Terminal Node Controller purchasing tips

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Things to consider:

*Simple VHF / UHF Packet use **or** multimode data controller for additional HF modes?

What do you want to accomplish with a TNC?
Multimode controllers typically will work with Packet, RTTY, CW, Baudot, AMTOR, Pactor 1, Weather FAX, and more. Some of the newer products also support the sound modes such as PSK-31, Hellschreiber, MFSK16, and others. Most multimode controllers can support two radios on separate ports, this does not mean that the radios can be used simultaneously, but it does allow easy switching between one mode and radio and another, without having change or move cable connections. For instance, you might use a VHF radio setup for Packet and maybe check a propagation forecast on a local PBBS, then use a switch on the multimode controller to switch to your HF radio and run RTTY.

*TAPR TNC2 compatibility

Some special application ROMS are available for the TNC2 platform. A few examples include APRS specific ROMS, and specialized Mailbox / Node ROMS. Those ROMS can replace the factory ROMS in TNC2 Clone TNCs, as well as many TNC2 Compatible TNCs or Controllers.
The MFJ 127* series are TNC2 clones. Some of the Paccom and Tasco TNCs are TNC2 clones. Many of the other common TNCs from AEA / Timewave, Kantronics, and others are TNC2 compatible.
TNC2 compatible TNCs support most of the TAPR TNC2 command set in their standard factory ROMS, but also include some additional command structures and functions.

If you think that you need TNC2 compatibility for your application, do a little research before you buy.

*KISS mode capability

Do you need KISS? That all depends on your application.
Some Packet programs and APRS clients require KISS mode. For instance if you want to have multiple application access to a TNC with a Windows driver / program such as AGW, or the same capability with the AX.25 programs in Linux, then you need a TNC that will operate in KISS Mode. If you want to use a TNC with APRSIS32, plan on using a TNC that includes KISS Mode. There are many more examples.

TNC2 Clones with up to date ROMS include KISS capability. Many TNC2 compatible TNCs also include KISS capability, although some vary in the quality of that capability. KISS mode initialization commands can vary greatly between “TNC2 compatible TNCs”.

Some examples of TNCs that are known to have problems with their KISS Mode implementations include the Kantronics KPC3 series and the Tasco TNC that is embedded in the Kenwood D7** series radios.

*Data Carrier Detect (DCD) capability

Some older TNCs rely on signal level and squelch to set thresholds for data signals, instead of detecting real data in the signal with DCD. In higher RF noise or interference environments, this can be a challenge. If you know about this up front, you can try to work with this limitation.

TNC2 Clones with up to date ROMS should have DCD capability. One notable example of a very common TNC2 compatible TNC that does not have true DCD capability is the older AEA PK-232 series TNCs.

*Mailbox capability

Some TNCs have the ability to host a Mailbox or Maildrop service. This can be in a standalone configuration, or with message forwarding and management capability. These capabilities can range from fairly simple to quite complex. Typically the greater the need for messaging handling capability, the higher the amount of built in memory is required.

*Occasional use versus Extended use

In this context, what is meant by extended use is a TNC that is running most or all of a day on a regular basis. Full Service Mailbox or network nodes, Digipeaters, I-Gates, and Winlink nodes are all examples of extended use. For that type of operation you would want a good quality TNC that is known for stability and TNC2 compatibility, whether it is operated in it's native mode, or KISS mode.

Occasional use would include checking into Mailbox nodes or Winlink nodes just a few times a day or less, or using a TNC for mobile APRS while on trips around town or occasional travel. There are other examples that would also apply.

Some TNCs that we have used and generally had good luck with include:

Timewave PK-12 and PK-96

Kantronics KPC-3 series and KPC-9612+

MFJ 1270, 1274, and 1278

AEA PK-232MBX

*Sound Modems

There are a number of Sound Modem devices available commercially that provide a suitable alternative to the traditional older technology Terminal Node Controllers. These devices include the sound interface circuit hardware that will be used with the radio transceiver and software modem in the computer. They also include some method of controlling PTT in the radio.
Some Packet and HF Data programs have built in support for some models of Sound Modems, or they can utilize these modems though lower level Windows driver / programs such as AGW, or the AX.25 utilities in Linux.
A few of the more popular models include the Tigertronics Signalink USB, West Mountain Radio Rigblaster series, and RigExpert Transceiver Interfaces.

*Computer Sound Interface

These devices typically use the same or similar software as the Sound Modems, however they do not include the sound interface circuit hardware. They connect to the existing computer sound interface in the computer. They also typically need to use a port on the computer, typically serial, or USB with a serial converter, to trigger PTT in the radio.

The advantage of these types of devices is simple design and hopefully correspondingly lower price. However sometimes the prices of these devices approach the cost of the Sound Modem type devices, so some research before purchase is always recommended.

The disadvantage of these devices is that they use existing sound hardware in the computer that is then not available for other purposes. Changes to the default sound configuration in the computer Operation System may need to be done to ensure that unintended sounds are not also transmitted on the radio.

An important feature that a Computer Sound Interface should include is some type of isolation between the computer and radio connections. This is typically done with transformers, relays, and opto-isolators. Not all Computer Sound Interfaces have proper isolation, so you should check for that before purchase, in fact some of the pricier commercial products are known to be lacking in that area.

Computer Sound Interfaces are an excellent opportunity for DIY Home Brew projects. There are a few readily available circuit designs, which include proper isolation, that can be used as the basis for one of these projects. Typical project costs are in the ten to twenty dollar range per unit to build your own.

Commercially built Computer Sound Interface products are available from BuxComm, MFJ, ilinkboards.com, Fox Delta, and others.