IOTX Common Alerting Protocol (CAP) Workshops¹
16-19 June 2014, Negombo and Colombo, Sri Lanka

Organised by: LIRNEasia (http://www.lirneasia.net); co-sponsored by: World Meteorological Organization (wmo.int), Organization for the Advancement of Structured Information Standards (oasis-open.org), International Telecommunication Union (itu.int), Sahana Software Foundation (sahanafoundation.org), Google Summer of Code (developers.google.com/open-source/soc/), Virtusa (virtusa.org), Dialog Axiata (dialog.lk), International Development Research Center (idrc.ca), and United Kingdom Department for International Development (gov.uk).

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Abstract – The Workshop was part of the IOTX Convention hosted by LIRNEasia, where IOTX stands for the 10th anniversary of the tragic Indian Ocean Tsunami. The host of the Workshop was LIRNEasia. Based in Sri Lanka, LIRNEasia is a non-profit company seeking to identify the institutional constraints on effective use of Information and Communications Technologies to improve the lives of people in the Asia-Pacific region. This report on IOTX CAP (Common Alerting Protocol) discusses three specific events with a common theme of CAP: a) CAP Jump Start, b) CAP Implementation Workshop, and c) CAP Code-fest.

Keywords – Common Alerting Protocol, Warning, Interoperability, All Hazards, All Media

1. Introduction & Context

The Workshop was part of the IOTX Convention hosted by LIRNEasia, where IOTX stands for the 10th anniversary of the tragic Indian Ocean Tsunami. The host of the Workshop was LIRNEasia. Based in Sri Lanka, LIRNEasia is a non-profit company seeking to identify the institutional constraints on effective use of Information and Communications Technologies to improve the lives of people in the Asia-Pacific region. This report on IOTX CAP (Common Alerting Protocol) discusses three specific events with a common theme of CAP: a) CAP Jump Start, b) CAP Implementation Workshop, and c) CAP Code-fest.

The CAP Jump Start was the precursor event to the main CAP Implementation Workshop. It was a tutorial session designed around 4 classroom modules: CAP 101, 105, 106, and 204. The one day workshop introduced the participants to CAP and its policies and procedures. In the afternoon they installed and tested the sending of CAP-enabled free to use software. It was held in Negombo on June 16th.

The CAP Implementation Workshop was held 17-18 June 2014 in Negombo, Sri Lanka. It was a technical forum among experts engaged in alerting enabled by the CAP standard (ITU-T Recommendation X.1303). CAP Workshops are a forum for implementers of CAP and associated organizations to discuss common issues and how best to expand adoption of the CAP standard. For the 2014 Workshop, a major theme was the use of CAP in Tsunami Early Warning Systems. Another theme was the CAP-enabled alerting presented via online media by overlay of advertising. In that vein, this Workshop heard about the new Federation for Internet Alerts (internetalerts.org) and its planned voluntary design guidelines for online warnings. These would include aspects such as colors, fonts, and sets of symbols, and could also touch on behavior tracking, geo-location, privacy, and other policy matters. Participants heard about the latest CAP-related developments from OASIS, ITU, and WMO. That will include current status of the international Register of Alerting Authorities. WMO maintains the official Web Site which includes the speaker’s picture and short bio for each of the presentations, as well as other documents associated with the 2014 CAP Implementation Workshop.

To form the CAP Code-fest, some members from the CAP Implementation Workshop and those associated with the Sahana Software Foundation converged at the Orion City IT Park, in Colombo, on June 19th. The ex-

¹This article is a summary of the above mentioned conference with a special focus on proposed elements for consideration in the Post-2015 Framework for Disaster Risk Reduction.
Exercises aimed to find common ground among the experts on strategies on the following preset challenges:

A) Integrate RSS feeds to deliver CAP messages to an aggregator
B) Emulate the Google AlertHub import and visualization capabilities
C) Recommend features for the FIA Reference Service; especially the objects
D) Discuss the design requirements for validating event specific data (i.e. measures)

The event was not quite a hackathon where the main focus would be with software engineering. Instead it was an opportunity for experts to experiment with coding activities to derive best practices and design strategies.

2. Conference Aims & Objectives

2.1. Profile of participants

OASIS is the editor and guardian of the CAP standard. Specifically, it is managed by the OASIS Emergency Management Technical Committee. It is recommended by the ITU-T X.1303 standard. The WMO role was led by the Public Weather Services (PWS) programme, which is responsible for developing service delivery capacities and capabilities of National Meteorological and Hydrological Services (NMHSs) of WMO Members. The focus of PWS includes how official alerting authorities disseminate alerts and warnings to the public, to media, and to disaster management and civil protection authorities.

GeoTrigger Service by ESRI, the Mobile4D alerting system based on smartphones, and the new Sahana CAP-enabled freeware for emergency management were solutions available for publishing and subscriber to alerts. Pinkerton and Google Crisis Response discussed their aggregator for disseminating validated CAP messages. There were presentations on public-private collaboration in the CAP context, and on certain CAP implementations already in production or active development: Canada, Indonesia, Italy, Kenya, Mexico, and Tanzania. There updates from MeteoAlarm on public access to their CAP sources across 33 nations in Europe.

2.2. Major aims and objectives

The event drew attention to building capacity in the Asia Pacific Region through a sharing of knowledge and hands-on practical workshop experiences. The Media and Public were invited to selected events to correspond with the experts as well as observe what new technology has to offer. Other events are for experts to debate the technical and policy intricacies of strengthening the ICT-enabled regional disaster management and emergency communication competencies.

3. Outcomes & Contribution towards the Post 2015 Framework for Disaster Risk Reduction


This workshop has specifically addressed issues related to HFA Priority Actions 2, 3, and 5. Interoperability is an important driving component that advocates harmonizing
Table 1: Results obtained by the conference

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<tr>
<th>Item</th>
<th>Description</th>
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<tr>
<td>Major Achievements</td>
<td>CAP Jump Start had 40 participants be exposed to an introduction to CAP and by the end of the day installing a CAP-enabled editor for issuing CAP messages.</td>
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<td>CAP Implementation Workshop has documented a wealth of knowledge on the WMO website and a workshop discussions document will be made available as well: <a href="http://www.wmo.int/pages/prog/amp/pwsp/CAP_Workshop_Presentations_2014_en.html">http://www.wmo.int/pages/prog/amp/pwsp/CAP_Workshop_Presentations_2014_en.html</a></td>
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<td>CAP code-fest stimulated discussions emerging from trying certain coding solutions to the four activities. Several groups agreed to collaborate on the continued work on those activities (A) – (D): <a href="http://www.waidyanatha.blogspot.com/2014/06/code-fest-on-early-warning.html">http://www.waidyanatha.blogspot.com/2014/06/code-fest-on-early-warning.html</a></td>
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<td>Lessons learned</td>
<td>Of the 40 people attending the CAP Jump Start 40% of them were foreign and the rest Sri Lankan. This is an indication of the need for more Jump Start workshops to build CAP capacity.</td>
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<td>Number of unique CAP Implementation Workshop presentations are an indication of the uptake of the CAP standard. However, there are over 200 countries that could improve interoperability in their early warning systems by considering CAP.</td>
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<td>There are unsolved questions in relation to the CAP early warning standard. Therefore, it is important that all stakeholders participate in forums such as the ones facilitated by oasis-open.org.</td>
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<td>Code-fest create opportunities for a community of practice involving domain experts and coders to participate in engineer solutions.</td>
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<td>Steps for the future</td>
<td>Continue with developing CAP and supporting countries to adopt in favor of improved multi-agency situational-awareness.</td>
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community relationships, structured content, interactive man-machine driven applications, and robust communications infrastructure.

Organizations that have adopted the interoperability standard: CAP have enhanced their early warning systems (Priority Action 2). CAP provides a content standard and the policies and procedures for implementing early warning system with interoperability in the country and organization context. Policies that support CAP-enabled Multi Agency Situational Awareness fosters information sharing between multiple agencies (or stakeholders) to keep everyone better informed (Priority Action 3).

Agencies authorized to issue alerts would require knowledge of hazard severity specific impact geographic areas. Such information result from community resilience mapping exercises that involve understanding the local hazards and vulnerabilities (Priority Action 5); whereby, the community and experts would agree on hazard specific alerting areas or jurisdictions.

3.2. Research in the Post 2015 Framework for Disaster Risk Reduction

Managing a National Register of Alerting Authorities; thus, nationally recognizing those individuals and departments mandated with authoring and originating alert and early warning messages. The interoperability requirements are not just with technology but also with the social, content components associated with an implementation. It requires bringing together multiple agencies with a stake in risk knowledge mobilization; especially emergency services and other communities of practice that can better coordinate with improved situational-awareness. The CAP “adoption” understands that one should consider cooperating with multiple stakeholders and it can become quite difficult given the organizational structures and their relationships. There is a need for more case studies to understand and, if necessary, overcome or harmonize with those social barriers, behavioral changes, and technological complexities resulting form CAP. HFA should emphasis investments for adopting an integrated functional approach to early warning system development that would better serve “interoperability”.

3.3. Education and training in the Post 2015 Framework for Disaster Risk Reduction

The CAP community has conducted several workshops and are now beginning to create various capacity building programs and exercises. The WMO has initiated a CAP Jump Start that involves 4 class modules for taking someone a zero knowledge on CAP to using a software tool to publishing a CAP message. ITU has conducted advance level workshops with emergency managers. One initiative is the cap.ituprojects.org that has online self-training materials for learning about and testing with free to use software.

In general such alerting and early warning related training regimes should be integrated in to a National Emergency Communication Plan. WMO and ITU initiatives are with the member states and the permanent representative but a National capacity building initiative is equally important. Ideally the Guardian (or Editor) of the CAP Profile of a Country would be an person who could facilitate the CAP Policy, Procedures, and Technology related knowledge.
3.4. **Implementation and practice in the Post 2015 Framework for Disaster Risk Reduction**

A key reason for introducing Emergency Data Exchange Language standards in a curriculum would advocate “interoperability”. A system that adopts standards for improved interoperability is very likely to integrate with any other national or cross-boarder system. Given that hazards are unbounded by borders, it is important that training regimes consider advocating commonly practiced standards for enhancing inter jurisdictional (hub-spoke), intra jurisdictional (local and cross-boarder) situational awareness.

3.5. **Policy improvement for the Post 2015 Framework for Disaster Risk Reduction**

Policies should strive to operationalize a Multi Agency Situational Awareness platform. The CAP standard, as a first step, recommends implementing a CAP Profile for the Country. Register of Alerting Authorities and Information Communication Technology are key ingredients of implementing CAP for improving National Situational Awareness for inter jurisdictional, intra jurisdictional, and cross-border risk information mobilization.

**Conference Documentation**

http://www.iotxconvention.org

**References**


**Citation**