GDACS

Toward Next Generation
Global Disaster Alert and Coordination System

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Introduction

- **GDACS**: Global Disaster Alert and Coordination System
  - Provides real-time automatic disaster alert and response coordination system
  - Operated by UN OCHA and JRC (Joint Research Centre)

- Process of Disaster Response

![GDACS Diagram](image-url)
Complexity of Relief Coordination and Information flow

- Varies by scale of the disaster, for Haiti earthquake in 2010,
  100+ international NGOs
  10+ UN agencies (UNICEF, UNDP, WFP, etc.)
V-OSOCC

- Virtual On-Site Operations and Coordination Center
  - Dedicated to Disaster response coordination
  - Sub-part of GDACS
  - Supports information exchanging, relief coordination on disaster response field work.

- Basically, actors need to know...
  - What's Happening?
  - Who's going?
  - What's needed?
V-OSOCC (cont'd)

- **Various information**
  - 10 Sections
    (Coordination, Logistics, Contacts, Situation, Satellite Images and Map, Relief team and item info)
  - 24 different kinds of information
    (e.g., Team list, Team status, Situation Map, Affected area map, Contacts, Satellite images, Situation Report, etc.)
V-OSOCC (cont'd)

- **Presentation of information**
  - Summary text for each section
  - Usually information is generated by Microsoft Word, Powerpoint and contained in PPT, DOC, PDF file
  - Uploaded as an attached file and link is provided: Static information
  - Difficult to search, filtering, management content dynamically
Critique of V-OSOCC

- Text-based website design
- Poor navigation system
- Few broken links
- Text at few places not readable
- Browser inconsistency
- Could have been a multilingual website
Critique of V-OSOCC (contd...)

Shannon’s information theory:
Information uncertainty increases when noise interferes with the signal between the sender and receiver.

Noise for current system:
Lack of ‘findability’ & the Information Presentation
- No search option.
- Most of the data in PDF/Word files.
- No means of retrieving information based on time or geolocation.
Conceptual Model
Implementation Architectures

Client Side
- Adobe Reader
- Modern Web Browser
- Modern OS

Server Side
- ASP
- Data Store
- Modern Web Browser
- Modern OS

Current Implementation

Proposed Implementation
- PHP
- Google Maps API
- XML Data Store
- Legacy Data Store
Overview of Re-Implementation

● Functionality Improvements
  ○ Search
  ○ Online document viewing / version history
  ○ Dynamic maps/GIS

● User Interface Improvements
  ○ Navigation, breadcrumbs
  ○ Semiotics
  ○ Item placement
Added Functionality - Search

- Search functionality - previously not available
- Search bar provided
- Entering a search string brings user to advanced search page
  - Ability to filter results with a number of different options
  - Results that have geolocation markup are mapped
Improved Functionality - Document View

- Core improvement is the ability to view all documents within the website.
  - Information is entered using a web-based editor, similar to a blog content tool
    - stored in XML, allows for searchability
  - Data within the document can be marked up
    - Geolocation
    - People / teams
    - etc...
  - Previous versions of the document/map can be viewed by using the timeline feature
Improved Functionality - Maps / GIS

- Adds functionality to view and dynamically modify maps
  - Similar to Google Earth with the layering of different data
  - Map data is created using a web-based GIS authoring tool

- Mashup of different map layers allows for new information discovery
  - Single map views also provided
User Interface Improvements

- Navigation
  - Current page is emphasized in left navigation bar
  - Breadcrumbs are presented to give the user an idea of their current location within the system
  - Menu items and menu hierarchy are clearly shown
User Interface Improvements

● Semiotics
  ○ Used icons to give additional reinforcement on the purpose of various buttons
Questions?