

What is TCP/IP and how is it different from AX25?

By unknown author who is credited for writing this during the 1980's

This file is NOT intended to give a full technical summary of TCP/IP, but to give AX25 users a quick idea of how TCP/IP fits into the packet radio scene. Most TCP/IP users will have more detailed information for those interested to find out more.

TCP/IP (sometimes referred to as "the Internet Protocol") was developed as a standard protocol to allow different types of computers to exchange electronic mail and other files over a network. The network using this protocol is known as "The Internet" and has grown from it's beginnings when it linked military and educational sites in the USA to become a worldwide network.

TCP/IP on amateur radio provides those same functions of electronic mail and file transfer between widely different computers. It does this in a more integrated way than is possible by logging onto your local BBS.

Imagine: You are sitting at your computer (IBM, Mac, Atari, Amiga, Archimedes - it makes no difference, there are versions of the software for all these and others) and decide to send a message to your friend Bill.

You log into the BBS part of your software and type "S Bill " and the message. No waiting for slow links - the computer will do that later. Part way through your typing, the computer beeps to let you know that some mail has arrived over the network for you, but when you have finished Bill's message. You check first to see how the file transfer is going that you started earlier.

A new version of the software had appeared, and you were downloading it from the regional hub station. (it's all freeware - no one hassles you with suggestions that you ought to pay for it !).

The transfer is moving slowly - it will speed up later in the evening when the frequency quiets down and be there by tomorrow.

So you log onto your local AX25 BBS for a quick look at the kind of esoteric mail messages that don't get into the network forwarded mail. Nothing really grabs you there.

So you connect to the conference server and exchange some banter with a couple of locals and a more distant station. When the conversation slows down, you remember the mail that arrived earlier so go to take a look at it, and send a reply. as you do this, you keep popping back to the conference, where the discussion moves onto the opportunities for the international conference cluster which should run once the details of the local internet gateway are finalised.

It could be interesting to have real-time links to the USA, Japan and Australia running, but you will want to put in a 9600 baud modem in to link to your local hub's high speed port to keep up with it all - and will your other half let you spend the cash?! Tired, but happy, you leave the conference, check to see that the message to Bill went off ok and that the file transfer is still moving along, and go off to bed - promising yourself that you will go earlier tomorrow!

That gives a bit of a feel for why people run TCP/IP - true multi-tasking, one standard protocol for all computers, the ability to cope with higher speed links than AX25, mail delivered direct to your screen and an ever increasing range of other features. (It is also a much more efficient user of crowded frequencies,

This file has been around on TCP/IP network for many years

with less need for "handshaking" packets than AX25, and with timing systems which gradually slow all the links on a busy channel (rather than the well known effect where the two loudest stations effectively block everyone else out - does that sound familiar??)

Yes, but nothing's THAT good - what's the catch??

Ok - there are one or two things which could put you off.

The most important for most people is that TCP/IP needs a computer to be running full time (or most of the time, at least)

This could be almost any old machine, and if you turn the screen off it won't be too power hungry, but it's still a drawback.

The reason for this is that TCP/IP is a network - you can't be part of a network if you're not there. (though there are facilities in some versions of the software to allow for users who just appear "part time" to collect their mail).

The next problem for most newcomers to TCP/IP is the complexity of the software configuration. You really get to fill the clause in your licence which refers to "self-training in communication ..." !

It certainly isn't a "plug 'n play" system - but the very fact that TCP/IP IS a network means that users tend to be much more aware of their interdependence, and therefore be very willing to help out (to say nothing of their memories of their early difficulties!)

The last problem noticed by some newcomers was referred to earlier - If you are currently one of those high powered stations who still gets through at full speed even when the channel is crowded, I'm afraid you'll notice a slowing down of your links - but you'll know that your (and everyone else's) packets will still be getting through.

Finally, one or two "tasters" of the kind of developments coming along in the TCP/IP world:

- * Really high speed links (56000 baud and above) (no, AX25 and NETROM cannot use such links - both because of hardware limitations, and because they are restricted to 256 byte packets).
- * Gateways to the internet allowing worldwide high speed links.
- * Automatic mail forwarding and collection of non-TCP/IP mail to/from the NTS BBS system.
- * and lots more - TCP/IP is still developing rapidly! Something new every week!

Before you go, a small request: If you use AX25, you will not see most TCP/IP packets on your screen (because an AX25 TNC will not recognise TCP/IP protocol packets as valid data) so 144.925 will look like a "quiet" channel (144.925 is the frequency allocated in the UK band-plan for TCP/IP use), but if you watch the DCD light on your TNC you'll get an idea of the activity level.

Please don't use this frequency for linking to NETROM nodes or BBS's, as unless you are running with Ppersist timing correctly set up, you'll be disrupting all the local TCP/IP users.

Thanks for reading this. If you would like any further information, please leave a message here.

For information.

G4APL SYSOP of gb7cip.ampr.org has been running such system since the early 1990's