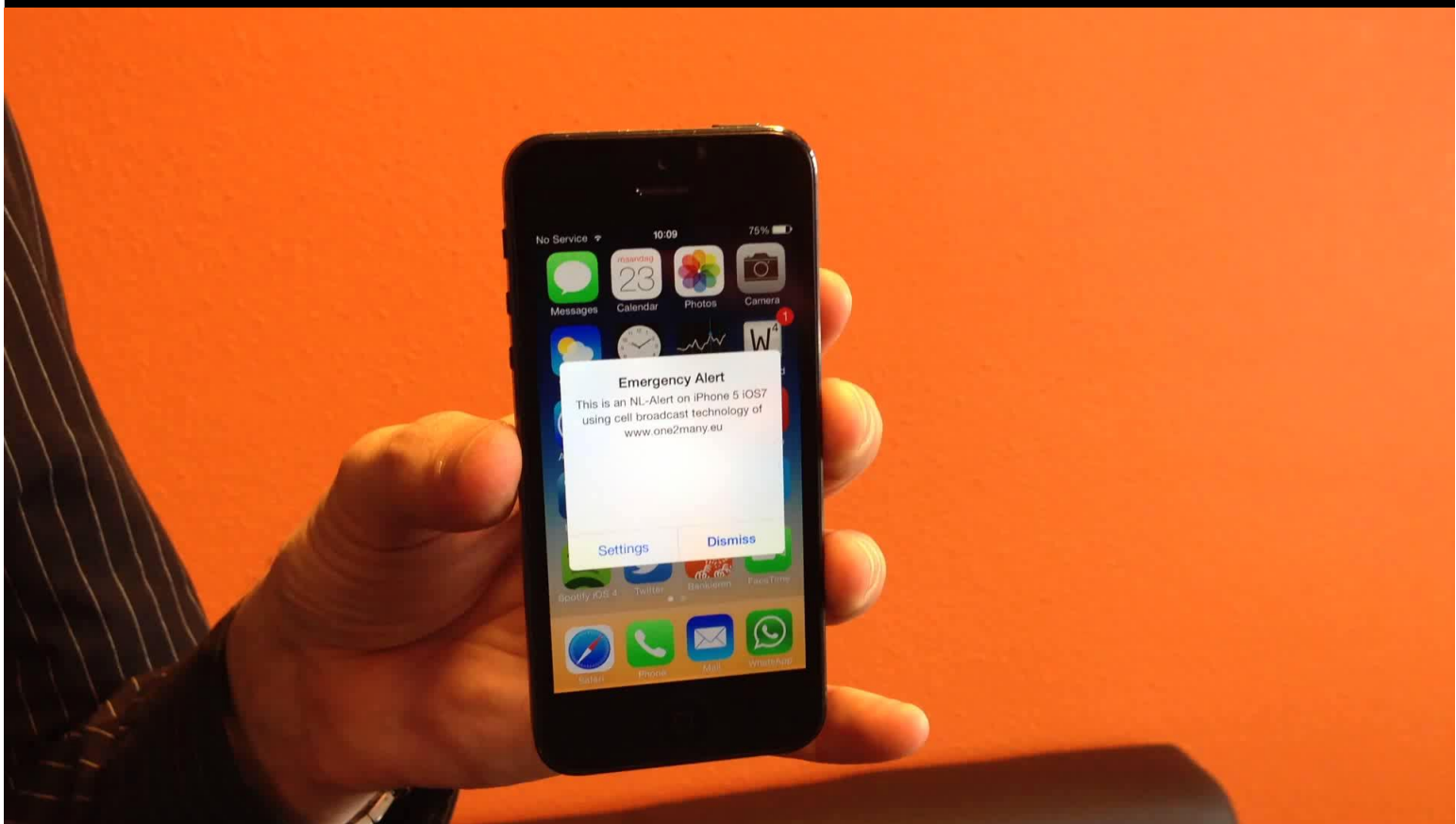
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Apple iPhone 5 iOS 7 NL-Alert screenshots

Settings Notification Center screen:
- Game Center — Banners
- Mail
- File-Flits
- Facebook
- Reisplanner
- NRC
- Zello

GOVERNMENT ALERTS

Emergency Alerts

Receiving emergency alerts may affect your battery life.

Lock screen:

12:25
vrijdag 20 september

⚠ **Emergency Alert** now
This is Cell Broadcast technology from www.one2many.eu

slide to unlock

7
iPhone 5 Ⓢ
Forward thinking.

ONE2MANY

No Service | 12:25 | 93% |
Today | All | Missed

⚠ **Emergency Alert** now
This is Cell Broadcast technology
from www.one2many.eu

Emergency Alert
This is Cell Broadcast technology
from www.one2many.eu

Settings | Dismiss
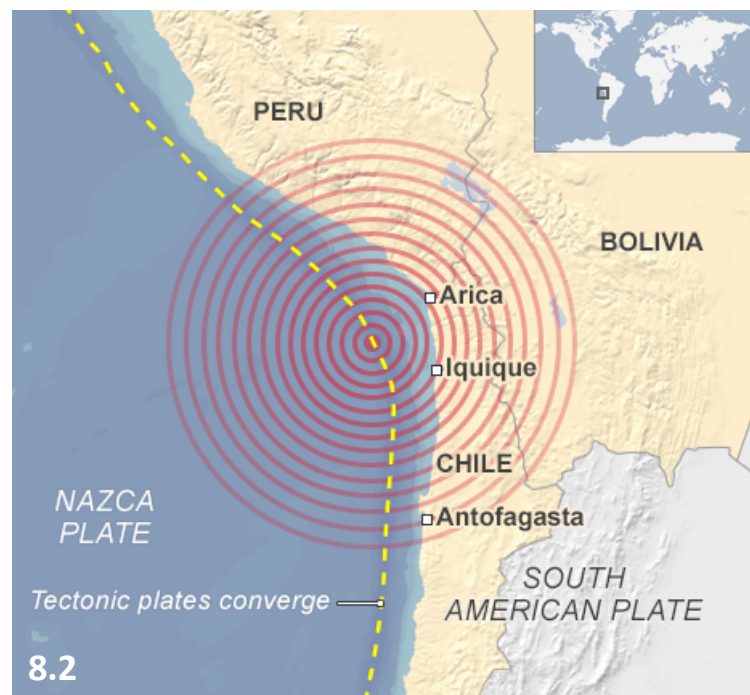
iPhone 5 ⓢ
Forward thinking.

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NOAA advertisement WEA – phone settings (0:30)

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Chile
Case study: earthquake & tsunami 2014

PERU

BOLIVIA

□Arica

□Iquique

CHILE

NAZCA
PLATE

□Antofagasta

SOUTH
AMERICAN PLATE

Tectonic plates converge

8.2

ONE2MANY

PERU

BOLIVIA

Arica

NAZCA
PLATE

Tectonic plates converge

8.2
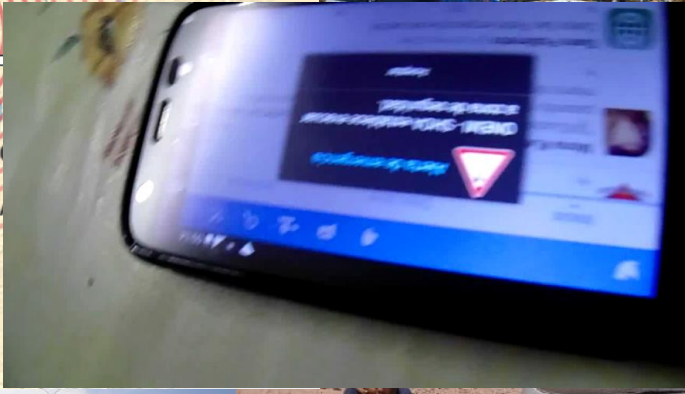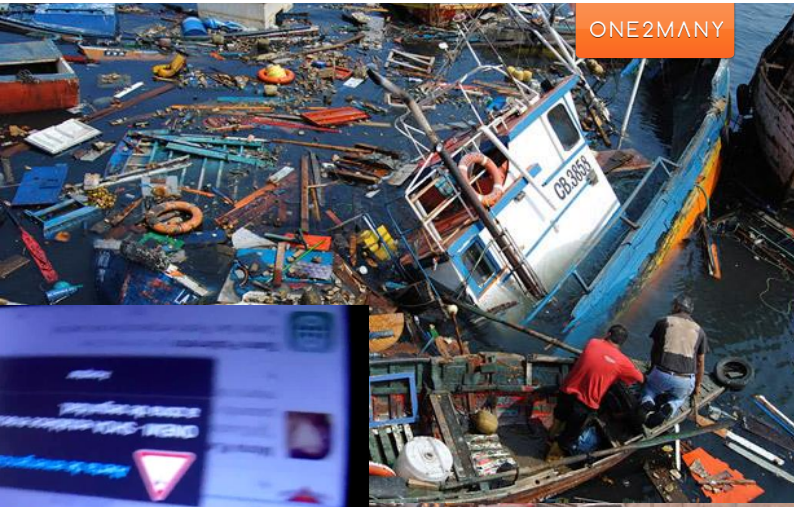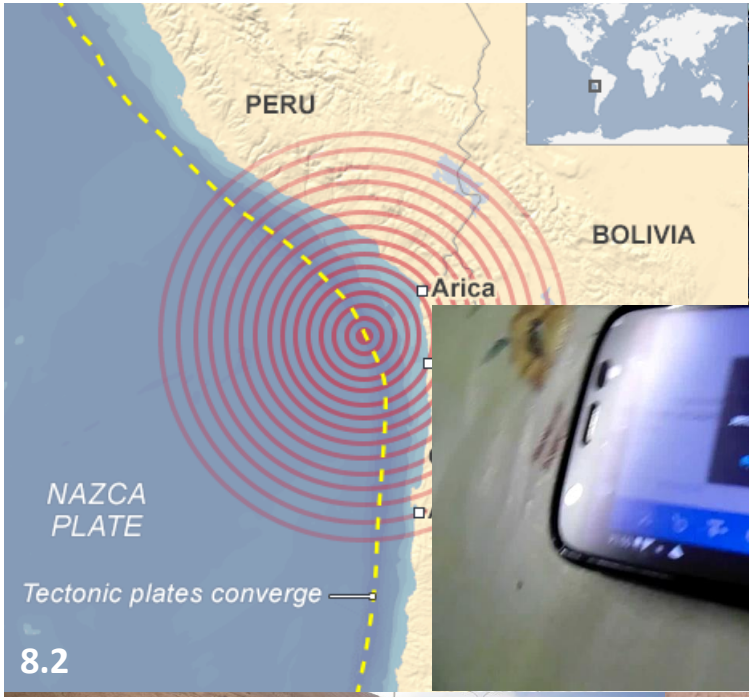
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Contenido de mensaje :
ONEMI establece evacuacio?n preventiva. Dir?jase a zona segura.
ONEMI - SHOA establece evacuar a zona de seguridad.

Next Steps

Thanks for your attention!