

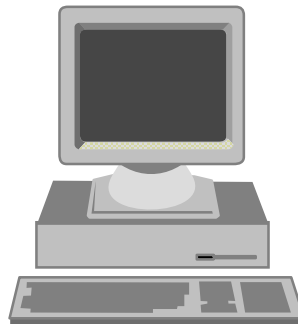


# FlexNet Routers in the NorthEastern USA

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## Planning and Configuration Guide

John Papson, WB2CIK and Alex Harvilchuck, N3NMN





# Goals of this Document

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- Familiarize the reader with FlexNet, where it is used, and why to use it
- Show various standard configurations of FlexNet Routers
- Provide contacts for further information



## Basics of a FlexNet Router

- A DOS-based software package from Germany
- Runs on "junk" computers
- Can simultaneously run F6FBB PBBS software on Router (80486-66 or better)
- Can simultaneously run PacketCluster software from Pavillion Software
- User commands similar to NetROM



# Why FlexNet Routers?

- **Reliable and efficient operations**
  - ◆ Extensive use across Europe, > 700 routers
  - ◆ More efficient than NetROM in dealing with crowded channel conditions (uses DAMA)
  - ◆ Incorporates best capabilities of existing software
    - f "Autorouting" of NetRom/G8BPQ, "Transparency" of ROSE, and "RTT" and "Adaptiveness" of TCP/IP
- **Works with F6FBB PBBS & PacketCluster**
- **Fair and even-handed routing of packets**
- **No impact on "end user" hardware**
- **Parameters automatically adjust for traffic load and propagation conditions**



# FlexNet in the NorthEastern USA

- First installed at Long Island, NY in August 1998
- Over 40 Routers operational in such hostile locations as:
  - ◆ WT3V on top of the blimp hangar at NAS Lakehurst, NJ
  - ◆ W1TOM in an unheated mountain top site at Chester, MA
  - ◆ N2NSA in a DC Elevator Motor Room, 66 stories up in NYC
- The Network now extends from Syracuse, NY, to near Boston, to Long Island, to Philadelphia and to Selinsgrove, PA (NR3U SatGate)
- All nodes are capable of being remotely managed
- Some nodes have been operating without a restart for well over 1000 days, most others for over a number of years



# Parts of a FlexNet Router

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- **A Computer**
- **Compatible TNCs**
- **A Multi-port Serial (COM) Card**
- **Radios**
- **Antennas**
- **FlexNet Software**



# Computer Requirements

(Based solely upon well working sites in NY Metro area)

- 386SX-20 with 2 megs RAM for a 4 port FlexNet Router w/o a BBS.
- 386DX-33 with 8 megs RAM for a 3 port Router with a FBB BBS.
- 486DX-66 w/2megs RAM for a 10 port FlexNet Router w/o a BBS.
- 486DX-66 w/8megs RAM for a 8 port FlexNet Router w/ FBB BBS.

**Non Plug-and-Play computers are preferred.**



# TNC Requirements

## ■ TAPR2-compatible TNCs

f MFJ 127x series, AEA PK-80, PacComm (TNC-200, Tiny-2 series, and SPIRIT/SPRINT), GLB and other original TAPR2 TNCs

- **NETROM/TheNET EPROM is replaced with 6PACK EPROM**
- **Remove all "Wink-n-Blink" modifications**
- **LED's now work like standard TNC showing:**
  - Power ON
  - Transmitting Data (PTT)
  - Receiving Data (DCD)
  - Radio Link Connected (CONN)
  - Outgoing Traffic Pending (STAT)



# Non Supported TNCs

- Kantronics (all) and AEA (all except PK-80) are not supported for Flexnet Router use
  - ◆ These TNC's are not currently supported by the 6PACK EPROM due to a hardware design different from TAPR2-Compliant TNCs
- All TNC's in "End Users" home stations are totally compatible with FlexNet Routers
- One Solution for dealing with non supported TNCs:
  - ◆ Trade, Swap, Barter or Loan for compatible TNC's, between "end users" and the FlexNet Router



## Serial (COM) Port to TNC Details

- **Serial ports with 16550 UART's needed for 9600 baud and above Radio Link rates**
- **Some computers with built-in Serial ports sometimes have 8250 UARTS, these can be used for 1200 baud Radio Link rates**
- **The Serial port baud rate must always be at least twice the Radio Link baud rate**

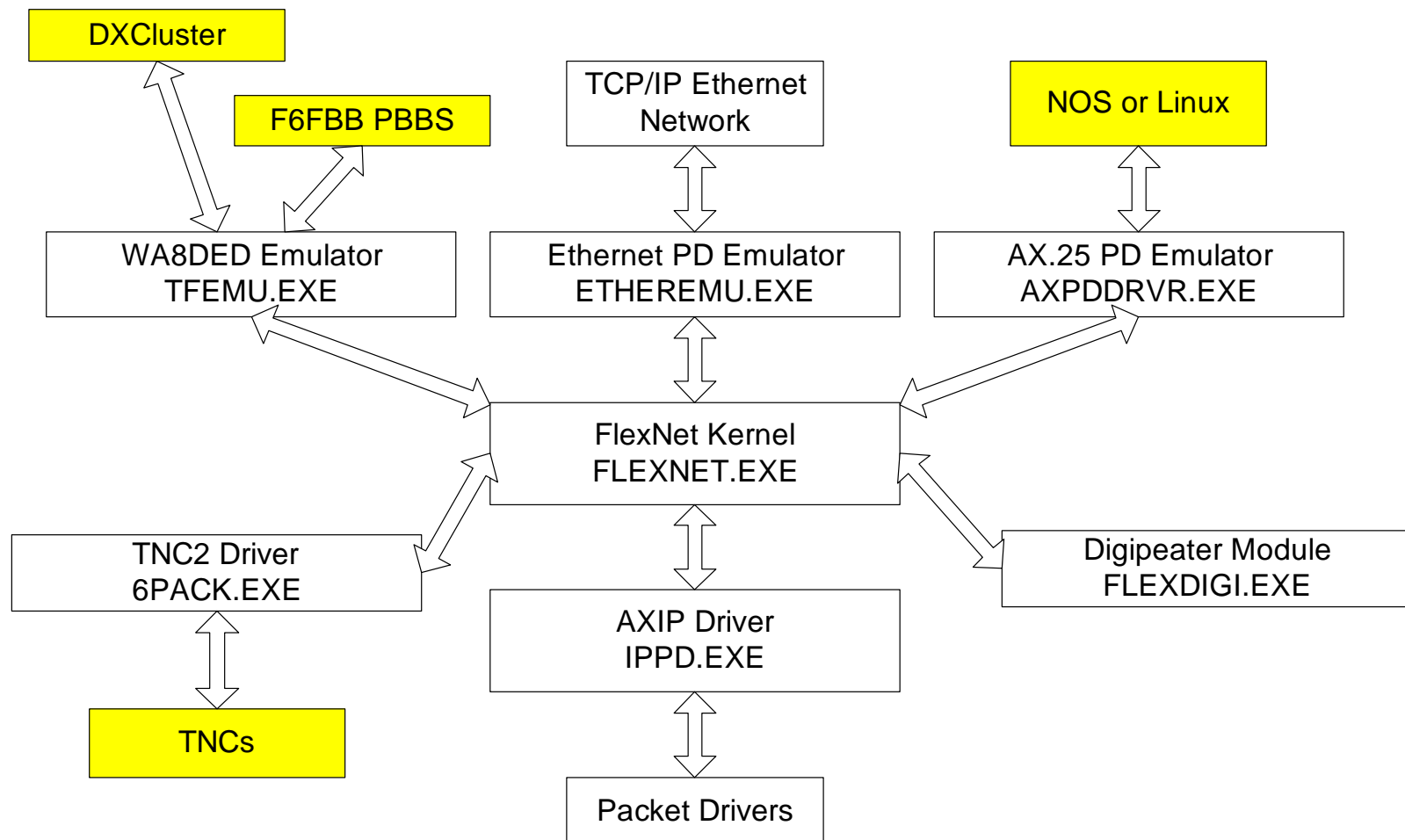


# Serial Port Addressing and Interrupts

- Up to 9 Serial Ports can be installed in a PC
- Interrupts (IRQs) 3,4,5,7,9,10,11,12 & 15 are all useable if not employed elsewhere in the PC (i.e. for printer ports, etc).
- Recommend using “Siig I/O Expander 4S” quad port 16550 serial cards
  - ◆ <http://www.siig.com/>
- DO NOT employ the standard COM 1 thru 4 settings on a multi port serial card if a built-in Serial port exists on the computer, even if it is disabled



# FlexNet Software Modules

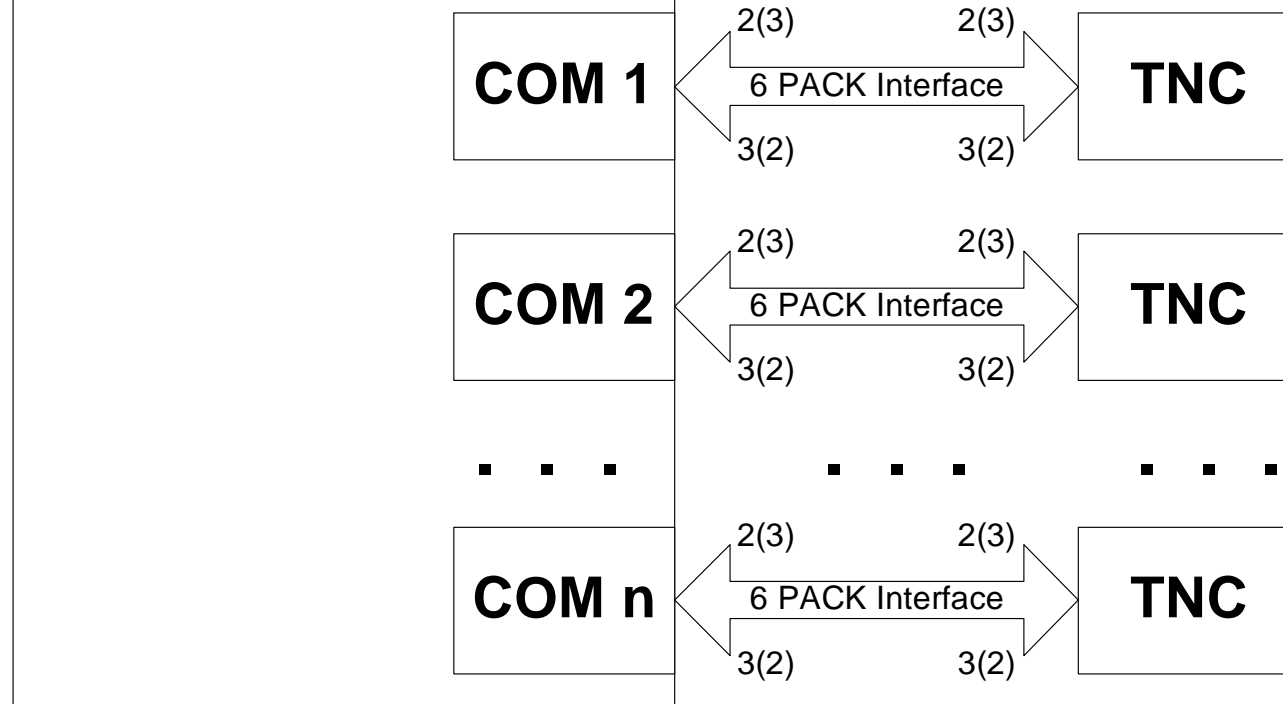




# FlexNet Router

## COMPUTER

FlexNet 3.3g  
with Flexdigi module



Tie all grounds together,  
pin 5 DB-9, pins 1 & 7 DB25

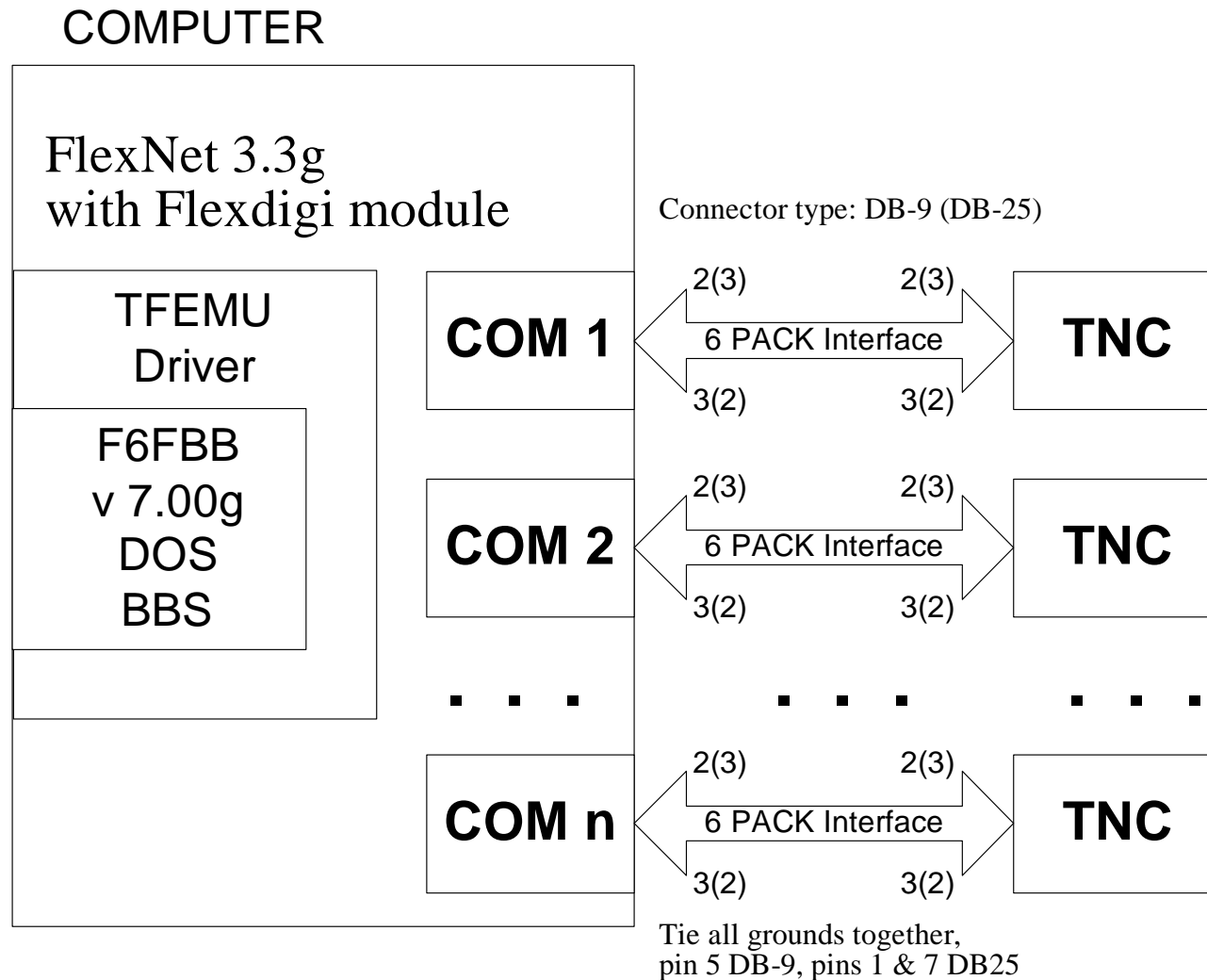


## PBBS/DXC (TFEMU) Interface

- Flexnet is loaded first and runs as "terminate and stay resident" (TSR) in the background
- BBS or DX Cluster loads second, runs in the foreground
- Uses the hex FD address for the internal software port linking programs
- PacketCluster computer is configured to automatically "re-boot" every 24 hours
- FBB BBS requires minimum 6 MB of RAM
- PacketCluster requires minimum 4 MB of RAM

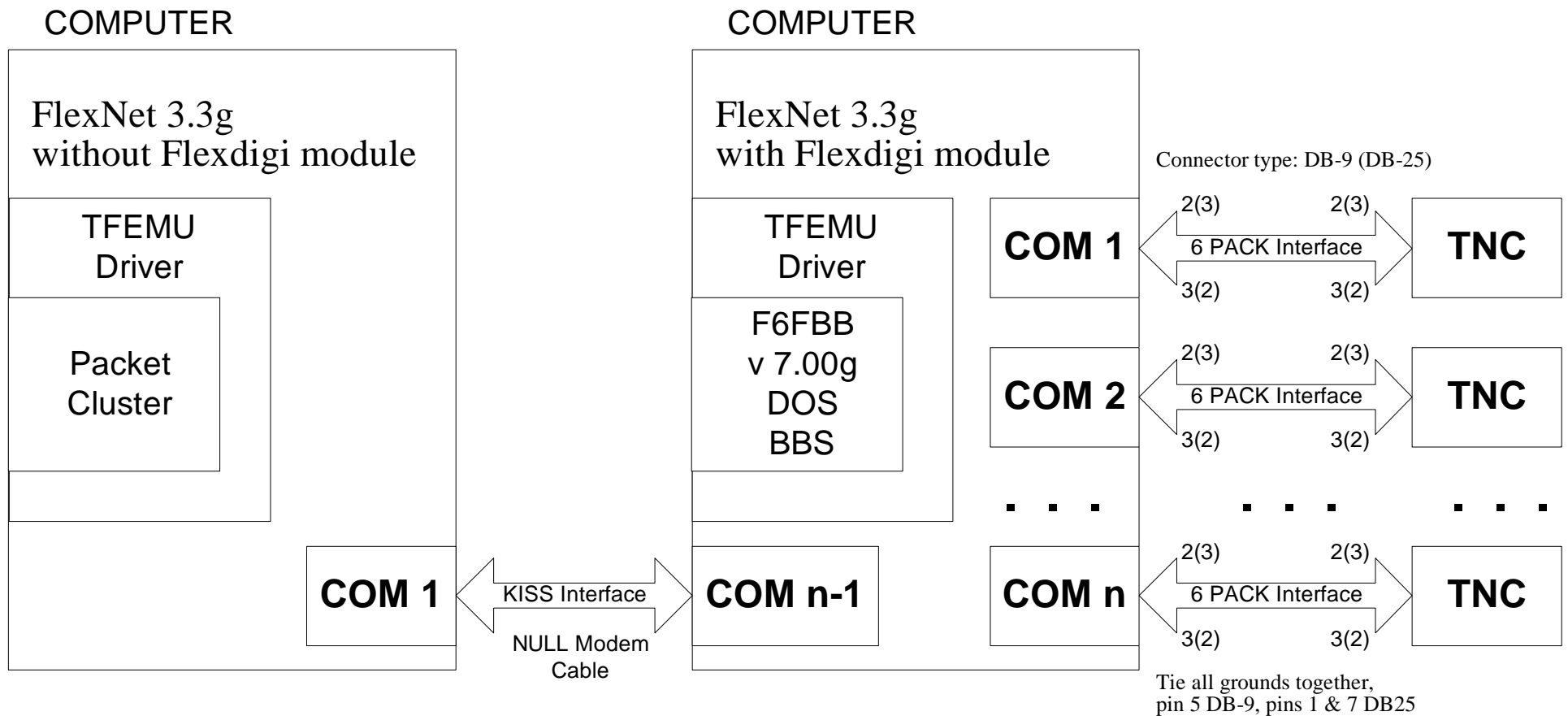


# FlexNet Router with F6FBB PBBS





# FlexNet Router with DX Cluster





# Standard Configurations

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- **Standard Software Configurations Exist**
  - Multi-port FlexNet Router
  - Multi-port FlexNet Router with F6FBB PBBS
  - Additional DX Cluster/FlexNet Router
- **Configurations available via website**



# Additional Information

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- Website
  - <http://www.northeastflexnet.org/>
- E-Mail
  - [info@northeastflexnet.org](mailto:info@northeastflexnet.org)
- Regional Contacts
  - Various persons in each state