Today’s Agenda

• HFNs Defined
• NPS HFN Related Activities Past 3 Years
• Interoperability Challenges
• NPS HFN Thesis Topics and Related Research
HFN Defined.....

• An HFN Consists of Five Elements:
  – a network of people or technologies established rapidly
  – from different communities,
  – working together in a shared conversation space
  – in which they plan, commit to, and execute actions to
  – fulfill a large urgent mission.

HFN Concept by Dr Peter Denning,
NPS Cebrowski Institute Executive Director
HFN Defined.....

• As Well as Four Skills to Learn:
  – Interagency / coalition ops (civ-mil boundary)
  – Collaborative coordination tool set
  – Capacity to Improvise
  – Leadership in a network

HFN Concept by Dr Peter Denning,
NPS Cebrowski Institute Executive Director
HFN Defined…..

• To try to obtain:
  – a medium in which all communications take place, and
  – a set of interaction rules for effective coordination among all participants
Aspects of Conversation Space

• Physical
  – communication systems
  – meeting places
  – distribution systems

• Community
  – players and organizations

• Practices
  – rules of interaction and coordination
Practical Physical HFN

THE HFN PUZZLE...

Surrounded by the Civil-Military Boundary...

.....and Improvisation!!
Past/Present NPS HFN HA/DR Activities

- SE Asian Tsunami (Jan-May 05)
- Hurricane Katrina (Sep-Oct 05)
- USNS Mercy Humanitarian Mission to SE Asia (Summer 06)
- USNS Comfort Latin/South America Humanitarian Mission (Summer 07)
SE Asian Dec 04 Tsunami

- Already working with Thai military on surveillance & targeting research and field demonstrations (COASTS) – diverted energies to HA/DR

- Deployed a team of NPS faculty/students to Buddhist Temple to WiFi enable the temple that was converted into a morgue/grave registration site

- Expanded network by linking to a nearby 800 person refugee camp via WiMAX

- Maintained network over 5 months, gaining continuous lessons learned info and masters thesis work

- Began to hone the concept of flyaway kits in austere environments for Humanitarian Assistance/Disaster Relief (HA/DR) Operations
Affected Areas in Thailand
Tsunami Relief Effort Purpose

• Support international effort to relieve suffering of tsunami victims
• Provide broadband Internet to victims, families, NGOs, local government, media, volunteers
• Gain experience deploying a hastily formed network in humanitarian/disaster relief operations
• Create new NPS Masters thesis research opportunities
• Collect/document lessons learned
Katrina Storm Surge

SLOSH = Sea, Lake and Overland Surges from Hurricanes
Areas of Operation
Hurricane Katrina.....

• The Problems:
  – 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
HFNs - A Viable Comms Solution.....

• The HFN Puzzle Pieces
  – 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 HFN POSTERCHILD.....
Katrina NPS
Key Lessons Learned

• Effect of No Common Situational Awareness
• VoIP Was HUGE Benefit
• PTT Radio Interoperability a Growing Concern
• 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
USNS Comfort and USNS Mercy
HA/DR Missions and HFNs
NPS HFN Thesis Topics

- HFNs that Enable or Enhance.....
  - Noncombatant Evacuation Ops (NEO) Tracking
  - Patient / Victim / Body Tracking Systems
    - What will we do if we have 500,000 or 1 million victims ?!
  - Comms from Ship to Ship and Ship to Shore - US and International including EMIO, HA/DR, Tactical Operations

- Voice Radio Interoperability (i.e., LMRoIP Integration) – DoD, DHS/FEMA/Nat’l Guard, Others

- More US / International HA/DR Opportunities:
  - Upcoming missions on US Warships & Hospital Ships in PACOM and AFRICOM AOR’s, Joint US/Coalition Partner Navy Exercises, the Next Real-World Disaster

- Smaller Form Factor Comms Suites, VSAT Internet Reachback, Alternate Power Sources, Shared Situational Awareness (Focus on POWER, LIFT, COMMS)
NPS HFN Thesis Topics (cont’d)

• Working More Effectively at the Civil Military Boundary

• Operation Golden Phoenix 08 – DHS/DOD sponsored training/experimentation exercise in San Diego area July 08

• Lightweight, rapidly deployable non-fossil fuel alternative power sources for comms flyway kits

• Civil-Military communications and interoperability issues in Global Collaborative HA/DR Operations in support of the Navy’s Global Fleet Station (GFS) program

• Research deploying in HA/DR environment with inflatable VSAT antennas (GATR) and other emerging comms technologies

• Optimization of use of Navy hospital ships in CONUS and OUTUS HA/DR missions
NPS HFN Thesis Topics (cont’d)

• Collaborative web-based IT tools for HA/DR and SSTR Operations

• Implications of sharing unclassified info systems and providing public internet access to non-DoD entities deploying with military units ISO collaborative HA/DR operations

• Adapting commercial C3 vehicles for DHS and DoD use in collaborative HA/DR and SSTR operations

• Mobile Network Operation Center – integration in CONUS and OUTUS HA/DR operations

• Wireless 802.11 (WiFi) and 802.16 (WiMAX) meshed network optimization
QUESTIONS?

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