Building Survivable Networks for Voice, Video, Data and Mobility

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Overview
Secure Converged IP Networks

- Enables Converged Voice, Video, and Data Applications
- Facilitates Network Integration, Information Sharing, and Collaboration
- Broad Spectrum of Capabilities and Solutions
- Enables Rich Media Content Distribution, Telephony, Video Conferencing, E-Learning, IP Encryption, Storage Networking, and more
Mobile IP Communications

- “Mobile IP provides an IP node the ability to retain the same IP address, security posture and application connectivity while traveling across disparate networks.”

- Transformational Impact to ConOps and Field Capabilities
  - A Single IP Connection Can Support
    - Multiple Applications
    - Multiple Missions and Levels of Sensitivity
    - Differentiated Quality of Service
    - Real-time Management and Administration
  - Voice and Low Speed Data Are Legacy Concepts
    - Broadband Robust Applications: Records Access, Instant Messaging, Still and Motion Imagery, Biometrics, Telemetry, Sensors
    - Secure Seamless In-Motion and In-Field Connectivity w/ Persistency and High Availability
Key Technologies and Scenarios
Key Technologies

- TCP/IP
  - Secure Converged IP Networks
  - Converged IP Applications

- Wireless
  - IP Mobility
  - Integrated Wired and Wireless Broadband IP Networks
  - Anywhere, Anytime Satellite
Mobile Communications

- General Requirements for Success
  - Critical to Mission Objectives
  - Uninhibited by Fixed Infrastructure
  - Capable of Rapid Deployment
  - Flexible and Adaptive
  - Inherently Simple to Operate

- Scenarios
  - Field Units Executing on Day-to-Day Mission Objectives
  - Atypical situations
    - No Existing Infrastructure
    - Existing Infrastructure Degraded
    - Existing Infrastructure Exceeded

- Application Models
  - Field Operations
  - Continuance of Operations and Infrastructure Reconstitution
  - Mutual Assistance
Satellite Communications and IRIS
High intensity terrestrial

Medium intensity terrestrial

Satellite only, no terrestrial
Mobility and Mobile Command and Control
IP-based Mobile Command Architecture

- SAT
- PSTN
- Internet
- VPN Router
- LMR
- Router w/ LMR Gateway
- Switch
- IP-based Voice
- IP-based Interoperability
- Wireless Mesh Controller
- Meshing AP Exterior Coverage (Mast Mounted)
- Wireless 5.8 GHz Point-to-Point Bridge
- Mesh LWAPP
- Wireless Mesh Incident Network (Adhoc or Pre-Installed)
- Fixed Operating Base EOC or HQ
- Internet
- PSTN POTS / DSL
- Internet
- QuickTime™ and a TIFF (Uncompressed) decompressor
Access Point Remote Power System

- Power System Components
  - 12 V @ 75 Ah Deep Cycle Battery
  - Plastic Battery Case
  - Amp meter
  - 400 Watt DC to AC Inverter
  - 110 VAC Power Cable w/ 3-prong AC plug to mil-spec connector

- Rated Power Draw
  - 36 W / -48 VDC @ .75 mA

- Observed Power Draw
  - 12 W / 12 VDC @ 1 A

- Estimated Duty Cycle is 24 to 48 Hours for Given Battery
Tactical Mesh Field Deployment

- Meshing AP
  - Exterior Coverage
    - (Mast Mounted)

- Wireless Mesh Incident Network
  - (Adhoc or Pre-Installed)

- EOC or HQ

- Mesh LWAPP

- Site-to-Site VPN Tunnel

- Fixed Operating Base
  - EOC or HQ

- Wireless 5.8 GHz Point-to-Point Bridge

- “Reconstituted” Building

- PSTN

- Internet

- Agency Network

- PSTN Voice Gateway

- PSTN
Closing
Responsive & Resilient Environment

Challenge:
- Nlets, the International Justice and Public Safety Information Sharing Network, carries 90+ million messages to 30,000 member agencies
- Nlets wanted network reliability and flexibility to connect new agencies and services

Solution:
- Nlets chose an IP network solution because of its security, resilience, and flexibility