Technological Advances
In Emergency Management

Closing the gap between Preparation and Recovery

Will Fontan, P.E.

Regional Director, ONRG

Americas Office

Report Documentation Page	Form Approved OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE NOV 2010	2. REPORT TYPE	3. DATES COVERED 00-00-2010 to 00-00-2010

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Technological Advances In Emergency Management: Closing the gap between Preparation and Recovery	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Office of Naval Research Global (ONRG),Americas Office,Santiago, Chile,**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES
Presented during EXPONAVAL 2010, Nov 30-Dec 3, 2010, Valparaiso, Chile, Office of Naval Research Global Conference

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**16**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

Priorities of Technology Application

- *Government-led policies in the application of EM technologies*

- *Interoperable communications systems*

- *Integrated information management systems*

- *Evaluation of new technologies in scenario-based training and exercises*

Goals of Technology in EM

- Shorten response time
- Increase response reach
- Enable interagency coordination
- Reduce costs
- Enhance responder safety
- Construct the bridge of response-related information and data

Response Time and Reach

- Response time is shortened thru flexible and integrated communications systems
  - Multiplexing/frequency trunking
  - WiFi and IP based systems
  - Mobile Smart Phone Applications
  - Flexible power options
  - Automatic alerting and notifications
  - Wide Area Alerting
  - Computer aided dispatch systems
  - Mobile assessment tools

Get everyone on the same sheet of music!

Interagency Coordination in Response

- Common Operational Picture
  - Geocoded data layering
    - Alerting
    - Critical Infrastructures
    - Evacuation Routes
    - Shelter data
    - Response assets
    - Link to resource databases
    - Notices
- Role-based architecture must be applied
  - Business rules and best practices

Build Global Support to local response thru Situational Awareness

Cost Reduction

- Predictive Modeling during Preparation
  - Modeling software is used to predict:
    - Disease outbreaks
    - Debris from storms
    - Building damage
  - Helps to identify:
    - Equipment needed
    - Availability and location
    - Human response assets
    - Specialized needs

Eliminate surprises and added costs

Enhancing Responder Safety

- Software toolsets provide knowledge
  - Hazardous materials
  - Atmospheric modeling
  - Safety information
  - Incident Management Systems

- Information provided off-scene to the responder
  - Operation Centers build the information backbone and link to responders
  - Systems MUST be integrated

Deliver rapid, appropriate information to the Responders

Technology Application in the EM Cycle

Predictive Modeling
Incident Mgt System
Mobile Assessments

Model-based planning
Pre-staged resources

Preparation

Mitigation

Recovery

Response

Assessments
Cost tools

Response Toolsets
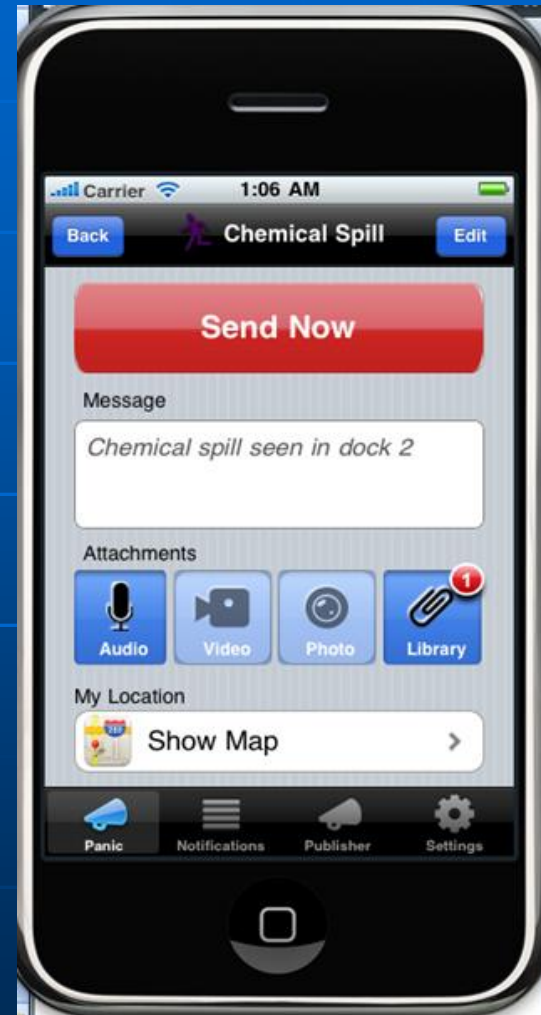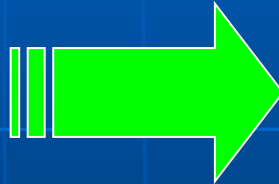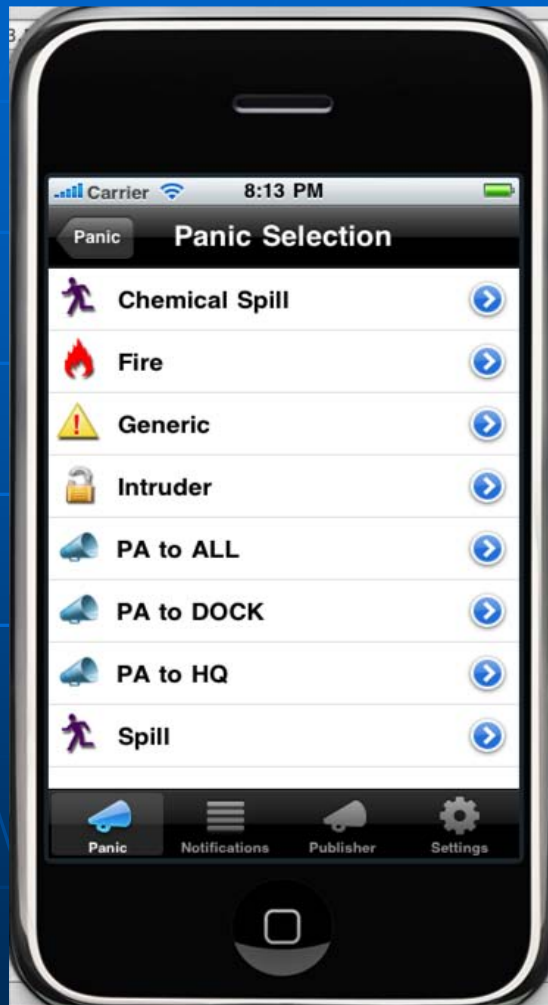Communications
COP
Wide Area Alert

New Technologies

- Incident Management Systems
  - Central data system for managing resources, response information, costs and automated alerting
- There are several manufacturers and products available
- Require data management by users or administrators

Incident Management Systems

Smart Device Apps

Communications Multiplexing
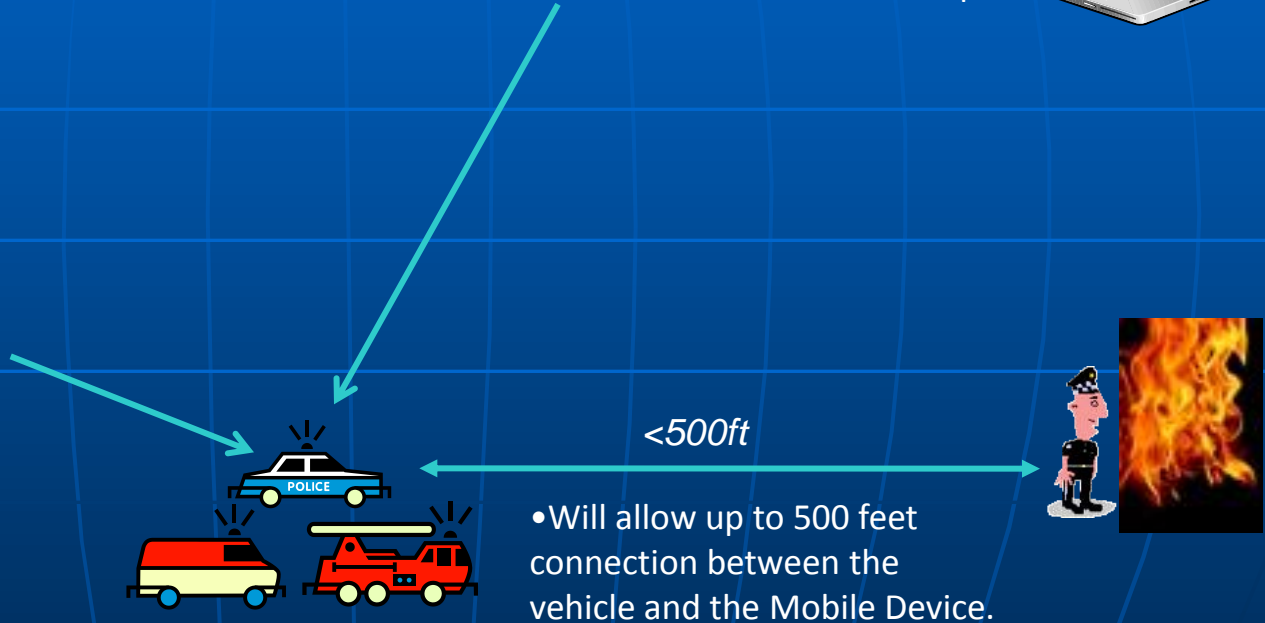
•A Mobile Router mounted in the trunk of the vehicle.

•The router will allow network connectivity to the foot patrol Mobile Device up to 500 feet.

•The router will multiplex to other communications links, such as wireless, SATCOM, POTS and cell.

•The various COMMS links allow COMMS between the Incident Commander and other units, as well as the operations centers.
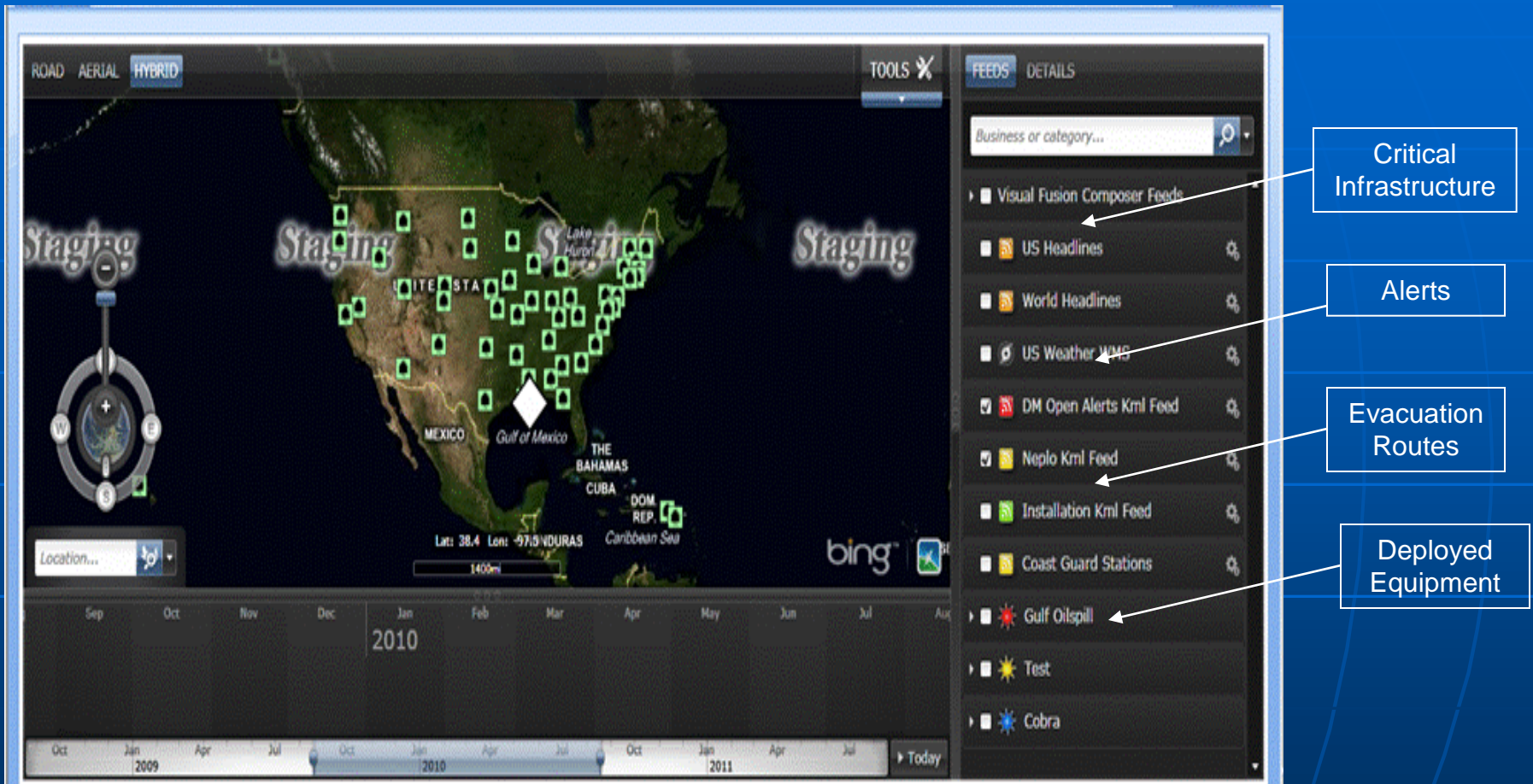
•The MDC in the vehicle carries responder toolsets and situational awareness inputs

<500ft

•Will allow up to 500 feet connection between the vehicle and the Mobile Device.

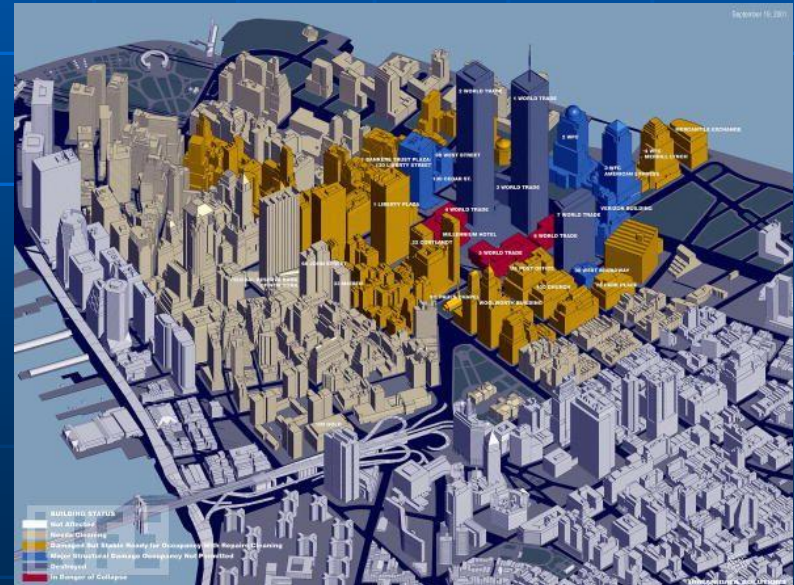•The Mobile Device will have the EM-related software on it.

EM GIS Overlays

Mobile Assessment Systems

Many mobile reconnaissance devices available to aid in post event damage assessment

Web Based Response Tool Sets

- Evacuation Route Planning in advance
- Plume Modeling (air and sea)
- Hazardous Chemical Databases
  - Protective Equipment requirements and exposure limits
- Storm Surge Prediction
- Sensor Management and Integration
  - Motion/Alarms/Chemical/Radiological

Summary

- Technology advancement has potential to aid ER/DRO activities
  - Must be approached from a systems interoperability view
  - Must be scaled to mission and budget
- Plan for sustainment and technical refresh
  - Software licensing, server hosting, carrier fees, etc.

Preparation is cheaper than recovery