

2nd Annual Infrastructure Protection and
Security Forum
Plan, Prevent, Protect
Melbourne, Victoria, Australia
30th & 31st July 2007

*“Maritime Transportation Infrastructure
Resiliency, Redundancy, Readiness, Recovery, Restoration”*

National Infrastructure Institute –

Center for Infrastructure Expertise (www.ni2cie.org)

Dale Ferriere, Deputy Director, CDR, USCGR

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Presentation Outline

- CASE STUDY: KATRINA FAILURES
- Intelligent Infrastructure = Resilient Infrastructure
- Maritime Domain Awareness (verb or noun?)
- All Hazards Virtual Fusion Centers (Improve Readiness)
- Global Supply Chain Transparency = Maritime Security
- Future: Establish Maritime Commerce Redundancies & Recoverability Methodologies

About the future.....

“Expect catastrophic failures of institutional bureaucracies.”

- Alvin Toppler, FUTURE SHOCK & THIRD WAVE ECONOMY author, during live interview, “Coast-To-Coast AM”, June 19, 2007

KATRINA FAILURES

(References: (a) CDR Dale Ferriere, USCGR; (b) The Great Deluge – Douglas Brinkley)

- Ineffective LEADERSHIP at local, state & federal levels
- Ineffective GOVERNMENT Bureaucracy
 - Federalism v. State Rights
- Irresponsible Elected OFFICIALS (putting “power politics” before people)
 - Ineffective Execution of Evacuation Plans
 - Gambling with people’s lives
 - Loss of civil order
 - Abandoning the poor
- EXCEPTIONS: USCG & LANG were bright lights of hope

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POST KATRINA WASTE MANAGEMENT CONQUEST OF MARINE DEBRIS “From Cradle to Grave to Group Therapy”



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U.S. Federal Response To KATRINA Lessons Learned: Hurricane KATRINA was a deadly reminder that we can and must do better in responding to emergencies.



U.S. GAO's Lessons Learned:

- (1) Clearly defining & communicating leadership roles, responsibilities, lines of authority;
- (2) Clarifying procedures for activating the NRP;
- (3) Conducting strong advance planning & robust training;
- (4) Strengthening response & recovery capabilities.



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RDML Aitken (LANTAREA), “Katrina was a watershed event for the USCG; we were asked to do things outside of our normal operating lanes” e.g., marine debris removal, vessel salvage, maritime infrastructure restoration.



How is “maritime transportation restoration” funded? Without national & regional response plans clearly defining funding sources and when federal agencies are put into new roles with new responsibilities where collaborative decision-making with local and state government is required will result in ineffective government bureaucracy. - Dale Ferriere

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“Normally, lessons learned are found on the left-side of the ICS organization (i.e., Planning, Operations). For response to KATRINA cleanup, several lessons learned were found on the right-side of the ICS organization (i.e., Logistics, Finance / Administration).”
– LCDR Jones, First Coast Guard District Integrated Support Command.



WHY: No promises from FEMA that other Federal Agency operating budgets would get reimbursed so protecting their legacy funds became their priority.

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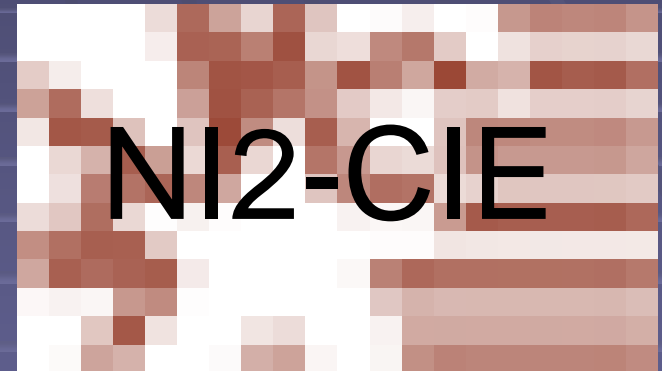
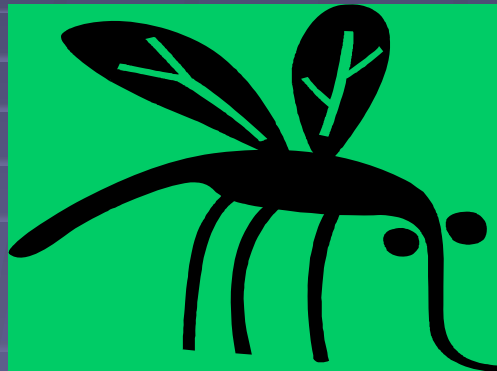


“Urban oil spill response” results in never seen before quantities of household oily debris & hazardous waste e.g., white goods, spoiled meat, asbestos laden houses, C&D waste, etc.

INTELLIGENT CI = RESILIENT CI

- Future construction of “dumb & deadly” infrastructure is unacceptable i.e., Boston’s BIG DIG, World Trade Center, schools, etc.
- Future is now: Design & develop CI with integrated sensor networks able to determine & communicate safety & security.
 - Provide tell-tales when failure is imminent.
 - Improve warning systems for occupant evacuation.
 - Prevent first responders from blind & deadly entry.
 - Require Universities to teach “resiliency” by including collaborative curriculum between design engineering disciplines.
 - As tax-payers demand cost effective intelligent infrastructure for publicly funded projects.
 - DEMAND BETTER – DON’T ACCEPT STATUS QUO!

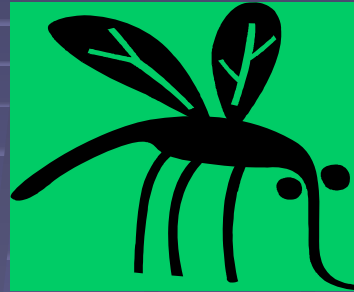
"Configurable Sensor Networks: An Academic Experience Provides A Future Glimpse at Improved Infrastructure Safety and Security"



“A glimpse at future scenarios when designers have an option to design ‘intelligent’ infrastructure.”

A Future Glimpse at Improved Infrastructure Safety and Security

for this presentation.....

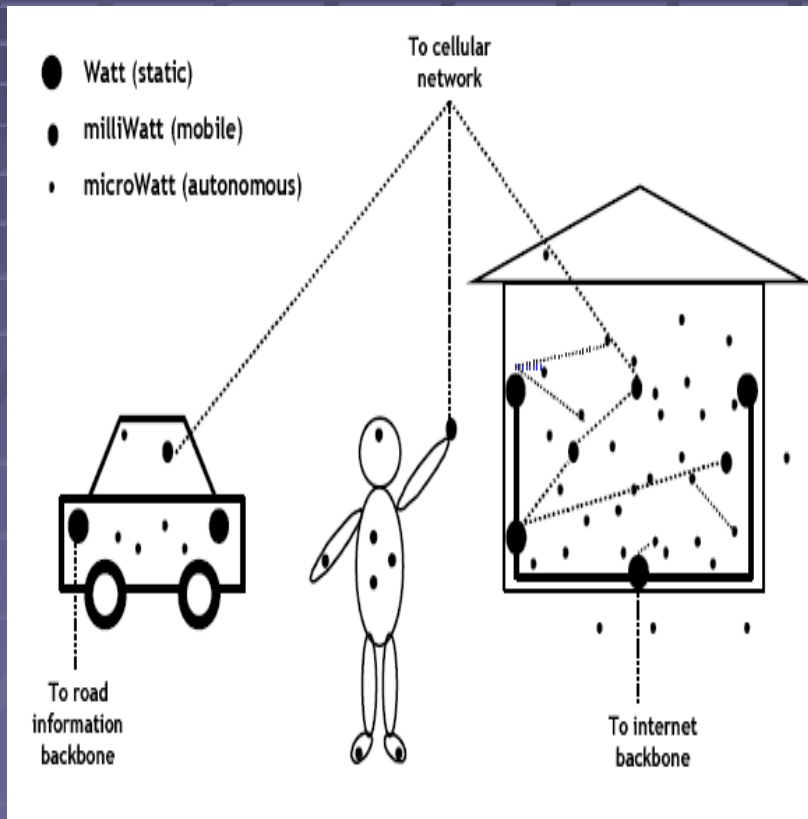


.....GNAAIT

Represents global networks ambient & artificial intelligent technology

- Dynamically programmable sensors
- Networked by FPGAs (PSoCs)
- Made ubiquitous to infrastructure & transportation
- Outputs subject to remote observation &
- Outputs subject to real-time analysis

Global Ambient & Artificially Intelligent Networks



Basic Functions:

-Sensor networks seamlessly integrated with **Critical Infrastructure.**

-Able to detect & communicate anomalies thru WAN and/or Cellular Networks, **ALERTING decision-makers.**

-Ubiquitous access & potential for hands-free interaction e.g., Cellular & Wi-Fi links

-And provide an opportunity for intelligent interfaces e.g., “informing arriving first responder about pending structural failures”.

- **U.S. Maritime Domain Awareness is...**
“the effective understanding of anything associated with the global maritime environment that could impact the security, safety, economy or environment of the United States.”¹
 - Awareness of threats and vulnerabilities
 - Prevention and protection against these threats
 - Development and testing of solutions
 - Response to potential attacks
- **Superior MDA requires:**
 - Intelligence collection, analysis & assessment
 - Dissemination of intelligence
 - Building on current capabilities
 - Information sharing at all levels of government & private sector
 - Development and use of evolving technologies
 - Physical locations to test and evaluate processes and technology
 - Solution implementation and follow-up

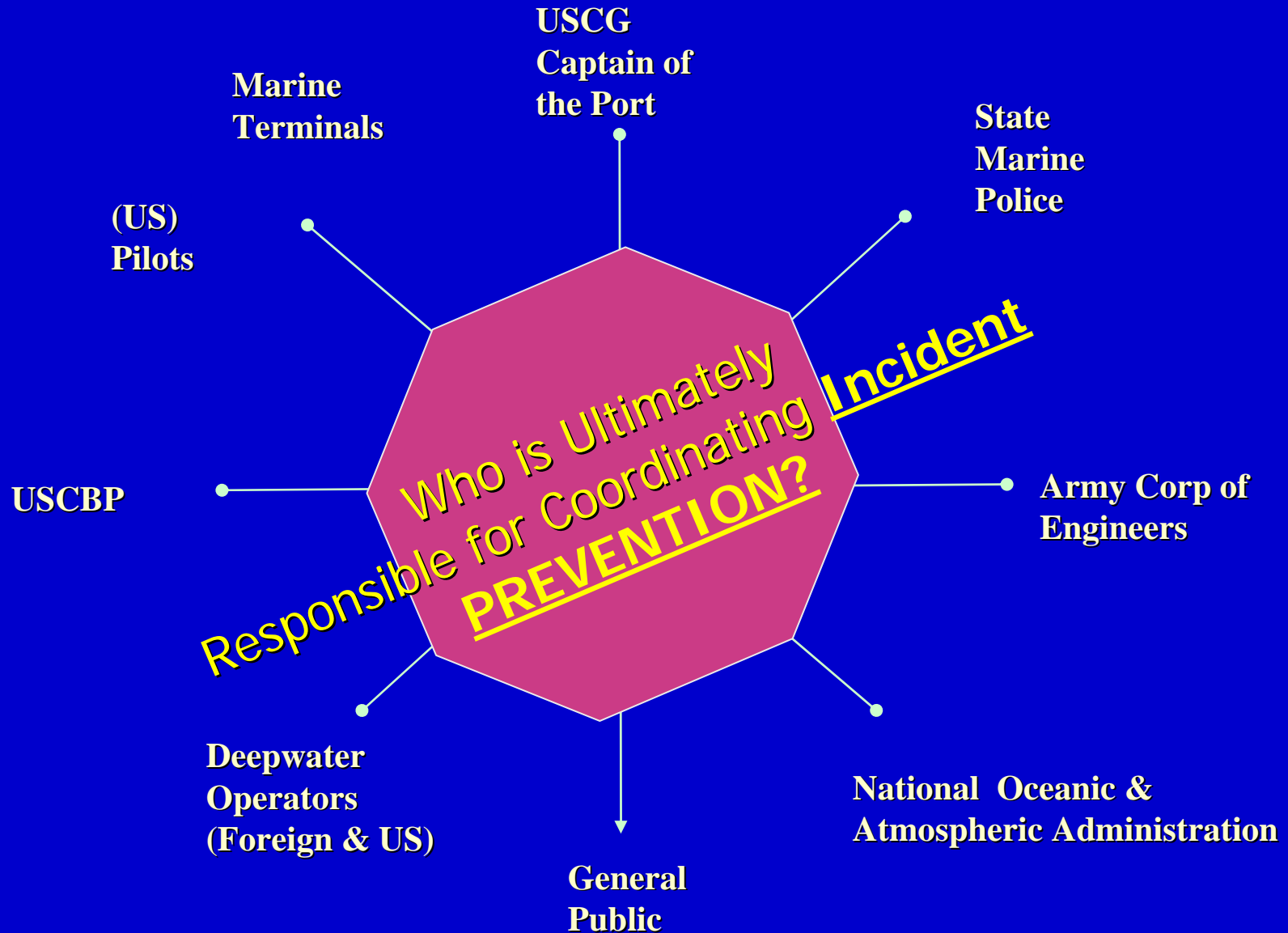
U.S. Maritime Domain Awareness (verb or noun?)

- **Measurable progress since 9/11?**
- **Outreach to international shipping community?**
 - **U.S. Coast Guard's High Interest Vessel Policy?**
 - **Aspects of the International maritime industry left with uncertainty & contempt despite their 85% presence in U.S. ports?**
- **Culture: Old guard law enforcement caution about partnering with international & domestic private sector stake-holders.**
- **Seaports are unique & require unique partnering approaches.**
- **U.S. Regional Directors stifled.**
- **U.S. Seaport users frustrated.**
- **RESULTS: Are "WE" Better Prepared?**
- **"We're All In This Together"** (Reference: Red Green, "Red Green Show" - CBC's Possum Lodge, Ontario, Canada)

PROPOSED SOLUTION: All Hazards Seaport Virtual Fusion Centers

- A Communications & Information Sharing Virtual & Software-Supported Platform For Regional Incident Prevention Command & Control
 - See SpillCon 2000 presentation.
 - Recall Toppler's prediction, "Prepare for catastrophic collapse of bureaucratic institutions"
- Status Quo Maritime Law Enforcement & First Responder Culture, Practice & Operations are unacceptable.
- Decentralize decision-making to the regional level while maintaining links with central government.
 - Don't be beholden to federal money.
 - If agents of the federal government are unwilling to fully & earnestly collaborate then throw them out of the meeting.
 - It is your community at risk.
- Respect jurisdictional differences while improving regional information & intelligence sharing.
- Empower maritime industry & maritime public – "make them part of the solution".

Fragmented U.S. Marine Transportation System?



Fragmented Australian MTS?



Global Supply Chain Transparency = Maritime Commerce Security

- **Threat Resistant Supply Chains Are Possible (Human Elements)**
 - importers / exporters (consigners / consignees)
 - financial backers
 - carriers & their workers (sea, land, air)
 - forwarders, consolidators, 3PL managers, in-house logistics managers
- **Global Cargo Information Network & Intelligent Supply Chains**
 - Make all human elements transparent.
 - Create opportunities for preemptive response.
 - Enable empty containers to be geo-tracked.
 - Provide Customs' Targeting Analysts w/ intelligent anomaly trend analysis capabilities (See Azyxxi & Artificial Intelligence)
 - Establish virtual meeting centers.
- **Industry Inaction Is Unacceptable**
 - Advice to Carriers & Importers: Don't blame government when requirements become over-the-top.