Project Ensayo:
A Distributed, Virtual Emergency Operations Center

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Overview

• Introduction to EOCs
• Technologies employed
• vEOC architecture
• vEOC infrastructure

• Work So Far
• Sample Screenshots
• Acknowledgements
• **Emergency Operations Center (EOC):** Secure location in which individuals come together to prepare for, manage, and coordinate recovery activities in response to an emergency situation (e.g., hurricane, pandemic, earthquake, tsunami)
Introduction

- In our research, we are working with Miami-Dade County, FL, to build a virtual EOC for
  - Training emergency management personnel
  - Facilitating emergency management exercises
  - Research into emergency management decision making
Technologies Employed

- XHTML, CSS, JavaScript, dynamic HTML, Ajax
- PHP, MySQL, Jetty, Dojo
- Reverse Ajax
- Zend PHP Development Platform
- Virtual machines: all development and deployment is being accomplished in virtual machines
vEOC Architecture
vEOC Infrastructure
Interactive Advisor

- Provides real-time feedback to the trainee based on his/her crisis management decisions.

- Analyzes the decisions of the trainee and compares the decision to the correct decision based upon standard operating procedures (SOPs) and current subject matter expert opinion. It then offers the trainee feedback and advice on his/her decision.
Analytics Module

- The place where we do necessary calculations to support other modules.
• The central location for the code that generates report templates and reports. This also enables one to save, create, import, export, and search through reports.
Mapping/GIS Module

- The place where we incorporate GIS/mapping capabilities.
Dashboard Module

- Provides real-time feedback to the trainee concerning the effect of his/her decisions on various aspects of different resources.
- Can be turned off for exercise or research purposes
User Interface Module

- The location where the sections of code reside that deal with the display of information on the server to the user.
Scripting Module

- Stores the code that deals with implementing automatic sending of injects from the script stored on the server to the clients who are participating in the exercise.
Chat/IM Module

- Deals with a local chat function. To implement this, we use Reverse AJAX to create a real-time collaboration environment.
vEOC User Views

• **Trainee**
  - Prepares for emergency situations; practices decision making by interacting with vEOC

• **Observer**
  - Prepares for emergency situations by watching the trainees and other personnel in the EOC

• **Scenario Manager**
  - Creates scripts to train emergency personnel; moderates training
vEOC User Views (cont’d)

• **Staff Member**
  • Upper level EOC staff members; they print reports and analyze the performance and decision making of the EOC personnel

• **Administrator**
  • Maintains the vEOC software; also sets up and moderates user profiles

• **Researcher**
  • Individuals interested in studying various aspects of decision making and emergency response
Key Features

<table>
<thead>
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<th>people</th>
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<th></th>
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<tbody>
<tr>
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<tr>
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<tr>
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location
Key Features (cont’d)

- Intelligent Agents
- Interactive Advisor
- Dashboard
- Research Data Collection
Work So Far

- Foundational vEOC Architecture and Infrastructure
- EOC Representative Console
- Scenario Manager Console
Site Map

General Login

Secondary Login

Exercise Background
- EOC Layout
- Player Handbook
- Initial Status

Dashboards
- Water Per Shelter
- Cost To County
- Lives Saved

Boards
- After Actions
- Branch Log
- Position Log
- Mission/Task Request
- Status Board
- Significant Events

Links
- CNN
- National Weather Service

References
- Central City Maps
- Central City Resources
- Position Responsibilities

Reports
- Shelters
- PODs

http://localhost:8080/newdesign/mainpan...
Trainee Desktop

2 Main Control Panels

Main Panel
- Main place in which a user interacts in the virtual EOC
- Includes exercise background, status boards, current conditions, links, references, and reports

Exercise Panel
- Main place in which a user interacts with the exercise
- Includes history of injects, communication tools, interactive advisor, and additional media
Sample Console

vEOC 1.1
Exercise Background
- player handbook information
  - eg initial status, EOC layout

- water per shelter
- cost for county
- lives saved

DASHBOARDS

After Actions
- Branch Log
- Position Log
- Mission/Task Requests
- Public Safety Status Board
- Significant Events

Links
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Reports
- Shelters
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Chat Room
- Attendee #1
- Attendee #2
EOC in subject to flooding
prepare to evacuate and set
up alternate location
Send Message:

Mission/Tasks Requests
- Task
- Status
  - more fire trucks
  - Complete
  - police escort
  - in process
  - debris cleanup
  - in process

Information
- Status
  - fire on 11 and 21st
  - Complete
  - winds at 88 knots
  - in process
  - bridges locked down
  - in process

vEOC 1.1 Exercise Panel

Previous Injects
- received injects

Communication Tools
- face to face
- telephone
- radio
- cellphone
- blackberry

Other
- email
- chat
Main Control Panel

- Main place in which a user develops and controls and exercise
- Includes a file library, exercise controller panel, dashboards, script developer, evaluation measures, links, references, and various reports
Exercise Controller

Main Desktop

- Main place in which a user controls the exercise
- Includes play, stop, pause, fast-forward, nextblock, and ability to modify scripts on the fly as the exercise is running
Script Developer

Main Desktop

- Main place in which a user creates and edits exercise and training scripts
- Includes the ability to add and edit various scripts and injects
Resource Request Form

Main place where users go to make a resource request
Situational Reports

Main place where users go to create a situational report for the current situation.
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Summary

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