



WINLINK 2000

with Southern New England (SNE) packet information
by Phil McNamara N1XTB - November 2007



portions provided by

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(help from Loring Kutchins, W3QA)

Winlink 2000 Network Administrator,
Winlink 2000 Development Team

LORING A KUTCHINS

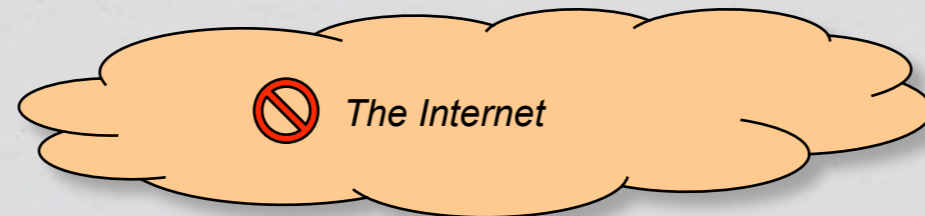


What it is:

- * A system to provide email over radio
- * A system designed for efficient use of slower radio links
- * A system that uses the internet for redundancy and replication

What it is not:

* an internet connection



Where can it be used?

* Globally

Why is it useful?

- * Email in remote locations
- * Email when there is no internet available
- * Email while mobile
- * Interoperability

Interoperability

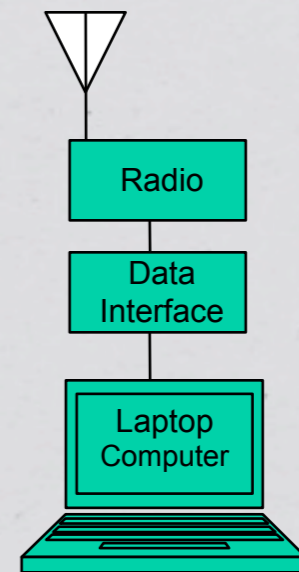
- * can communicate with anyone who has a email address
 - * Served Agencies
 - * Red Cross
 - * Emergency Management organizations - local or state
Emergency Operations Center (EOC)
 - * Family and friends
 - * Health and Welfare traffic

WL2K system “pieces”

- * Software (some or all of Airmail, Telpac, Paclink)
- * radio (VHF, HF, D-STAR, other)
- * Internet connections where needed
- * Radio Message Servers (RMS or PMBO)
- * Common Message servers (CMS or CMBO)

“Pieces” for the user

- * Antenna
- * Radio (HF/VHF)
- * Terminal Node Controller (TNC)
- * Cable (serial or usb with serial adapter/cable)
- * Computer (windows)
- * Airmail software (free)



“Other pieces”

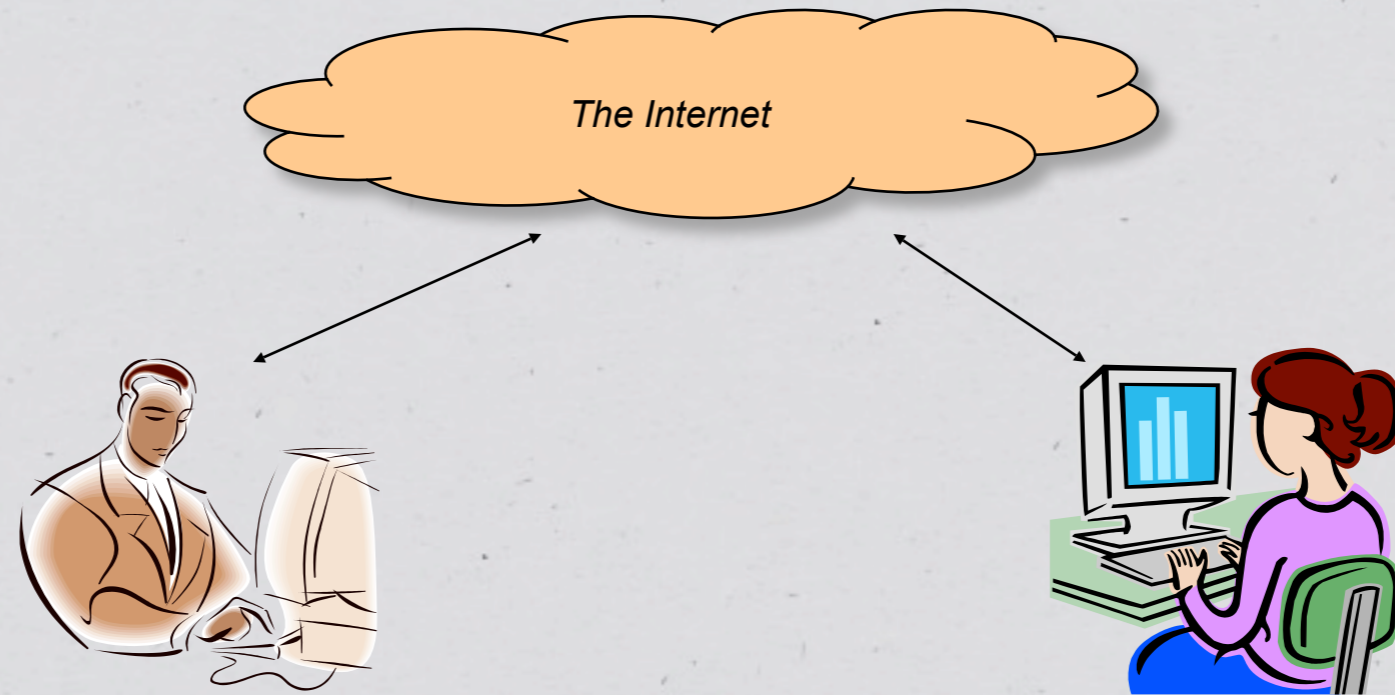
- * For hams involved with the system infrastructure or providing large scale agency support
 - * Telpac
 - * Paclink MP
 - * RMS/PMBO

Redundancy and Replication

- * Redundant connection methods
- * Redundant connection places
- * Redundant message servers
- * Replicates your message at the recent stations where you connected to the system

Internet available

Normal E-mail requires an internet connection



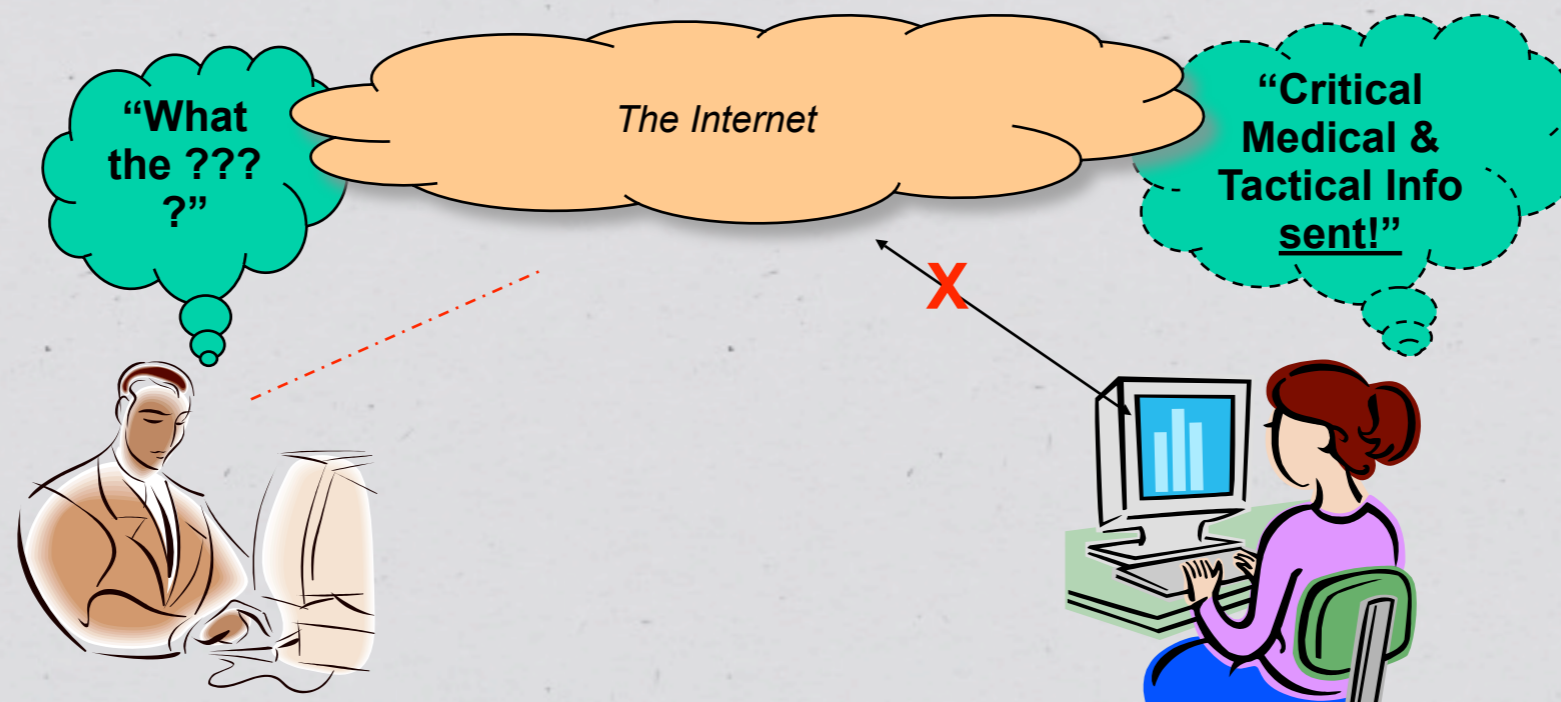
Critical

- Between Agencies
- Between an Agency and the Field
- Between an Agency to multi-points
- Between Agencies and *anywhere!*

Routine

No local internet

- If a community “**Last Mile**” internet link is broken, or the agency e-mail server is down, e-mail **cannot** flow.



The “*last mile*” is an important concept in Emergency Communications.



The “last mile” is the path across an area where conventional communications have been *disrupted or overloaded* by an incident.



Ham radio can be a bridge

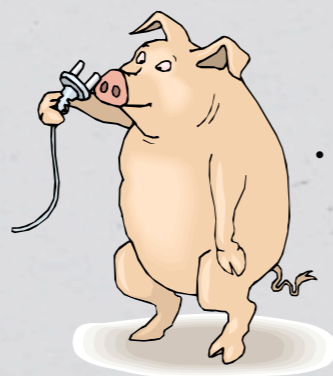


How ?

E-MAIL VIA HAM RADIO



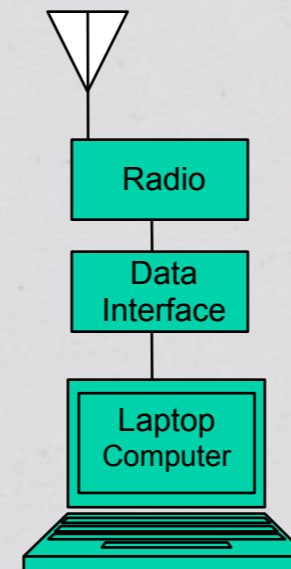
How ?



...do Hams do that?

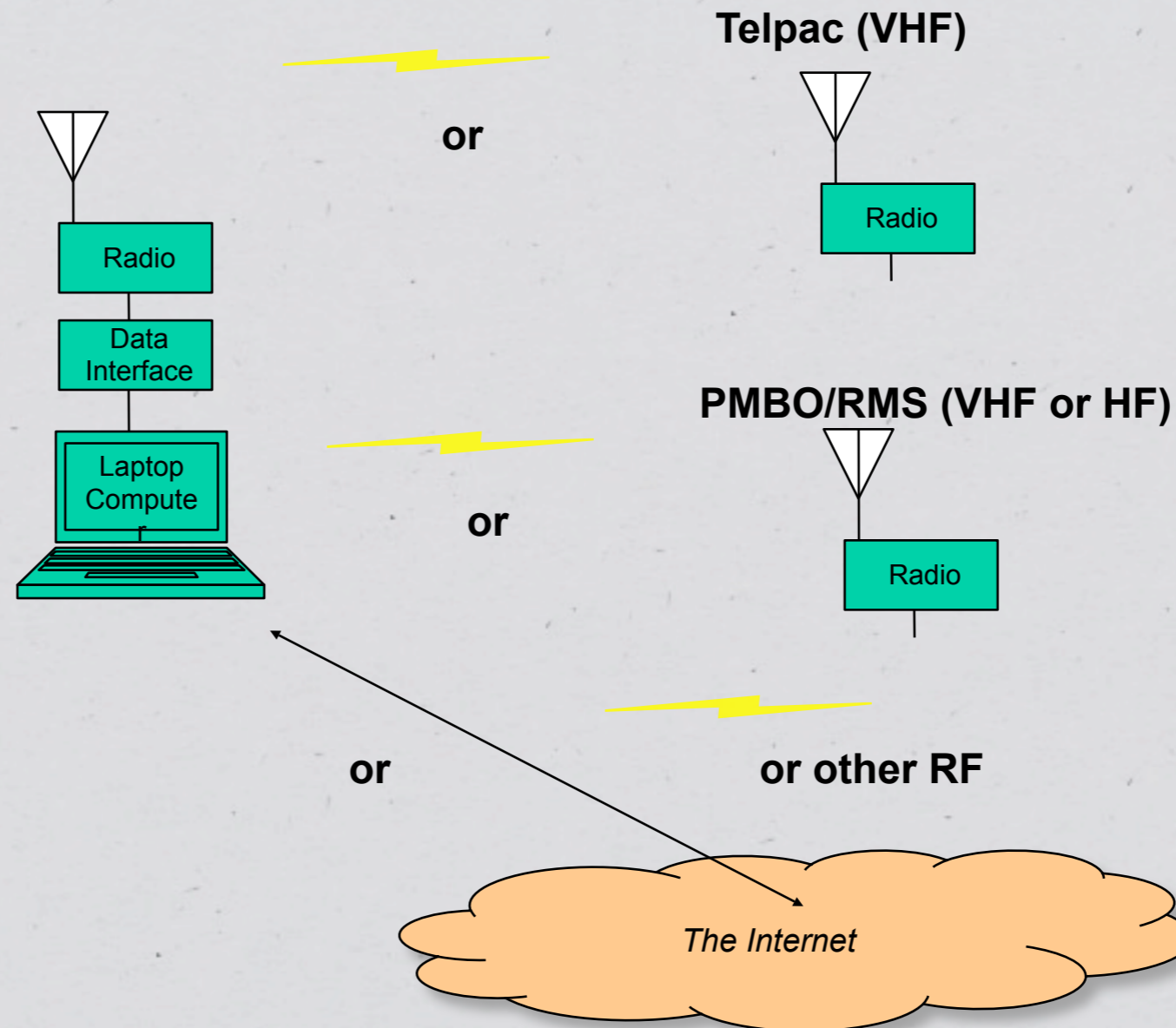
E-MAIL VIA HAM RADIO using Winlink 2000

A typical ham radio “last mile” e-mail station is composed of simple components, even for an Agency with multiple computers.



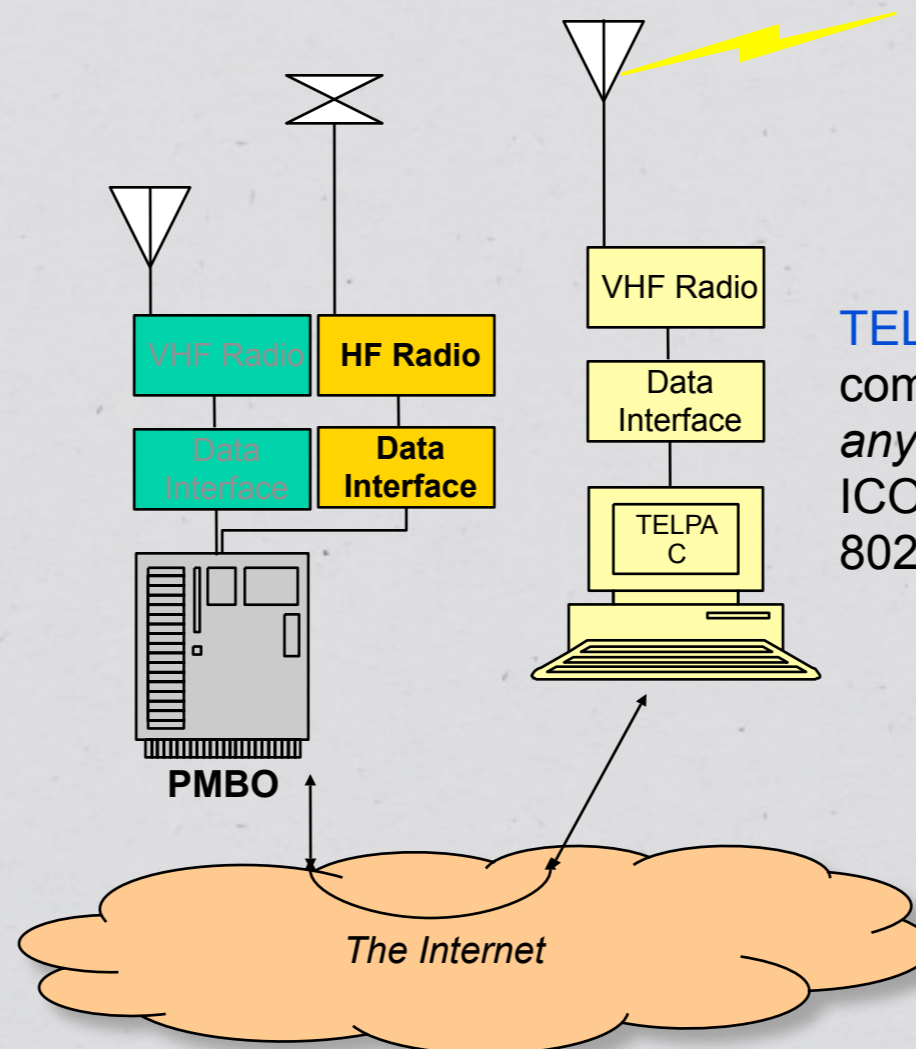
E-MAIL VIA HAM RADIO using Winlink 2000

Who do I connect to?



E-MAIL VIA HAM RADIO using Winlink 2000

PMBOs have remote “gateways” called TELPAC stations. They are connected to the PMBO via any TCP/IP link and duplicate its VHF radio port in another location.

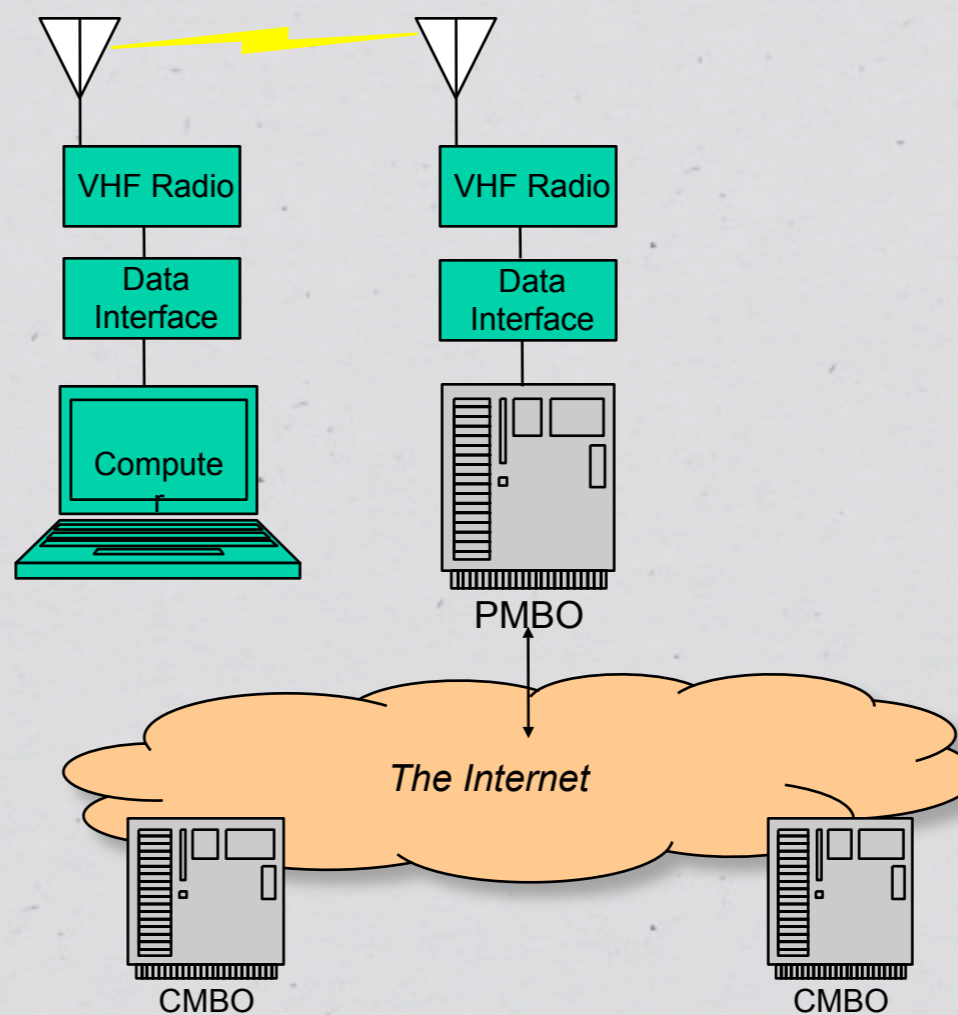


TELPAC stations may communicate to the PMBO via *any* TCP/IP link, including ICOM’s D-Star or “WiFi” 802-11b.

E-MAIL VIA HAM RADIO

Other computers, or **CMBOs**, organize and manage the network traffic.

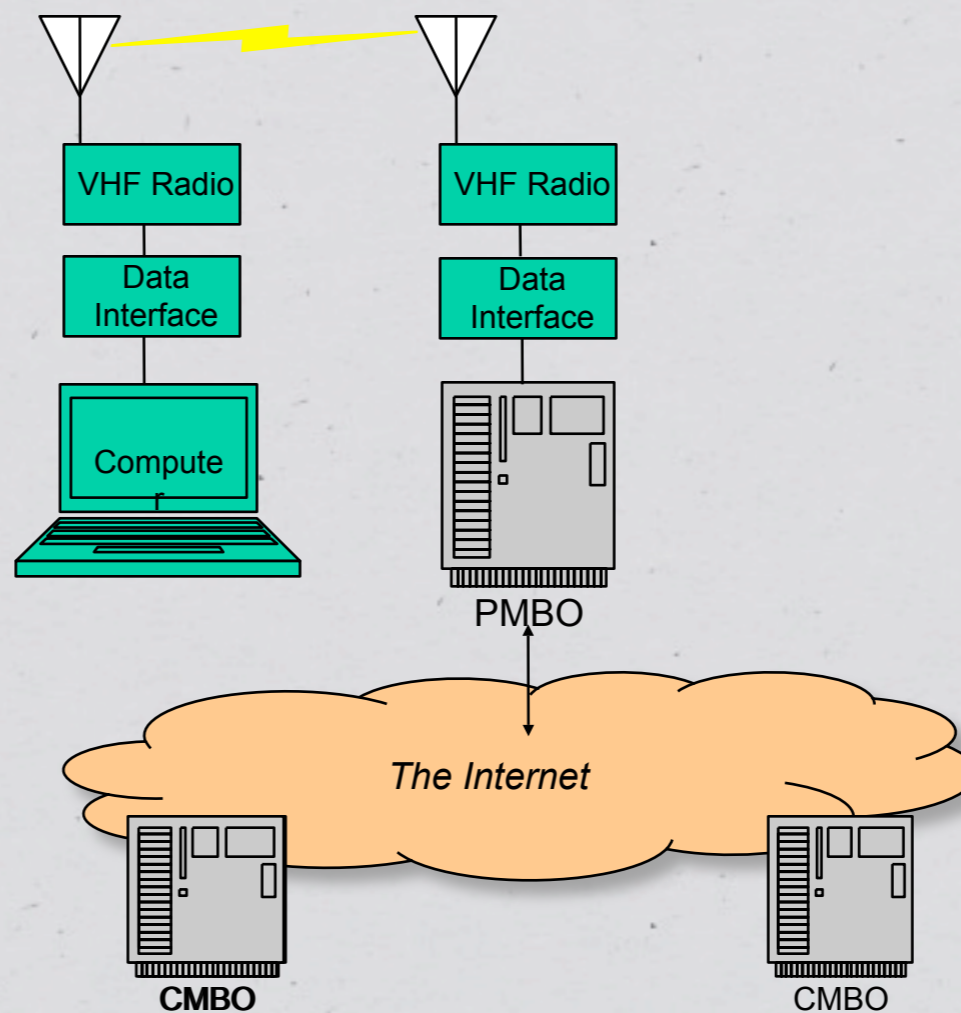
CMBOs are transparent to users. They are redundant, and you never know they are there.



E-MAIL VIA HAM RADIO

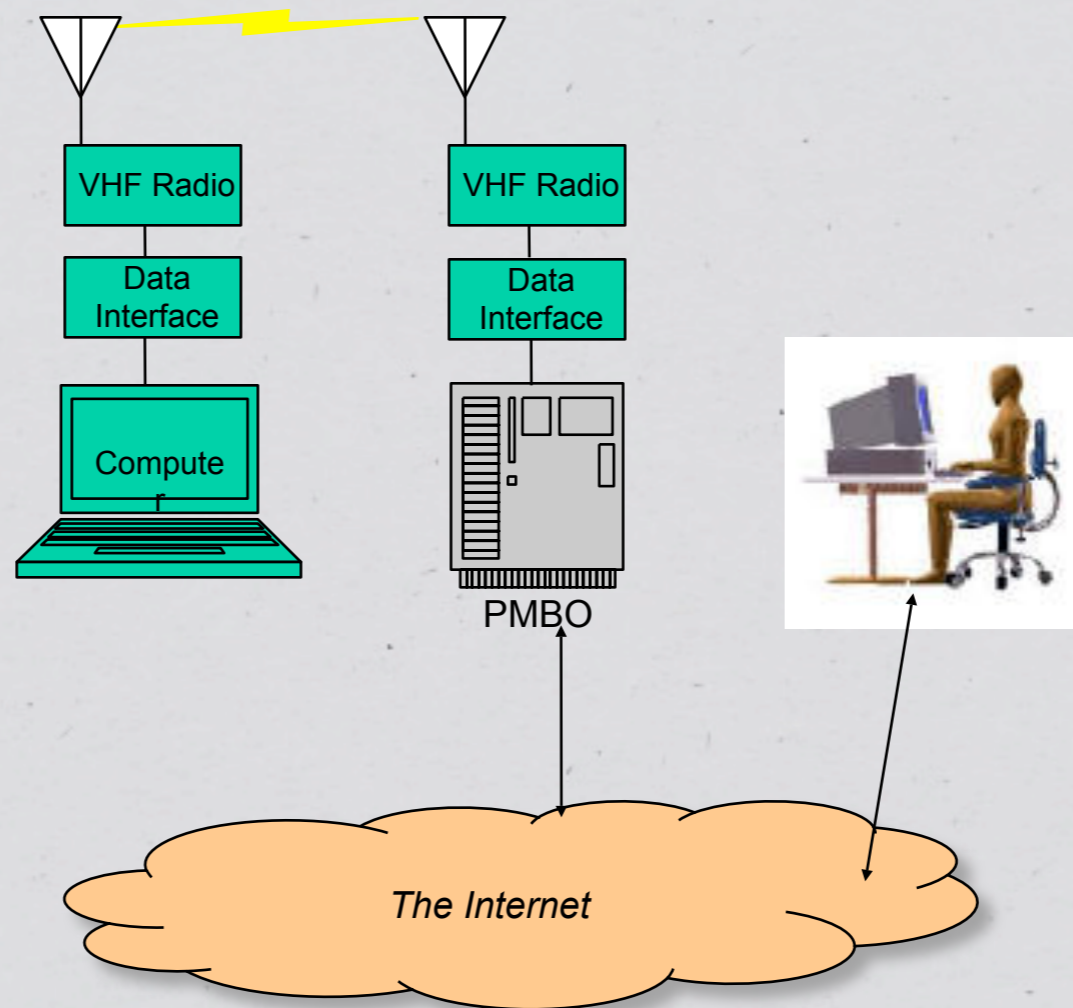
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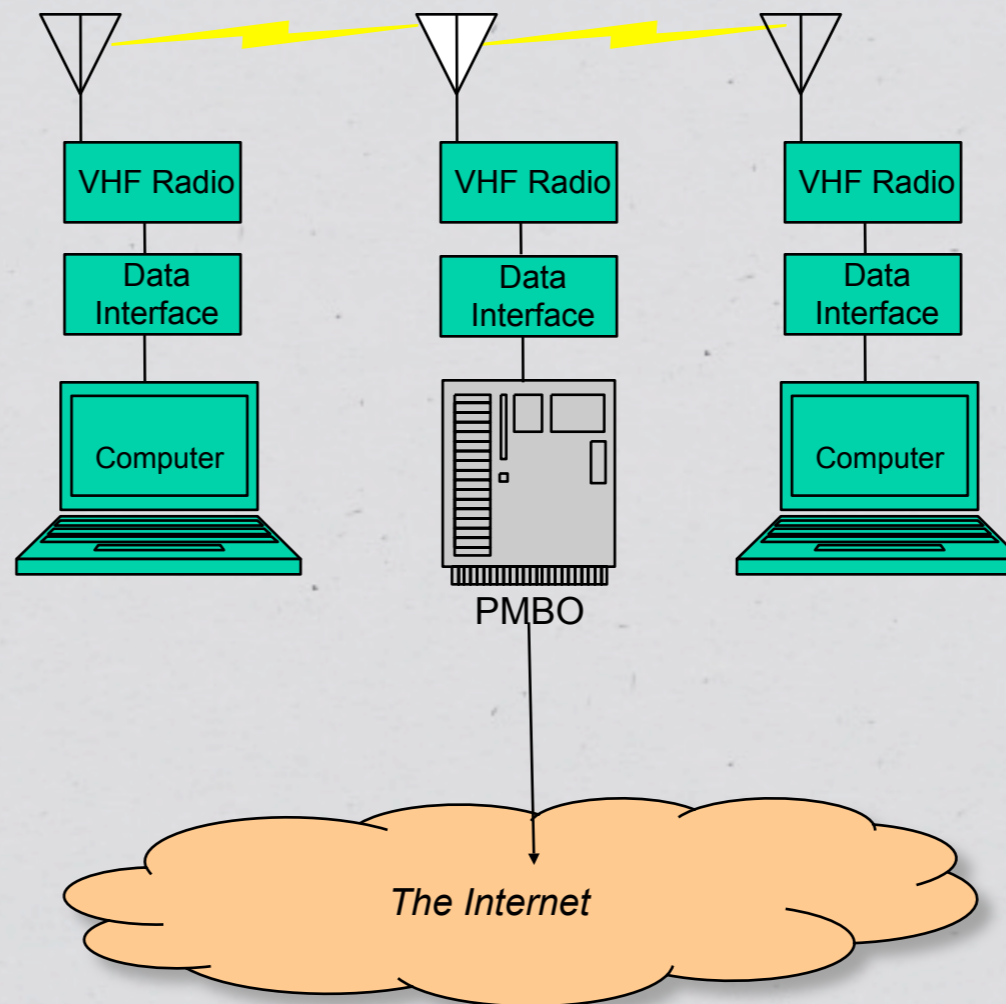
E-MAIL VIA HAM RADIO

You can send radio e-mail directly to **internet e-mail users**.



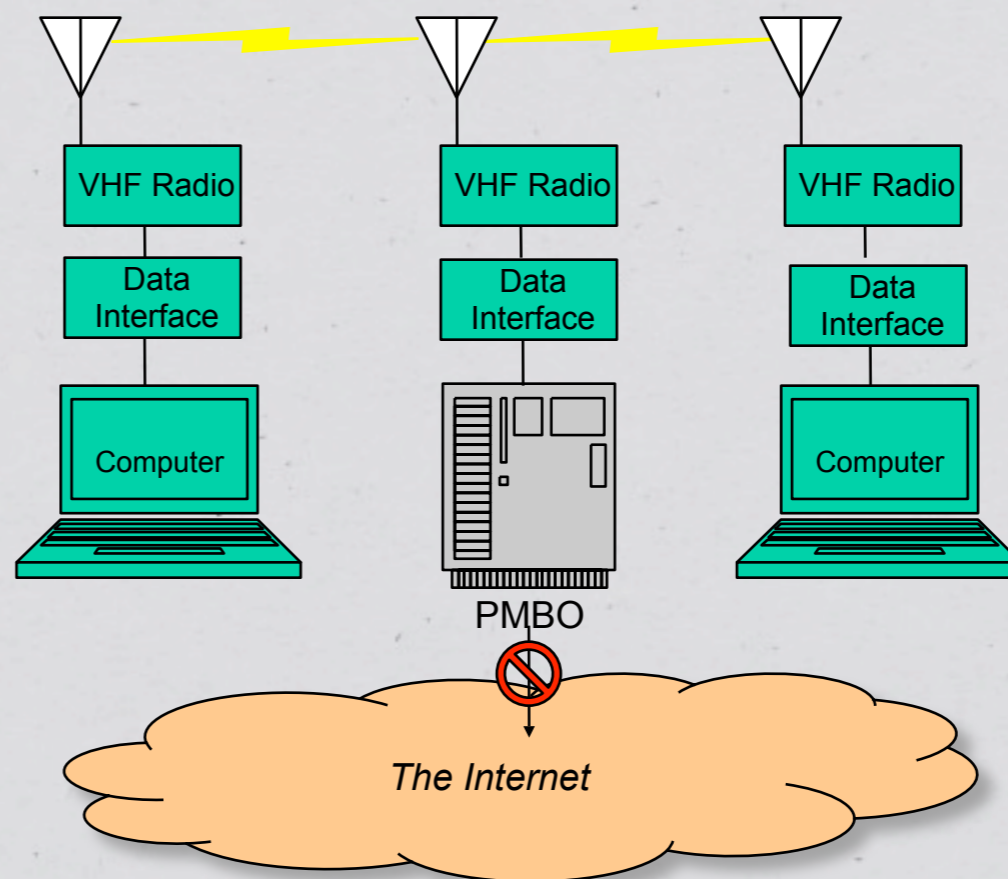
E-MAIL VIA HAM RADIO

And you can send radio e-mail to other stations like yours.



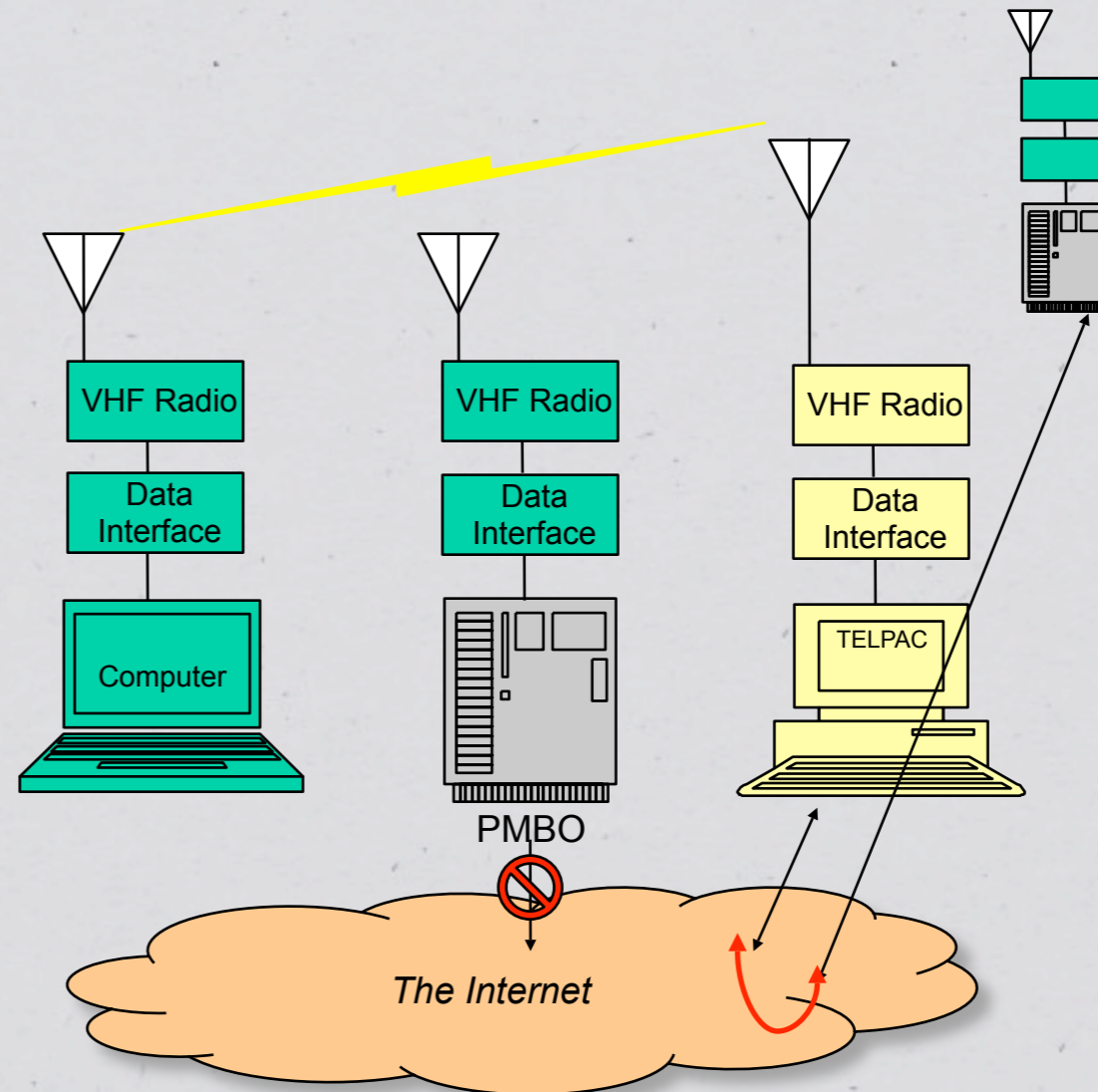
E-MAIL VIA HAM RADIO - THE LOCAL PMBO HUB

The **PMBO** forwards radio e-mail between its radio users, **even if its internet connection is gone.**



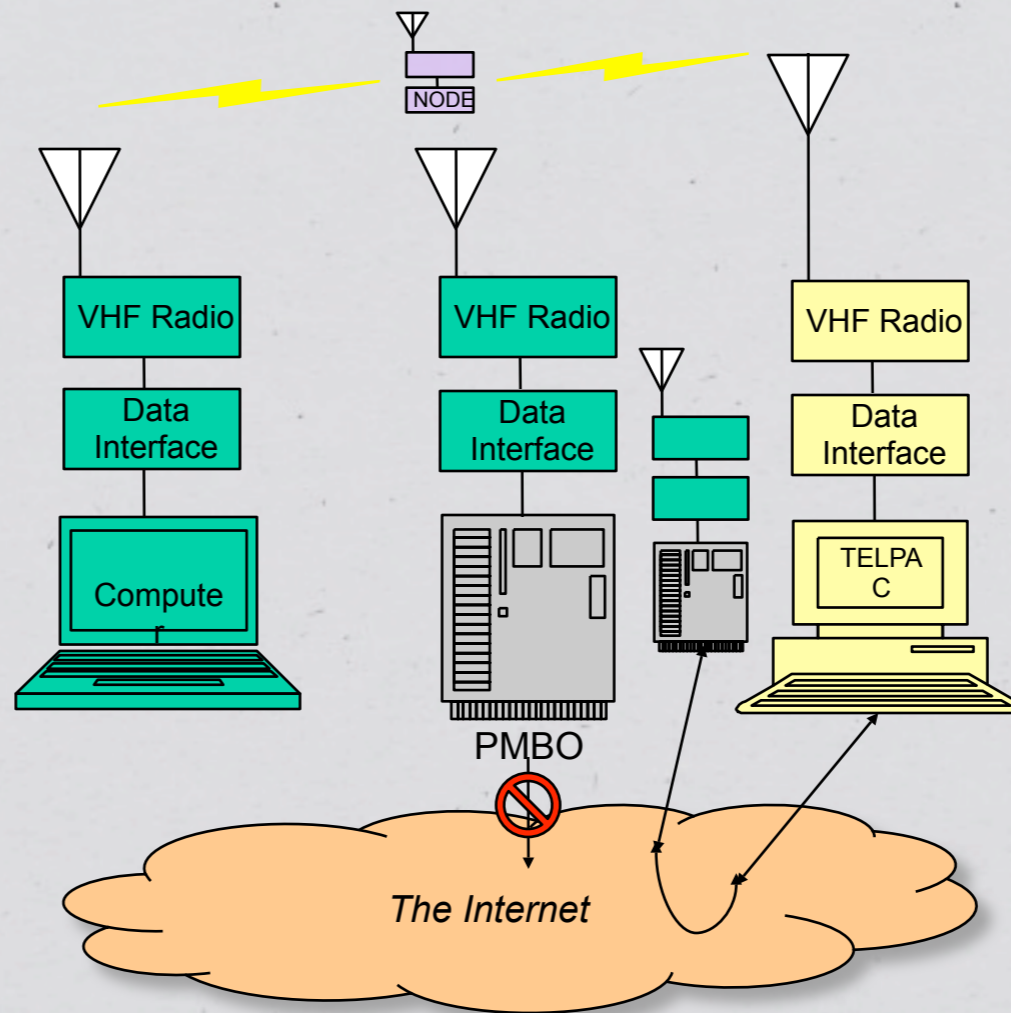
E-MAIL VIA HAM RADIO

If the local **PMBO** has an outage, you can make a connection with a local **TELPAC** station which will automatically shift to a distant host **PMBO** with connectivity. Or...



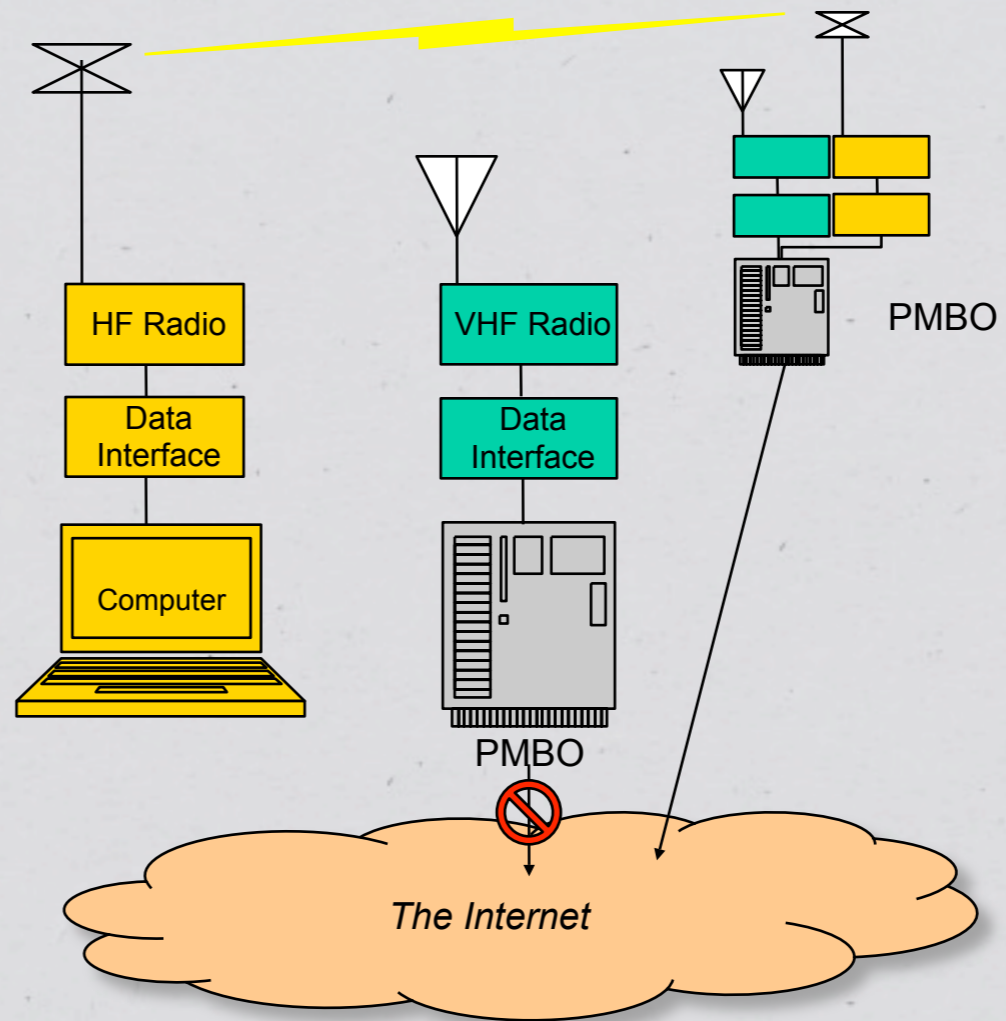
E-MAIL VIA HAM RADIO

Or... you can traverse the **packet network** using nodes to get to a connected **TELPAC** or **PMBO**. Or...

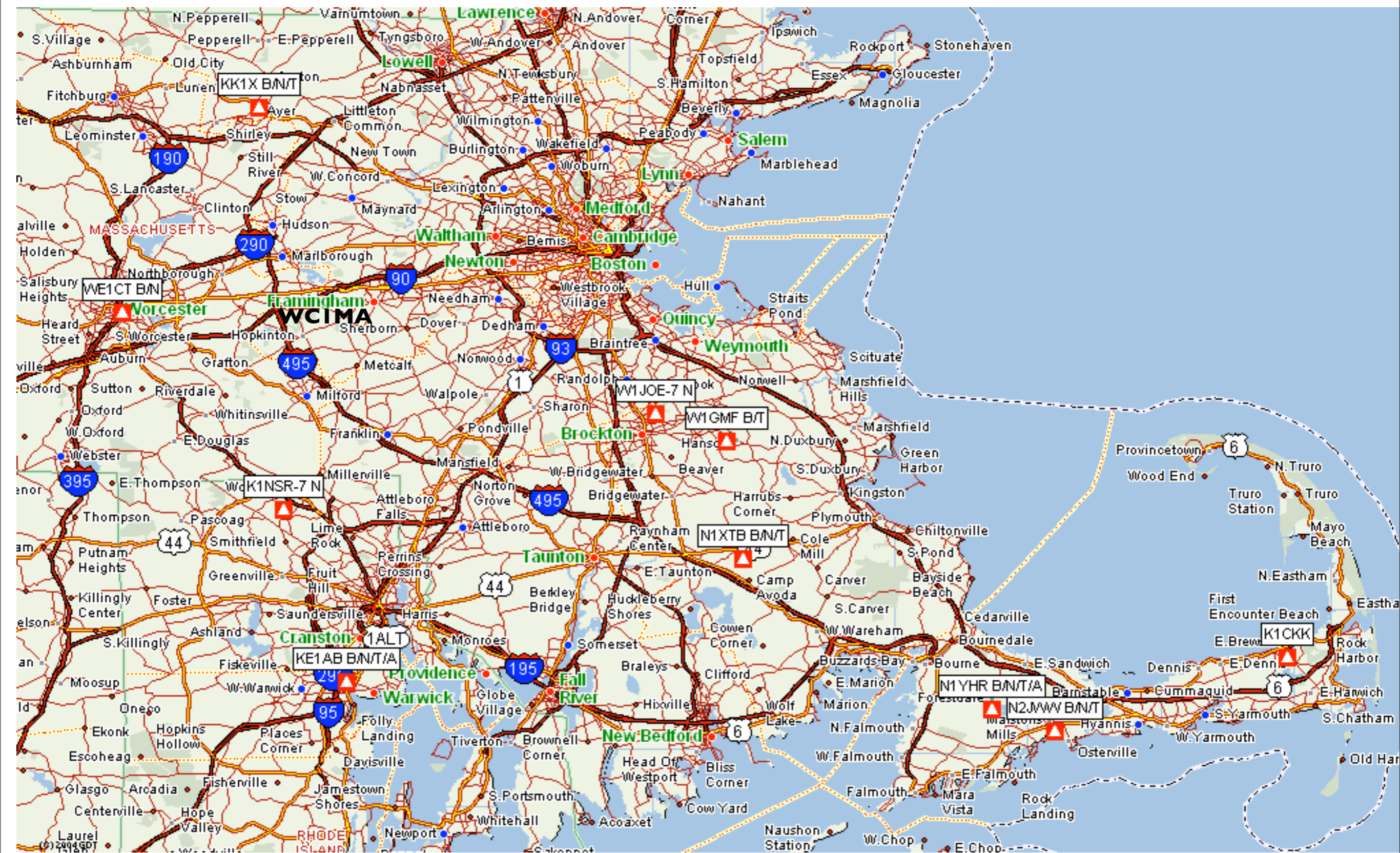


E-MAIL VIA HAM RADIO

Or... you can use an **HF station** to get to a distant connected **PMBO** using Airmail.



Southern New England Stations



VHF Connections

- * KK1X-10 AYER, MA 145.07
- * W1GMF-10 ABINGTON, MA 145.09
- * N1XTB-10 MIDDLEBORO, MA 145.01
- * N1YHR-10 FORRESTDALE, MA 145.01
- * KE1AB-10 CRANSTON, RI 145.05
- * WC1MA FRAMINGHAM, MA. 145.75

VHF nodes

- * AREA2 (Bridgewater MA) 145.01
- * BROCK (Brockton MA) 145.09
- * K1NSR-7 (North Smithfield RI) 145.05
- * FALM1 (Falmouth MA) 145.01

HF PMBO's

- * WC1MA (Framingham MA - 3590 MHZ PACTOR)
- * W3EOC (recommended backup in PA - 3590 MHZ PACTOR)
- * any other PMBO in the Winlink2K system

SNE Packet Information

- * Winlink 2000 on VHF using the local packet infrastructure
- * The packet infrastructure is used daily by NTS
- * Current information is maintained by W1GMF and is available at <http://www.powersrvcs.org/EMaPacket/PAKETMAP.HTM>

Software

- * Any terminal program for text only
- * Airmail for more throughput (uses compression) and to support attachments. RACES recommends Airmail use.

Airmail

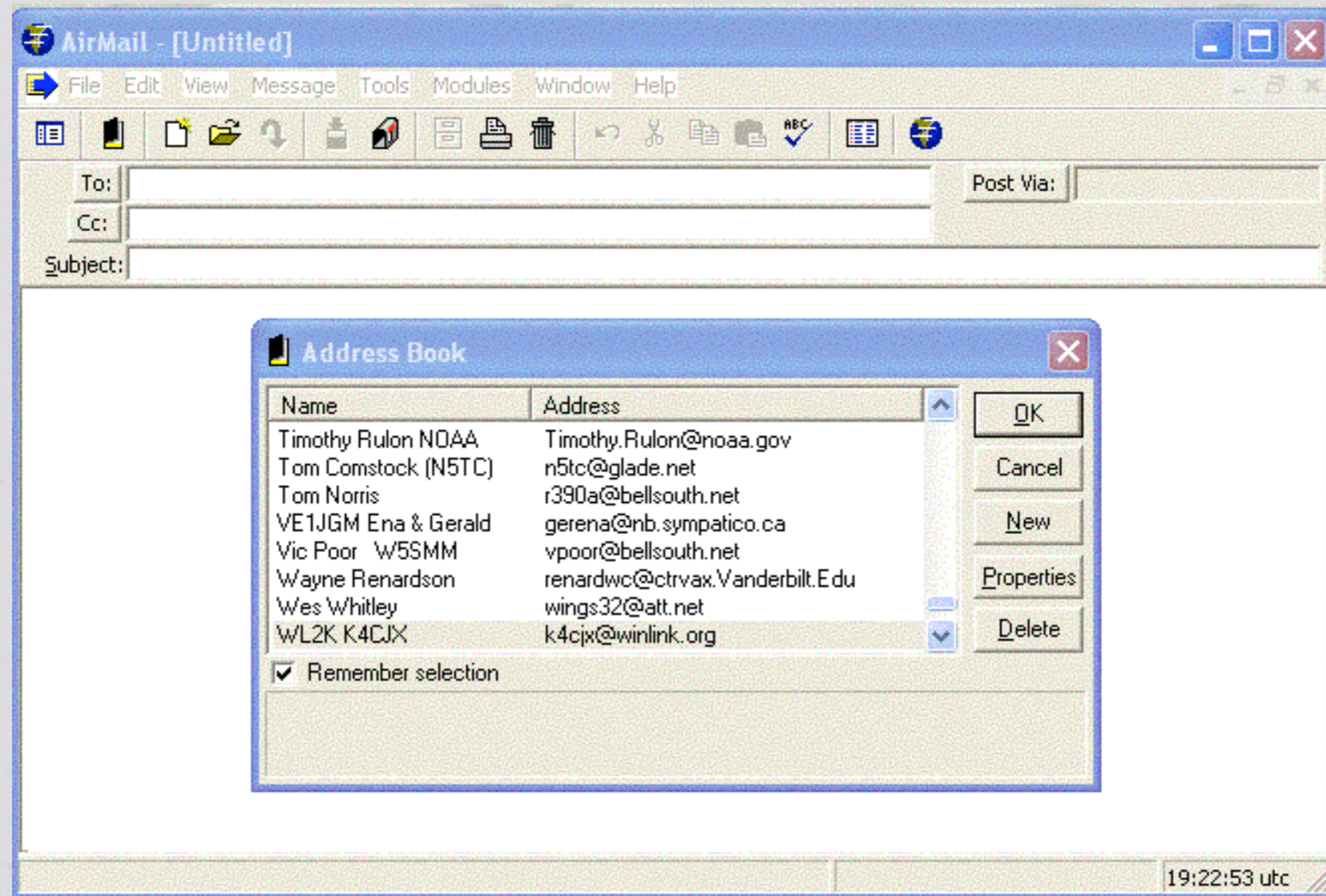
- * Free download for hams <http://www.siriuscyber.net/ham/>
- * Installation instructions - <http://home.comcast.net/~wx4j/AM59WOV.htm> and other links at N1HY website
- * Information about how Airmail works with WL2K is at <http://www.winlink.org>
- * A great set of information links is at <http://mywebpages.comcast.net/cuti/N1HY/ARES/>

Airmail - Main Screen

The screenshot shows the Airmail Message Index window. The window title is "AirMail - [Message Index]". The menu bar includes "File", "Edit", "View", "Message", "Tools", "Modules", "Window", and "Help". The toolbar contains various icons for file operations and message management. The left pane shows the folder structure: "AirMail" (expanded) containing "C:\Program files", "Bulletin", "Inbox", "Outbox", "Transit", and "Trash". The main pane displays a list of messages with the following columns: Message ID, From, To, Via, and Subject. The status bar at the bottom indicates "118 Messages, 1 Selected" and "18:50:29 utc".

Message ID	From	To	Via	Subject
1075_W5SMM	Jim Corenman/...		Import	Airmail 3.0.855 Release note
SMTP1909150	Vic Poor BS	KF5QB	Telnet.KN...	RE: Marsh Harbour
SMTP1825211	theElderhostel...	Gene At escap...	Telnet.KN...	Bulletin #37: Online Learning
CMQP1909092	CMBO	KF5QB	Telnet.KN...	Winlink 2000 User Notice
1074_W5SMM	KF5QB	INQUIRY	Telnet.KN...	REQUEST
797386_CMBO	W5SMM		Telnet.KN...	SS
1549_KN6KB-1	KN6KB-1		Telnet.KN...	Hawksbill Cay
1073_KF5QB		INQUIRY	Telnet.KN...	REQUEST
1072_KF5QB	Vic Poor BS		Telnet.KN...	Sony Computer
1071_KF5QB	Zina and Kian		Telnet.KN...	Re: Ahoy
SMTP1796097	Zina and Kian	Gene At escap...	Telnet.KN...	Ahoy
612401_KN6KB	SERVICE@KN...		Telnet.KN...	Gulf of Mex & Trop Atl Wind.
612403_KN6KB	SERVICE@KN...		Telnet.KN...	Jupiter Inlet FL to Ocean Reef
612402_KN6KB	SERVICE@KN...		Telnet.KN...	Ocean Reef FL to 20W of D
612400_KN6KB	SERVICE@KN...		Telnet.KN...	Synopsis for Northwest Gulf c
1070_KF5QB		Vic Poor at sea	Telnet.KN...	SS
794981_CMBO	W5SMM		Telnet.KN...	Third time the Charm

Airmail - Addressing



Sending a message with Airmail is similar to sending a message with any email program.

Airmail - Connecting

Windows XP Pro5

AirMail - [Message Index]

File Edit View Message Tools Modules Window Help

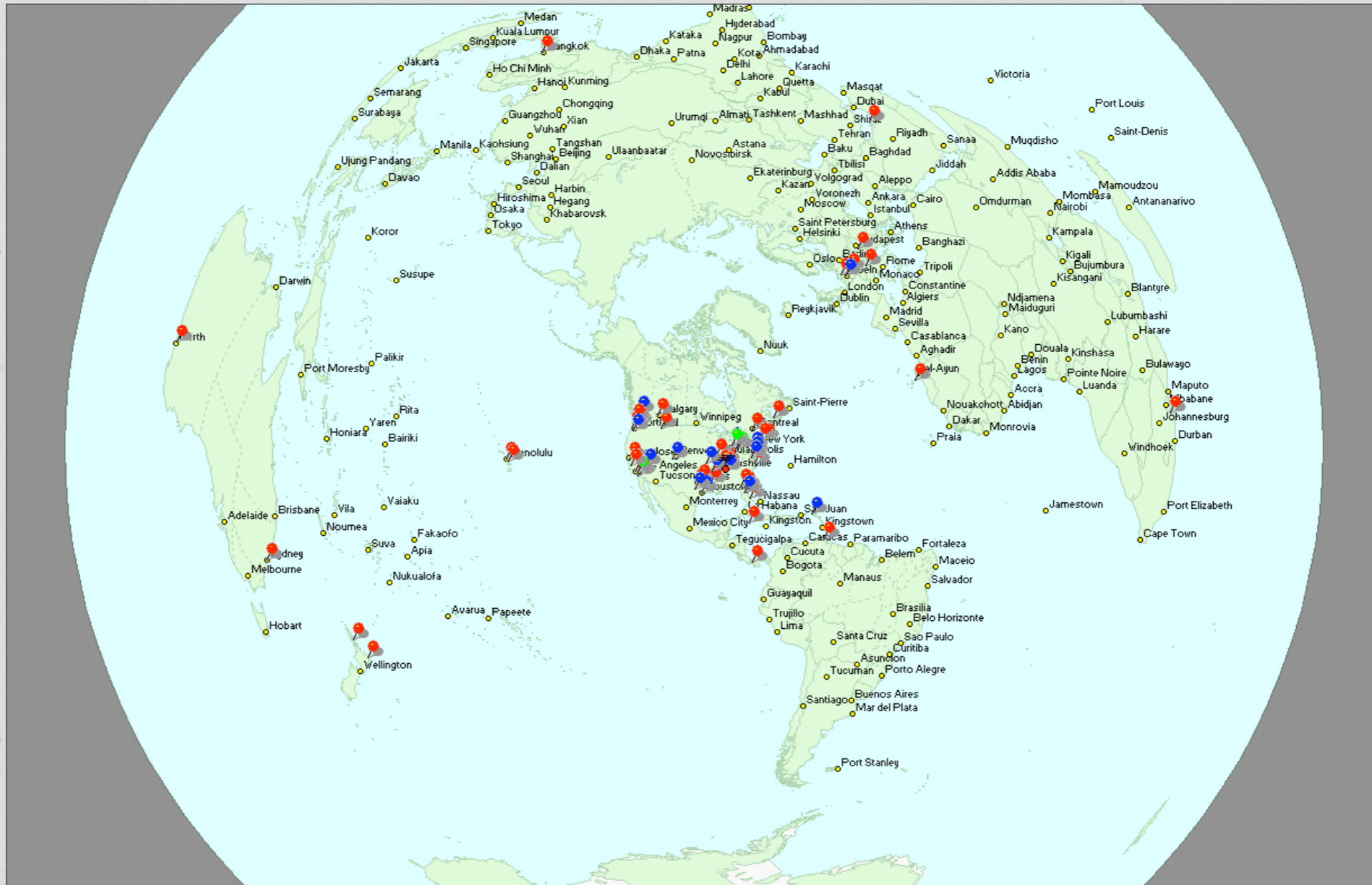
HF Terminal
Packet Client
Internet Access

AirMail

- C:\Program files
- Bulletin
- Inbox
- Outbox
- Transit
- Trash

Message	From	To	Via	Subject	Size
3039	SYSTEM	N1TAI	HAM.Teln...	User Notice	1267
1014_W1MPN	W1MPN	WC1MAA	HAM.PKT...	Re: SITREP 1	5277
1003_N1DB	N1DB	WC1MAA	HAM.PKT...	Sitrep #2	4403
NIYAYTMBG9RD	Gil Follett		HAM.PKT...	RE: SEOC RACES position st...	1505
1050_WC1MAA	WC1MAA	Tom Kinahan	HAM.PKT...	Region 1 EOC activated	1242
1099_NE1R	NE1R	N1DB	HAM.PKT...	Re: Sitrep #2	961
1004_N1DB	N1DB	Tom Kinahan	HAM.PKT...	WX1BOX Securing at 2200	720
1002_N1DB	N1DB	WC1MAA	HAM.PKT...	Changing the guard	702
1005_N1DB	N1DB	Tom Kinahan	HAM.PKT...	WC1MA @ State EOC Standi...	698
1013_W1MPN	W1MPN	Tom Kinahan	HAM.PKT...	Re: SEOC RACES position st...	692
1051_WC1MAA	WC1MAA	N1DB	HAM.PKT...	Re: Changing the guard	584
1008_N1CPE	Tom Kinahan	KD1CY	HAM.PKT...	SEOC RACES position staffed	763
EY9JL1POQMS3	Steve Waterman		HAM.PKT...	RE: Service Message	1874
1007_N1CPE	Tom Kinahan	KD1CY	HAM.PKT...	SET and SEOC	665
4DRXW1Z34FVF	Carl Aveni		HAM.PKT...	Re: Red Cross drill question ...	1467
YG5D5ZGRTC35	Carl Aveni		HAM.PKT...	Re: Red Cross drill question ...	1428
UP7XJ0PAT5OY	joeheck@spla...		HAM.Teln...	Re: winlink test message	1472
UFJHAPGSWMHI	Steve Waterman		HAM.PKT...	RE: Service Message	1850
YCG3PMS080B2	Carl Aveni		HAM.PKT...	Re: Red Cross drill question ...	1070
OP5MCR3FK0XW	SERVICE@CMS		HAM.PKT...	Service Message	765
F3DOO34ZK97U	SYSTEM	N1TKS	HAM.PKT...	User Notice	1197
70752_WC1MA	WC1MA		HAM.Teln...	Re INQUIRY: 52926_WC1MA	1020
70748_WC1MA	SERVICE@WC...		HAM.Teln...	INQUIRY: LIST	1223
NEW 1094 N1XTB	Jim (ke6rk)		Import	Airmail 3.3.081 Release notes	25038

Any Questions?



Glossary

- * Paclink- Email server package that interfaces to radio
- * Telpac - Telnet Packet bridge
- * Airmail - a client email program that supports multiple radio connection protocols and telnet (an internet connection)