Symbols in Alerting?

Common Alerting Protocol (CAP) Implementation Workshop

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World Meteorological Organization Headquarters,

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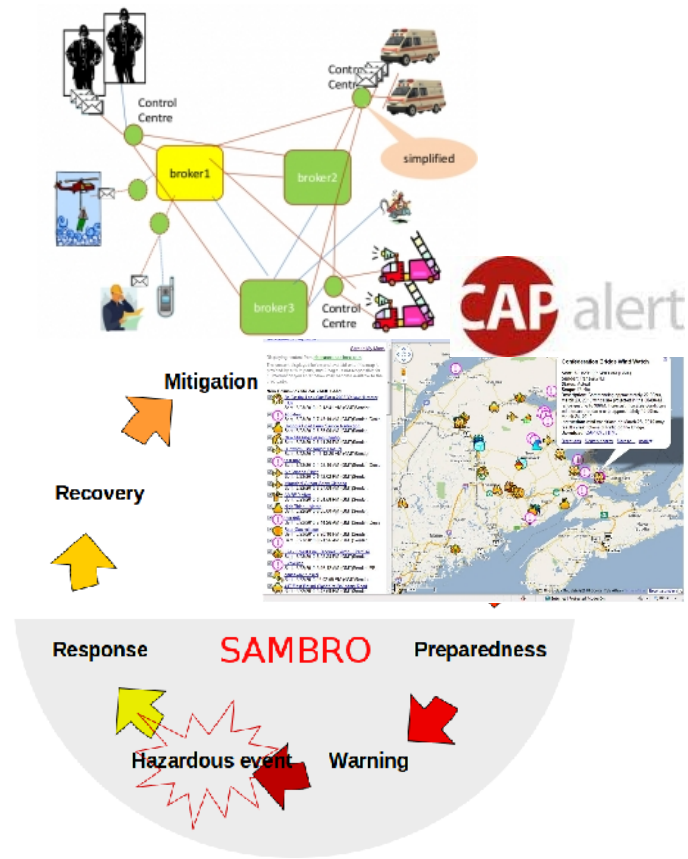
Outline

- Introduction to Sahana and the Alerting Broker
- Our proposed goals, intent, and actions
- Why symbols in Alerting (Justification)
- Can we adopt from the existing
- Preliminary technical design framework
- CAP elements to utilize
- Immediate work to be done



SAHANA
SOFTWARE FOUNDATION

Sahana HUMANITARIAN Free and Open Source SOFTWARE

Built for Disaster Management

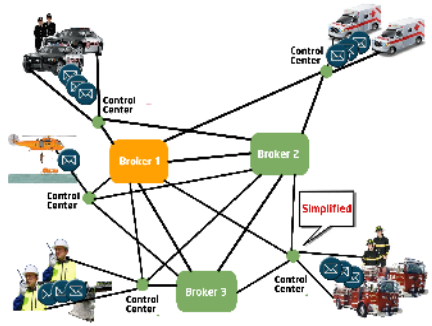
Global Community and Professional Support

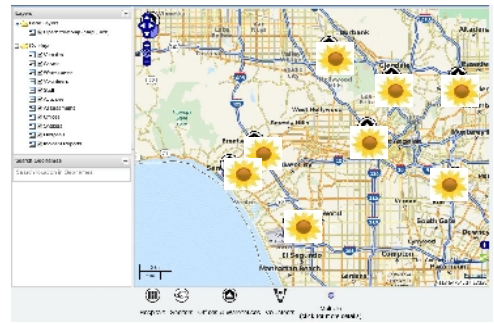
Our Response to Natural Disasters

Google
open source initiative
OEM
New York City Office of Emergency Management
City of Los Angeles Emergency Management Department "In Omnia Paratus"
IBM
NSF
European Commission
National Library of Medicine
LIRNEasia www.lirneasia.net
AidIQ
OASIS The Organization for the Advancement of Structured Information Standards

Sahana Mission

Our MISSION is "saving lives by providing information management solutions that enable organizations and communities to better prepare for and respond to disasters"





Situation	Decision	Response	Facilities
Staff	Requests	Projects	Facilities
Volunteers		Commitments	Hospitals
Incidents		Sent Shipments	Offices
Assessments		Received Shipments	Shelters
Assets			Warehouses
Inventory Items			

Sahana Eden CAP Broker

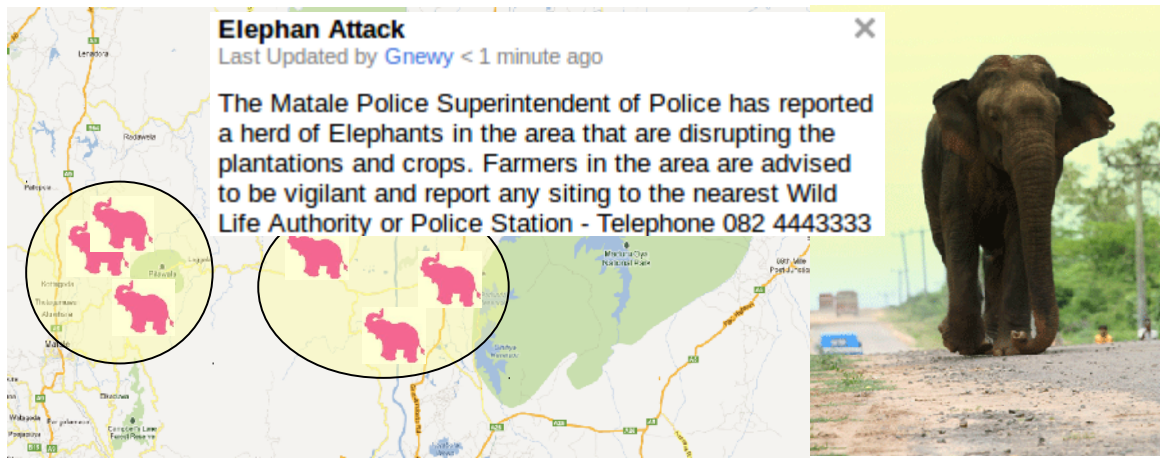
"Sahana-Krakatoa" (PHP) version is deprecated and a new and improved version is built in to "Sahana-Eden" (Python/Web2Py)

Views consists of CAP Profiles, Templates, and Alerts

Can handle multiple <alert.language>s and multiple <alert.info> segments per alert

Using maps and polygons for setting the <alert.area>

Message distribution through Web, Email, SMS, RSS, Atom, Twitter



Taken from website: http://www.ccrsl.org/CCR/WhoWeAre/SampathEkanayaka/ResearchElephantDiet.htm

Next Our Goals, Intent, and Actions?

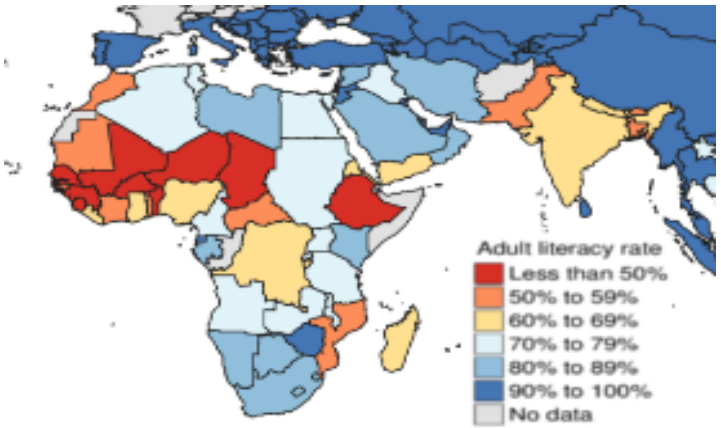
GOAL :: Introduce Symbols in Alerting for mobile phones (standard and smart ones)

INTENT :: Build a program that advocates Governments, GSMA and other relevant organizations, through evidence-based policy research, to adopt Symbols in Public and Closed User Group Alerting.

ACTIONS ::

1) Realize the customer attributes, constraints, functional requirements, design parameters, and process variables
2) Develop an action plan for achieving the goal (identifying resource requirements and tasks)
3) Conduct a proof of concept with a small pilot project
4) Expand on the proof of concept to carry a wider-scale action research
5) Leverage the evidence from the action research for policy advocacy in adopting strategies and technology for symbols in alerting

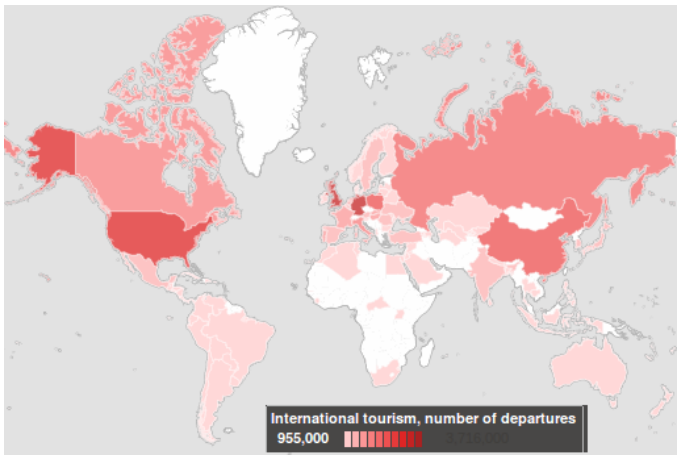
Why Symbols in Alerting (Justification)



~30% avg in South/West Asia and Sub-Saharan Africa are illiterate

~ 10% avg improvement in the last 20 years

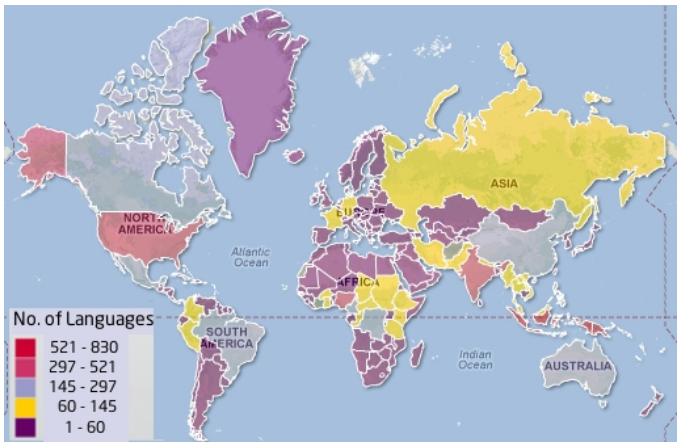
Source UNESCO:
http://tinyurl.com/bwj3stl



~ 955,000 million/year international tourism departures 2008-2012

~ 1.6 billion/year foretasted for 2020

Source World Bank:
http://tinyurl.com/bwj3stl



Most countries speak more than one language

Many of them with over 50 languages

Source Ethnologue world languages:
http://tinyurl.com/csfg45v

1. Symbols would serve the:
   a) Illiterate and people with other disabilities
   b) Overseas travelers and Expatriates illiterate in the local language(s)
2. Reduces the
   a) need to message in too many languages
   b) load on the networks during a crisis

Can we adopt these ALERT symbols?

Present day work on symbols are for emergency managers and not the public

UNOCHA Reliefweb, World Humanitarian and Country Icons:
http://reliefweb.int/map/world/world-humanitarian-and-country-icons-2012

Maybe

Emergency Mapping Symbols (Canada): http://emsymbology.org/index.html

Maybe

Homeland Security Working Group (USA) – adopts from http://symbolstore.org/ :
http://www.fgdc.gov/HSWG/ref_pages/SymbologyBackground_ref.htm

Maybe

UNOCHA Noun Project (not defined for alerting):
http://thenounproject.com/collections/ocha-humanitarian-icons/

NO

Can we adopt these RESPONSE symbols?

Hard finding a repository of response symbols

Option A: hazard + response NO ARROW

Option B: hazard + response WITH ARROW

Option C: split hazard and response (i.e. display hazard first then the response (flip-flop)

:

:

Disaster Response Symbols version 1.0 (beta:) 2009: http://drms.rpec-cert.info/

NO – not exactly the response symbols we need, it's mostly situational awareness and alerting

Process for activating symbol based alerting

1) Download or receive from Mobile Operator and install

2) Configure your settings to receive specific alerts of priority and select preferred language

3) Receive alerts on to your mobile computing device

Axiomatic Design Framework

Customer Attributes

CA01 – activate on any mobile phone (standard or smart)

CA02 – indicate the incident, event, priority, response and area

CA03 – sudden/rapid onset only?

Constraints

CS01 – input constraints (CAP)

CS02 – system constraints (mobiles)

Functional Requirements

FR01 – wireless technologies

FR02 – device independent

FR03 – 'subscribed' alerts only

FR04 – show text with symbol

FR05 – indicate priority with symbol

Design Parameters

DP01 – SMS, CB, GPRS, WCDMA

DP02 – mobile app: iOS, Android, Symbian, other

DP03 – configuration tool

DP04 – CAP parameter with text

DP05 – color or numeric priority coding

Process Variables

PV01 – activate SMS, CB, GPRS

PV02 – install phone specific app

PV03 – enable/disable priority specific hazard category

PV04 – superimpose text with symbol

PV05 – mapping of urgency, severity, certainty

Proposed CAP elements

<category>, <priority> & <area> :: to filtering what you want to see ?

<parameter> :: "Symbol-text" = <event> + <incident> + <response> + <areaDesc> (to display text with symbol and possibly integrate TTS for audio) ?

<parameter> :: "*Symbol-UUID*" that would trigger the symbol.

Can the Symbol-UUID be lexicographically derived from <category>, <incident>, and <response> ?

<parameter> - "*Priority*" (numeric and/or color) code based on <urgency>, <severity>, <certainty> ?

<web> :: embed the URL in symbol (image) to direct to a full description ?

Design challenges for Mobiles

1) How to implement with CAP

   Which CAP elements to use?

   How to trigger the symbols?

2) What symbols to adopt?

   What is most effective (self-intuitive)? (color vs B&W, frame shapes, etc)

   What is the minimal set of symbols for alerting?

   How do we make provision for context specific alerts like Elephant rampage?

   What are the mapping between the hazard and response ?

   - Is it event → response or incident → response
   - is it 1:1, 1:many, many:many, many:one?

Immediate work to be done

1. Realizing the necessary and sufficient conditions for CAP-based mobile alerting with symbols (background research)
2. Produce a set of requirements and specifications for developing an ICT system for symbol-based mobile alerting (publish in the Sahana Wiki)
3. Develop and test (lab & field) applying Human Computer Interaction (HCI) techniques
4. Formulate a plan for continuing the work towards achieving the goal

Share your thoughts with me, please …

Thank You

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