Hastily Formed Networks (HFN) Defined

Unclassified Information Brief for the eCLIC and WCA
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Purpose/Objective

• **Purpose:** To provide Congressman Rogers with a sketch of NPS’s Hastily Formed Networks (HFN) capabilities, activities, and recent real-world deployments - Hurricane Katrina, Philippines, SE Asian Tsunami, and other HFN activities.

• **Objective:** To show relevance of HFNs and NPS’s Humanitarian Assistance / Disaster Relief work to the global disaster relief community.
The Storm Surge.....
Areas of Operation
The Images.....
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The Problem.....

- No power
- No fiber/copper infrastructure
- No push-to-talk comms to speak of
- Cellular svc mostly jammed / overwhelmed
- SatPhone svc mostly jammed / overwhelmed
- Not enough satellite eqpt suites available
- No Internet access (web, email, VOIP)
- No technical people resources available
THE PUZZLE.....

Surrounded by the Civil-Military Boundary.... and Improvisation
One Viable Comms Solution…..

• SATCOM Internet Reachback
• 802.11 (WiFi) and 802.16 (WiMax)
• Broadband Internet, Web, Email
• Voice Over IP (basic dial-tone)
• Skype (free internet phone)
• Groove (collaboration solution)
The Team....

• NPS Faculty Members (2)

• NPS Students (19)
  – Multi-service, Multi-designator

• Others:
  – Naval Reservists (5)
    • Naval Security Group Reserve
  – OSD NII Observer
    • Active Duty Commander, USN
  – Corporate Partners
    • Cisco, Microsoft, Redline, Tachyon, Mercury Data Systems, Rajant Corp.
Accomplishments

• Created and extended full scale, timely, and self contained wide area network in an austere environment – expanded from Tsunami work

• First communications capability for *many*

• Learned about civil-military boundary issues CONUS versus International from Tsunami work

• Valuable student real world application of technology (learned by doing – live lab work)
Lessons Learned

- Effect of No Common Situational Awareness
- VoIP Was HUGE Benefit
- Physical Access Was a Challenge
- PTT Radio Interoperability a Growing Concern
- Creature Comforts – You’re on Your Own
- Pre-Positioning **Assets** and **Contracts**
  – Can’t Negotiate in the Chaos!
- Force Protection
- Active Military versus Nat’l Guard (or both)?
- Providing Internet Access to the Public
Ongoing NPS HFN Research

• Hastily Formed Networks that Enable…..
  – Noncombatant Evacuation Ops (NEO) Tracking (NPS/DMDC R&D and Proof of Concepts)
  – Patient / Victim / Body Tracking Systems
    • What will we do if we have 500,000 or 1 million victims ?!
    – HFNs from Ship to Shore - US and International

• Voice Radio Interoperability – DoD, DHS/FEMA/Nat’l Guard, Others

• More US / International HA/DR Opportunities:
  – Upcoming missions on US Warships, Hospital Ships,
    Joint US/Australian Navy Exercises, the Next Real-World Disaster

• Smaller Form Factor Comms Suites, VSAT Internet Reachback, Alternate Power Sources, Situational Awareness (Focus on POWER, LIFT, COMMS)

• Security, Stability, Transition and Reconstruction (SSTR) Tip of the Spear Support
Conclusion and Challenges.....

- “WE” must do better!

- Who are “WE”?

- How do “WE” proceed?

- Are WE ready for the next hurricane season, international disaster, Japan’s “big one”, Global Avian Flu Pandemic, etc?

- Need scalable, robust, affordable, interoperable comms!!

- Int’l Community, Private Sector, DoD and DHS all have roles!!

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My Summer Cruise......
Bottom Line:
A Better Way to Run A Railroad is Needed!!