



ARRL
100
YEARS



REINTEGRATING ARES & NTS



EmComm East 2013



Summary



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- ARES and NTS were designed to complement each other and did so nearly half a century
 - Winlink 2000 competes with NTS
- Reintegration of the ARRL Field Organization benefits everyone
 - Citizenry: much needed disaster communication
 - ARRL: restored cooperation between factions
 - ARES: public relations and recruiting opportunities
 - Volunteers: meaningful assignments and training
 - NTS: comes in from the cold!



ARRL and Public Service



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- ARRL founded for radiogram relays: 1914
- ARRL Emergency Corps established 1935
 - Renamed *Amateur Radio Emergency Corps* in 1951
 - Made part of ARPSC in 1963
 - Renamed *Amateur Radio Emergency Service* in 1978
- NTS organized in 1949
 - Regularized ad hoc traffic relay with state-of-the-art network design
- RACES recognized in 1952
 - Designed with substantial input from ARRL
 - The Amateur Radio operations under martial law (WERS)
 - Never implemented as intended!
- Amateur Radio Public Service Corps ca.1963
- ARESCOM effectively split NTS from ARES 2003



ARES – A Changing Mission



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- ARESCOM (2005) modernization recommendations
 - Winlink2000 provides radio-email to served agencies
 - General public served through cooperation with NTS
- Post-9/11 government communication is increasingly specialized
 - Vast technology spending for digital and broadband capabilities
 - DHS/NIMS leaves little room for volunteers, incl. ARES
 - ACS concept further muddies waters
- General public remains underserved
 - Violent storms devastate commercial telco systems
 - Government prioritizes response and relief efforts as “top-down”
 - Citizens left to fend for themselves (*See EmergencyManagement.com handout*)
 - Phone and cable lines subject to ordinary weather
 - CCAR 911 call center backup duty
 - Rita left neighborhoods without fiber-optic comms – dead batteries!



Current Status of NTS



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- NTS is fully operational
 - System covers 83 Sections in U.S.A. and Canada
 - Eastern Area NTS, Feb 2013
 - 2,450 messages relayed manually
 - 9,477 messages relayed digitally
 - Transcontinental Corps, Feb 2013
 - 1,219 messages relayed manually

- NTS is a system not a specific technology
 - Operators and station in all States and ARRL sections
 - Hierarchical and Cyclic up to 4 cycles/day
 - Traditional manual nets continue to operate on CW and SSB
 - NTS Digital is an automated HF Pactor network

- Hampered by lack of delivery stations
 - ARES pull-back severely damaged local participation
 - Technician Class licensees cannot participate in HF nets
 - Delivery tends to be via toll calls or postcards
- NTS capabilities are underutilized
 - Efficient coast-to-coast message delivery
 - Within minutes via NTSD relay
 - Same day/next day for traditional circuits
 - Traditional operations are scalable
 - Can add up to three additional cycles
 - Delivery times improve exponentially with added cycles
 - NTSD stations operate 24/7 and have significant capacity
 - O.R.S. are highly trained with good skills and robust stations



NTS Value Proposition



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- Manpower
 - ~800 traffic handlers at any given time
 - Trained
 - Practiced
 - Reliable
- Organization
 - Orderly and disciplined structure
 - Scalable
 - Underutilized
- Equipment
 - Fixed station HF operation covers all U.S.A. and Canada
 - CW, SSB require minimal assets
 - Pactor is robust and reliable
 - Ideal for regional, area, and continental relays

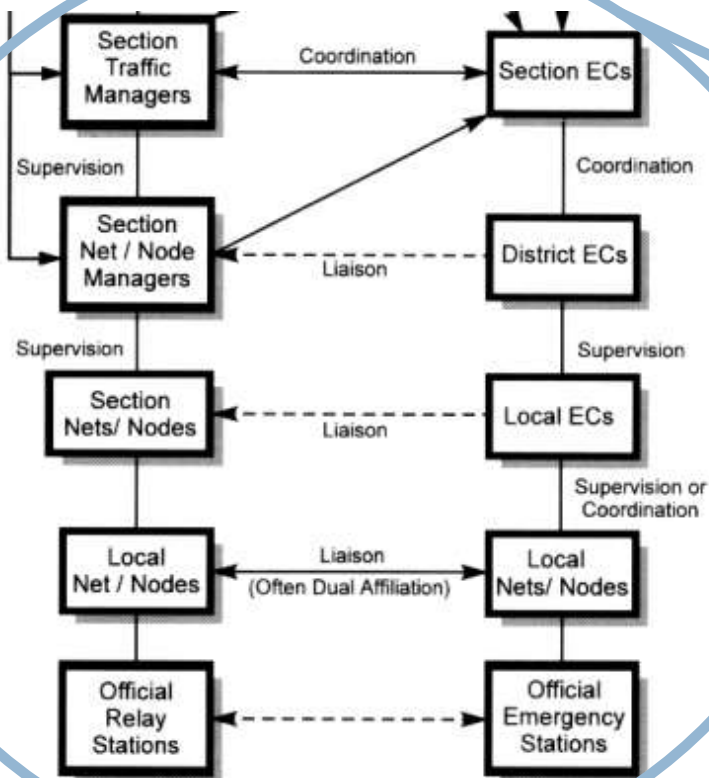


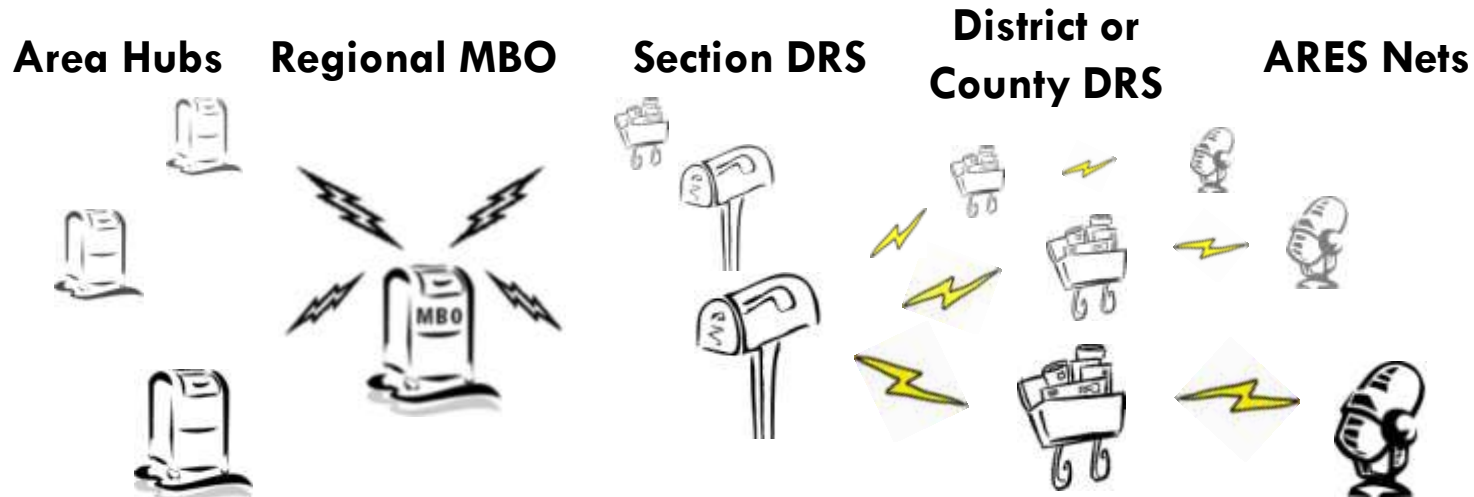
Reintegration



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- Improved disaster communication for public H&W
 - Radiograms would be welcome absent commercial telco
 - A tangible, specific service offering to relief organizations
 - Radio email or traditional radiograms as required
- Benefit to ARES
 - TRAINING: Weekly ARES nets pass real traffic
 - OUTREACH: Delivery to local amateurs as basis for recruitment
 - PUBLICITY: Public service events become PR opportunities
 - MISSION: Gives a useful, valuable responsibility to members
 - ADVANCEMENT: Gateway to General Class license and HF operations
- Benefit to NTS
 - ACCESSIBILITY: Exposes Technician Class operators to traffic handling
 - DELIVERY: Solves last-mile problem
 - GROWTH: Increases authentic Radiogram business





Topology



Technology



Scheduled Availability





Section-level support



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- Use section nets for official business once again
 - SM was traditionally “Section Communication Manager”
 - HF is a best practice for regional comms without infrastructure
 - Restore linkages between STM and SEC at section net level
- Field Organization appointments
 - O.R.S. is the traditional appointment for liaison stations
 - “Digital Relay Station” now recognized by HQ
 - Section level at present
 - ARES district or even county level is possible
- Training programs for novice traffic handlers
 - NTS over-the-air courses via VHF nets (12 weeks)
 - Direct participation in Section nets
 - Leverage existing ARES training for ICS memo traffic



Steps Forward



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- ARES leaders:
 - Identify potential HF liaison and Digital Relay ops
 - Introduce them to your STM
 - Arrange for NTS training for your weekly nets
 - Promote NTS nets

- NTS leaders:
 - Invite HF ARES candidates to your section nets
 - Refer NTSD candidates to your Regional MBO operator
 - Promote weekly ARES nets

- Contact Information:
 - Joe Ames W3JY, NTS Eastern Area Staff
w3jy@arrl.net



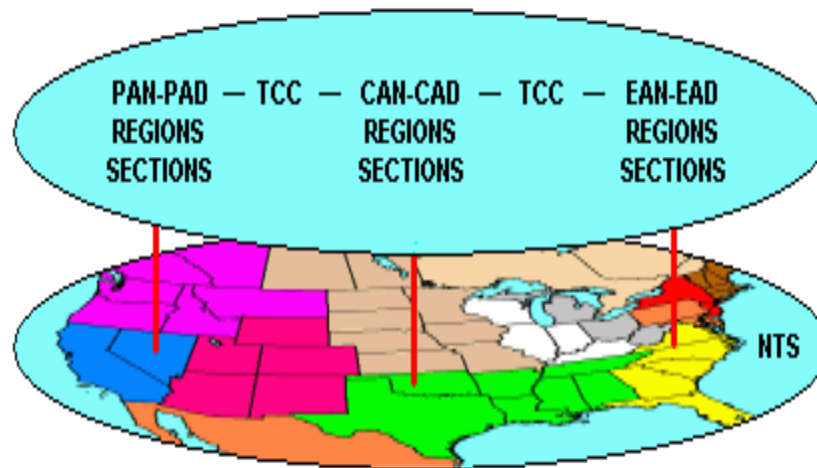
NTSD Technology Overview



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- 100% RF in lieu of CMS (“Internet Down” scenario)
 - Pactor 3 backbone; Pactor 1 or Packet at section level
 - Automated “smart” scanning, forwarding and polling
 - Many NTSD stations operate full Winlink2000 RMS HF nodes
- NTSD operates on Winlink 3.1 a.k.a. Winlink Classic
 - Useful interoperation with Airmail and Paclink (B2F not supported)
 - Contains sort and forward code crucial to automated routing of messages
 - BBS, keyboard-to-keyboard, and Bulletin functionality retained
- “Target Station” interface via Airmail
 - “Parser” tool converts radio email content to NTSD messages & vice versa
 - Leverages Winlink 3.x high capacity import/export batch utility
 - May replace Winlink Classic at some point

- Manual and Digital nets follow same hierarchical structure
- Normally two, as many as four cycles provide 24hr traffic flow
- Point-to-Point easily organized
- Weak link is at local delivery level due to ARES pull back



- Winlink 2000 links RF to CMS Internet backbone
- RF-only capable but not exercised
- Winlink Classic is interoperable but no longer supported



- NTSD Target Station concept leverages CMS system for message origination and delivery
- Dramatically increases HF Pactor resources
- Brings NTS/ORS manpower into the response effort and relieves constraints



- Fully capable emcomm backup in case of Internet/CMS failure
- Origination ↔ Relay ↔ Delivery using existing ARES capability

