
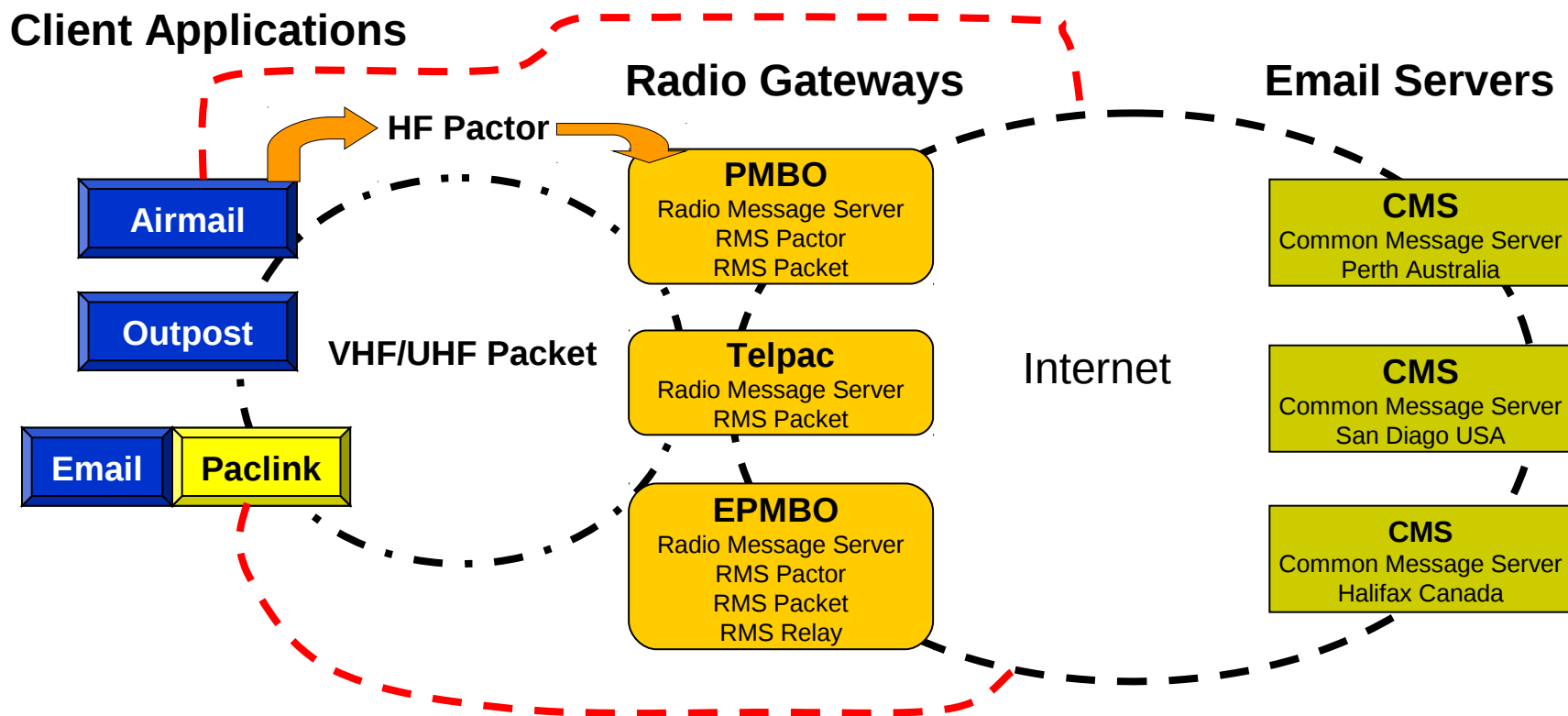
	<p><b>EMERGENCY MEASURES RADIO GROUP</b></p>
	<p><b>OTTAWA ARES</b></p>

Two Names - One Group - One Purpose

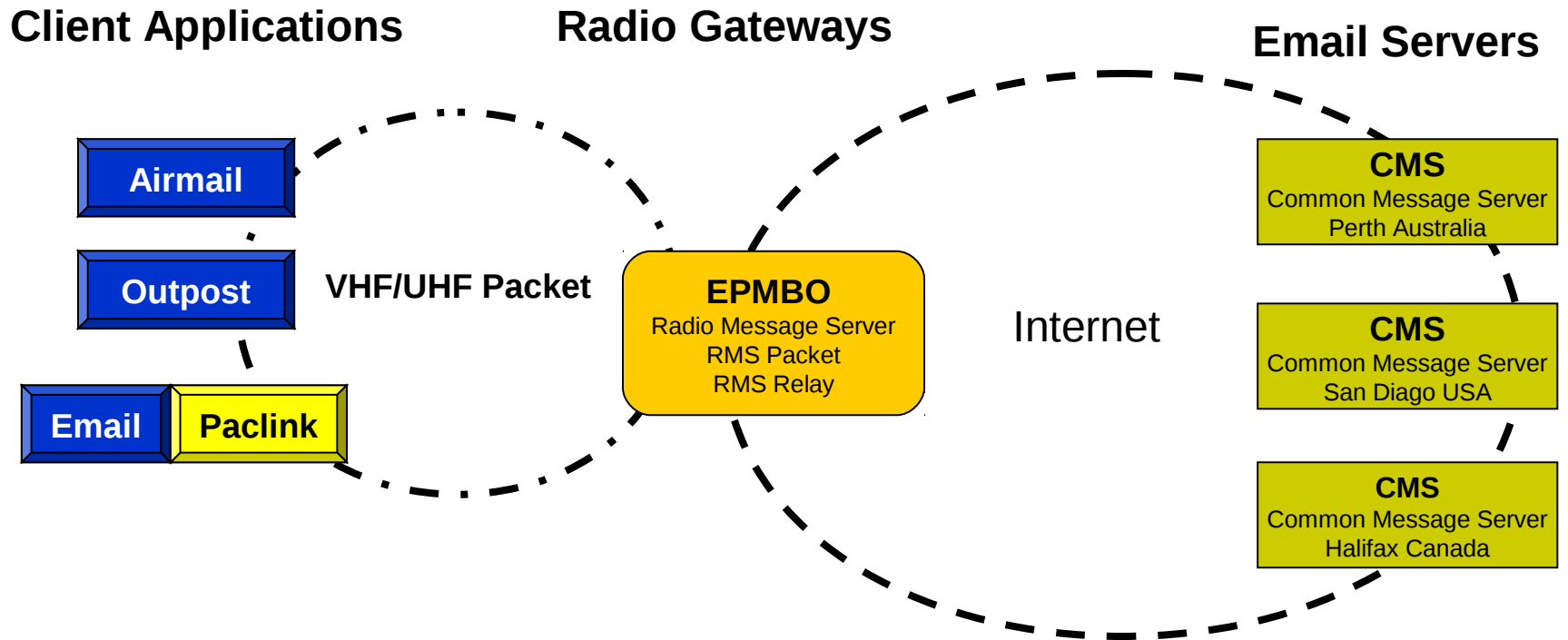
# **Amateur Radio Data Communications APPLICATIONS**

# Winlink 2000

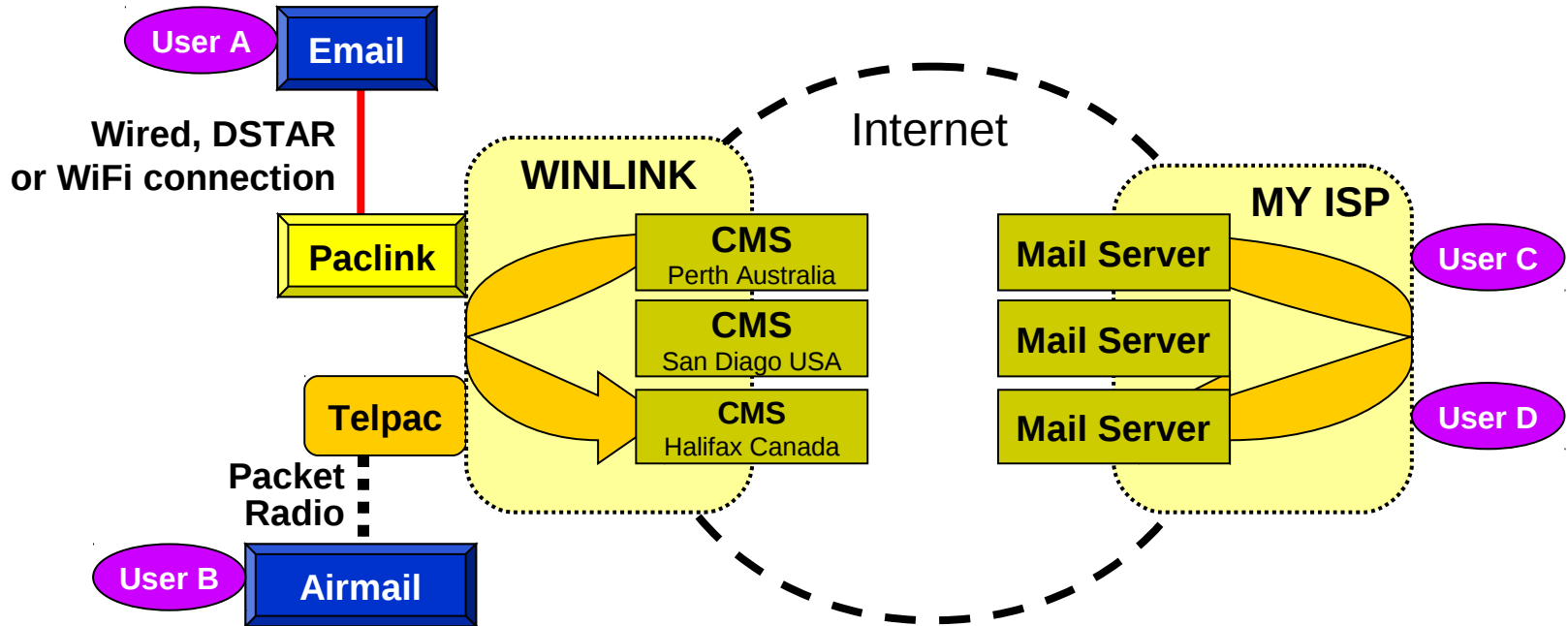
Winlink 2000 is an Email System made up of 3 components;



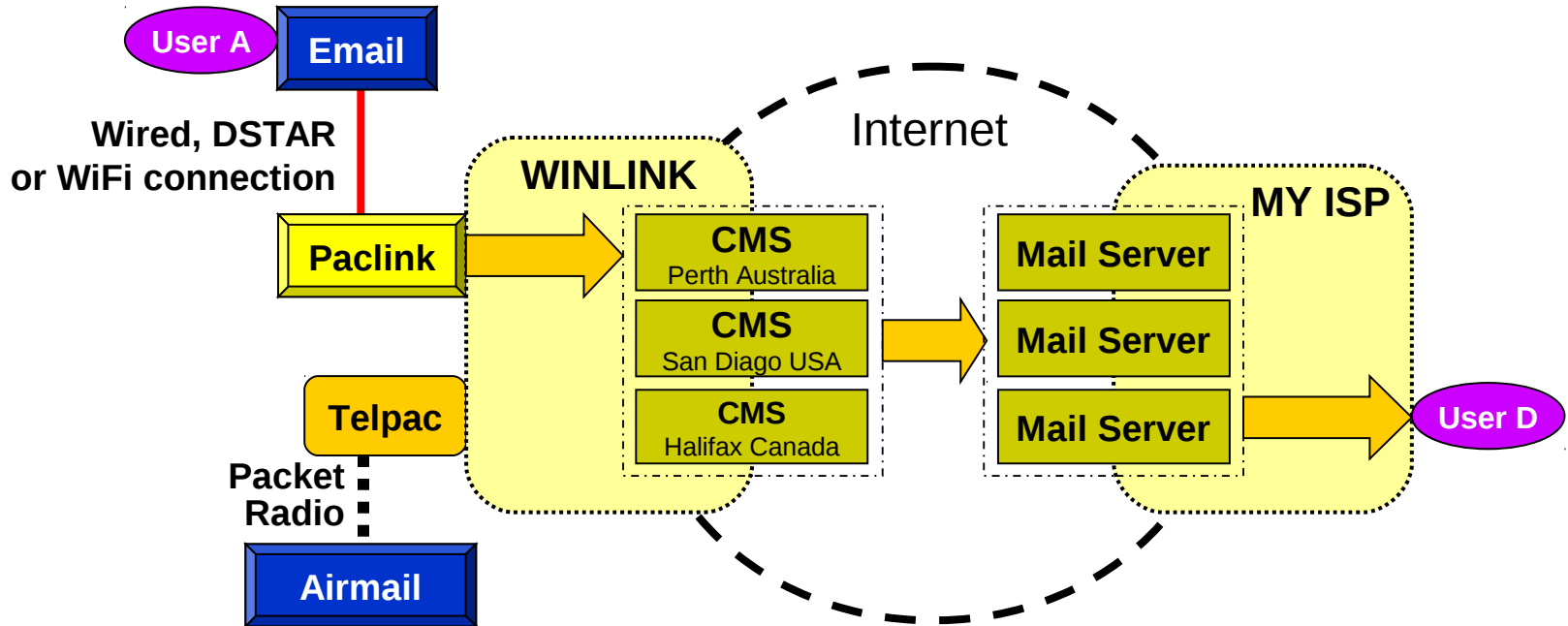
# TYPICAL WINLINK SYSTEM



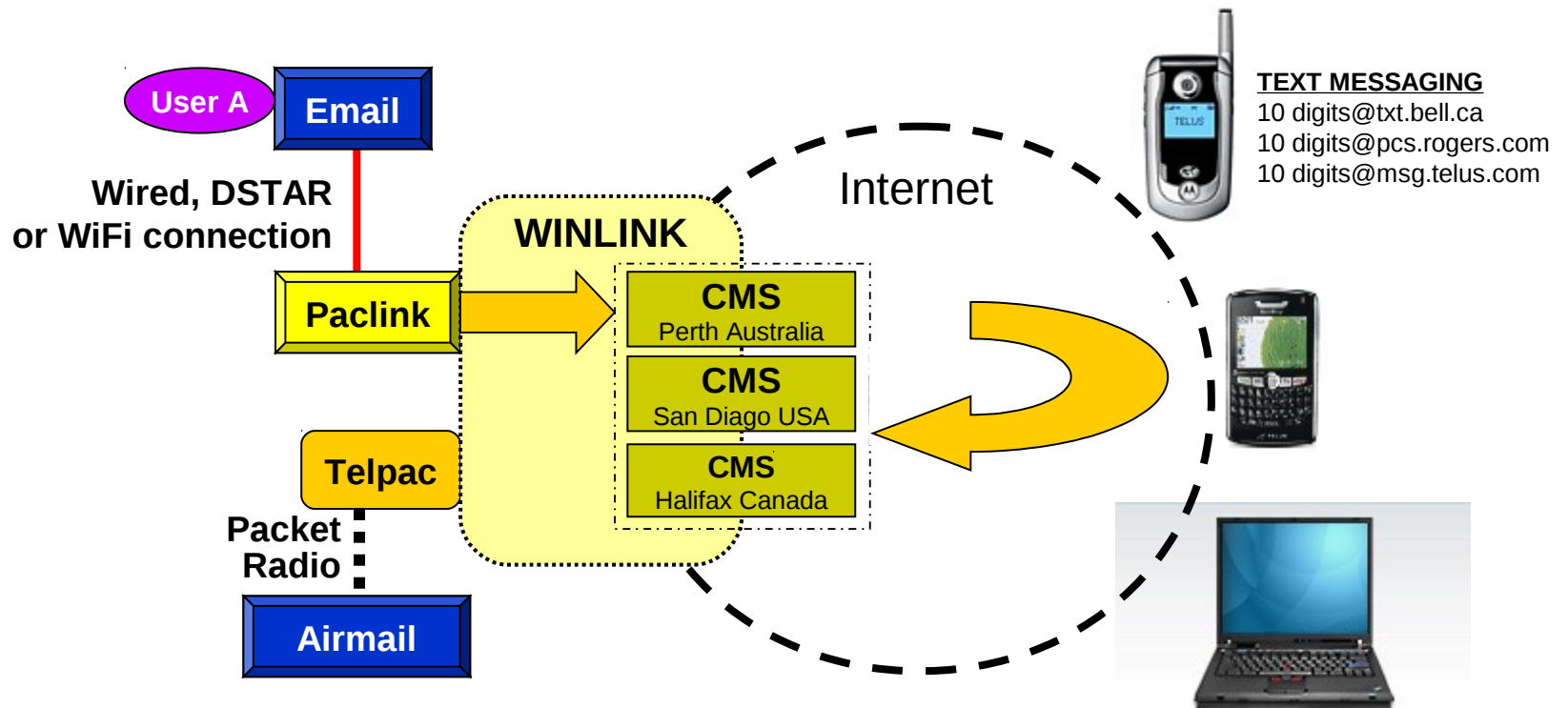
# WINLINK LIKE AN ISP



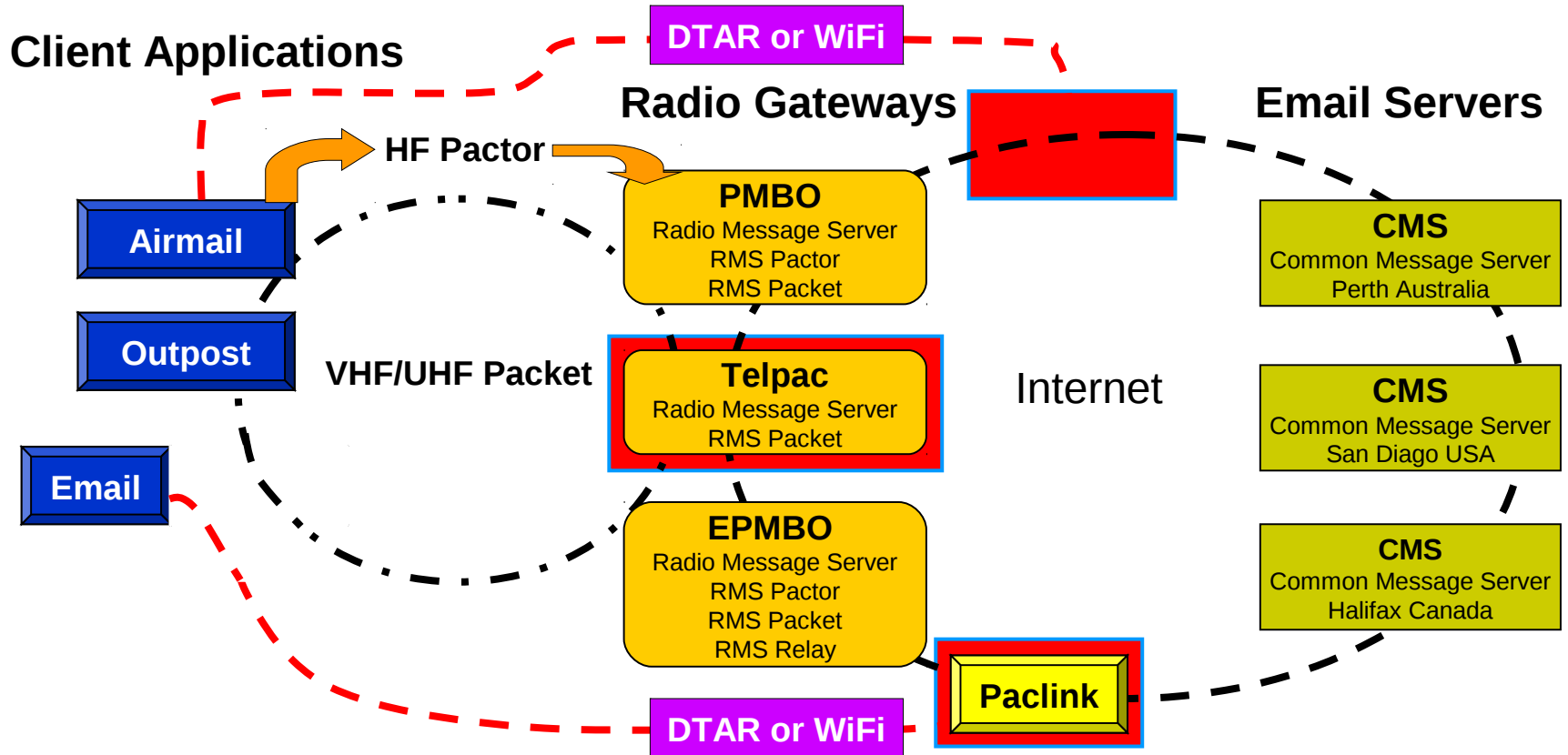
# WINLINK TO "MY ISP"



# WINLINK TO ANY EMAIL

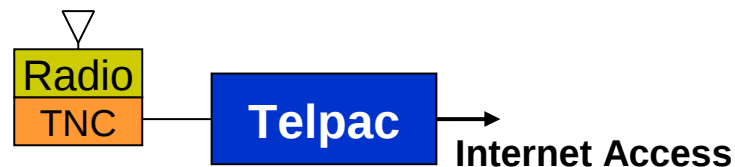


# DSTAR & WiFi



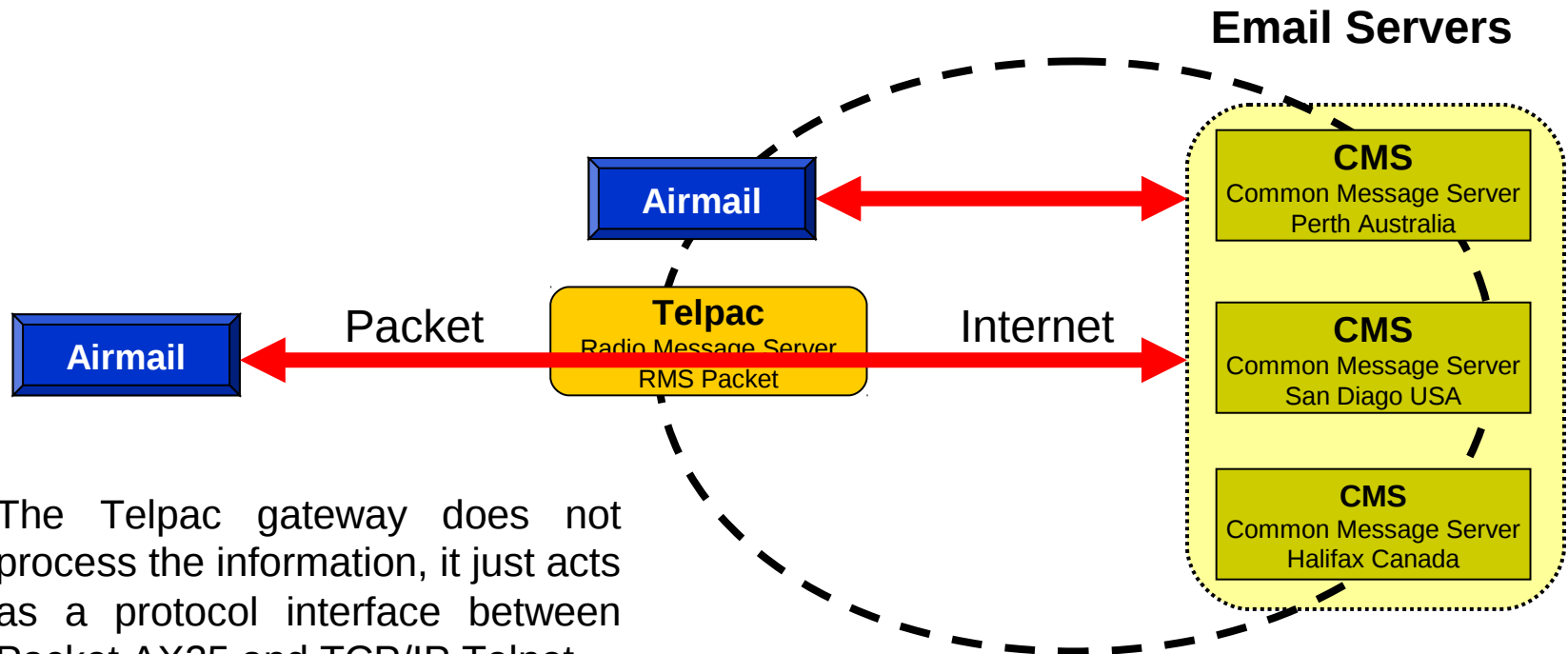
# TELPAC

- Telpac is a Telnet to Packet gateway that provides a link between VHF/UHF Packet and the CMS Email servers, via the internet.
- Radio Message Server (RMS) Packet is the new application that will replace Telpac.
- Telpac can connect directly to a TNC or share a TNC through AGW Packet Engine.





# TELPAC GATEWAY



The Telpac gateway does not process the information, it just acts as a protocol interface between Packet AX25 and TCP/IP Telnet.

# PMBO

- PMBO refers to a publicly available station that provides HF Pactor and Packet gateway capability. The PMBO connects to the CMS Email servers via the internet.
- This is the gateway used for HF Winlink connections.
- Radio Message Server (RMS) Pactor and RMS Packet will replace the existing PMBO software.

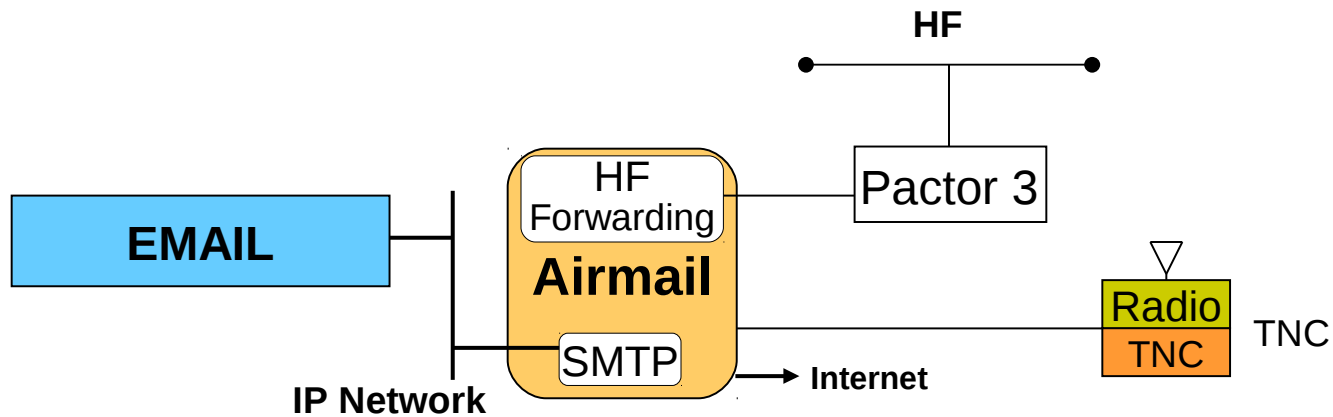
# EPMBO

- An EPMBO is a PMBO that is dedicated to emergency communications, so it is not listed for public use
- The EPMBO contains an additional software module that provides local message routing if the Internet connection is lost.
- RMS Relay is the name for the new local message routing module.

# AIRMAIL

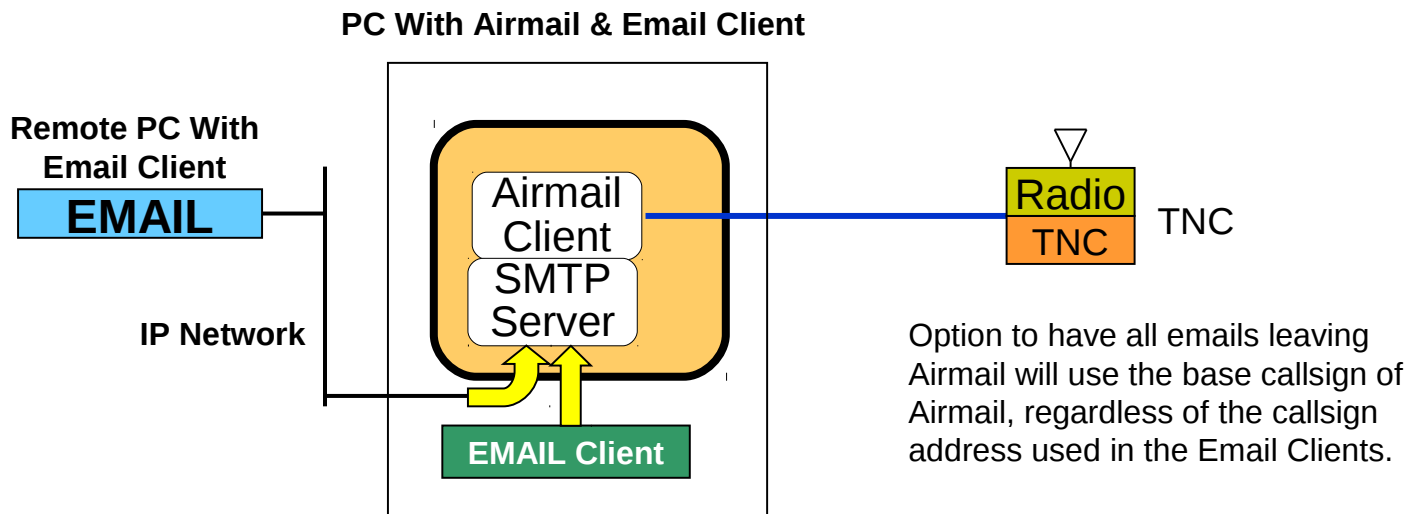
Airmail is a standalone email client written specifically for Winlink. It provides an intuitive email like user interface. There are a number of modules that can be configured and run simultaneously to provide TNC access, HF access, SMTP server, etc.

- Will run on Windows 95 or higher, with low power PC.
- Does not support AGWPE (TNC is dedicated to Airmail, no sharing of TNC with other applications).
- Supports attachments from Airmail directly or from external email program



- Can connect directly through the Internet
- Can provide a simplistic stand alone capability for direct Airmail to Airmail access, but does not allow the use of SSID in the callsigns.
- Can provide message forwarding from VHF/UHF to HF.
- Use of SMTP server to allow external email access, has configuration challenges.

# AIRMAIL SMTP SERVER

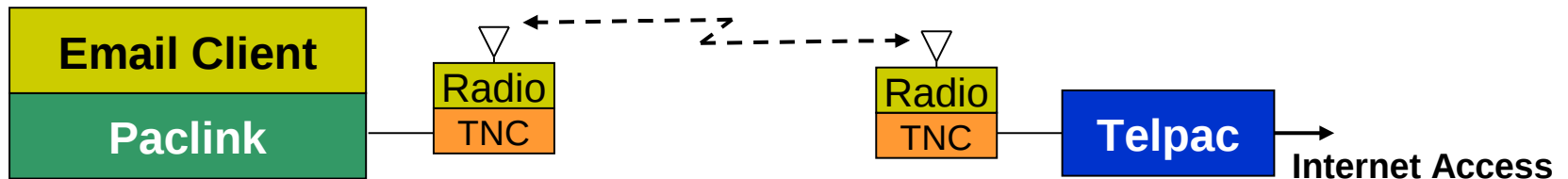


SMTP server has options so it can send all Outgoing email to all users and all Incoming email to all users.

# PACLINK

- Paclink is an Email to Packet gateway allowing one or more email programs, such as Outlook, Outlook Express, or Thunderbird, to communicate with the Winlink system directly through the Internet, or a Telpac gateway.

## Basic Paclink – Direct TNC Connection

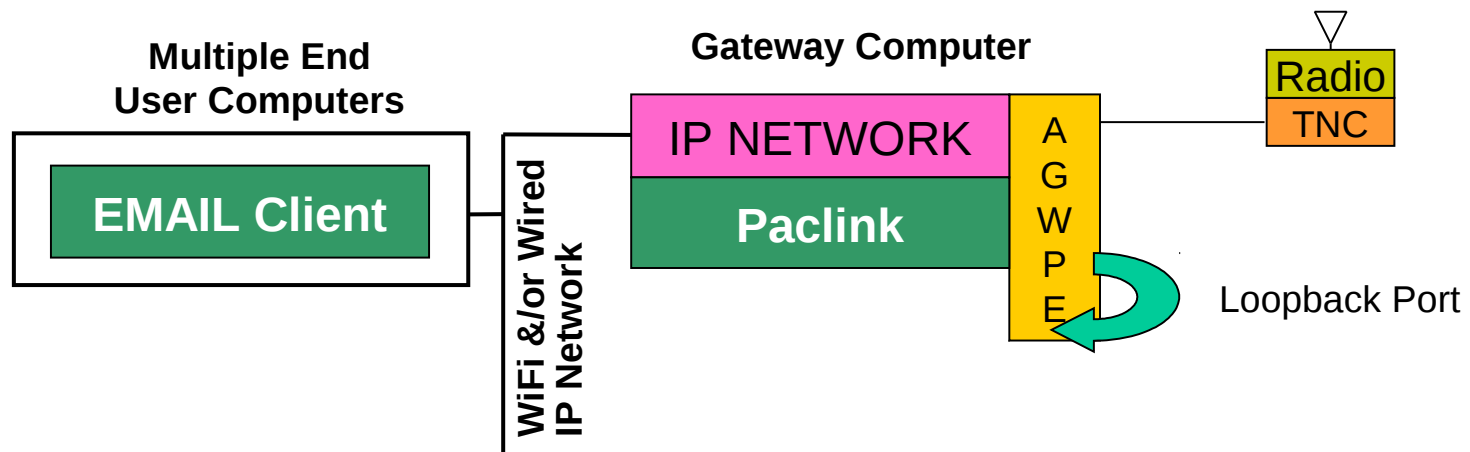


- Users have standard email interface and do not see the packet system, making it ideal for client sites.
- Preferably a Win2K or higher PC.

# PACLINK

- Supports attachments from external email program
- Currently 2 programs, one provides email interface for which can connect directly to a TNC. The second program provides an AGWPE interface for Paclink. Being replaced with a single application called PaclinkMP.

## Multiple Users With Computer Network



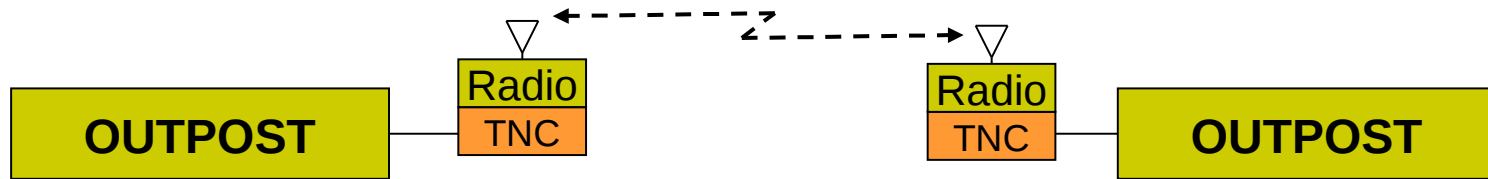


# OUTPOST

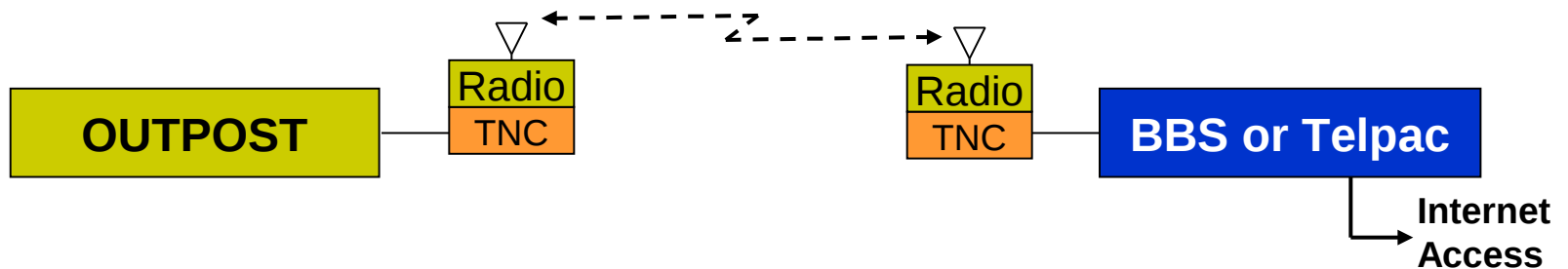
- Windows-based packet message client that can send and receive packet messages with almost any Amateur Radio Bulletin Board System (BBS) or TNC Personal Mail Box.
- Designed for the ARES/RACES packet user community.
- Runs on windows 95 or higher PC
- Looks like an email client with similar functions such as create, send, receive, read, delete, reply to, or forward
- Interprets the information sent from the TNC and BBS, automating the keyboard entry and interpretation performed by the user.

# OUTPOST EXAMPLES

## Point to Point Connection

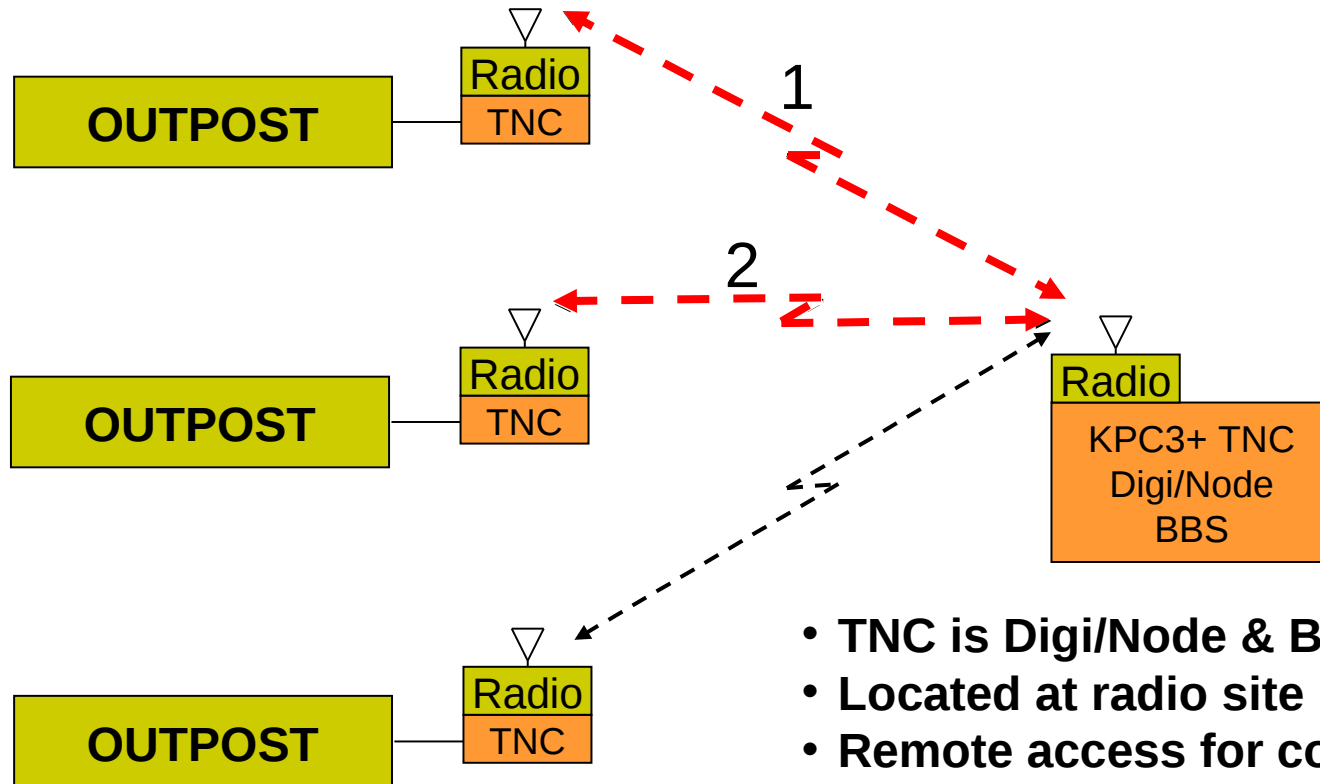


## BBS or Telpac Connection



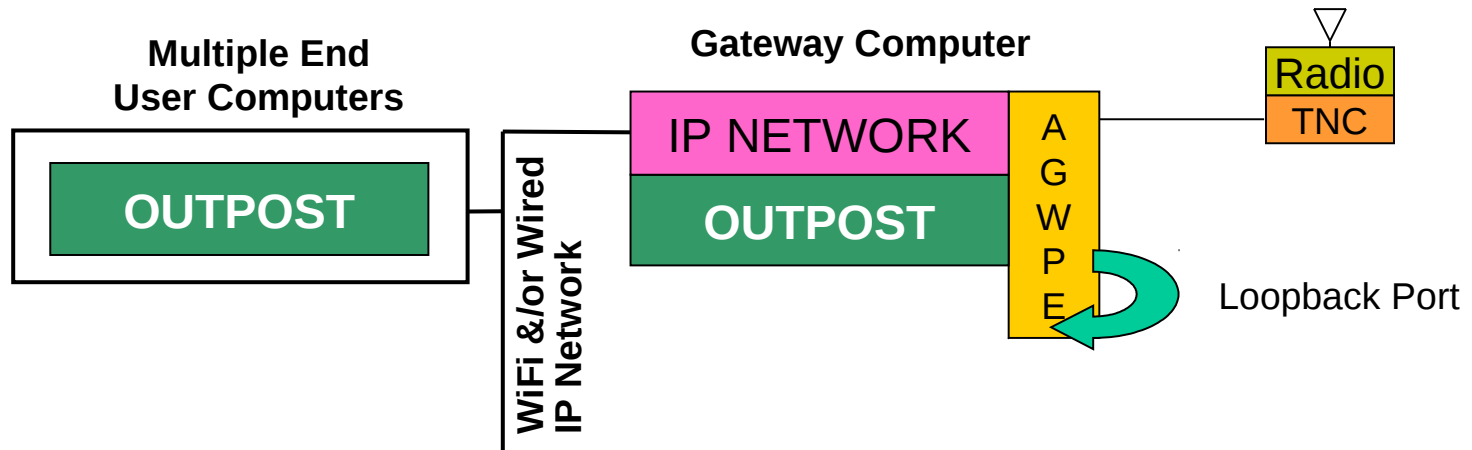
# OUTPOST & KPC3+ BBS

Message from source to destination in 2 hops



- TNC is Digi/Node & BBS
- Located at radio site
- Remote access for config or reset
- Simultaneous multi user access

# OUTPOST WITH AGWPE

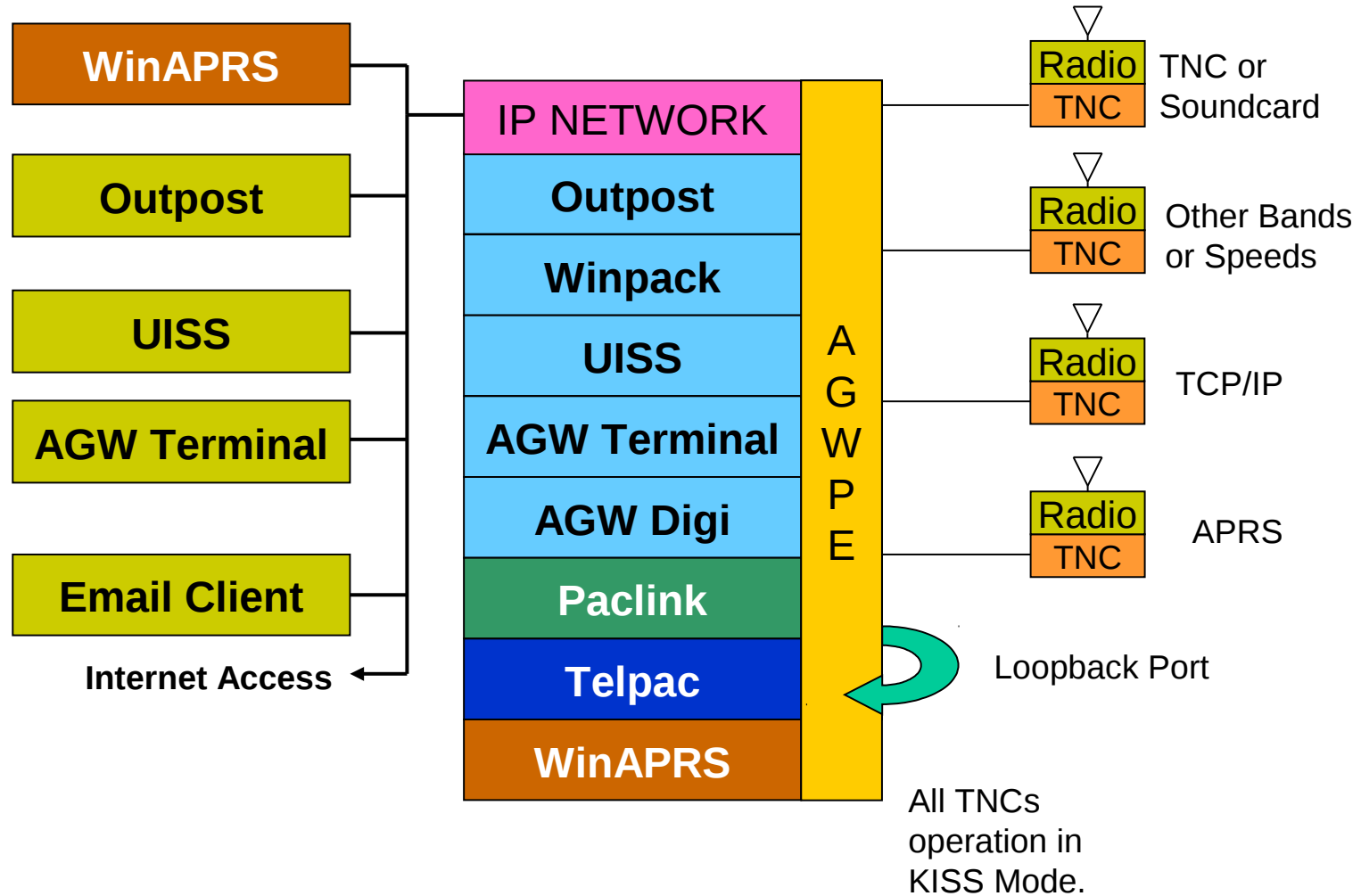


# AGW PACKET ENGINE

(AGWPE)

- AGWPE is an application that interfaces with one or more TNCs and/or Sound Cards, for AX25 Packet.
- Presents a series of virtual TNCs to other applications, allowing sharing between multiple applications on a computer and between computers on a network.
- With AGWPE, Paclink, Telpac and Outpost can all exist on the same PC and share a single TNC. Certain applications on other computers can share a TNC on another computer, over a network.
- By installing AGWPE on multiple PCs on a network, TNCs can be shared across the network, or the Internet.

# AGWPE APPLICATIONS



# KPC3+ MUTI-USER BBS

- Kantronics KPC3+ (Version 9.x) has multi-user BBS functionality, allowing multiple users to upload - download messages at the same time.
- Works well with Outpost using default config
- Messages are stored based on the TO callsign, or a tactical callsign such as EOC.
- Standard memory is 100K for mail out of 128K.
  - There is a modification (not tested yet) that allows the 128K memory to increase to 512K, providing about 480K for mail
- TNC can be portable or located in remote radio site
- Cost about \$250

# TACTICAL ADDRESSES

- Tactical callsigns uniquely identify a site and apply to the site for the duration of the incident, while the user callsign may change over time.
- BBS and Winlink both support tactical callsigns;
  - BBS = 6 Characters, Winlink = 12 Characters
- Tactical calls can be set up on the fly, but there is value in defining them in advance, so they are standardized, then set up and tested.
  - Shelters would use site names for voice, such as Orleans Sportsplex. These are typically too long for data and can change, so a set of predefined standard identifier such as Shelter 1 would be useful for data.



# TACTICAL ADDRESSES

- Tactical callsigns must be unique, within the BBS and within Winlink. Since Winlink is a global system, the format must ensure uniqueness.
- There are several proposals for Winlink tactical addresses, but there is no standard at this time.
- The following proposed format will support both a BBS and Winlink; **xxxxxxMMPPCC**
  - **xxxxxx** – 6 character site identifier (Applies to BBS & Winlink)
  - **MMPPCC** - 6 character location identifier (Unique within Winlink)
    - MM - 2 character Municipality identifier
    - PP – 2 character Province identifier
    - CC – 2 character Country identifier

# CONFIGURATION

- All of the software and hardware has options that can be used, or not used, with configuration settings that can be optimized.
- Much of the documentation for the applications is volunteer written, so it is vague or has holes.
- Implementing a data solution requires a lot of digging, trial and error and testing.
- Any use of Email Clients or computer networking requires IP addressing, which must be planned in advance.