

MicroHAMS Digital Conference 2009

**Digital Uses in
Emergency
Communications**

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Applications in EMCOMM

- Text Based information/data
 - Informal Message Traffic (think SMS)
 - Formal Traffic (think NTS)
 - Forms Based Traffic
 - Health and Welfare
 - Sit-Reps
 - E-Mail



The American Radio Relay League
RADIOGRAM
Via Amateur Radio

Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
201	ROUTINE	E	W1FN	13	LEBANON, NH	1430 L	MAR 3

To:

RED CROSS HQ
123 PLEASANT ST
RUTLAND, VT 05000

This Radio Message was received at:

Amateur Station _____ Date _____
Name _____
Street Address _____
City, State, Zip _____

Telephone Number: 802-555-1234

DAVIS	SCHOOL	SHELTER	FULL	SEND
25	COTS	AND	EVAL	KITS
ADVISE	DELIVERY	TIME		
		JOAN SMITH	SHELTER MANAGER	

REC'D	From	Date	Time	SENT	To	Date	Time
-------	------	------	------	------	----	------	------

A licensed Amateur Radio Operator, whose address is shown above, handled this message free of charge. As such messages are handled solely for the pleasure of operating, a "Ham" Operator can accept no compensation. A return message may be filed with the "Ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225, Main Street, Newington, CT 06111.

The American Radio Relay League, Inc. is the National Membership Society of licensed radio amateurs and the publisher of QST Magazine. One of its functions is promotion of public service communication among Amateur Operators. To that end, The League has organized the National Traffic System for daily nationwide message handling.

NTS Message Maker

File Edit

ARL Msg **Check** Save Clear Msg Cancel

Preamble

Mso No: 201

Precedence: R (R, W, P, E)

Handling Instr: E ...

Station of Origin: W1FN

ARL Message: ☐

Check: 13

Place of Origin: LEBANON, NH

Time of Origin: 14:30

Date of Origin: Mar 3

Destination Address

Name: Red Cross HQ

Call Sign:

Address: 123 Pleasant St

City: RUTLAND

State/Prov: VT Zip/Postal: 05000

Phone No: 802 555 1234

Message

DAVIS SCHOOL SHELTER FULL SEND
25 COTS AND EVAC KITS
ADVISE DELIVERY TIME

Signature

Joan Smith Shelter Manager

Message looks good!

New Packet Message

File Edit Actions Window Help

Print Send Save Delete Close Urg Pvt Bul NTS

Private Message

Bbs: WL2KS

From: NS7C

To:

Subject: Shelter 12 Hour Report

-(Ctrl Tab to move to fields)

DAILY SHELTER REPORT Part 1:

--

Report #: █

Facility: =

FEMA NSS#: =

Telephone: =

Address: =

City: =

State: RI

Shelter Manager: =

Shift Supervisor 1st: =

Applications in EMCOMM

- Binary Data
 - Images/Video
 - Application data—Excel/Word/PDF
- APRS/DPRS
 - SAR



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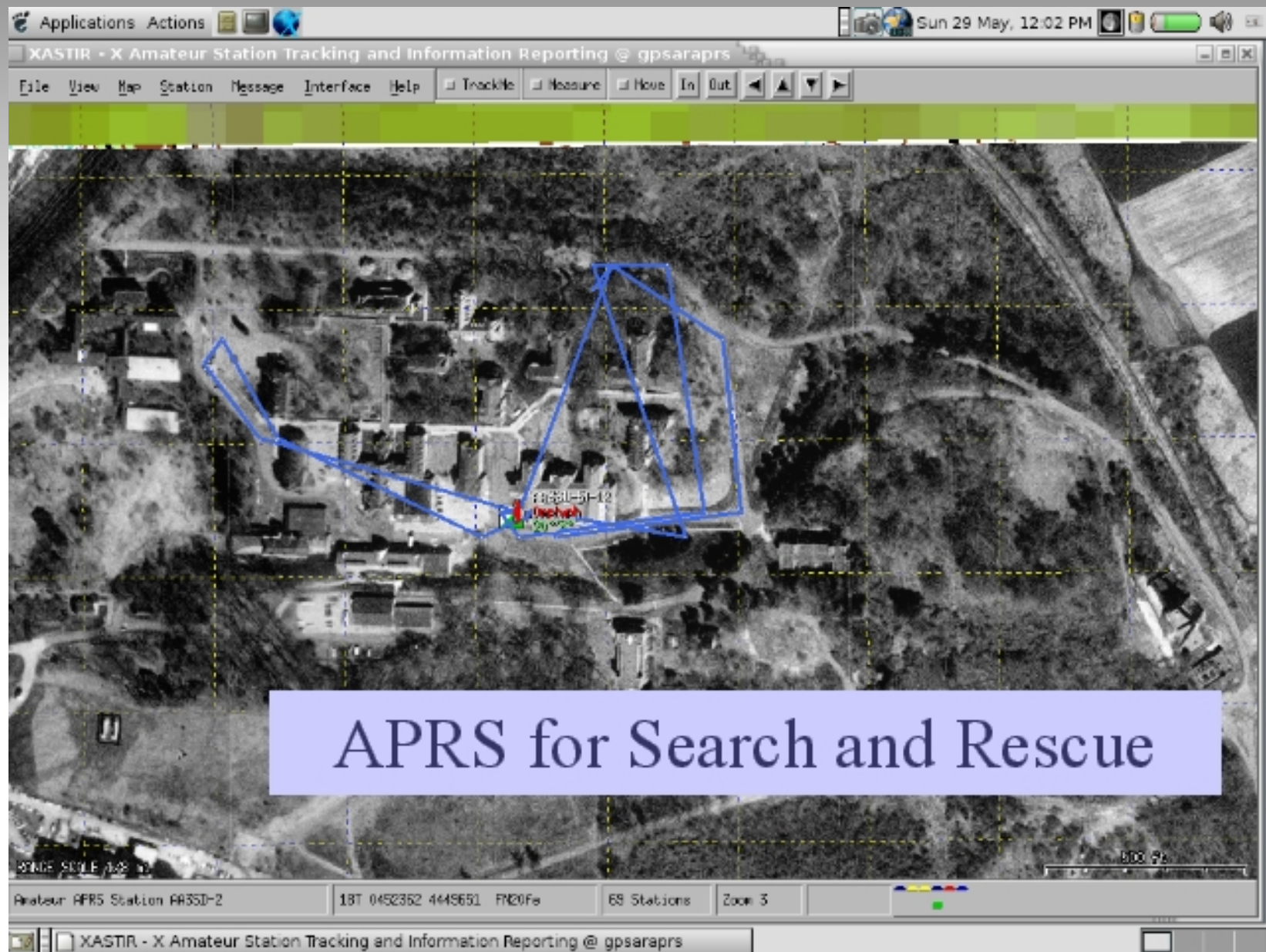


908-12292 fotosearch.com

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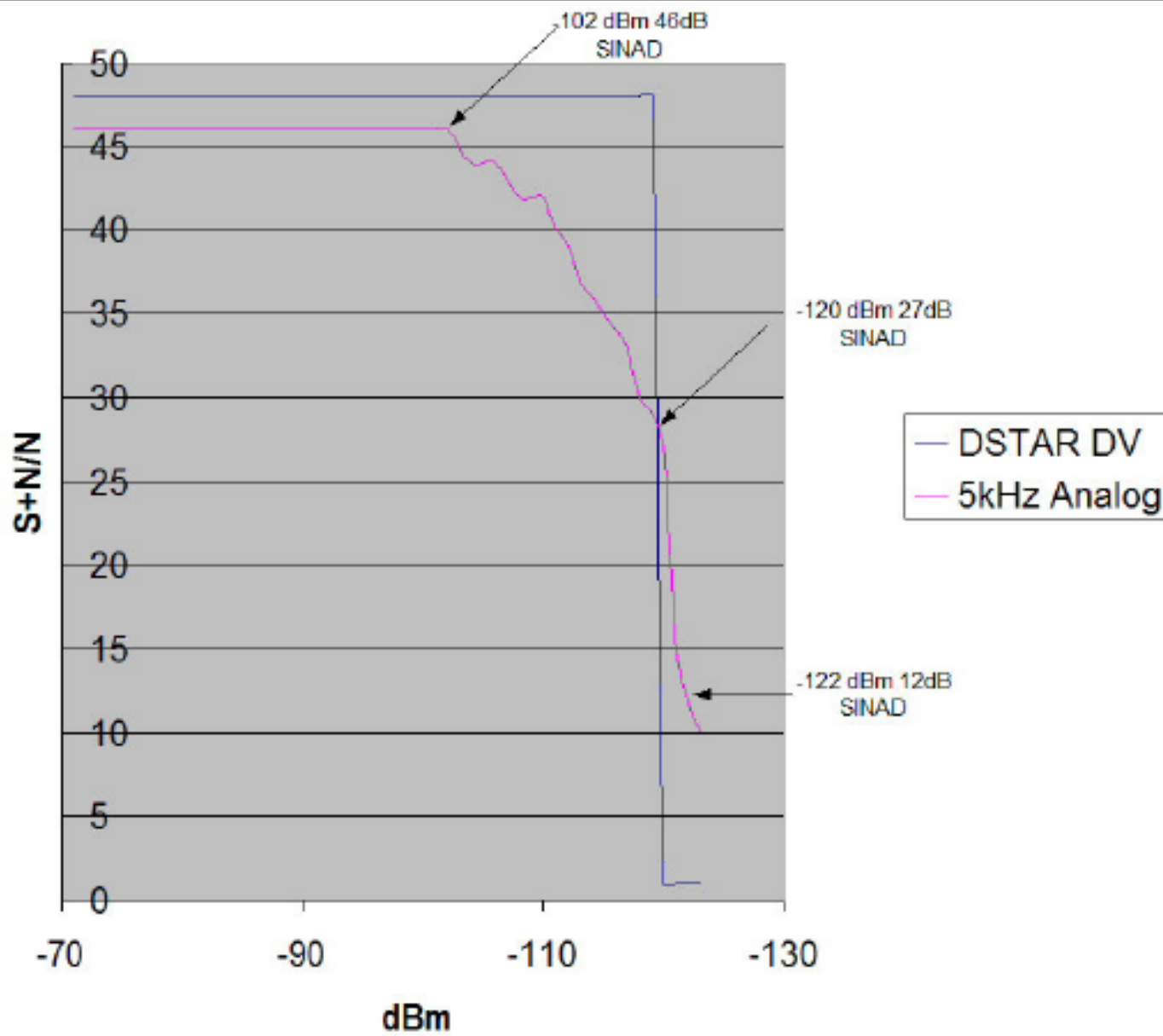
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APRS for Search and Rescue

Applications in EMCOMM

- VoIP
 - Echolink
 - IRLP
- D-STAR
 - DV
 - Slow/High Speed Data



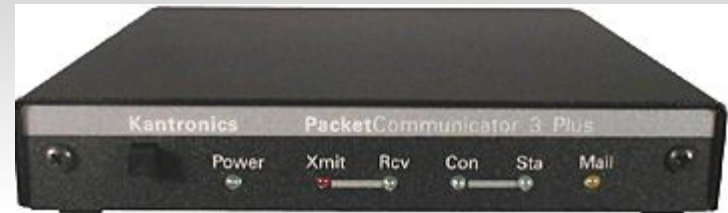
Hardware Options

- Portable Computer
- Terminal Node Controllers (TNC)
 - 9600/1200 baud
 - HF/PACTOR
 - “Smart” or KISS
 - APRS capable
 - Expensive new
 - Available used from time to time

Hardware Options

- Sound Card Interfaces
 - Less expensive, but requires software
 - West Mountain Radio, Tigertronics, Home Brew
- D-Star
 - Expensive admission price
 - Limited market penetration at this time
 - Kenwood? Yaesu? Alinco? (different standards?)

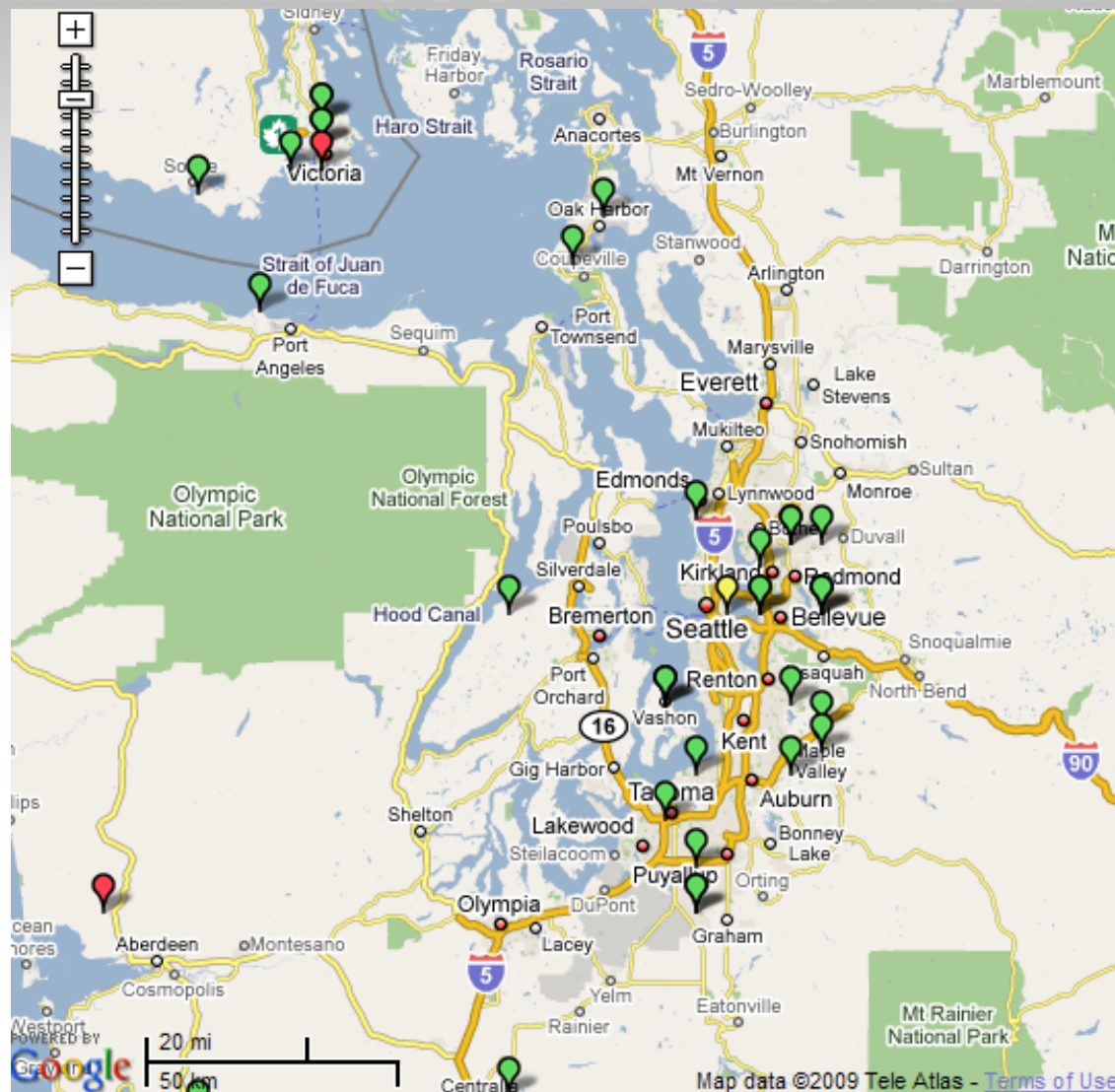
Hardware Options



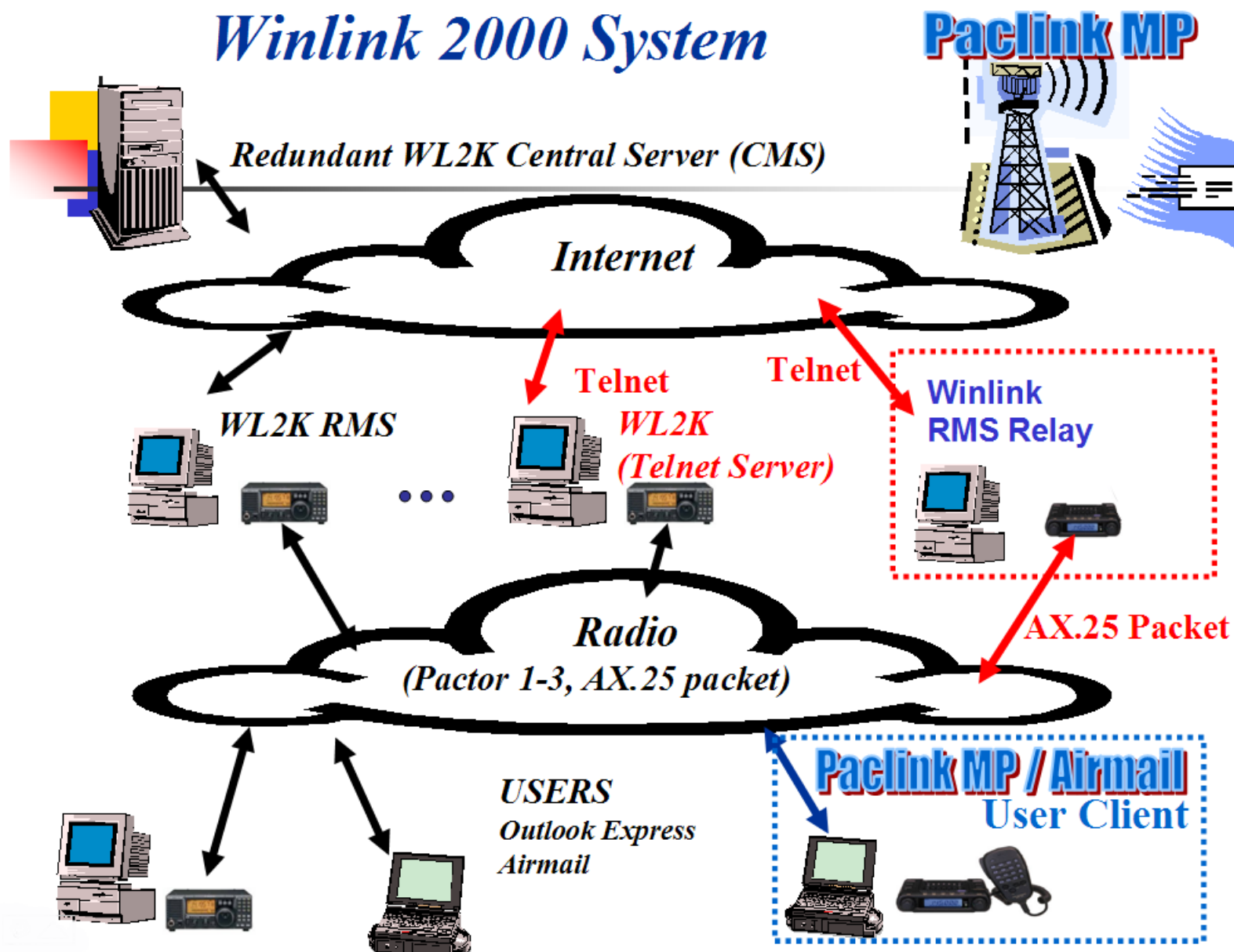
Software Options

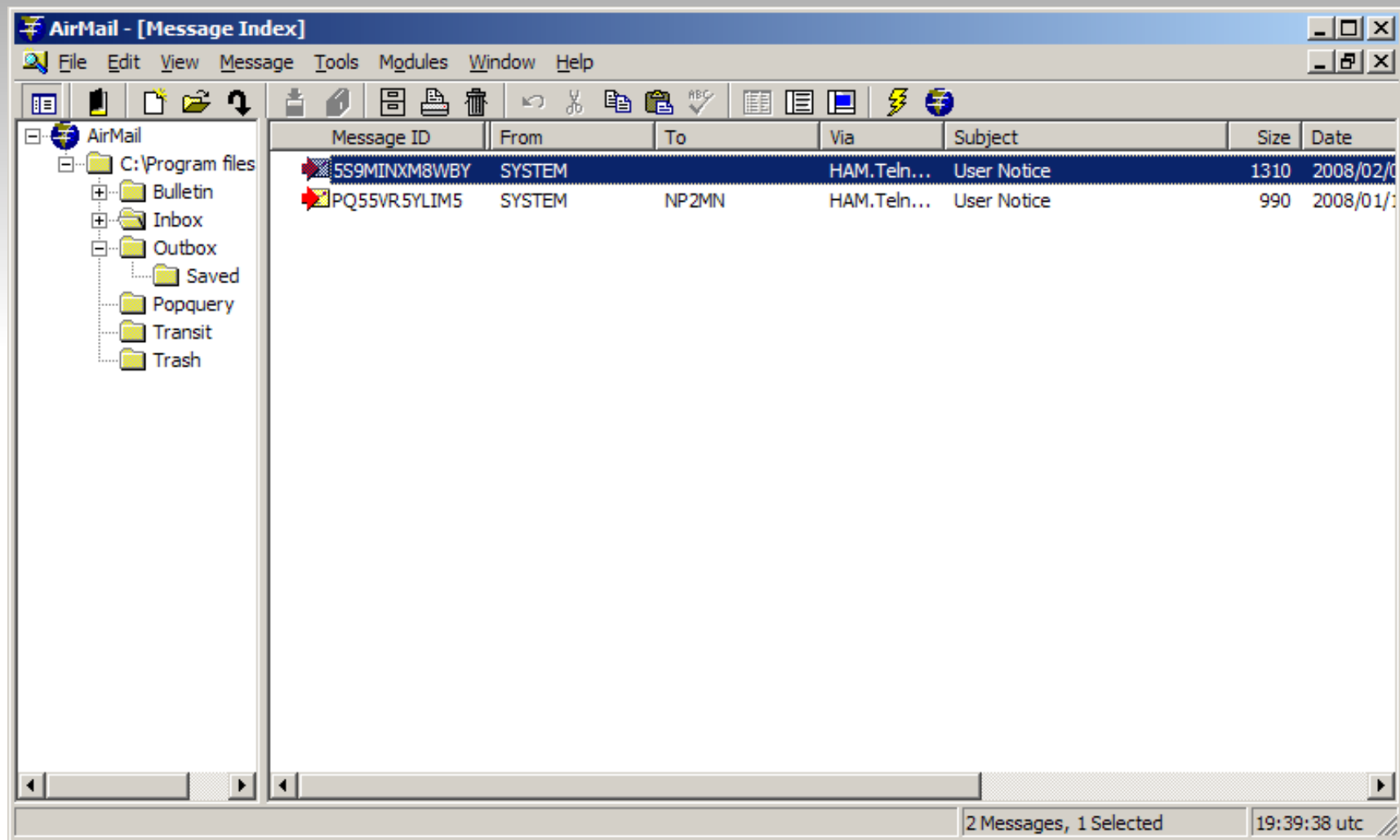
- Winlink 2000 Server Side
 - RMS
 - RMS Relay
 - Linux RMS Gateway
- Winlink 2000 Client Side
 - Airmail
 - Paclink MP/AGW
 - Outpost
 - Dumb terminal
 - Browser/Telnet

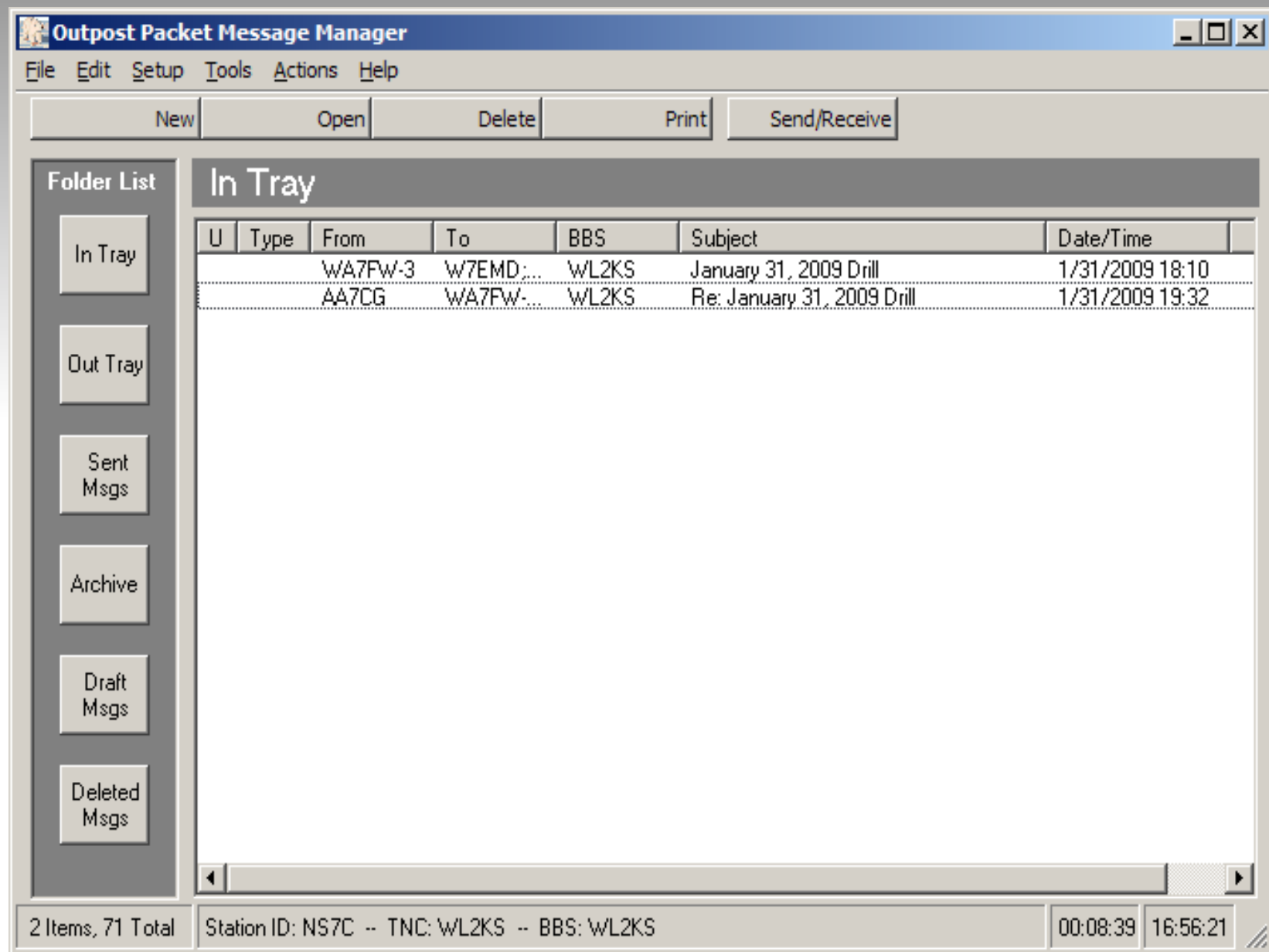
Winlink 2000 Packet Stations

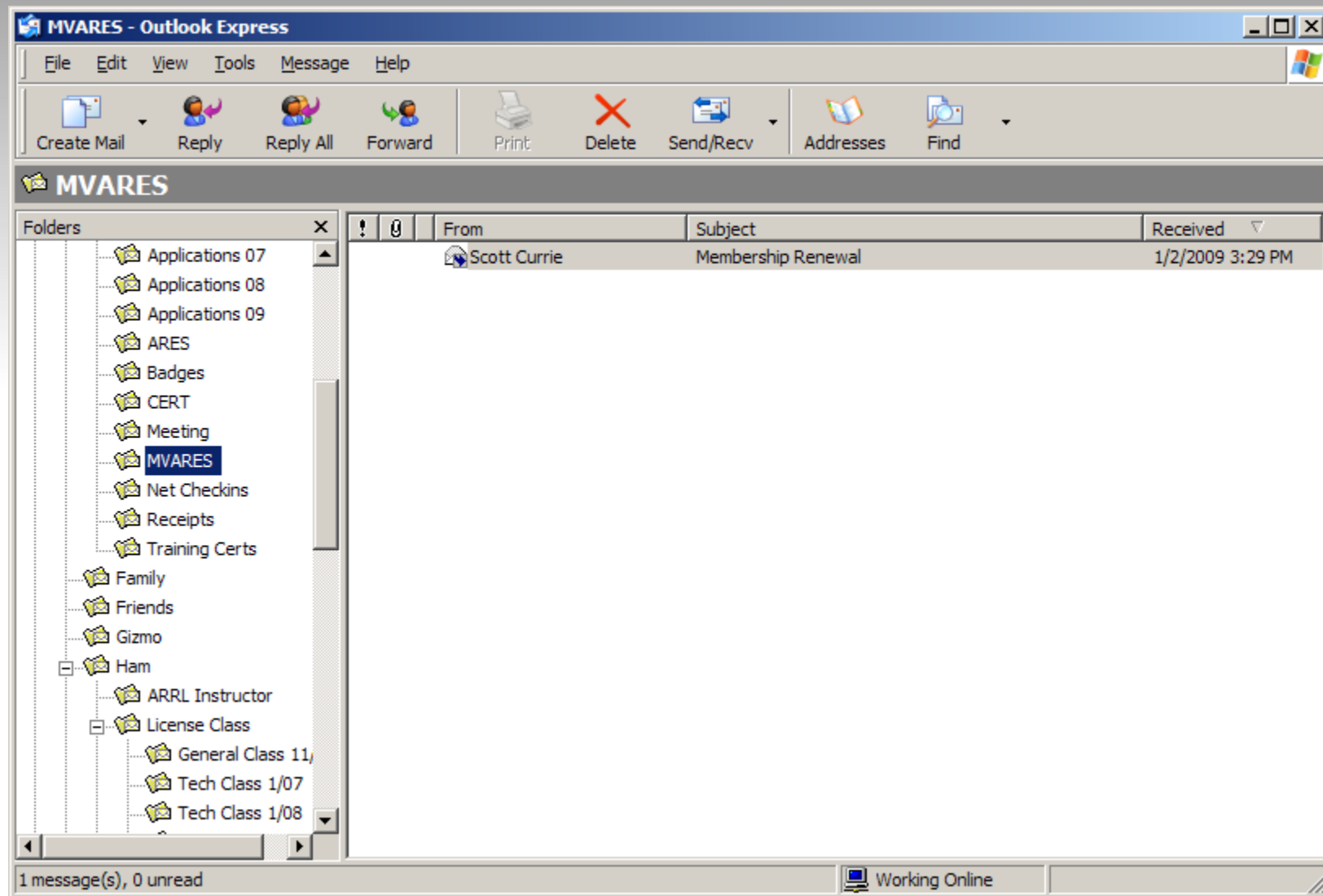


Winlink 2000 System









Software Options

- Other Applications
 - EM Comm Ops
 - NBEMS
 - D-Rats
 - UI-View
 - Xastir
 - Ecom Scs

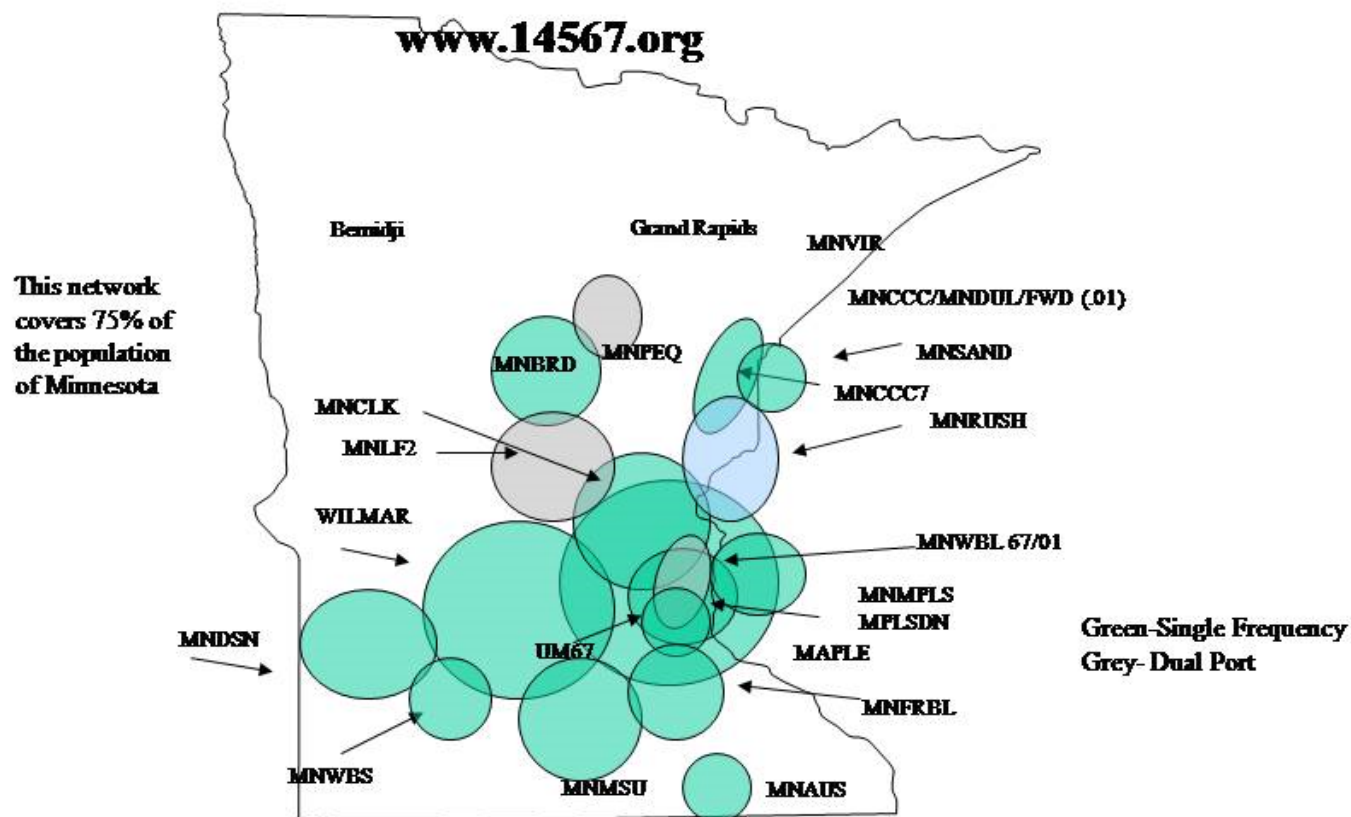
Software Options

- Middleware
 - AGWPE
 - Dmapper
 - Paclink MP
 - MixW

Problems With the System

- Lack of Standardization or Direction
 - No County or State Wide Digital Plan
- The Digital Network That Was, Is No More
- Software Is Difficult To Install/Set up
- Hardware Is Expensive (or doesn't exist)
- Skills Are Lacking
 - Need smart folks to re-build and maintain

8/24/2007 MN Packet (145.67 MHz) Status



The wide area stations are running unmodified Kantronics (KPC/3/4 and KAM/DE/9612) TNCs with KA-Node®, open squelch, and watchdog timers at 1200 bps. We use Kantronics stock firmware. Emergency Operations Centers, ARES/Red Cross/Salvation Army emergency vans, etc. can run almost any TNC (Hardware or PC-soundcard) out of the box. There are no computers, TCP/IP or Internet links on the backbone nodes to reduce complexity/cost and rule out viruses/worms, unattended bulletin forwarding congestion and Internet distributed denial of service attacks. The primary traffic is keyboard-keyboard "instant" messaging, which requires less than 70 bits/second/user.



Tips For Developers

- Need a Simple Install Process
 - Many users have no training/experience in digital
- Need A Simple Intuitive UI
- Provide Good Documentation
- Plan For User Support
- Donate or Dollars?

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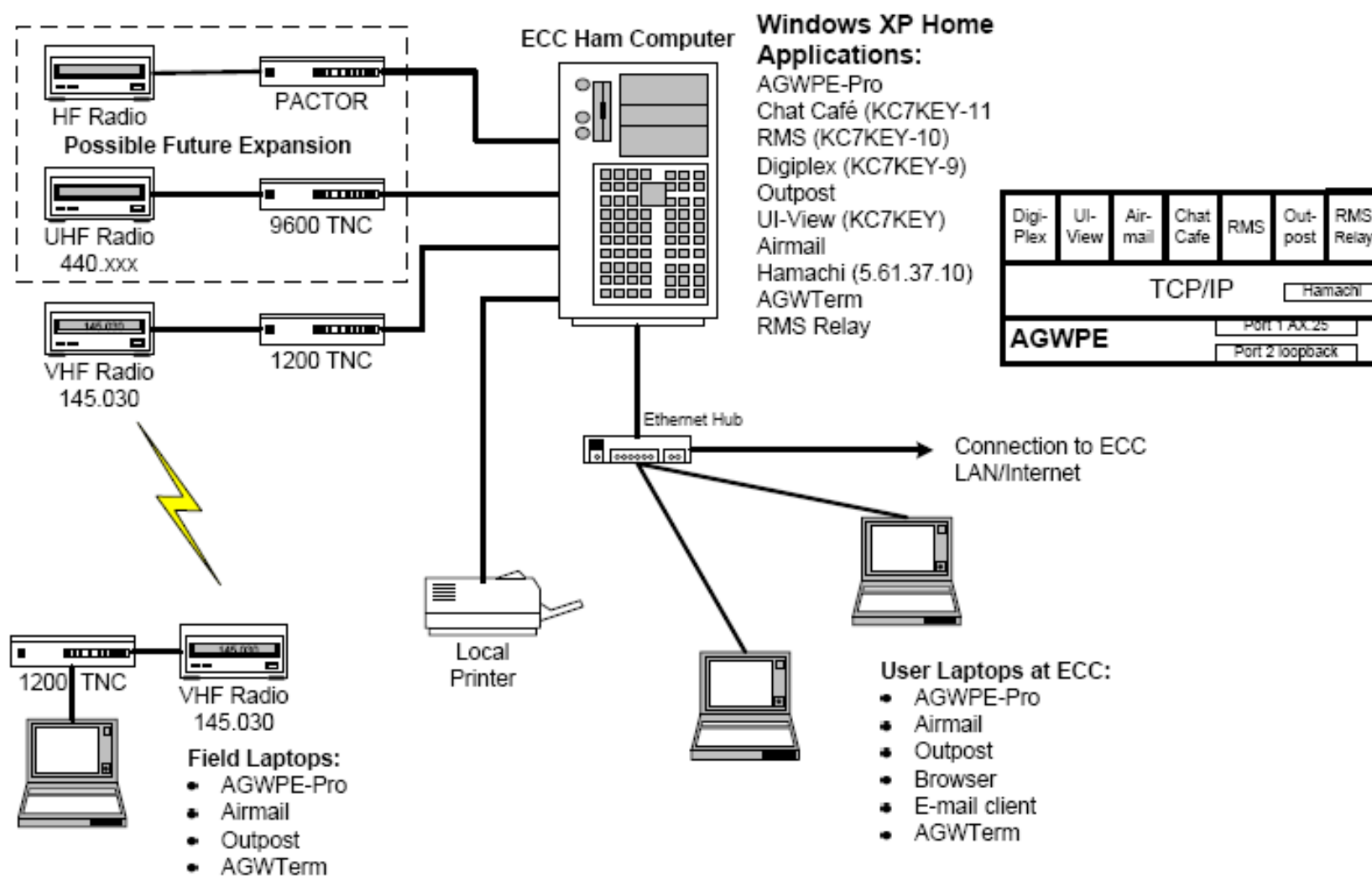
What We Need Now

- A Reliable Network
 - County Wide
 - State Wide
 - Links Out Of The Area
- A Common System To Exchange Information
 - E-mail?
 - Winlink 2K?
- Don't Rely On An Infrastructure
 - But use one if it is available!

What We Need/Want Tomorrow

- A High-speed RF Based Network
 - E-Mail
 - Web Applications
 - DV/VoIP
 - Video/Image
 - Mesh
- Part 97, Part 15, Both, or ???
 - Non Proprietary
 - OS/Platform Independant

Maple Valley ECC Packet/ Winlink Setup



References

- Winlink 2000
 - <http://www.winlink.org>
- Outpost
 - <http://www.outpostpm.org/>
- NBEMS
 - <http://www.w1hkj.com/NBEMS/>
- AGWPE
 - <http://www.sv2agw.com/ham/pepro.htm>
- Linux RMS Gateway
 - <http://groups.yahoo.com/group/LinuxRMS/>
- D-Rats
 - <http://www.d-rats.com>

