R3EC* Data Management for Digital Communications (BBS)



OPTIONS AND APPROACH FOR EMCOMM DATA SHARING

LOCAL

REGIONAL & U.S.

*R3EC – Rappahannock-Rapidan Regional Emergency Communications

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R3EC Digital Comms Mission Needs Statements

- R3EC maintains an established voice/repeater network
  - Established and Reliable FM repeater with backup
  - Established and effective Net Management and participation
  - Data management controlled through internet web portal(s)

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- R3EC recently established a digital communications capability
  - Weekly check-ins augmented with data sharing, training and technical advice
  - Based on proven digital methods* from national and regional groups (SEEN, AmRRON and EDM)

- R3EC has a need for data collection, distribution and management
  - Data (files) accessed from regional or national sources
  - Data (files) provided to regional or national users
  - Resources and users are generally restricted among groups/policies
  - Data management across any/all digital communications methods within R3EC
  - Capability via HF and VHF communications – national, regional and local

Grid-Down Comms

*NBEMS – Fldigi/Flamp/Flmsg for Net; VarAC and JS8Call for pre-net information sharing

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R3EC Digital Comms Potential Approaches

- Information sharing and situational awareness tools existing/expanding
  - CommStat – provides visual internet and JS8Call accessible map/messages/conditional stop-lights
  - VarAC Broadcast – textual message sharing among unlimited users; directed messaging; high data rates
  - JS8 Call – textual message sharing at low data rates
- Cross-Emcomm collaboration focus on HF NBEMS (AmRRON, SEEN* etal)
  - Regular nets with file sharing, standard protocols, and persistent presence frequency allocations
  - Emcomm training on proven methodologies
  - Encourage check-in behaviors with 'rolling' regional approach
- R3EC BBS system approach needed to consolidate Emcomm information for sharing
  - Local, regional and national
  - Ingest and share
- BBS systems are prevalent among the national Emcomm methods
  - HF Packet – archaic and minimal; VHF Packet/BBS still viable
  - HF Vara – prevalent method for user to BBS access; VHF Vara practical in local/regional use
  - HF VarAC BBS – new and growing capability with situational awareness features; VHF practical

*SEEN – SouthEast Emergency Network

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R3EC Digital Comms – BBS Evolution

- Potential BBS approaches under study – current R3EC
  - KQ4LWP – established VarAC BBS* (whitelisted, experimental)
  - KN4GDX – established testbed
    - Developing BPQ services across platforms/modes/bands
    - Established HF/VHF VarAC BBS capability (not in use)

Now -Fully Operational

- Potential BBS approaches under study – target solution(s) HF
  - Target ingest – national or regional BBSs (SEEN model)
  - Target R3EC BBS sharing – national or regional users; limited local users
- Potential BBS approaches under study – target solution(s) VHF/UHF
  - Target ingest – local or regional BBSs (SEEN model)
  - Target R3EC BBS sharing – local or regional users
- Current BBS approach in testing **– HF /VHF Vara; VHF /HF Packet

*VarAC BBS – limited to file sharing

**R3EC BBS – file sharing and/or chat

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R3EC Digital Comms – Weekly Operations

- Weekly Check-ins – Digital Multimode
- Exercise Planning – Future Goal
- Technical Assistance and Training
- Architecture Testing
- Members' BBS on HF and VHF
- R3EC Example message traffic and file forms
- Signal Updates – R3EC Membership
- Q&A
- Special Sessions as needed

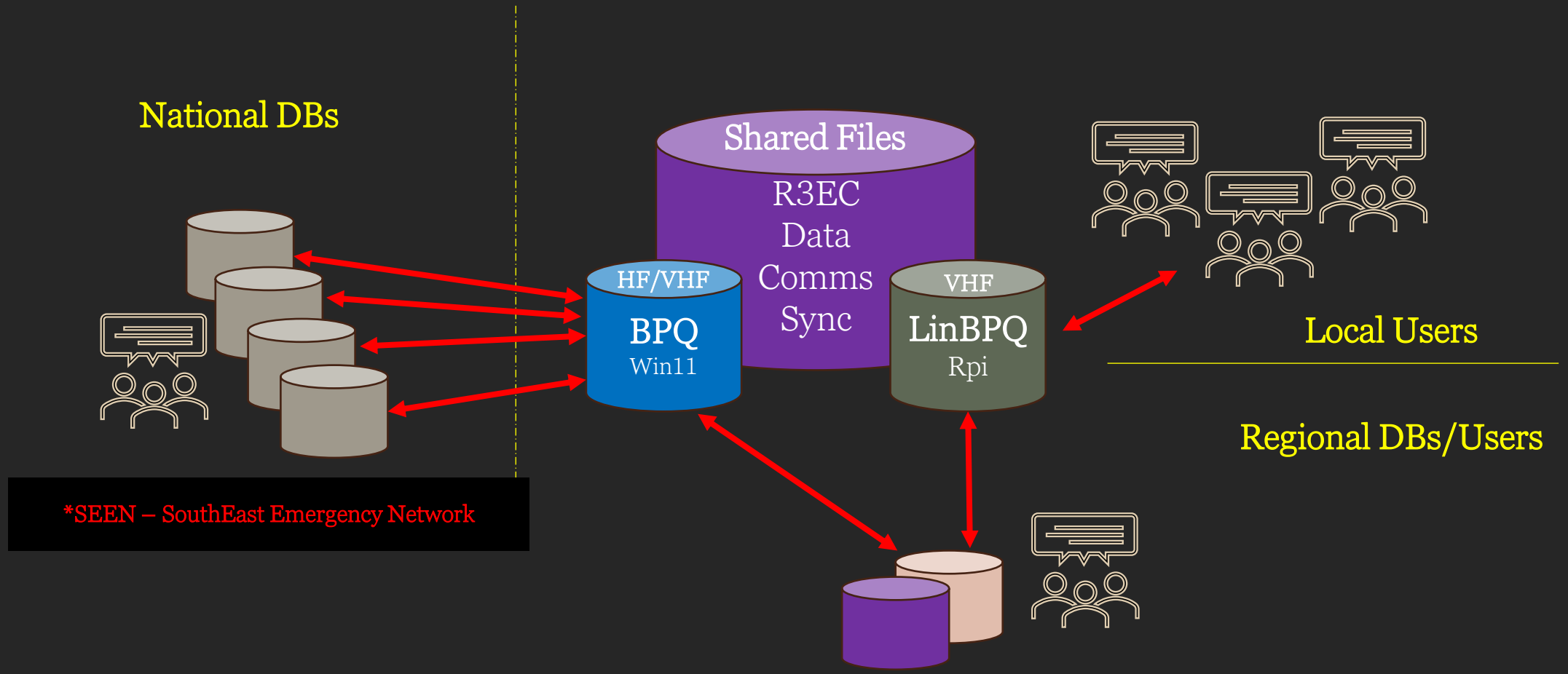
R3EC Credo

- Daily/Weekly On-Air Digital Information
- Comprehensive Local and Regional Nets on Multiple Digital and Voice Modes
- Information Sharing via Persistent Presence
- HF and VHF (wide) regional BBS hosted for R3EC and SEEN
- Regional and National Grid-Down Emcomm
- Incentivize Technician Ops: VHF/UHF Digital Comms

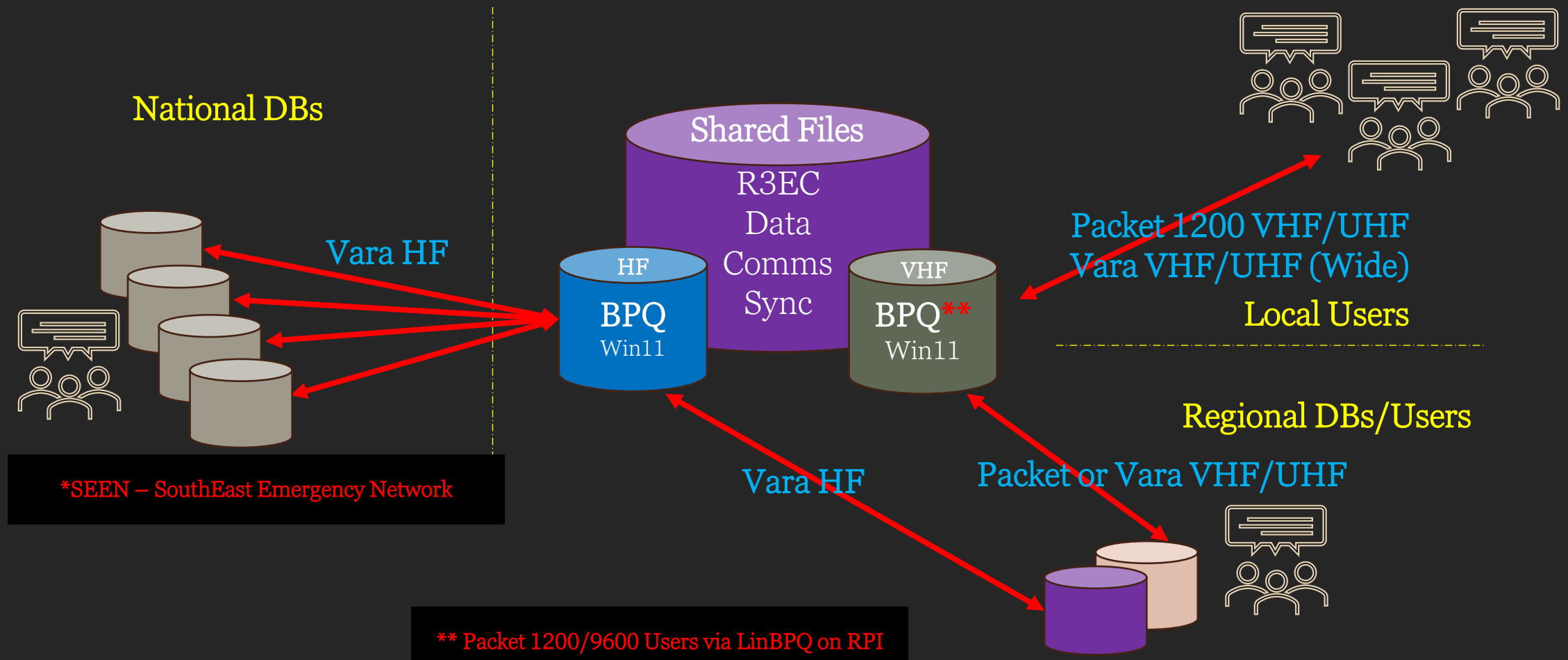
R3EC Digital Comms – Potential Exercises

- Notional One Day Exercise
  - Hour 1-2:
    - Voice Net checkins
    - Identify participants, locations, capabilities and resources (time, power ..)
    - Instructions for later segments (also provided prior exercise – detailed technical/operational)
  - Hour 3-8:
    - Access Files on R3EC DB (HF and/or VHF)
    - Utilize NBEMS for messages (HF)
    - National Participants by invitation
    - Regional Participants by R3EC exercise plan
    - Local Participants by plan R3EC exercise plan
  - Hour 9
    - Voice Net Hot Wash
- Resources
  - FM Repeater (throughout the exercise)
  - R3EC Database(s)
  - NBEMS, VarAC, JS8Call, CommStat (R3EC - focused region), Vara HF, Vara VHF, Packet?

R3EC Digital Comms – BBS Architecture - Database



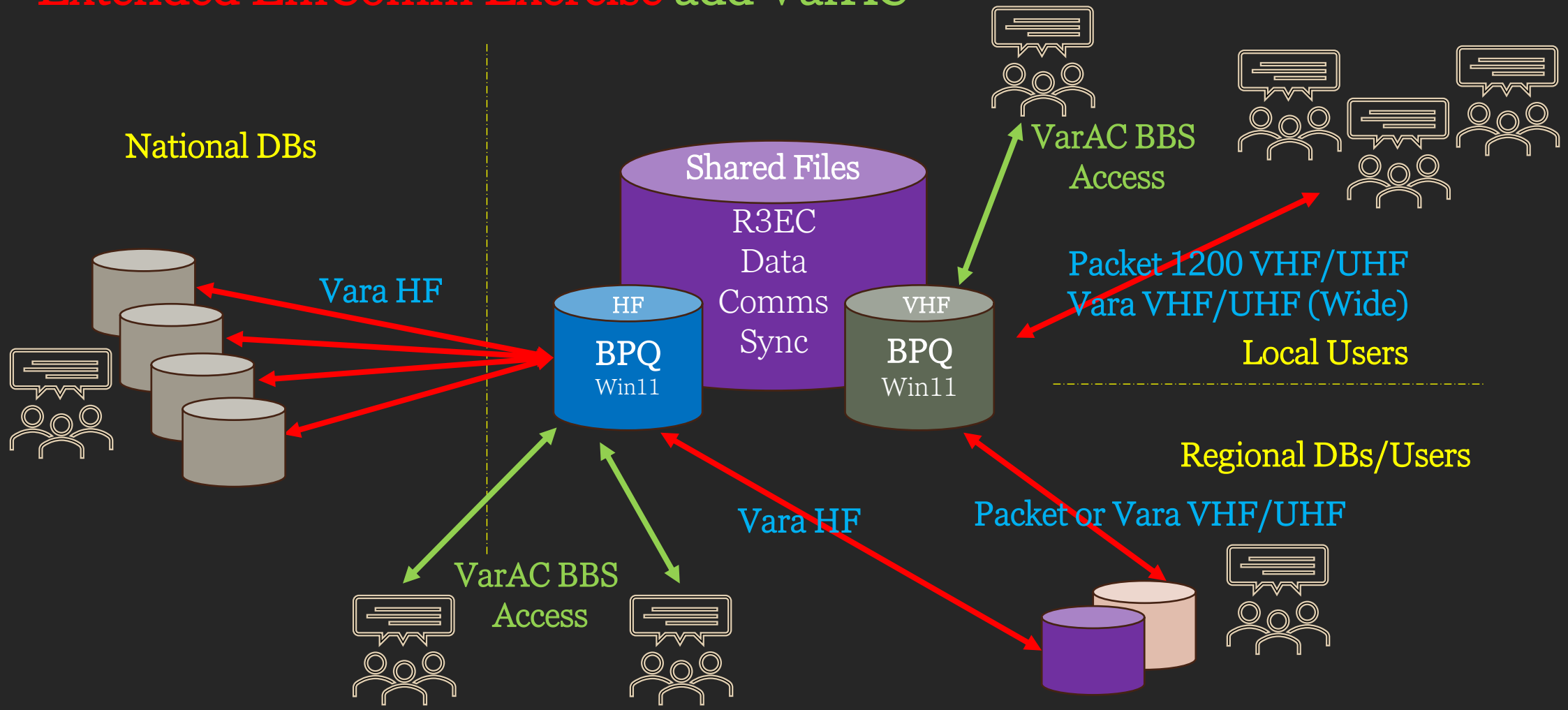
R3EC Digital Comms – BBS Architecture - Communications



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R3EC Digital Comms – BBS Architecture - Communications

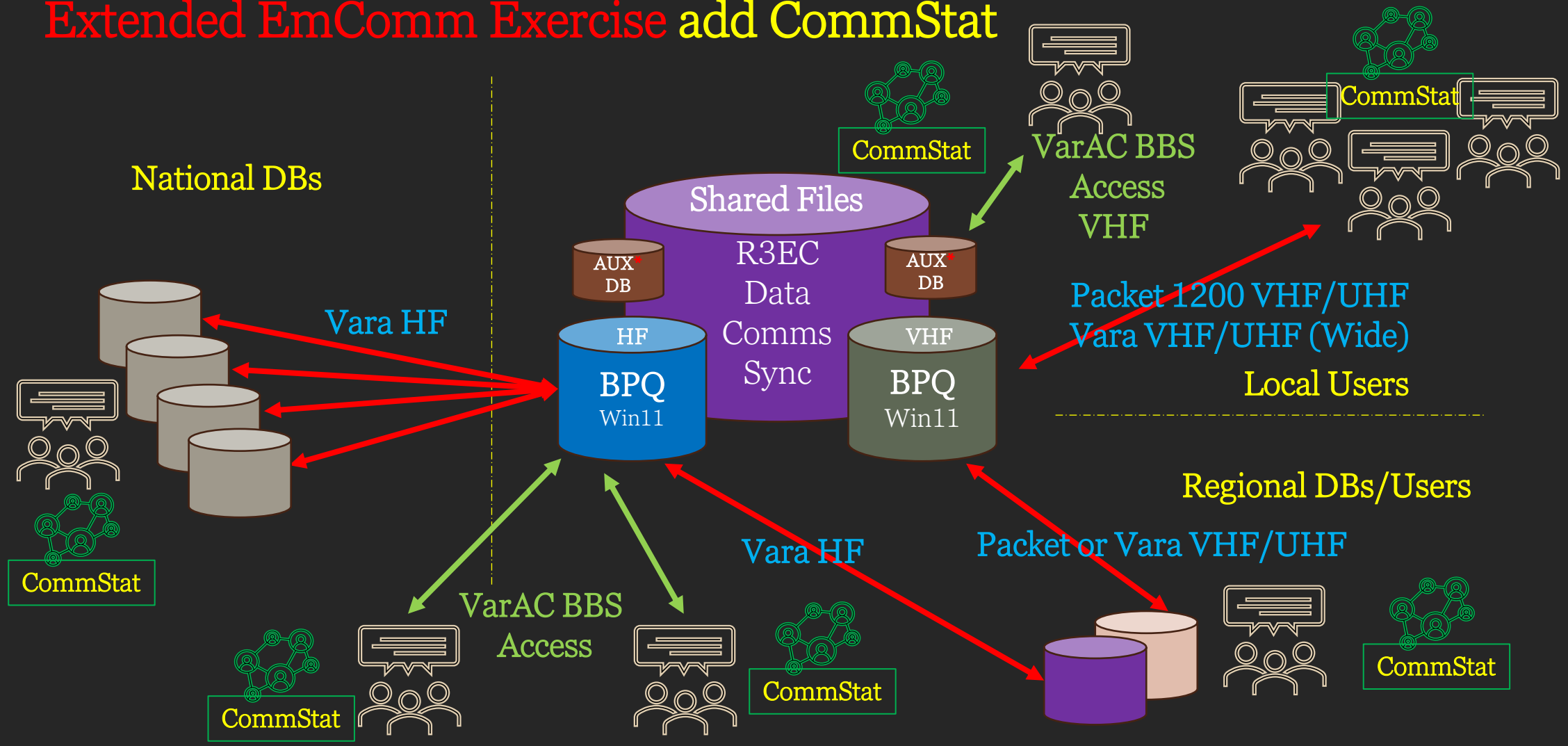
Extended EmComm Exercise add VarAC



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R3EC Digital Comms – BBS Architecture - Communications

Extended EmComm Exercise add CommStat



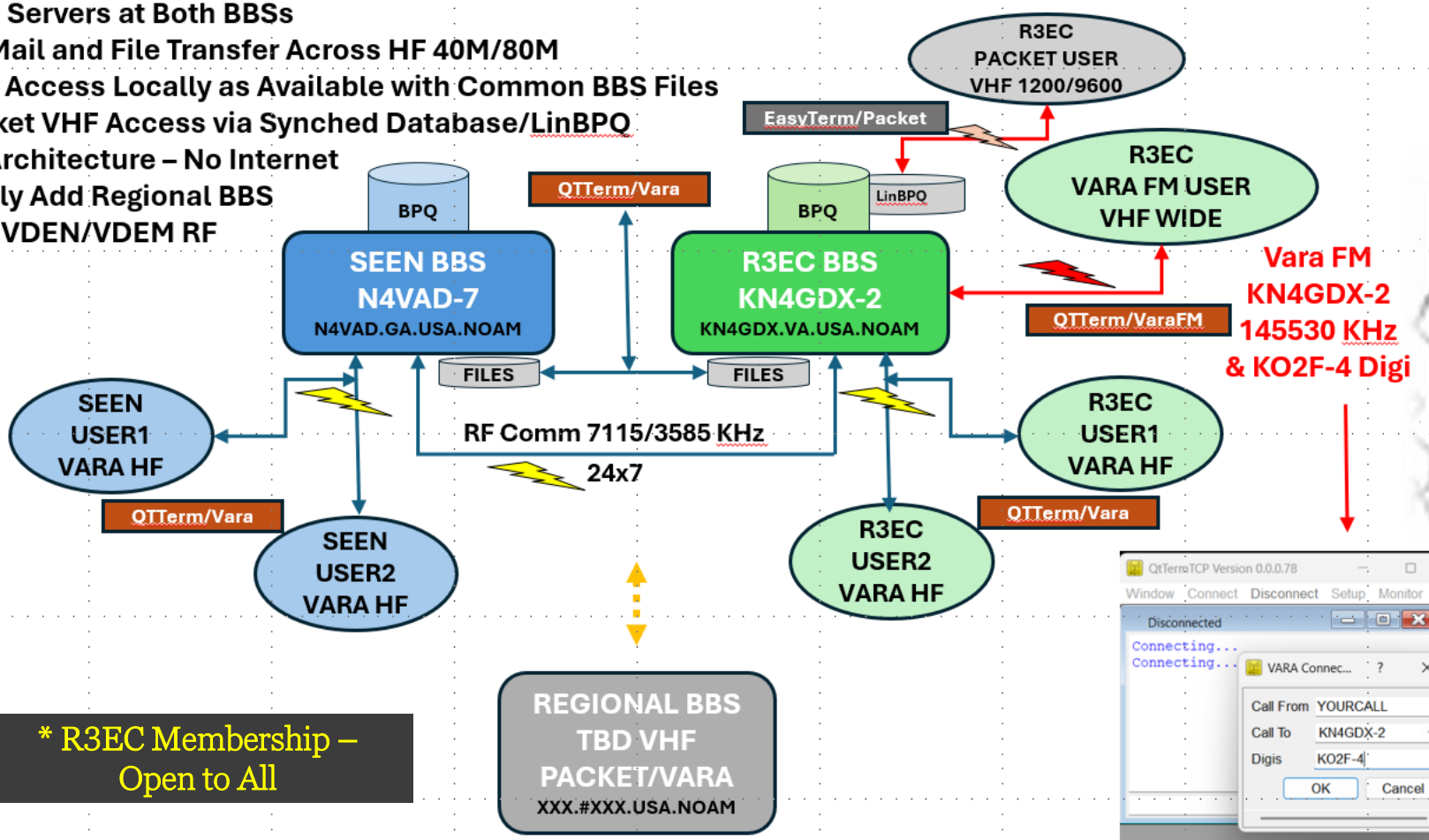
*AUX DB Access on Operational Systems//CommStat Web + RF-Based Situational Awareness

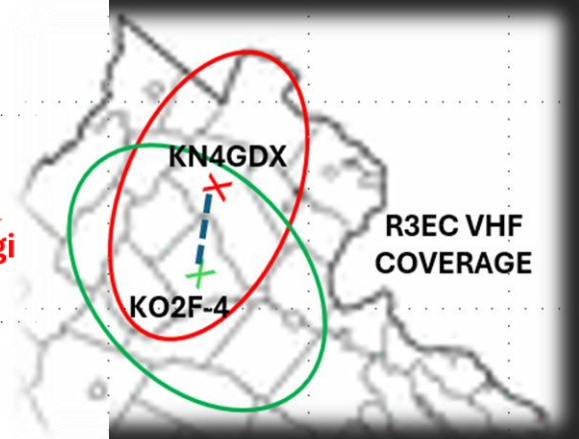
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Current R3EC BBS Configuration and Access*

Joint R3EC-SEEN Mail/File Exchange

- Purpose: Emcomm Mail/File Access/Sync Across Regions
- Potential for Other Regional BBS/Files Interaction
- BPQ Servers at Both BBSs
- HF Mail and File Transfer Across HF 40M/80M
- VHF Access Locally as Available with Common BBS Files
- Packet VHF Access via Synched Database/LinBPQ
- RF Architecture – No Internet
- Easily Add Regional BBS
- TBR VDEN/VDEM RF



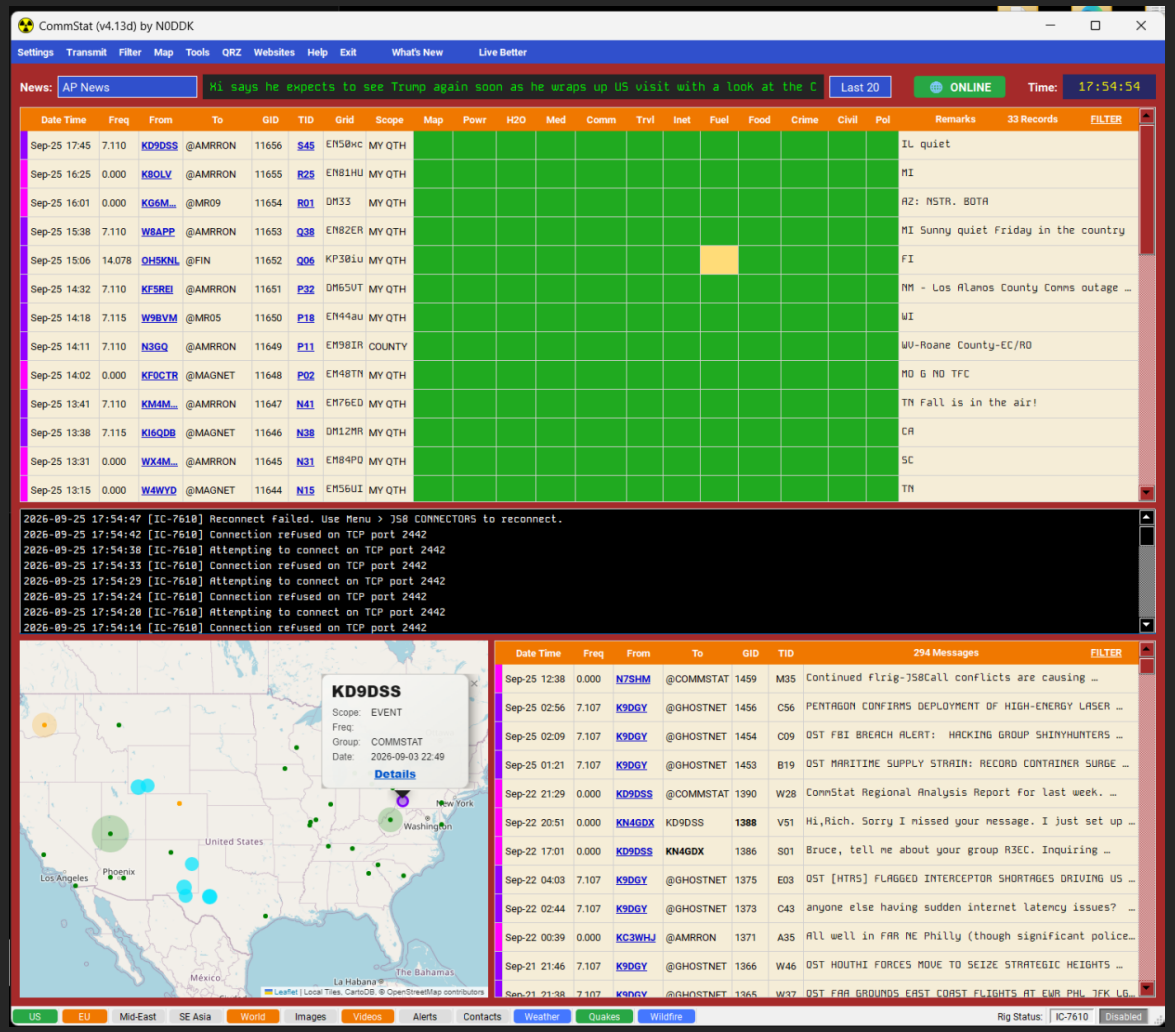


* R3EC Membership – Open to All

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R3EC Digital Comms – CommStat

Internet and/or JS8Call Entry – Situational Awareness/Messaging



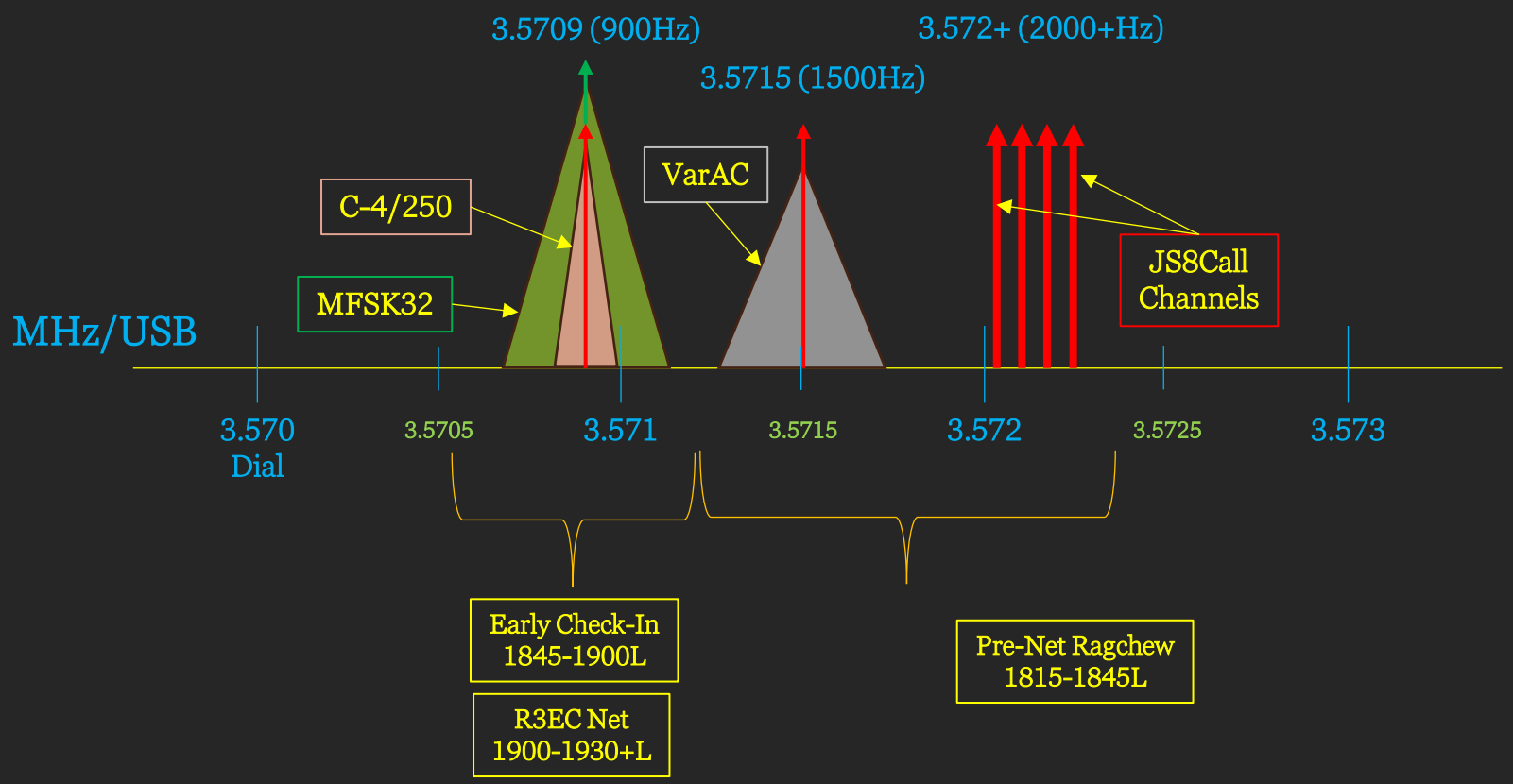
CommStat

- EmComm Groups
  - General/Specific
  - Filtered
- Internet + JS8Call Entry
- Grid-Up/Grid-Down
- EmComm-Tailored Stoplights
- Area Focus and Time Filtering
- Exercise Tracking
- Messaging
  - All
  - Peer to Peer
- Alerts and News Feeds
- Windows/Linux/Mac

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R3EC Digital Comms – 3.570MHz Waveform/Waterfall

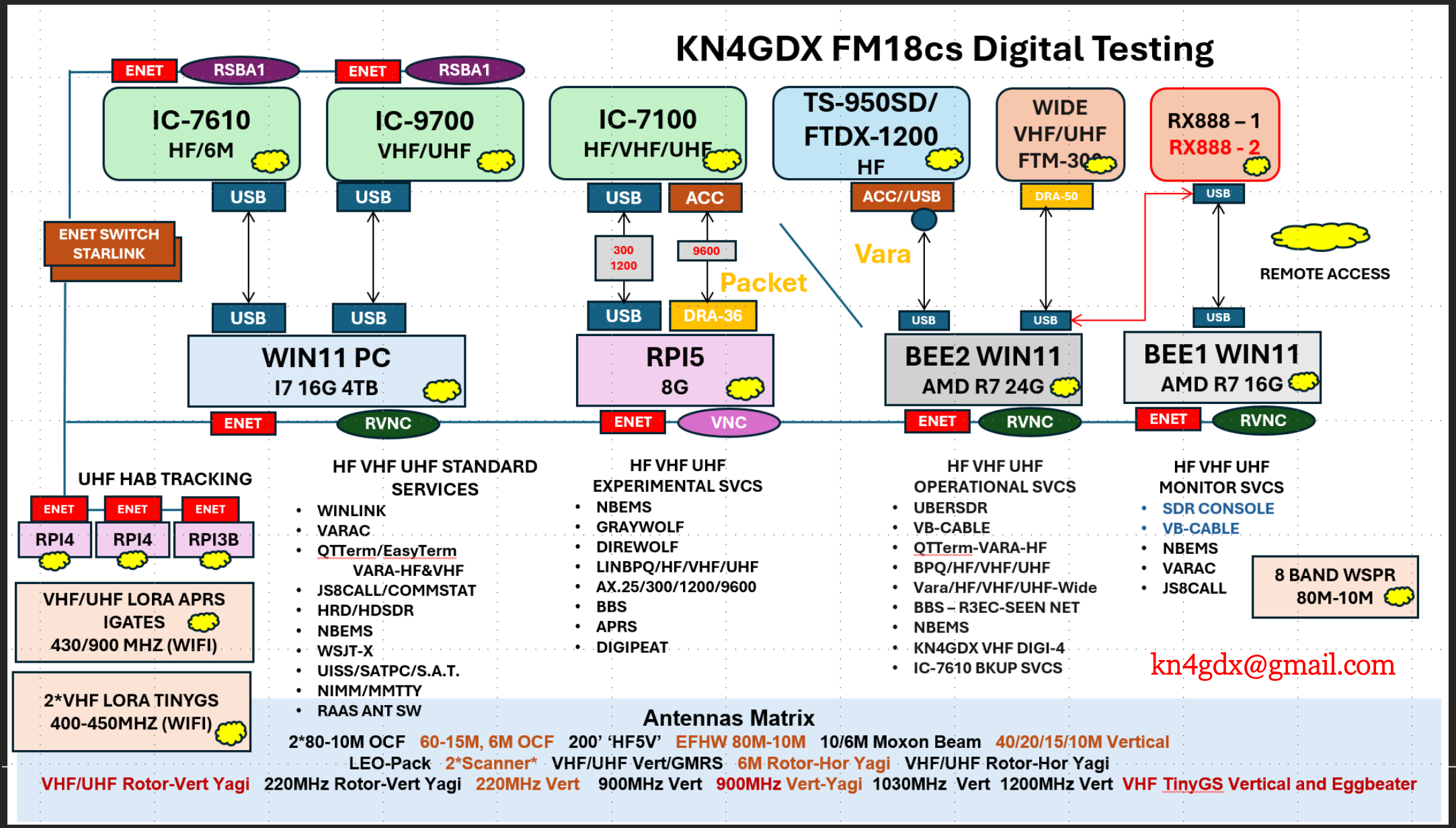
Wednesdays beginning at 1815L - Training Venue



R3EC Digital Comms
3KHz Bandwidth at 3.570MHz

- All Modes may Occupy Simultaneously
- R3EC Net Encourages both Pre-Net and Net Activity
- Pre-Net Spectrum Usable during Net for Experiments and Training
- NetOps Records all Signals Across the Waterfall during Nets
- New Users Always Welcome

KN4GDX – Shack Configuration – Testing Facilities



Thank You from R3EC Digital Management Team

Alyssa: KQ4LWP
Bruce: KN4GDX
Mike: KD7PUF

Questions?

Backup

BBS SETUP AND TESTING PROCEDURES

R3EC Digital Comms – Test Thread 1

Testing: ShackWin11 - IC7610 HF, IC9700 VHF/UHF

- Threads1: Test Signals
- 1A: Winlink Packet 1200 - Soundmodem - IC9700 (generate test packets for RPI/7100/LinBPQ-VHF/UHF Ch1))
- 1B: Winlink Packet 300 - Soundmodem - IC7610 (generate test packets for RPI/7100/LinBPQ-HF Ch3)
- 1C: QTTerm Vara - Vara HF - IC7610 (generate test traffic with Vara BBS in LA) (tested with N4VAD-7)
- 1D: QTTerm Vara FM - Vara FM - IC9700 (generate test traffic with BBS local) (needs setup/no use case)

  (Set up Vara FM folder - separate from Winlink - for configuration and identify a Vara FM test station -- no Vara setup on RPi (requires Wine OS))

R3EC Digital Comms – Test Thread 2

BPQ/BBS Operations: RPi - IC7100 HF Packet - Graywolf Ch3,
IC7100 VHF/UHF Packet/APRS - Graywolf Ch1,
and Beelink2 – FTDX-1200 HF Vara QTTerm

- Threads2: BBS Operational Tests
- 2A: Validate KN4GDX LinBPQ - RPi Packet - IC7100 VHF/UHF (interact with test packets from 1A) (complete VHF)

  (UHF Ch2 testing is trivial; established VHF/UHF 'side' of LinBPQ access and file mgmt)
- 2B: Validate KN4GDX LinBPQ - RPi Packet - IC7100 HF (interact with test packets from 1B) (~~To Do~~) (Complete)
- 2C: Validate KN4GDX BPQ - Beelink2 - FTDX1200 (~~To Do~~) (Complete)
- (Get BPQ setup; configuration and validation) (Complete)
- 2D: Validate 1C Vara test signals with 2C configurations - QT/Vara Win11 to QT/Vara Bee2 (~~To Do~~) (Complete)
- 2E: Validate KN4GDX QTTerm - Vara HF – FTDX1200 (generate traffic with N4VAD-7 BBS in LA) (~~To Do~~) (Complete)

R3EC Digital Comms – Operations Notes

Other Notes:

- Primary HF BBS communications will be Vara (not Packet) (Packet is a reserve capability)

  (Target Persistent Presence Frequency monitoring on HF with FLrig)
- Primary HF BBS Ingest and Server will be Vara on Beelink2 - FTDX1200
- Primary VHF/UHF BBS Ingest and Server will be Vara on RPi - IC7100
- BBS Files will reside separately on RPi (VHF Packet transport) and Bee2 (HF Vara transport)
- Consider consolidated File system via local SAN - HITL coordination
- Consider dead internet (no starlink) local wifi viability for HF Emcomm and BBS
- (Local backup generator -- no internet; local wifi via starlink wifi)