PACKET RADIO

DIGITAL COMMUNICATIONS

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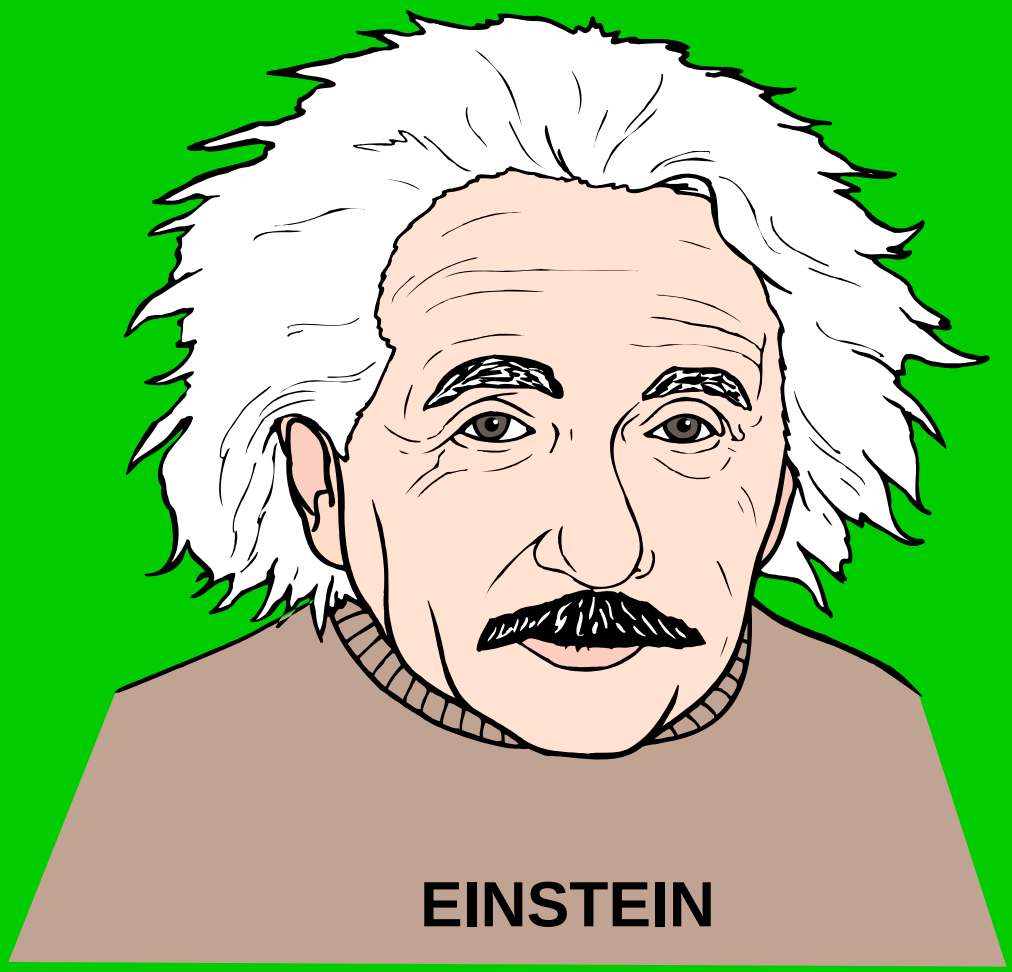
KA4YZR

PACKET OPERATOR



EINSTEIN

WHAT IS PACKET

Packet communications is a method of passing text messages or files between two or more computers using a radio link to connect and pass the information.

PACKET ADVANTAGES

1. **Error Free**
2. **Message Hard Copy**
3. **Single Frequency - Store and forward**
4. **Relatively low Cost**
5. **Date/Time Stamp messages**
6. **Capable of long distance communications**
7. **Reliability**

PACKET DISADVANTAGES

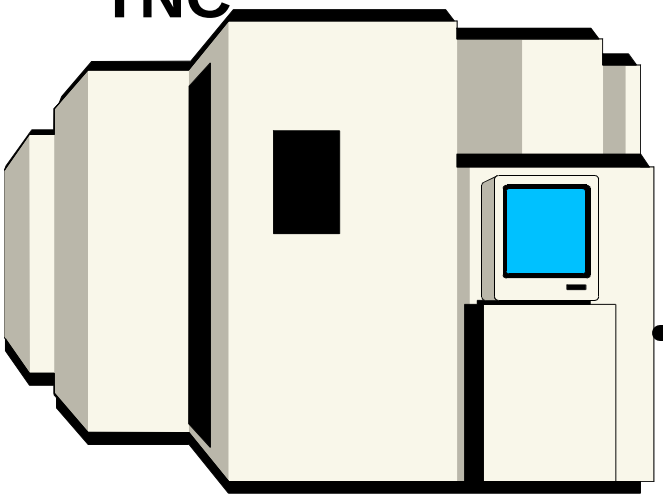
1. **Requires Operator Training**
2. **More Hardware**
3. **Facilities**
4. **Overhead / Frequency usage**
5. **Single Frequency reduced throughput**

PACKET HARDWARE

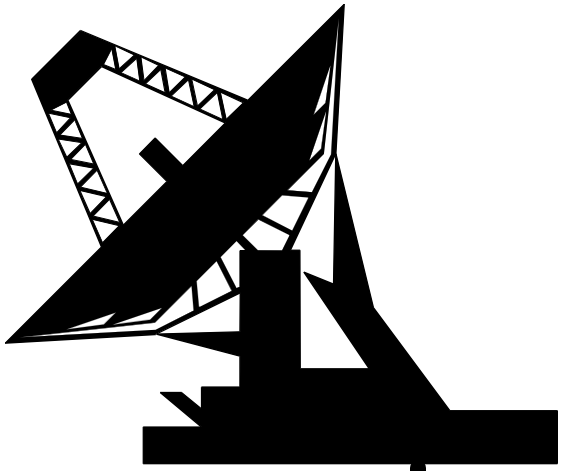
Hardware, the physical components of a packet terminal or node.

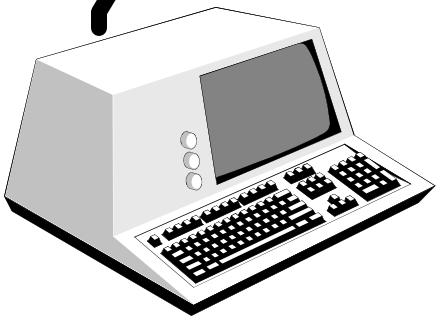
1. **Computer**
2. **TNC**
3. **Radio**
4. **Antenna**
5. **Power Supply**

TNC

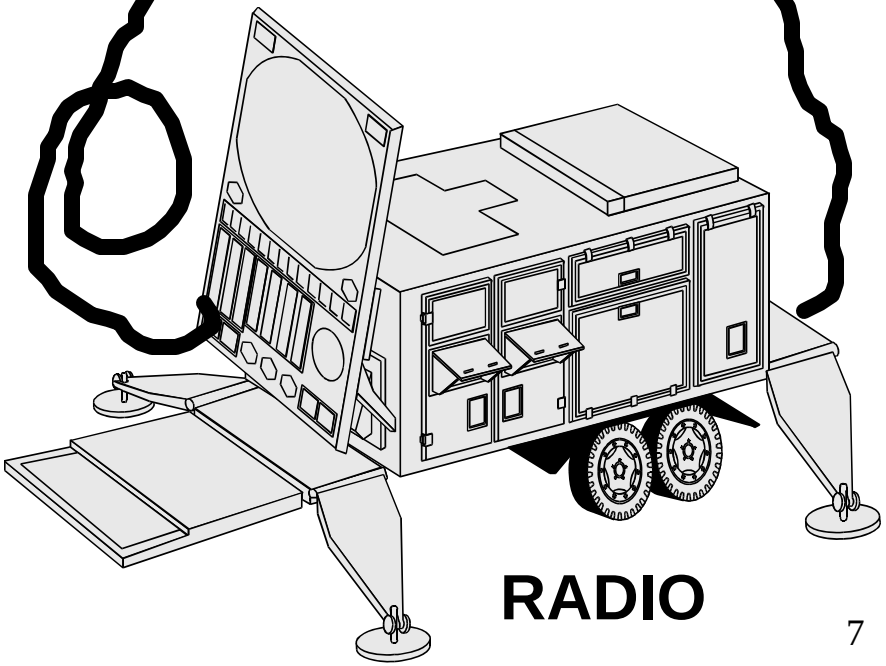


ANTENNA



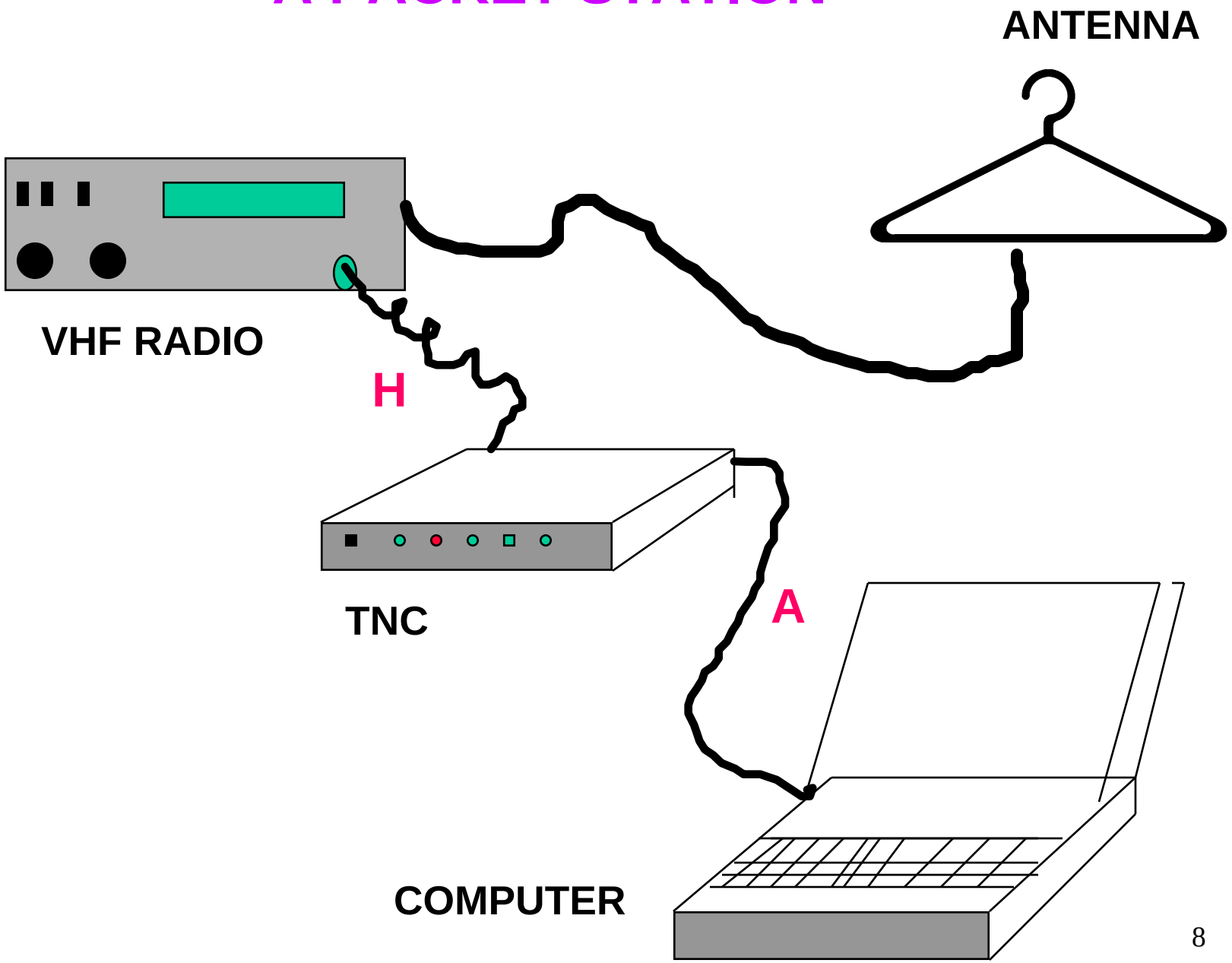


COMPUTER



RADIO

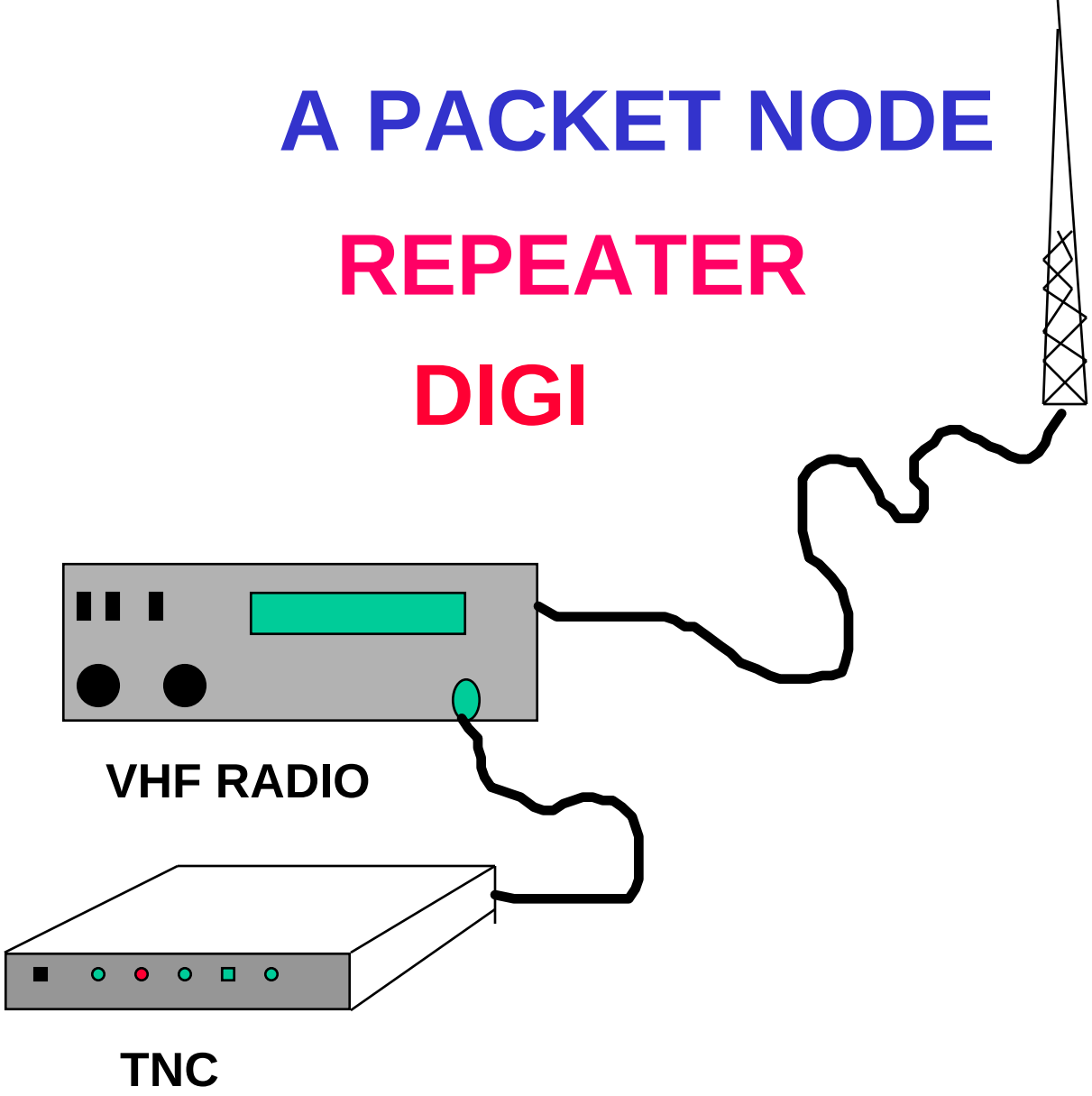
A PACKET STATION



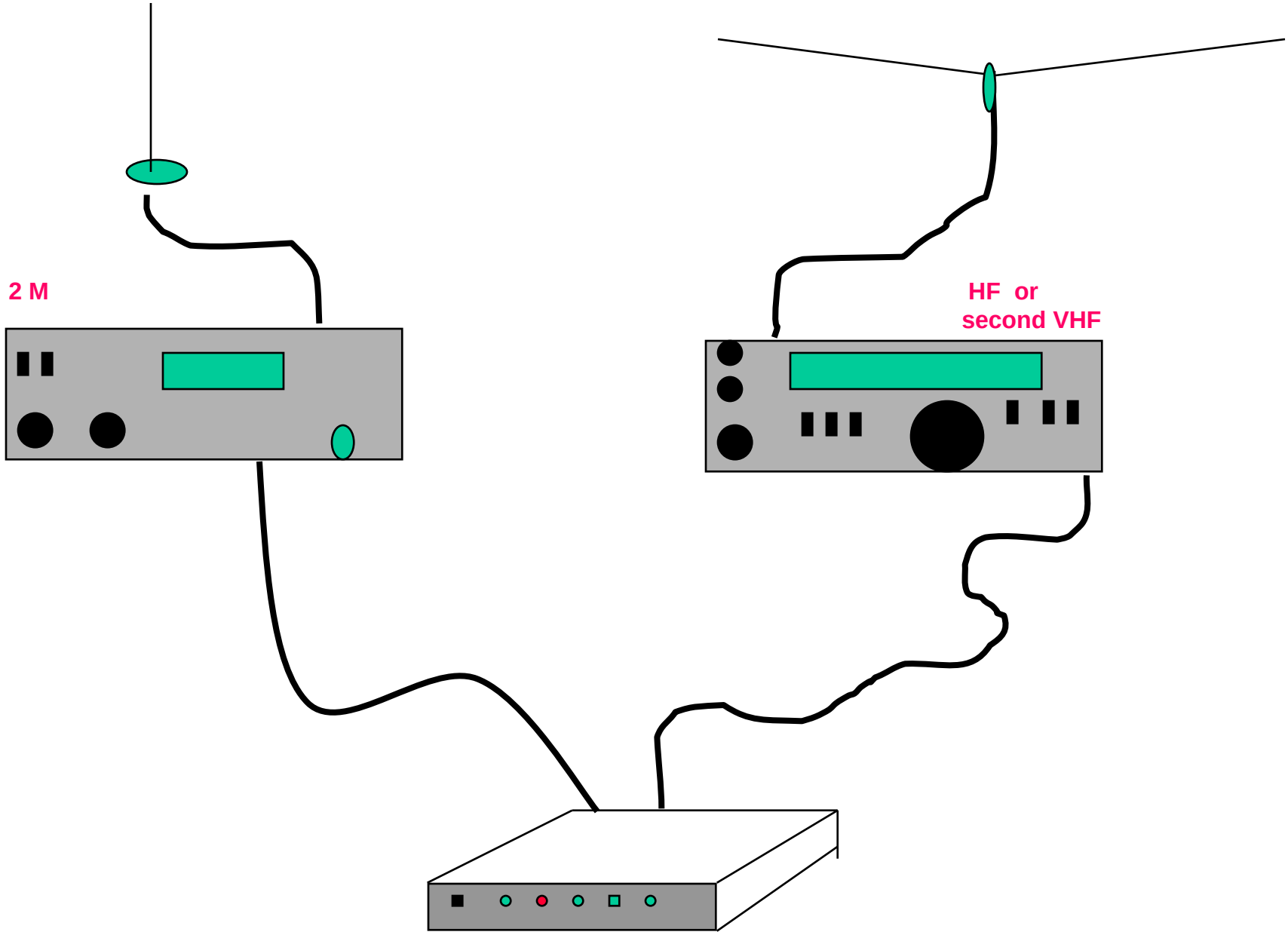
A PACKET NODE

REPEATER

DIGI



CROSS CONNECT



SOME PACKET TERMS

HARDWARE

SOFTWARE

FIRMWARE

NODE

TNC

COMMANDS

FIRMWARE

Read Only Memory inside the TNC

Kantronics software stored in
“Electrically Programmable Read Only Memory”

Programs to support other functions

Text for on-line Help

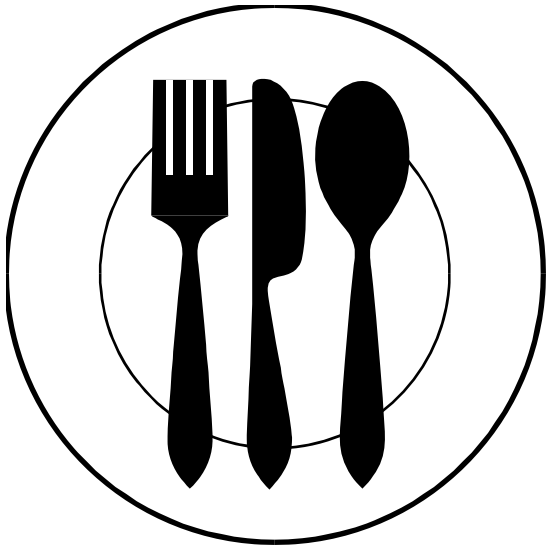
SOFTWARE

A computer program that allows the computer to communicate with the TNC.

PACKCOM is one that is free

PACTERM is also the one that is supplied with the TNC

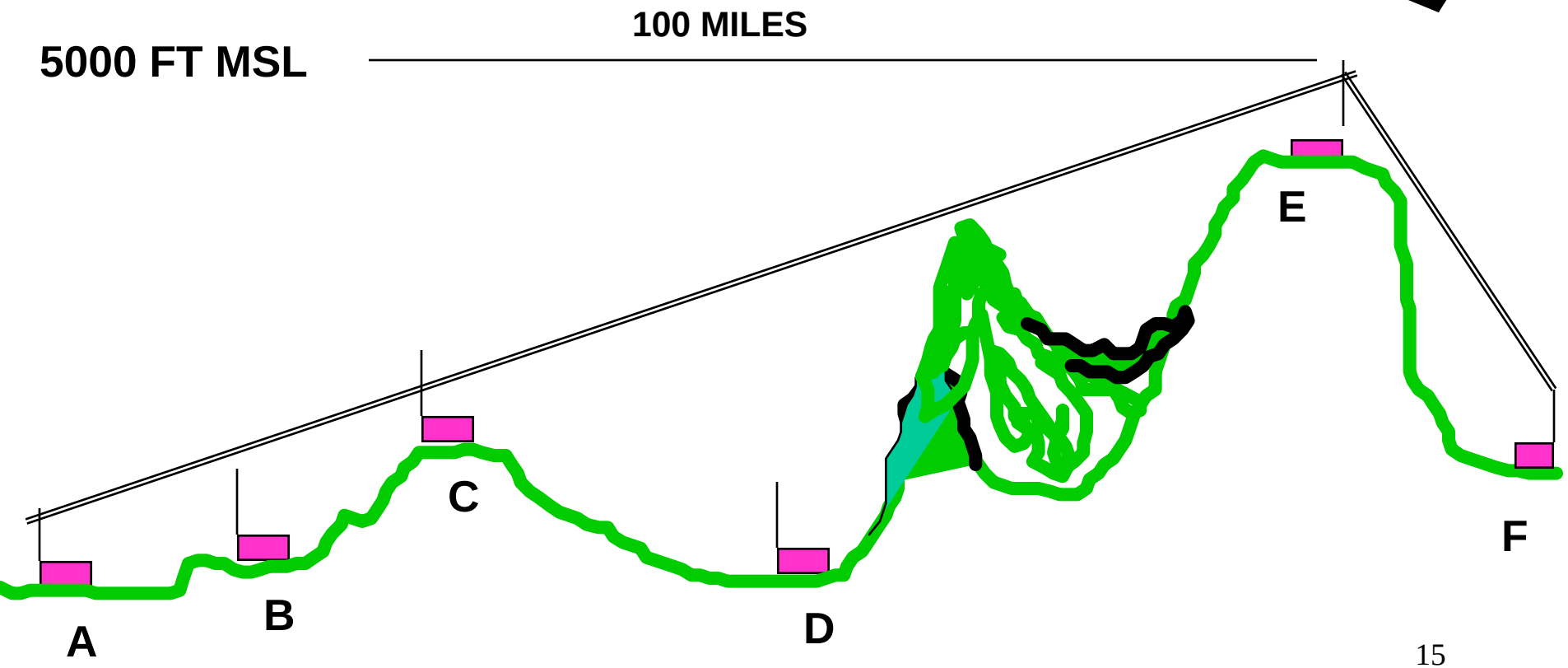
SILVERWARE



QUESTIONS ???

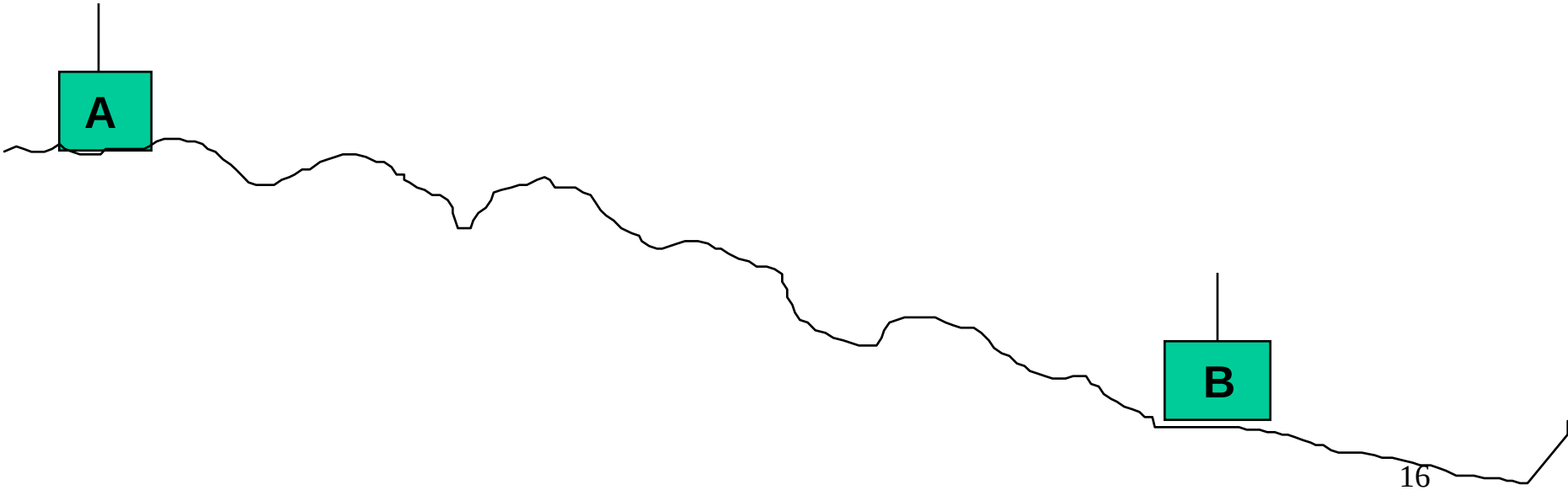
PLANNING A PACKET SYSTEM

RETRIES **COLLIONS** **WEAK SIGNALS**



Before a node is installed

Try a simple test to check the path
Use a hand held radio at ststion B with a rubber duck. Can you hear station A with no noise in the signal when it transmitts?



TNC TERMINAL NODE CONTROLLER

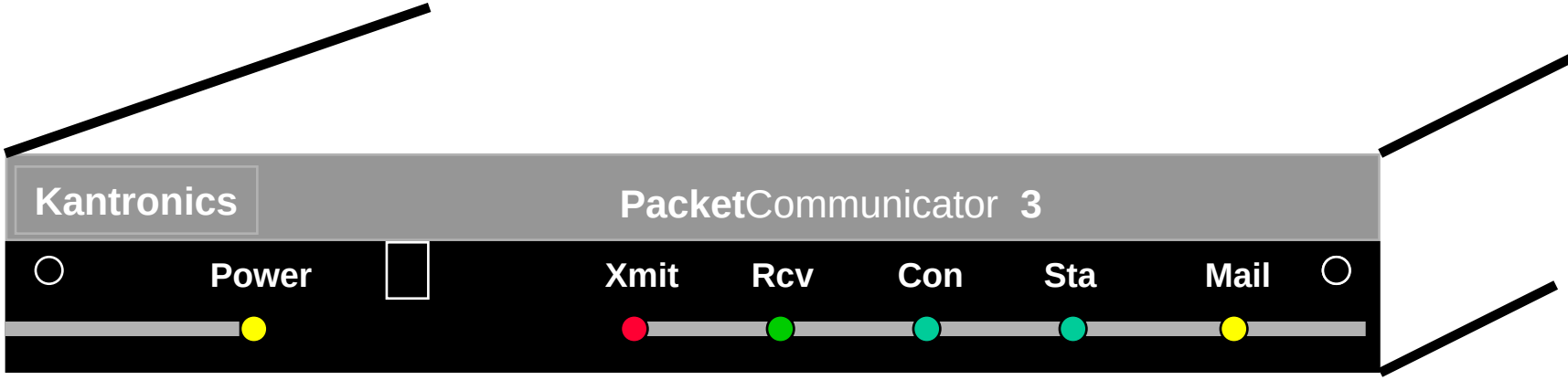
Made by Kantronics Company

MODEL KPC - 3 or KPC - 3 Plus

Cost New $150

Similar to a Computer Modem

KPC-3 TNC



Power
Xmit
Rec
Con
Sta
Mail

STORE and FOREWARD

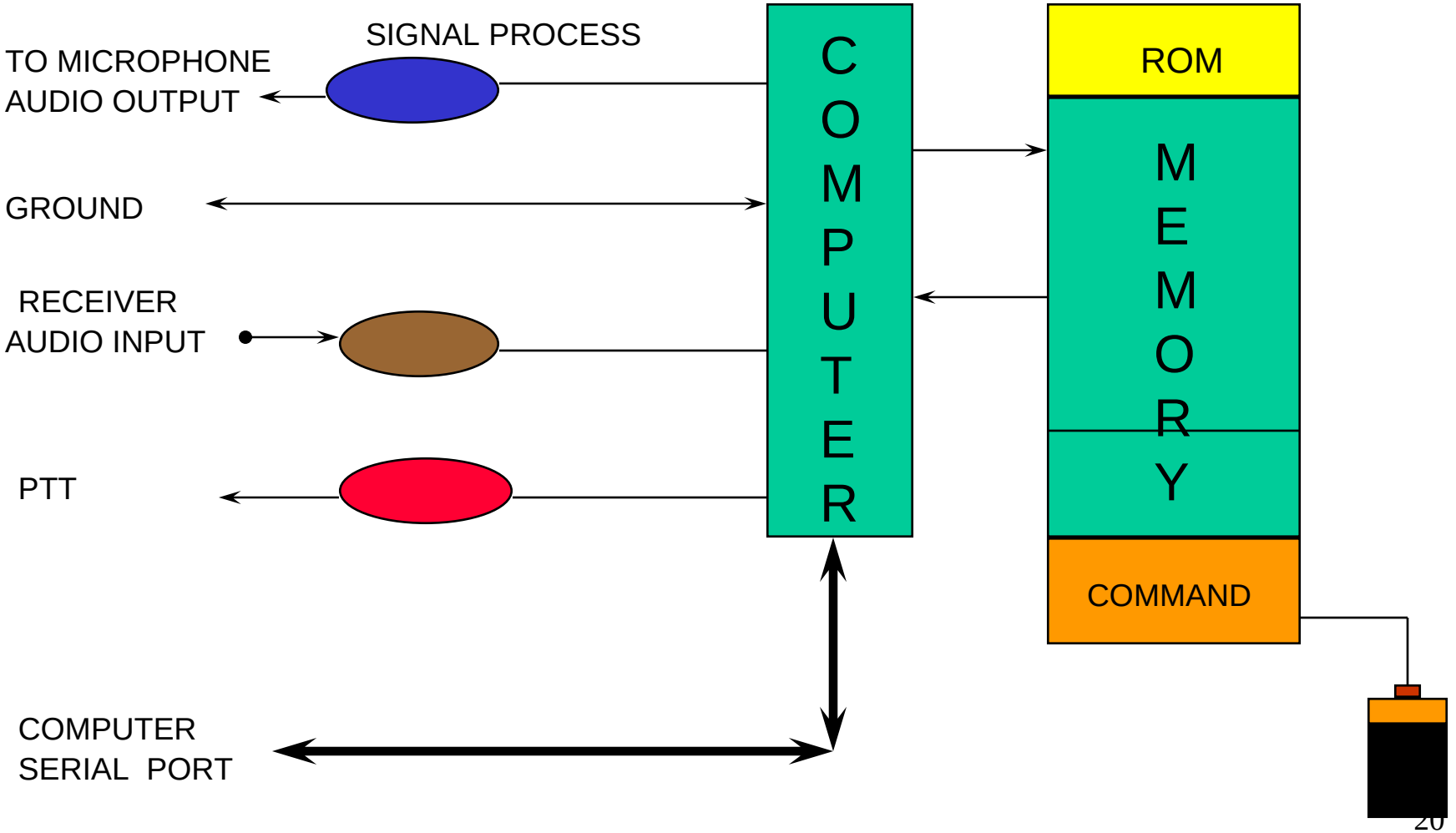
When a packet node receives a packet of information, the data is first passed from the radio to the TNC which first stores the data in memory.

If this station is the intended destination, the data is displayed on the screen.

otherwise

when the frequency is clear the TNC will activate the transmitter and re-transmit the data.

THE TNC


SIGNAL PROCESS
TO MICROPHONE
AUDIO OUTPUT
GROUND
RECEIVER
AUDIO INPUT
PTT
COMPUTER
SERIAL PORT
COMPUTER
ROM
MEMORY
COMMAND

TNC
MODES OF OPERATION

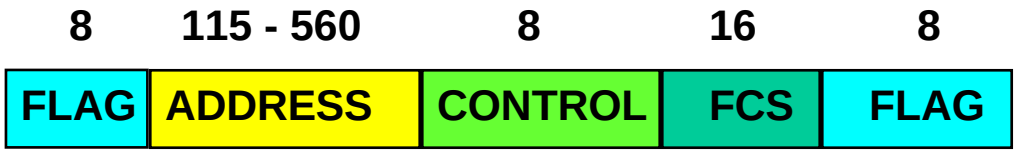
1. **COMMAND MODE - Used to issue commands to the TNC or to change TNC parameters. (cmd:)**

2. **CONVERSE MODE - Used to transmit your message after a Link has been established.**

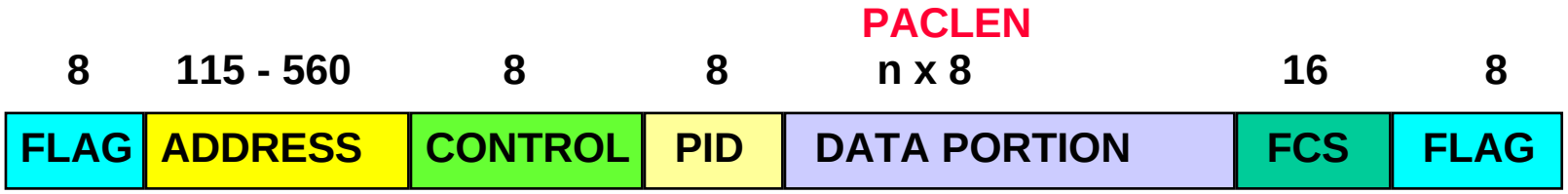
3. **TRANSPARENT MODE - Allows Transmission of special characters.**

4. **UNCONNECTED (Unproto) MODE - Used for unconnected transmissions**

AX.25 SUPERVISORY FRAME (Packet)



AX.25 INFORMATION FRAME (Packet)



ABAUD

The ABAUD command sets' the data speed for the computer software to talk to the TNC, via the serial port.

This rate is adjustable in the computer software. (The PACKCOM or PACKTERM program)

The command ABAUD will change the rate that the TNC sends and receives to and from the computer.

If the rate of the computer software and the TNC ABAUD rate are different then the TNC and computer will be unable to talk with each other.

PACKET CALL SIGNS

Command

1. **MY KA4YZR**
2. **MYA HOTNUT**
3. **MYN NOMAD**
4. **MYP MYMAIL**
5. **MYR REMOTE**

MYcall

1. MY is used to set your amateur call in the TNC.

2. Must be a maximum of six digits.

3. EXAMPLE KA4YZR or KA4KKF

4. A SSID may be added to the basic call sign

   EXAMPLE KA4YZR-7

5. No default value

MYN

MYN This command is used to enable the KA NODE.

MYN is a combination of six letters or numbers

MYN may have a SSID of 0 to 15

MYN Can not be set with TNC in NEWUSER mode.

EXAMPLES RMG, SABRE, XTEDFG,
or with SSID KA4YZR-10

MYR

1. **MYR is the call sign used by system operators for remote access to the TNC command set..**

2. **Requires a password.**

3. **Call sign is a maximum of six letters or numbers and may have a SSID between 0 and 15.**

4. **EXAMPLE - JUMPER, STORMY, or KA4YZR-9**

5. **DEFAULT is (Blank)**

MYAlias

1. **The MYA command is used to set a call sign for digipeating.**

2. **MYA is a maximum of six letters and/or numbers.**

3. **MYA may also have a SSID - 0 to 15.**

4. **Default is BLANK (you don't need to set it)**

MYPbbs

1. MYP is used to set the call sign of your personal mailbox.

2. It may be up to a maximum of six characters and or numbers.

3. MYP may also have a SSID attached to the call

4. Default for a SSID is the MY call sign plus -7.

INTFACE

1. TERMINAL - Full Command Set
2. NEWUSER - Limited Command Set
3. BBS -
4. Kiss - Kiss protocol
5. XKISS - Extenden Kiss protocol
6. Host - Host mode using Host Software
7. GPS - GPS Position will be beacon
8. Modem

DEFAULT is NEWUSER

FRACK

1. **This command is used to set the length of time that the transmitting station waits before incrementing a retry.**

2. **If the retry count (specified by the RETRY command) is exceeded then the current operation is aborted.**

3. **Begins when the PTT is released.**

4. **Set in increments of one second, max is 15.**

5. **Example FR 5**

CD Carrier Detect

1. **The CD command selects which carrier detect method will be used.**

2. **When set to internal the TNC will detect a signal on the channel.**

3. **EXAMPLE: CD Internal**

CONNECT C

1. **This is the command that is used to connect to another node or station.**

2. **Example C KB6RRX-1 or C SABRE**

MALL

1. **When set to ON, all packets including connected and unconnected will be displayed.**

2. **When OFF only other stations unconnected frames will not be displayed.**

KA NODE COMMANDS

```
### CONNECTED TO NODE ATL (NOMAD) CHANNEL A
ENTER COMMAND B,C,J,N,X, or Help ?
```

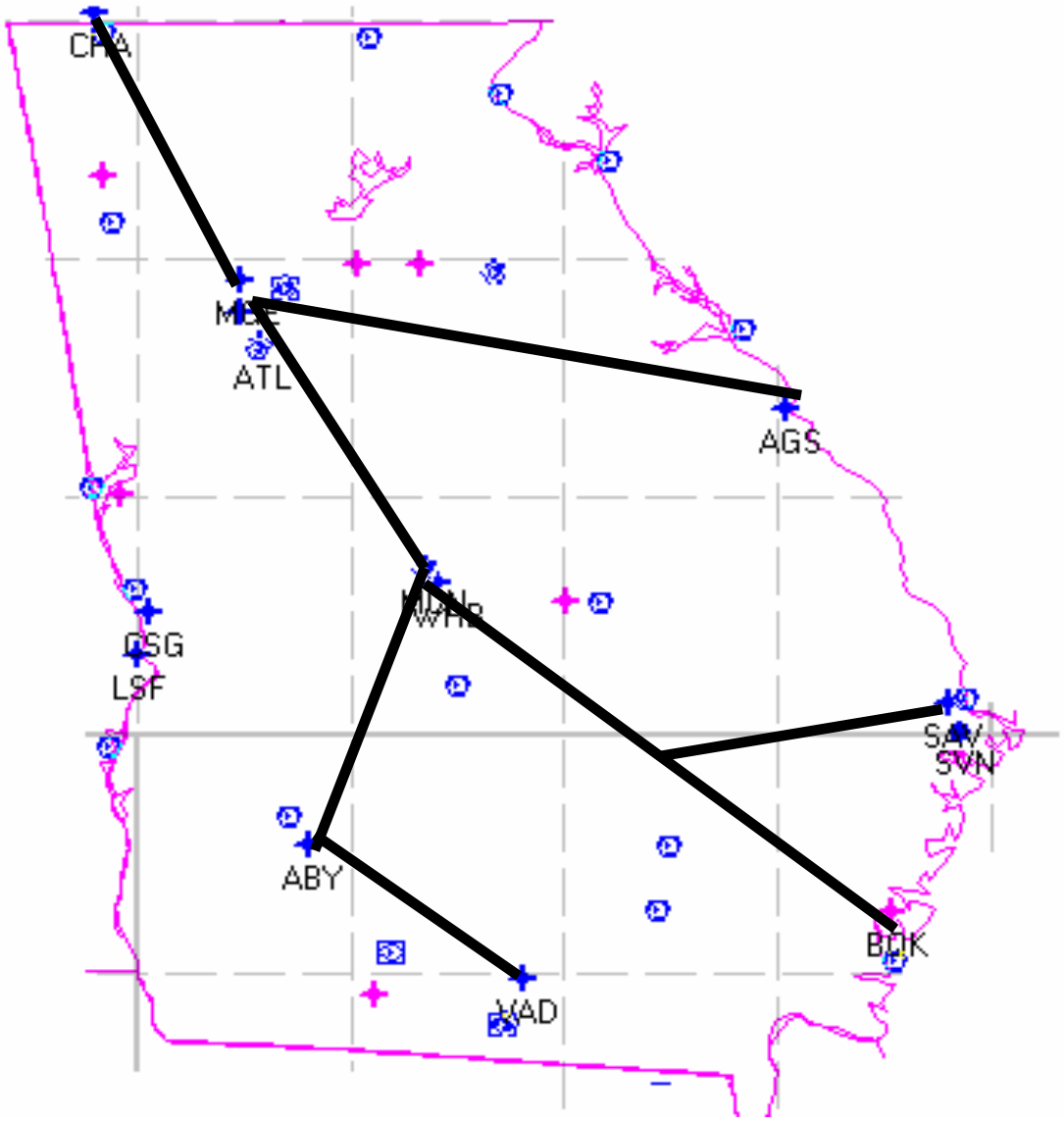
Bye

Connect

Just Heard

Nodes Heard

Xconnect


CHA
MGE
ATL
AGS
DSG
LSF
SAV
SVN
ABY
VAD