Dear Reader:

This, January 1978, edition of the TCP specification is certain not to be the last, for even if there were no technical changes to the protocol expected (and there are several), there are calls for significant changes in the document as a presentation of the protocol.

The following lists the outstanding technical issues, and some minor points, that should be addressed in the next version of the specification. These are old features to be clarified, in addition the TCP research community is expected to add new features to the protocol.

Technical Issues:

- The TCP interrupt mechanism (Urgent!) does not support the use made of the out-of-band signal in the Virtual Terminal protocols being developed in Europe and in INWG.
- The RST (reset) rules needs to be thoroughly checked.
- The fragmentation scheme should be clarified or removed, as it currently stands it may be unworkable.
- The possibility for changing the byte size during the life of a connection should be investigated.
- One cannot listen for a fully specified connection.

Technical Minor Points:

p8 - User timeouts may be a bad idea, especially if defaulted when unspecified. Aborting a connection because of a TCP’s impatience and not the user’s is a bad idea.

p33 - In Section 4.2.5 for Case 1 or Case 2 what if the user is locked up? Should there be some words about ABORTING here?

p40 - In CLOSED STATE under Incoming Packets there is some uncertainty in what should be put in the PKT-SEQUENCE field of a RST being formed in response to an packet that did not have an acknowledgment field.

p56 - Why is Format field in Internet Header instead of being the first field of the TCP header?

p59 - Why is option field in TCP header not treated as the Urgent Pointer and Byte Size fields? That is why is not there a control bit to signal the presence of the option field?

p60 - Is the checksum field included in the checksum computation by the receiver?
Transmittal Letter

The following lists documentation issues and points to be resolved in the next edition of the specification.

Documentation Issues:

- A major restructuring of the document is called for to present a concise specification of the protocol separated from implementation suggestions.

- The document should make clear the distinction between the protocol and the implementation, for example, it should call the protocol TCP and the program TCPI (for TCP interpreter or implementation) or TCPM (for module).

- Since TCPs are distinguished from hosts, the discussion of addressing (especially in section 4.3) should reflect this.

- The presentation of the STATES and ACTIONS might be improved.

- Is section 4.2.9 an adequate replacement for the diagrams that were included in the TCP-1 specification?

Documentation Minor Points:

p2 - The relation between Letters, Segments, Fragments, Packets, needs to be clearer, the treatment of this in the introduction should be reviewed.

p37 - This glossary should be expanded and pulled up to the top level as a prefix or appendix.

p51 - The distinction between protocol specific options and protocol independent options should be made by moving the independent options to the internet header. This would eliminate the P bit.

p52 - Where does one find the definitions of the options?

p53 - Sizes in the TCB description should be the minimal size needed.

p68 - In Section 4.4.2 in the 3rd to last paragraph the following sentence should be reworded: "If the packet length is zero (e.g., an ACK packet), tests should be performed as if the packet length were one to accommodate the case that the receive window is zero."

p70 - In Section 4.4.4 in the 1st paragraph it is not clear what the Input Packet Handler is giving to the Packetizer (empty buffers or full buffers or what?).

p73 - In Section 4.5.3 in paragraph starting "Limited experimentation..." there should be a reference to the literature on statistical multiplexors.

p75 - The bibliography should be updated, outdated citations should be removed.

--jon.

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