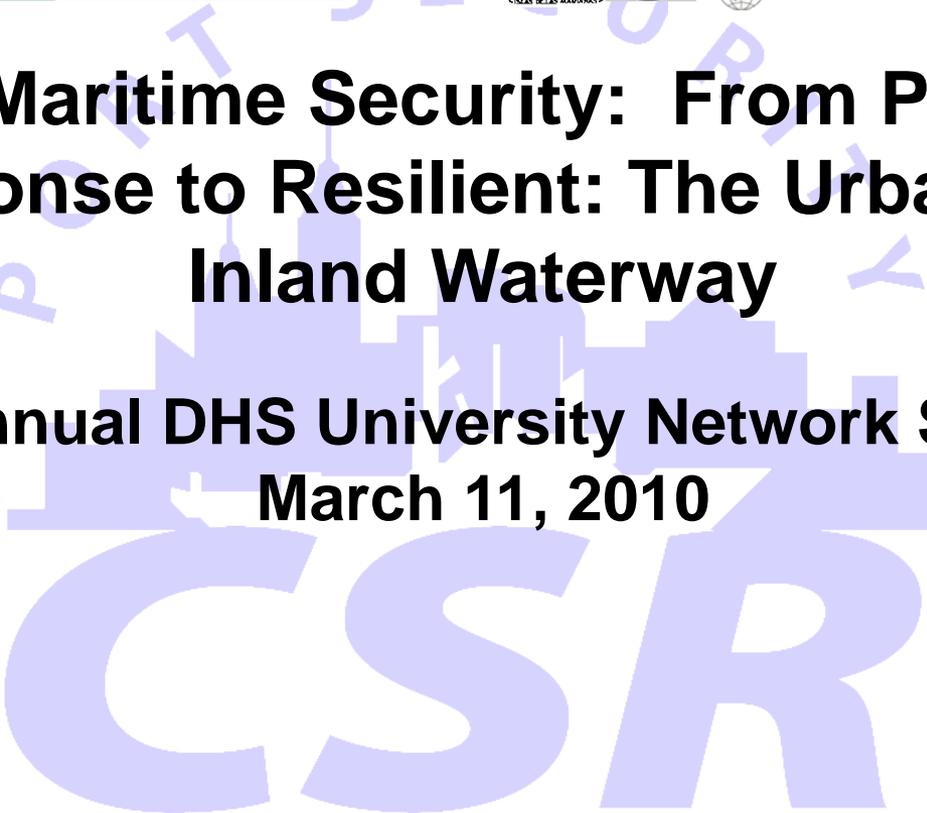




# Panel 19 – Maritime Security: From Preparedness and Response to Resilient: The Urban Port and Inland Waterway

4th Annual DHS University Network Summit  
March 11, 2010





# Introductions

**Scenario A: a major hurricane makes landfall in your area of responsibility**

**Scenario B: an explosion has occurred on a container vessel in the entrance channel of your port. Access into and out of the port is blocked; there is overwhelming evidence that this is an act of terrorism; and officials are uncertain as to whether the weapon carried a chem/bio agent.**

**Future Needs (knowledge, technologies, processes)**





# Multi-Mission Agency

## Cross Functional Capability

- Ports, Waterways, & Coastal Security
- Defense Readiness
- Search & Rescue
- Marine Safety
- Marine Environmental Protection
- Aids to Navigation
- Ice Operations
- Living Marine Resources
- Drug Interdiction
- Migrant Interdiction
- Other Law Enforcement



# **The Port of Virginia**

## **Port of Virginia's Homeland Security Program**

**Ed Merkle  
Director of Port Security & Emergency  
Operations**

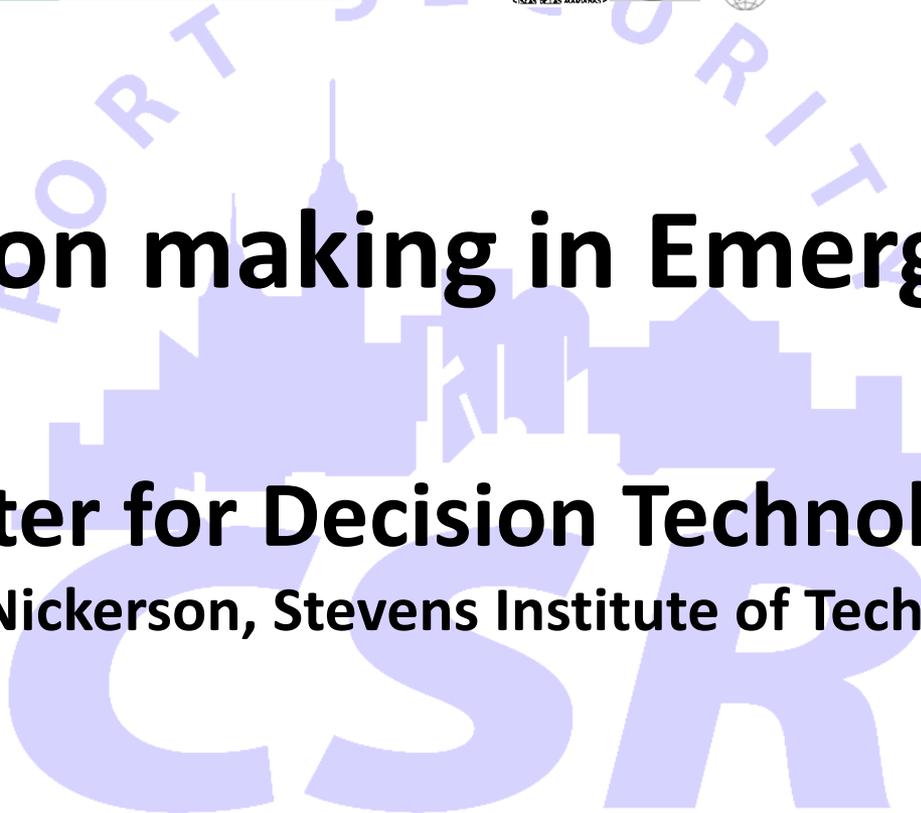
**Virginia Port Authority**



# Decision making in Emergencies

## Center for Decision Technologies

Jeff Nickerson, Stevens Institute of Technology



National **C**enter for **S**ecure and **R**esilient  
Maritime Commerce and Coastal Environments





# Center for Decision Technologies

- What we do
  - Decision making in emergency situations
  - Social network analysis and coordination
  - Detection of threats
- Methods
  - Observation
  - Human subject experiments online
  - Video game experiments

# Office of Air and Marine Customs and Border Protection



## Southeast Region



## *2010 DHS University Network Summit*

*April 6, 2010*



U.S. Customs and  
Border Protection

# Office of Air and Marine, Southeast Region



- More than 2,000 miles of coastline
- 24 Air and Marine locations
- 40 aircraft and 46 marine vessels



U.S. Customs and Border Protection



**NOAA Satellite Image, Aug. 28, 2005, 1145 EDT**

# Incident Management

## Natural Disaster – *First Response*

### Situation Assessment



- Reconstitution
- Situation assessment
- Set perimeter
- Unified Command
- Mobilization
- Search and Rescue

### Establish Unified Command



### Search and Rescue



# Incident Management

## Natural Disaster – *Response Operations*

---

- Risk assessment
  - Active or secondary threat
  - Areas/populations at risk
- Operational response
  - Search and Rescue
  - Port evacuation
  - Breakaway vessels & damage control
  - Environmental & salvage response
  - Law enforcement
  - Force protection



# Incident Management

## Natural Disaster – *MTS Recovery*



### Field Level

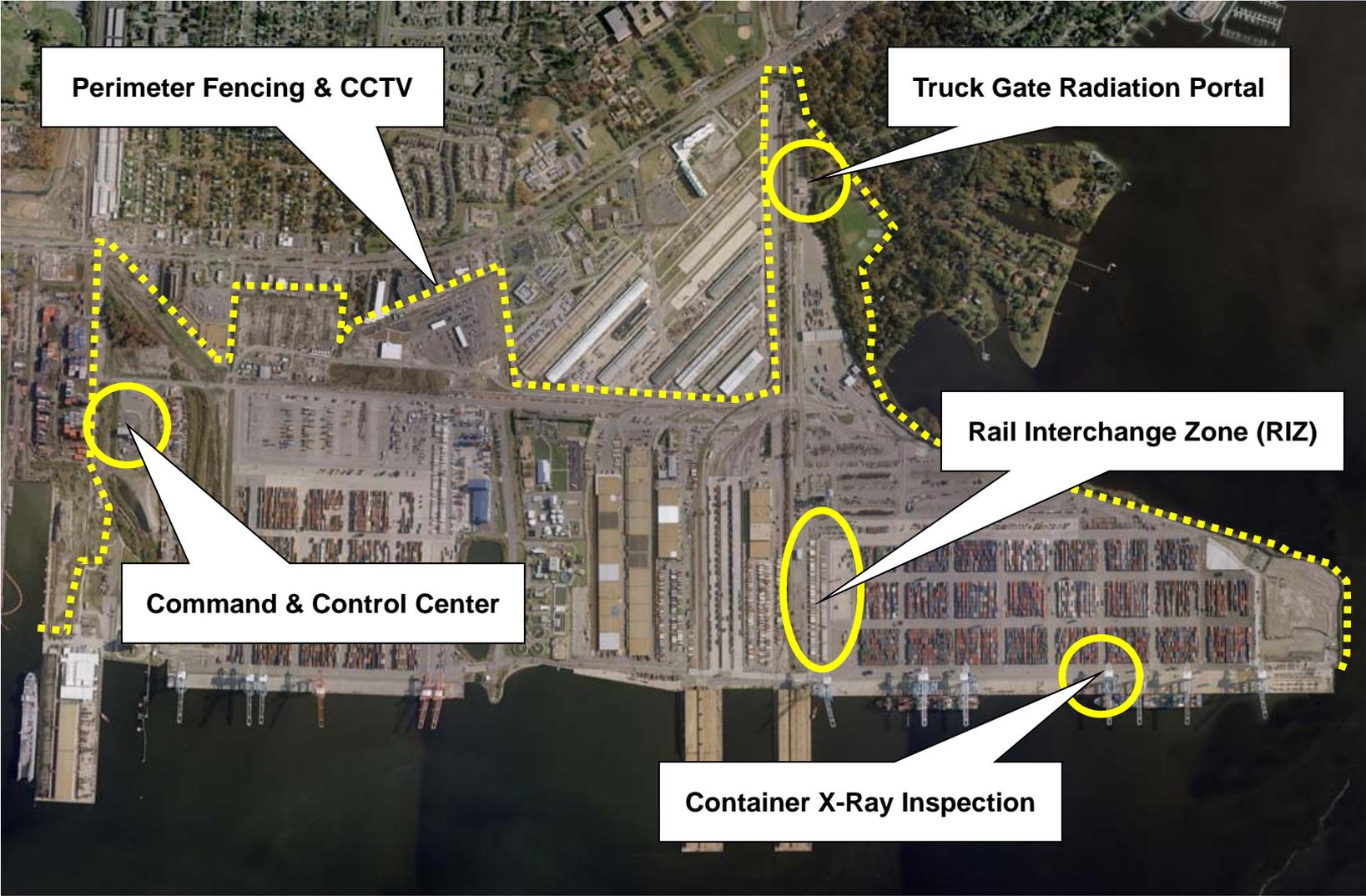
- Activate Marine Transportation System Recovery Unit (MTRSU)
- Assess against Essential Elements of Information (EEI)
- Use all-hazard MTS Recovery Plan
- Initiate recovery tracking & reporting

### National Level

- Implement CBP/USCG Joint Protocols for Expeditious Recovery of Trade



# Marine Terminal Security



# Natural Disaster Port Command Center



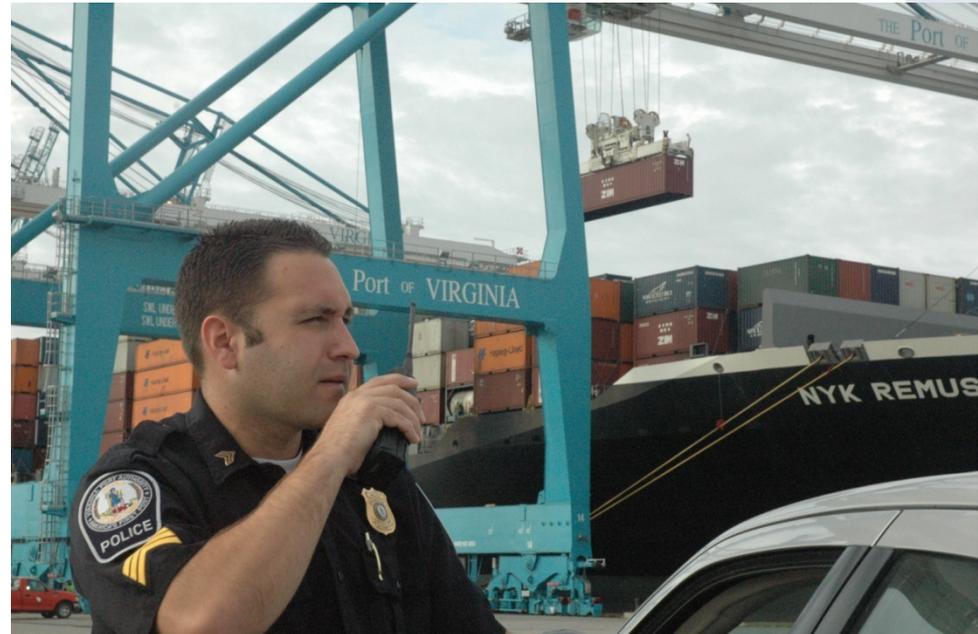
- ✓ **Sensor Integration**
- ✓ **GIS Smart Display**
- ✓ **VOIP/VTC**
- ✓ **Fire Alarm Upgrade**
- ✓ **Mass Notification**



# State-Wide Area Radio System (STARS)



- ✓ Handheld Radios
- ✓ Vehicle Radios
- ✓ Control Console
- ✓ “Point to Point”
- ✓ MOU with locales





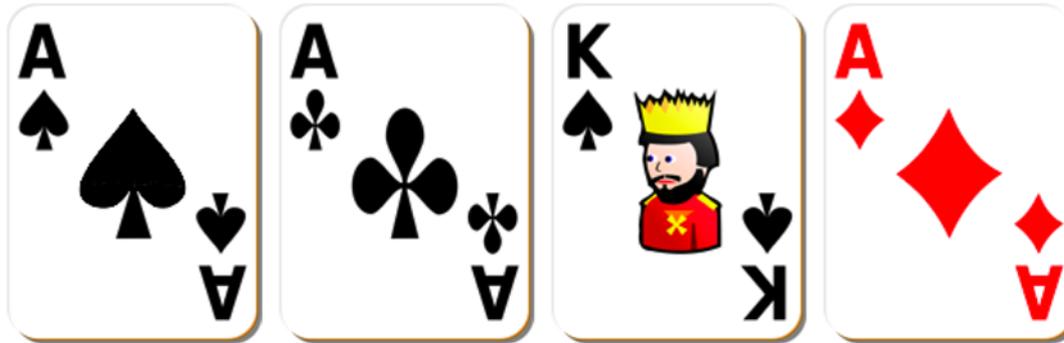
# Hurricane Scenario

- Ahead of the emergency
  - Negotiation of resource sharing
- During the emergency
  - The importance of briefing

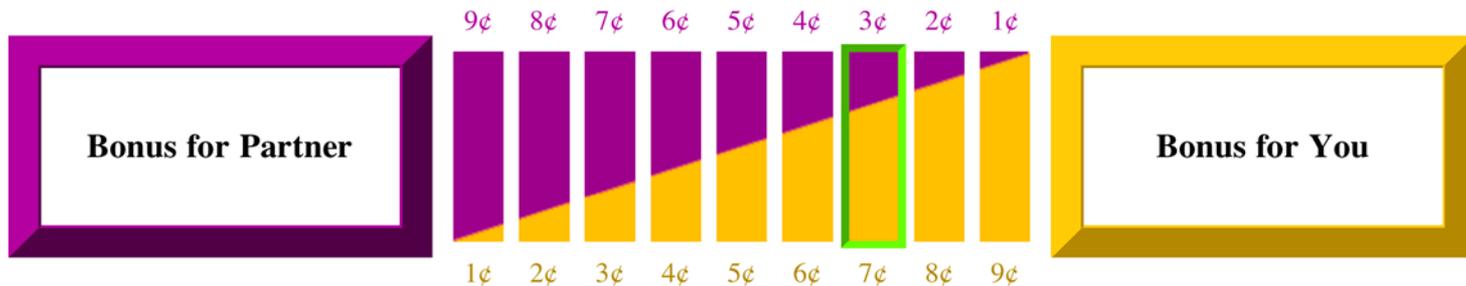
# Tacit Bargaining: invisible lines in the sand

You and a randomly selected partner will play a game using a deck of cards containing four Aces and four Kings. In this game, a hand with *four aces* wins a \$0.10 bonus. Otherwise, each Ace pays \$0.01. Each of you have been dealt four cards.

Your hand is:

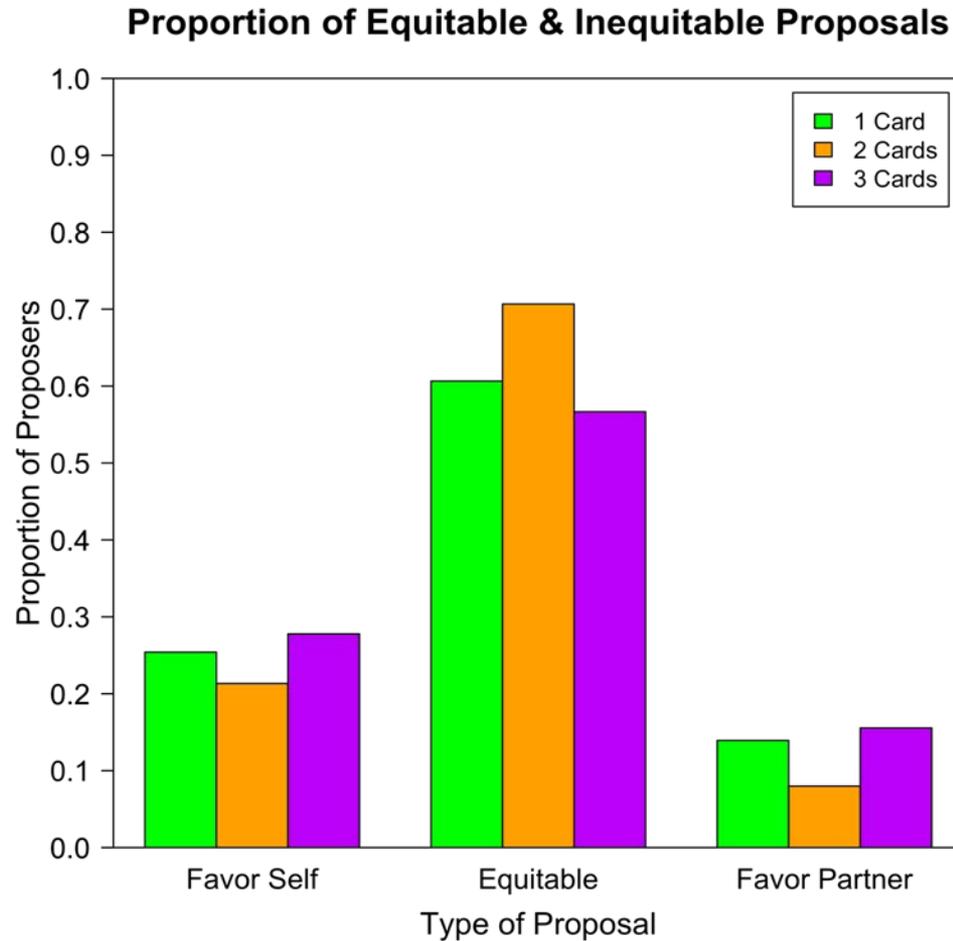


You and your partner may pool your cards, but only if you agree on how to share the bonus.

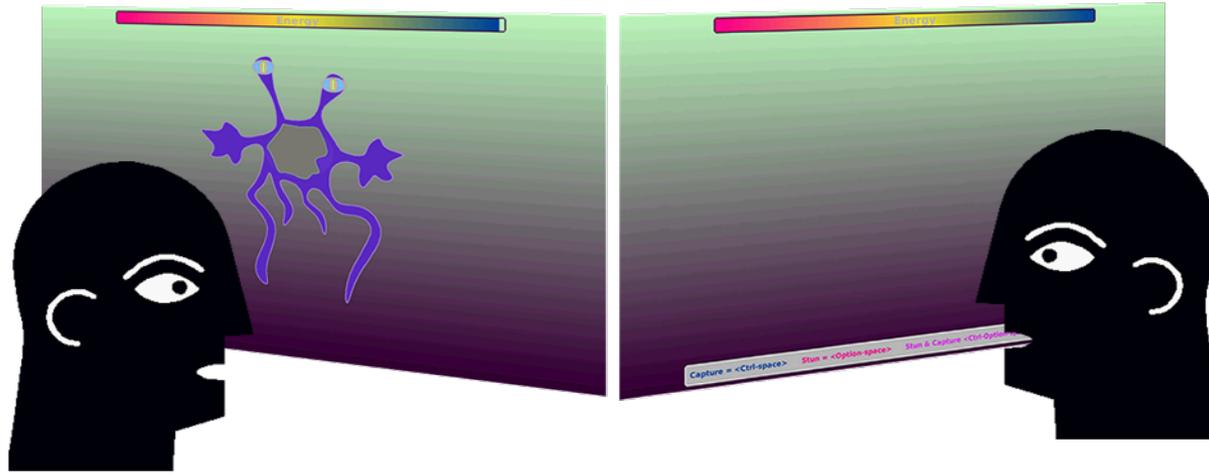


Click how you propose sharing the bonus.

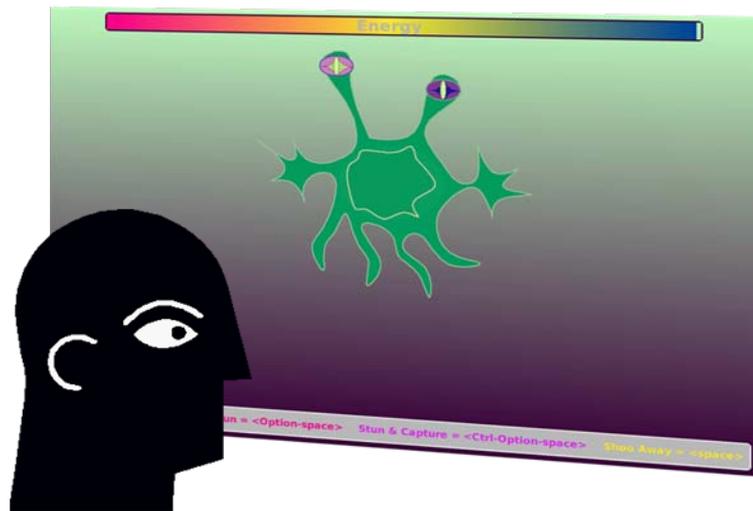
# Most people opt for an equitable bargain...



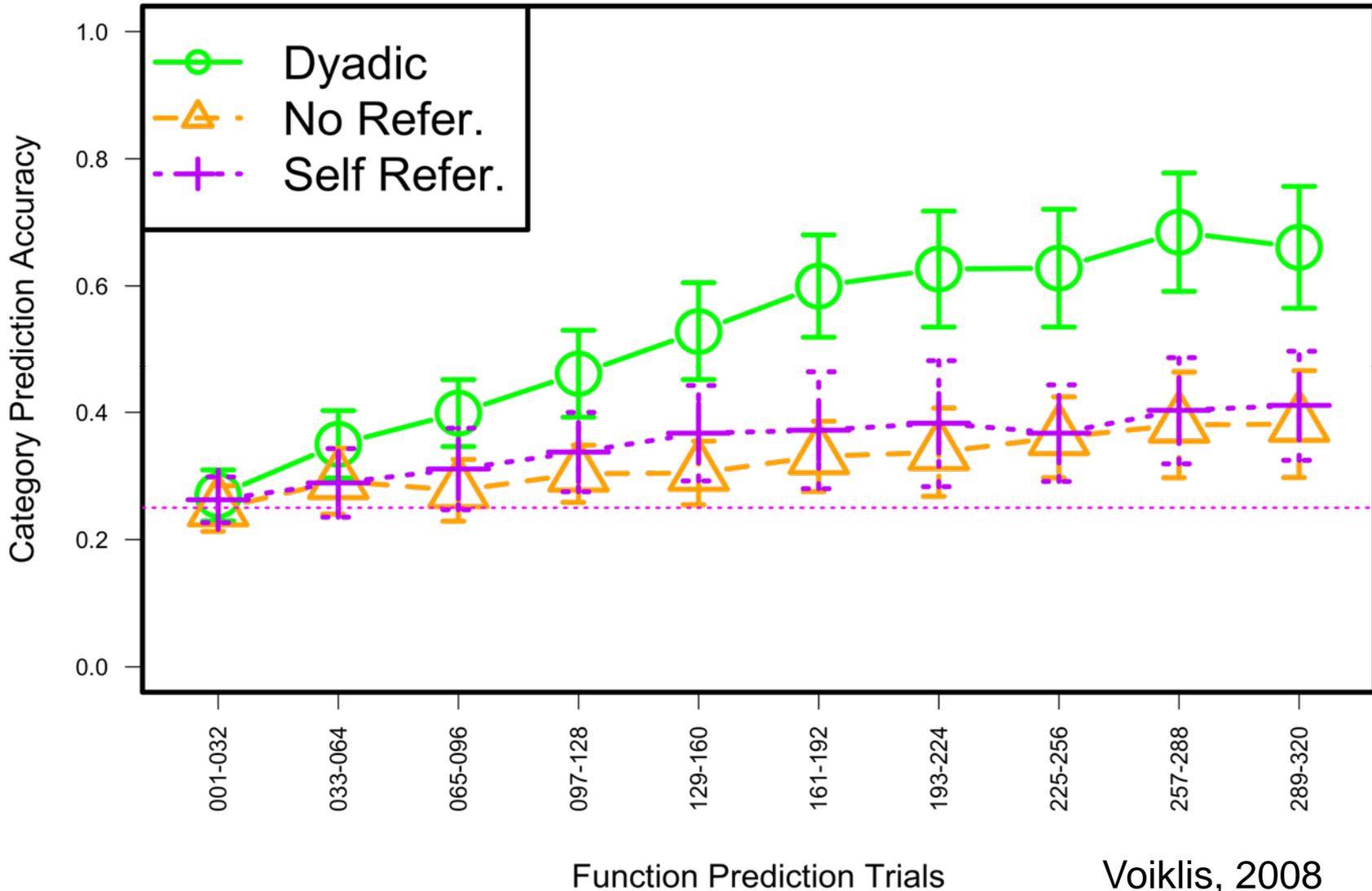
**...but some people demand ransom.**



Two heads *know* better than one.



# Change in Functional-Category Prediction Accuracy: Dyads vs. Individuals (With & Without Verbal Reference)



# Major Hurricane Strikes Greater Miami Area



- Local Units Secure Assets and Personnel - Pre-event
- Region and National Units Preposition for Response
- UAS, P-3, DHC-8 – Post-Storm Damage Estimates
- Unified Relief and Security Operations Response

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# Port Environment



- Airborne Assessment of Port and Facilities
- Airborne Assessment of Vessels Awaiting Entry
- Maritime Port Security Patrols
- Airborne Port Security Operations
- Assign Staff at Emergency Operations Center

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# Incident Management

## Maritime Security – *First Response*

### Change MARSEC Level?



- Alerts & warnings
- Situation assessment
- Set perimeter
- Unified Command
- Mobilization

### Situation Assessment



### Establish Unified Command



# Incident Management

## Maritime Security – *Response Operations*

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### Risk assessment

- Active or secondary threat
- Areas/populations at risk

### Operational response

- Counter-terrorism operations
- Search and Rescue
- Port evacuation / shelter-in-place
- Firefighting & damage control
- Law enforcement
- Environmental & salvage response

### Intelligence analysis & assessment



# Incident Management

## Maritime Security – *MTS Recovery*



### Field Level

- Activate Marine Transportation System Recovery Unit (MTSRU)
- Assess against Essential Elements of Information (EEI)
- Use all-hazard MTS Recovery Plan
- Initiate recovery tracking & reporting



### National Level

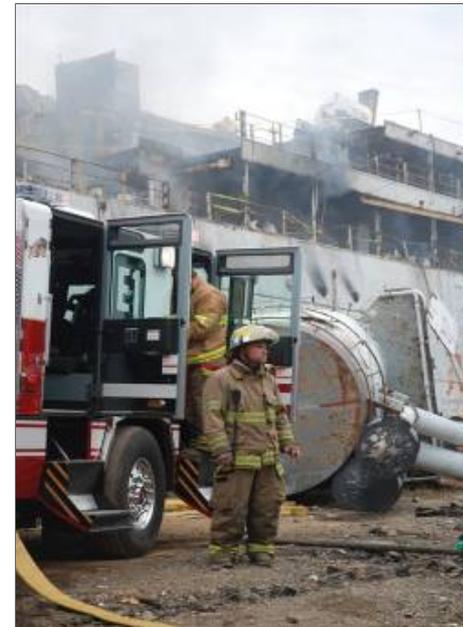
- Implement CBP/USCG Joint Protocols for Expeditious Recovery of Trade



# Manmade - Post Incident



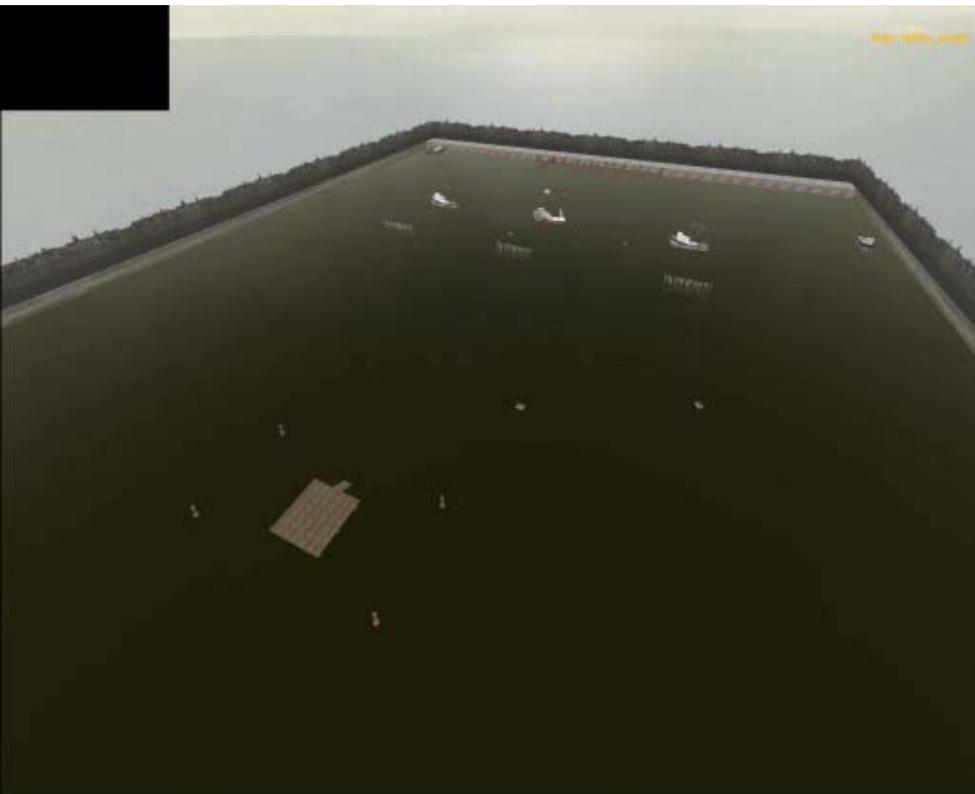
- *Incident Scene Management*
- Continuity of Operations / Business Continuity Planning
- IT Infrastructure Resiliency





# Terrorist Scenario

- Ahead of the emergency
  - Intelligence
  - Training
- During the attack
  - Observation and intervention
- After the attack
  - Sense-making



Terrorist Point of View



Police Point of View

## Detecting Hostile Intent



# Container Vessel Explodes Blocking Access to the Port of Miami – Terrorism (possible chem/bio) Related

- Mobilize Assets and Personnel
- Assess Safety of Port Environment (chem/bio/radiological)
- Maritime and Airborne Damage Assessment Operations
- Maritime and Airborne Port and Offshore Security Patrols

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# Future Enhancements

## Resiliencies

- Improve understanding of supply chain interdependencies
- Develop labor support group for resumption of trade



## Technology

- Improve tracking & documentation capability for recovery
- Develop near real time risk analysis capability
- Improve biometric identification capabilities



# Next Steps



- Enhanced Security and Surveillance
- Preparedness and Recovery
- Maritime Incident Response Capabilities
- Port Modeling and Simulation





# Next Steps

- Improved ways of training
  - Negotiation of resource sharing
  - Briefing
  - ...using videogames and online play
- Tools to
  - Aid observation
  - Predict
  - Visualize and sense-make

# Future Technologies



- UAS Operations
- Detection and Tracking – Non-cooperative Targets
- Data Fusion

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