Emergency Wireless Network

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Disaster Communications Challenge

- Needs extend far beyond individual entities and their mobile radios
  - Fire
  - Police
  - Hospitals
  - NGOs
  - Federal, state and local agencies

- Even if they shared frequencies, radios have inadequate capacity
So, Instead of Mobile Radios, We Use:

- Telecom
  - Landline
  - Cellular phones
  - Satellite phones
- And Internet
  - Email
  - Web
Secondary Problem: Telecom and Internet Do Not Survive Disasters

- Widely shared resource = Exceptional load
  - Immediate saturation – highways at rush hour
- Power Failure
  - Progressive fuel exhaustion in 6 – 24 hours
  - Decreases capacity until effective failure
Proposed Solution: Emergency Wireless Network “EWN”

- Resilient
  - Self-powered
- Independent
  - Connects key players directly
- Wide area wireless networks
  - ~ 15 mile links
- Multi-Organization
Available Technology

- Wireless Internet Service Provider (WISP) market gear
- Very low cost yet capable devices
- Works like and alongside your usual network
Use of Standardized Internet Technologies vs. Telephone

Flexible Capabilities
- Voice (VoIP)
- Email
- Text file
- Image
- Video
- Direct database access
- Common operating picture
- Collaboration tools
- Future modes
Use of Standardized Internet Technologies vs. Telephone

- Flexible Configuration
  - Parallel networks and intelligent failover
  - Ad hoc customization
  - Complex environments made simple to use

- High Efficiency Usage of Comms Resources

- Off the Shelf and Low Cost
  - Faster Proliferation
  - More Replaceable
  - More Upgradable
  - Affordable Redundancy
EWN Status

SCEWN: Santa Clara Emergency Wireless Network

- Prototype Network in Operation Since August 2009
- Major Internet Gateway Partners
- Site Mapping Well Underway
- Expanding to Connect Santa Clara County to EOCs.
Santa Clara Emergency Wireless Network
Challenges

- Technical: Accomplished
- Budgetary: Hardly a Factor
- Political
  - Memoranda of Understanding
  - Unfamiliarity by Practitioners
  - Resistance from non-mission driven players (I.T.)
- Property
  - Finding suitable antenna sites

What opportunities/challenges do you see?