Open-Source Solution for Disaster Response Tracking Using GeoServer and Android Mobile Devices

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Players

[Images of logos]
Background

Louisiana National Guard (LANG)’s responsibilities in disaster response include:

- Logistics coordination of delivery of relief aid, utilizing military personnel and civilian contractors
- Movement of response personnel
- Evacuation of civilians
- Reporting response effort status to the Governor
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Analysis of Alternatives (AoA)

Blue Force Tracker
Analysis of Alternatives (AoA)

Fleet Management
This is where we come in...
Architecture
OGC

...and C4I
Our Solution
Benefits of Android

- Cost-effective:
  - Free, open-source Software Development Kit
  - Able to leverage LANG’s existing devices
- Easily-accessible GPS Location Services
- Easily deployable
- Unbounded access to devices
Our Solution

- **GOAL:** Low-cost and low-complexity

- **GeoServer**
  - Storage of real-time geo-spatial data in open-source PostGIS database
  - Serving out data in a bunch of formats

- **Develop an Android mobile app**
  - Utilizes Android’s built-in GPS Location services to track vehicle’s location
  - Utilizes OGC-standard protocol for data transfer with GeoServer instance
  - Data entry customized for LANG tracking specifications
LANG Tracker Android App

- An Android device is issued to each vehicle to be tracked by the system
- LANG personnel enters information about the vehicle type, cargo, and route before the vehicle is deployed
- The Android application updates the GeoServer instance with this mission information via OCG WFS transactions over the device’s cellular data connection
- The Android application tracks its position via the built-in Android GPS Location Services and periodically updates the GeoServer instance with its position via OCG WFS transactions
- At any point, LANG can bring up a map on OpenCOP, Google Earth, or ESRI-based COP to see the location and data for any vehicle being tracked
LANG Tracker Screenshots

1. Number of Cases in a Pallet: 16
2. Number of Bottles in a Case: 30
3. Number of Pallets in Load: 24
4. Bottle size (Ounces): 16

Total Bottles of Water on Load: 11520

Save

Departure Location: RSA-Roseland
Departure Geo-Coordinates: 30.7600,-90.5100
Destination Location: National Guard Facility
Select Facility: Camp Beauregard
Destination Geo-Coordinates: 31.3777,-92.3867
Departure Time: 11:02:19 2013-04-22
Estimated Time of Arrival: 11:02:19 2013-04-22
Situational Awareness
Next Steps