

# Winlink Introduction

*Jim DeLoach, WU0I, 13 May 2006*



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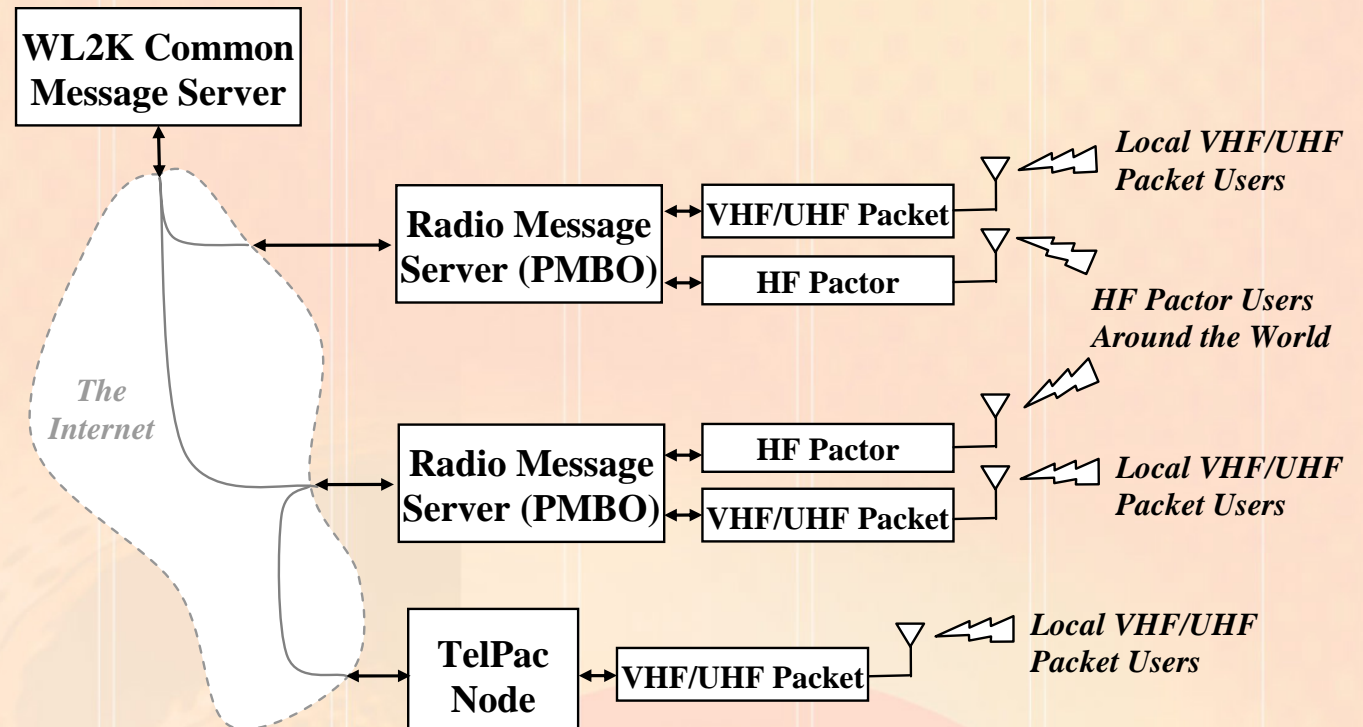
The graphic features a horizontal band with a gradient from orange to light yellow. Overlaid on this band are several elements: a series of vertical lines, a large semi-circular shape on the right side, and a series of four circles stacked vertically on the far right. The binary code is rendered in a light gray color, with some characters appearing to be part of a larger, faint background pattern.

# What is Winlink?

- *Winlink 2000 (also known as “WL2K”) is a worldwide network of participating amateur stations bound together through the use of the Internet.*
- *By linking with any Winlink station – using HF PACTOR or VHF/UHF packet – Amateur Radio Operators can exchange e-mail messages (and attachments) with other Winlink-participating hams, or with anyone with a standard Internet e-mail address*

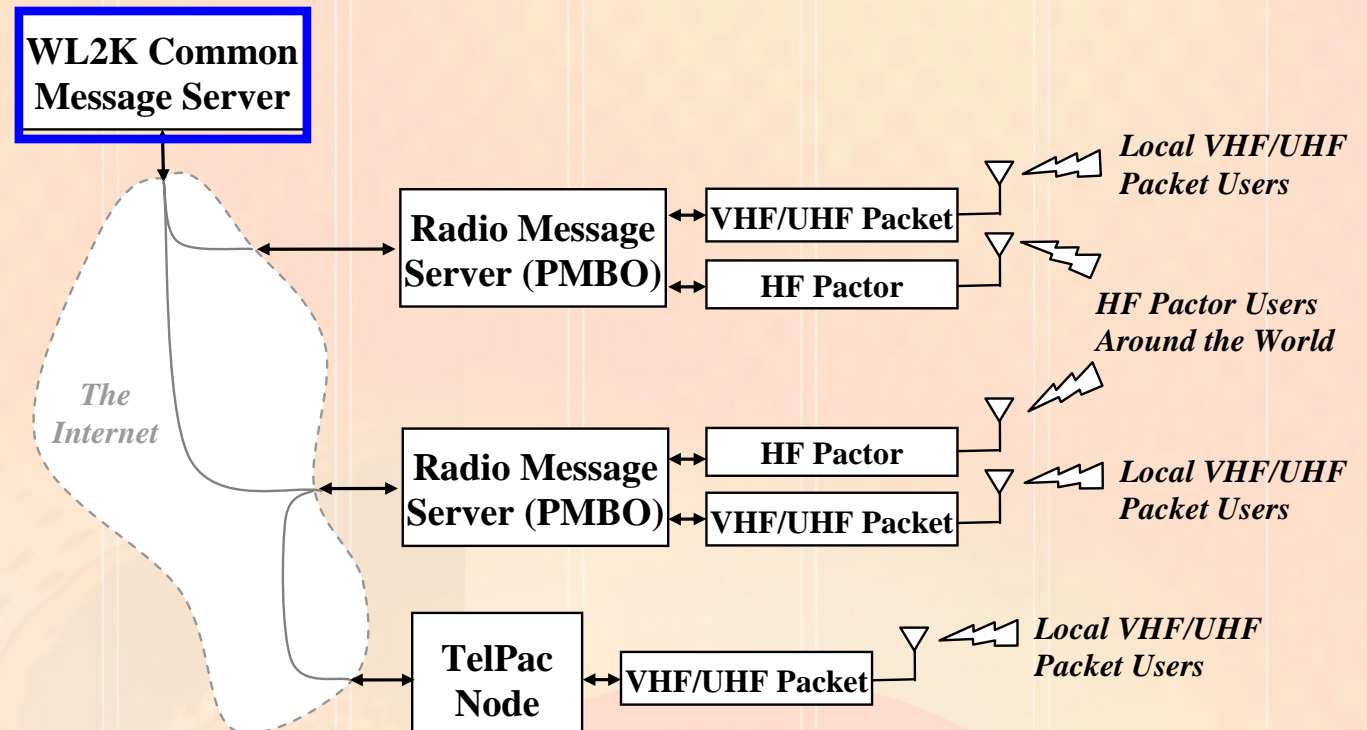
# Winlink Network Architecture

- Winlink Network Architecture



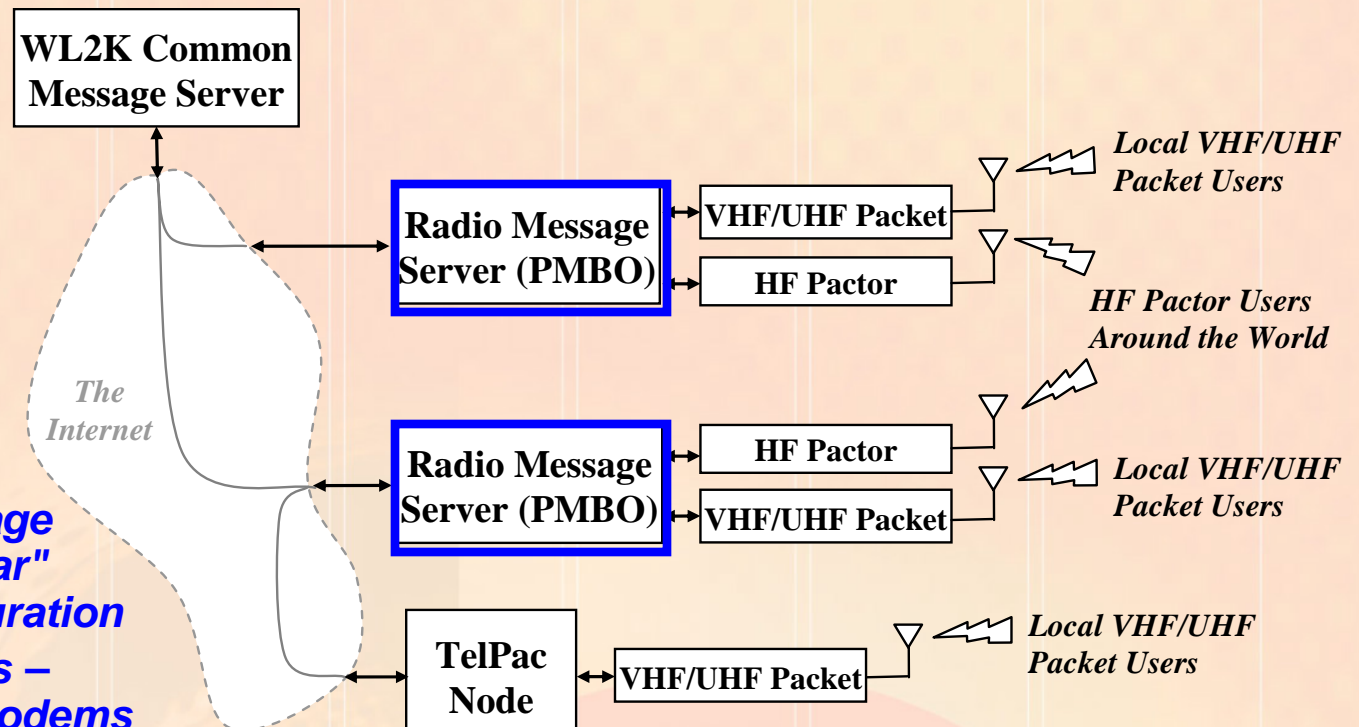
# Common Message Servers

- *coordinates traffic between the Radio Message Servers*



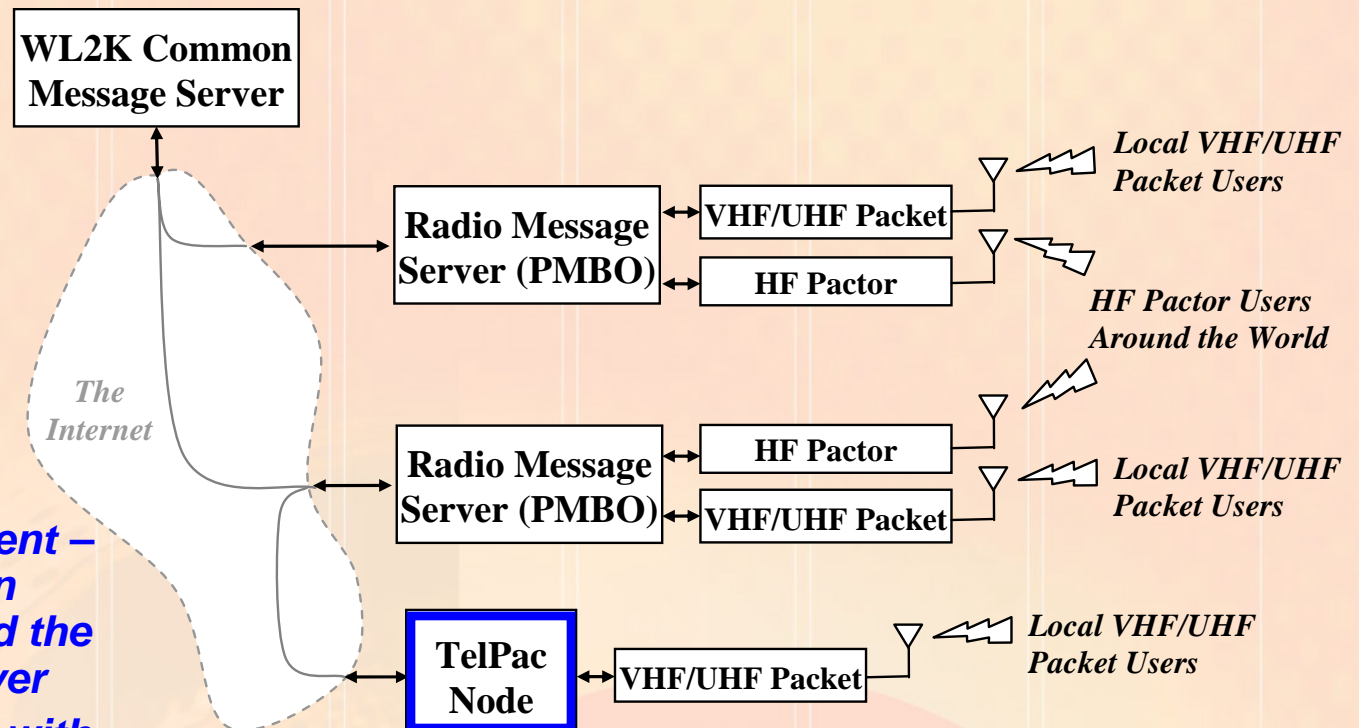
# Radio Message Servers

- *also known by a previous name: “Participating MailBOX” or “PMBO”*
- *Communicates with:*
  - *each other – through the Common Message Servers in a “star” network configuration*
  - *With HF stations – using Pactor modems*
  - *With VHF/UHF stations – using packet*
  - *With end-users indirectly through “TelPac” Nodes*
- *Stores e-mails – capable of autonomous operation*
- *Windows OS software*



# TelPac Node

- **A TELnet PACket bridge**
- **Allows a Radio Message Server to communicate with VHF/UHF packet end-users at a physically remote location, using the Internet to bridge between them**
- **Relatively unintelligent – just bridges between packet hardware and the Radio Message Server**
- **Thousands of hams with a packet station and an Internet-accessible computer have deployed TelPac nodes by downloading and running the free TelPac software, greatly extending the reach of the WinLink system**
- **Windows & Linux \* OS software**



\* I have been told by the author of Winlink that a Linux version of Telpac exists, though this does not seem to be documented on the web.

# Winlink Coverage – Radio Message Servers



- *Radio Message Servers typically provide HF access and VHF/UHF access*

● Active  
● Inactive

\* Map courtesy of Winlink.org and Google Maps

Shown are Radio Message Server stations, as of 12 May 2006, from <http://www.winlink.org/positions/RMSPositions.aspx>

# Winlink Coverage - TelPac Nodes



- *TelPac Nodes provide only VHF/UHF access*

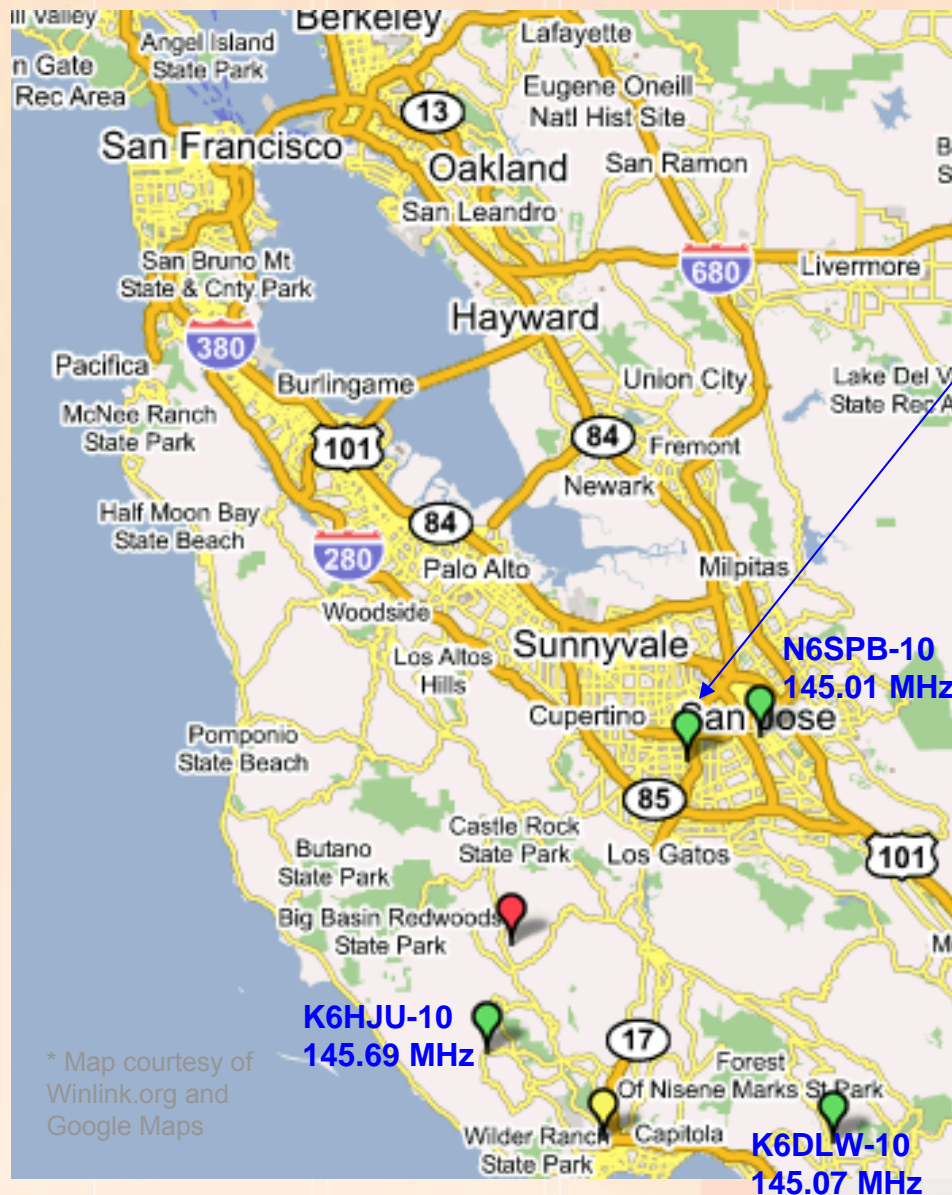
**Last Heard:**  
● Recently  
● ≤ 12 hours  
● > 12 hours

\* Map courtesy of Winlink.org and Google Maps

Shown are US/Canadian TelPac Nodes, as of 12 May 2006, from <http://www.winlink.org/positions/RMSPositions.aspx>



# Bay Area TeIPac Nodes



**My TeIPac Node: WU0I-10  
Hosted by the Qualcomm  
Silicon Valley Amateur Radio  
Club in Campbell California  
145.01 MHz**

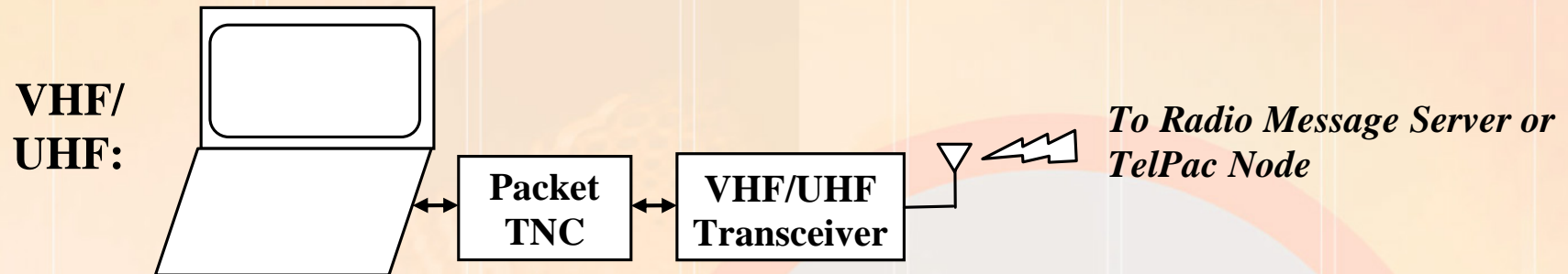
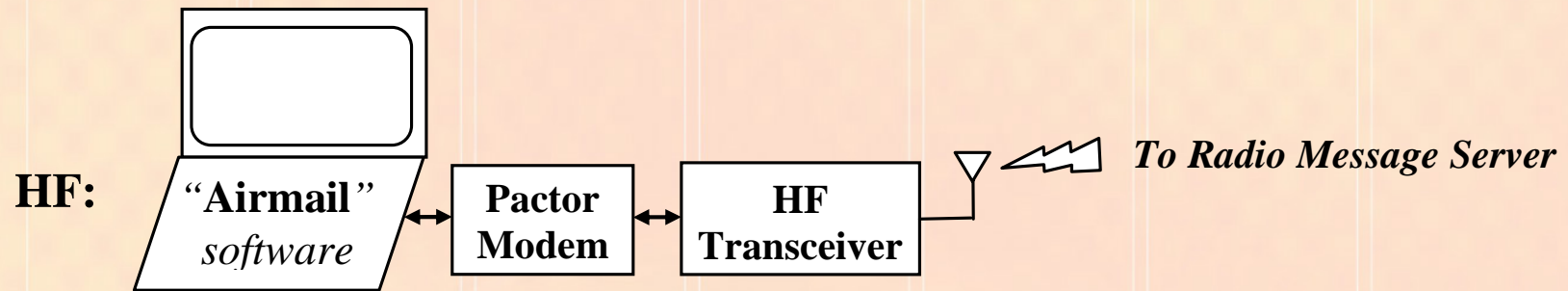
### Last Heard:

- Recently
- ≤ 12 hours
- > 12 hours

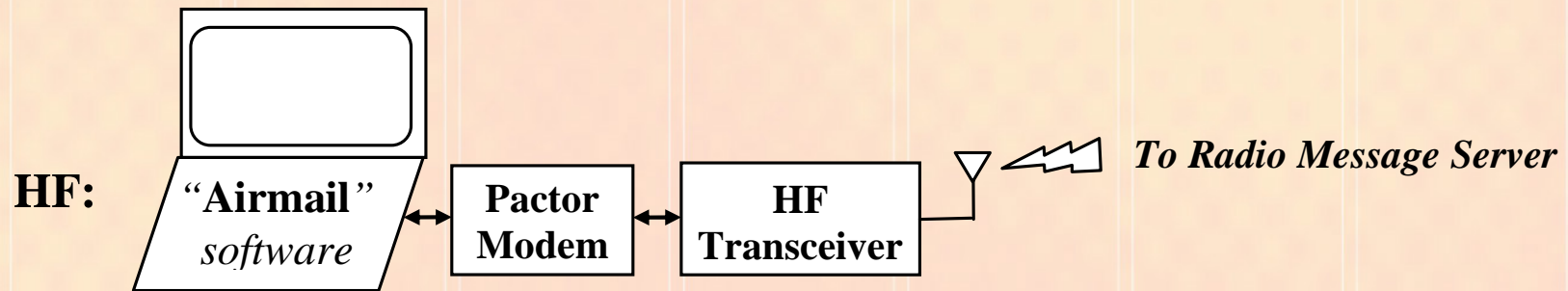
Bay Area TeIPac Nodes,  
as of 12 May 2006

# The Terminal Equipment

- *Users connect using one of these methods:*

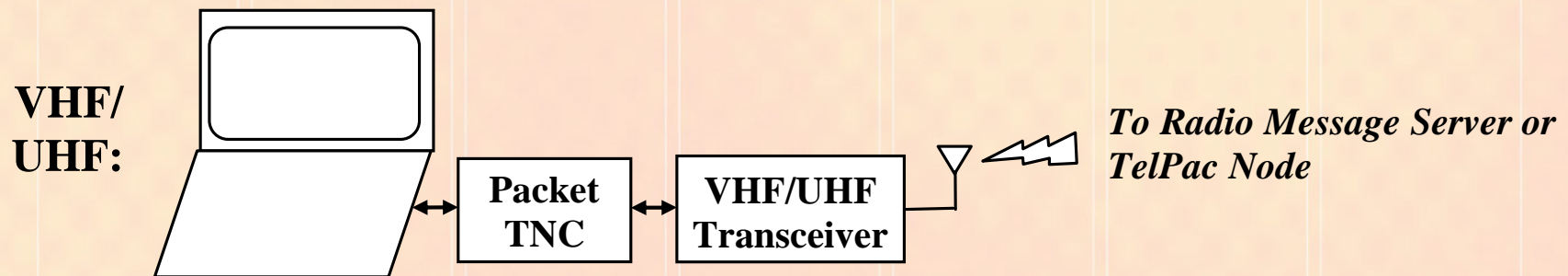


# The Terminal Software – HF



- *All HF Utilization Uses the free “Airmail” software*
  - *Provides a typical e-mail client look & feel*
  - *Directly manages the Pactor modem*
- *Widely used by sailors / yachters*
- *The big complaint: cost of the Pactor modem*

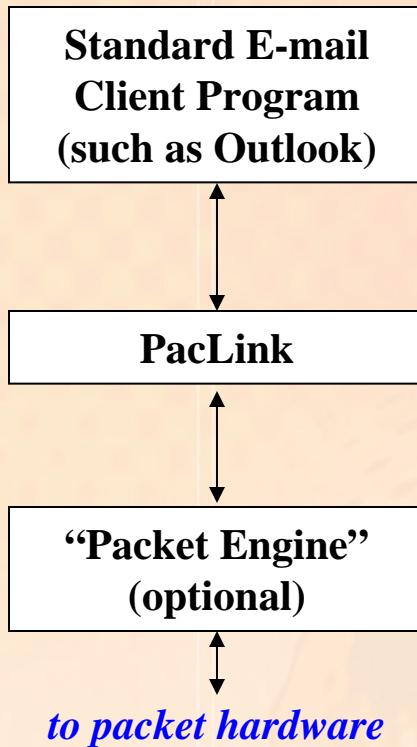
# The Terminal Software – VHF/UHF



- ***VHF/UHF Terminal Software Choices:***

- *Run any terminal program, and send e-mails using BBS-like commands*
- *Use the “Airmail” software*
- *Use the “Paclink” software, together with your regular e-mail client (Outlook, Eudora, etc.)*
- *“Middle-ware” software known as “Packet Engine” sometimes used to manage the packet hardware*

# The PacLink “Software Stack”



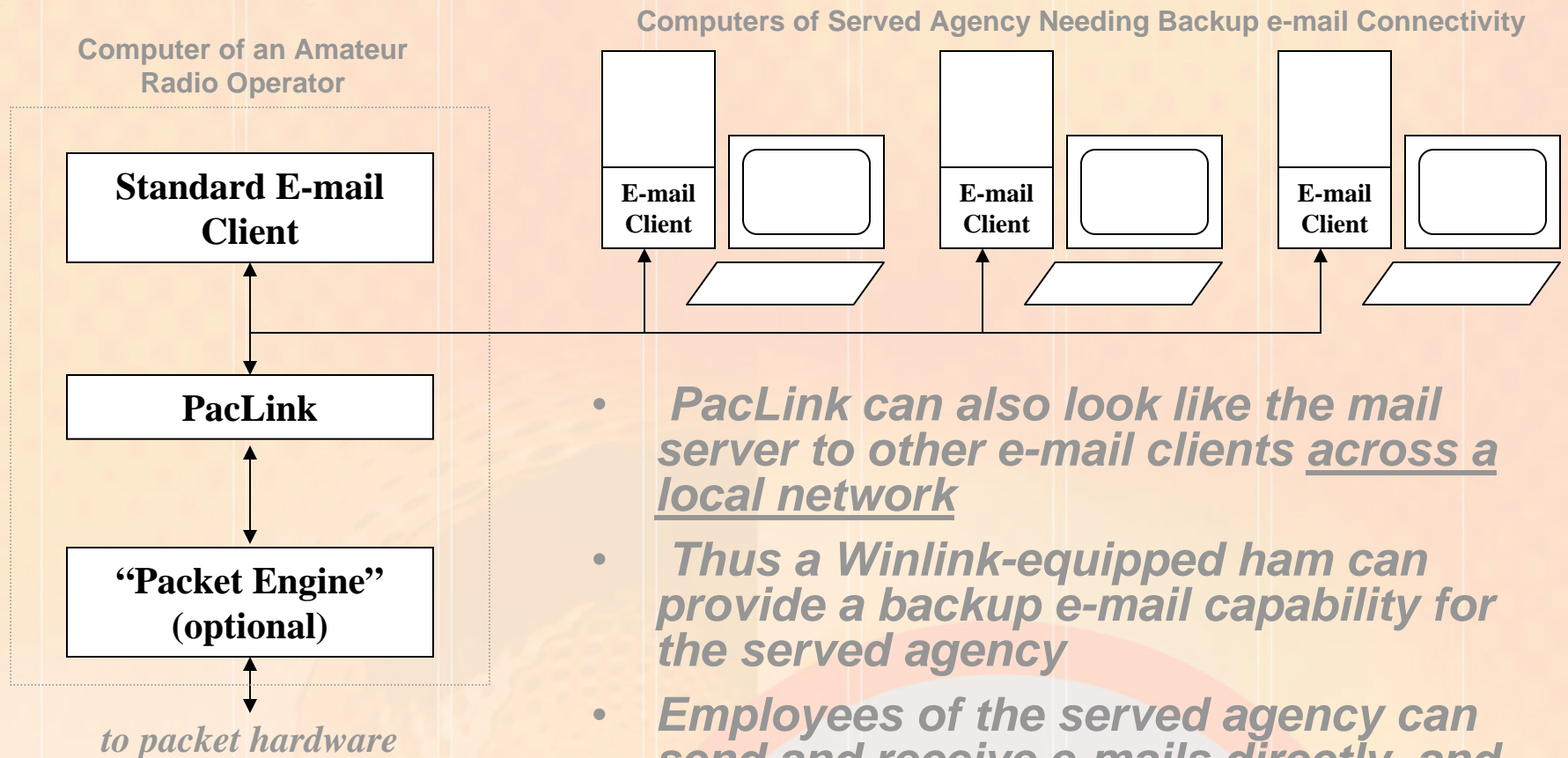
- Any standard e-mail client software, such as Outlook or Eudora, can be used

- PacLink looks like a mail server to the your standard e-mail client
- PacLink manages the packet hardware directly, or interacts with “middle-ware” software

- “Middle-ware” software known as Packet Engine (PE) or Packet Engine Pro (PE Pro), written by SV2AGW, manages the packet hardware

- Hides hardware details from higher level SW
- Allows multiple SW applications to share hardware

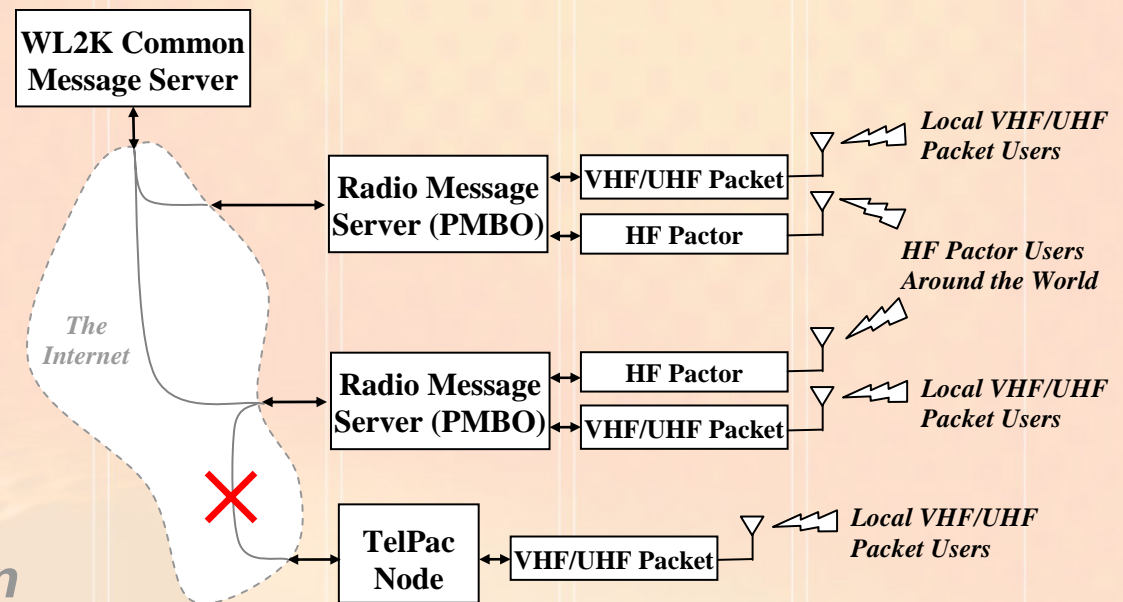
# Key PacLink Advantage for Emergency Operations



- *PacLink can also look like the mail server to other e-mail clients across a local network*
- *Thus a Winlink-equipped ham can provide a backup e-mail capability for the served agency*
- *Employees of the served agency can send and receive e-mails directly, and retain the e-mail program look and feel that they know and understand*

# Winlink's Achilles Heel for Emergency Operations

- *When the Internet goes down, TelPac Nodes are DEAD*
- *Thus:*
  - *Operations should be based around a Radio Message Server for autonomous operation*
  - *Backup Internet connectivity – such as provided via satellite – needs to be part of the Plan!*



# Jim's Concluding Thoughts

- *Packet can be useful for local emergency communications such as EOC-to-EOC data comms*
  - *We are in fact doing this today around a “bulletin board” model*
  - *Winlink can extend this model by:*
    - *Providing limited internet access via an e-mail model*
    - *By facilitating communications directly from the computer of the relief worker*
- *But the real question is: How are we going to unleash the power of the Internet for Emergency Communications?*
  - *Winlink is only one piece of this puzzle*
- *For more info on Winlink: [www.winlink.org](http://www.winlink.org)*