Report of the Protocol Workshop

   12 October, 1971

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Introduction

   This is a report on the decisions reached at the protocol workshop
   held in conjunction with the Network Working Group meeting held in
   Cambridge from 10 to 14 October, 1971.

   The workshop addressed itself to protocols of four types: IMP-Host,
   Host-Host, Initial Connection, and Process-Process.

IMP-Host Protocol

   The idea of IMP provided status reports to be exchanged via new
   IMP-Host protocol messages was discussed and rejected because it was
   felt that the level of state information which could be reported was
   not sufficient to be worth the trouble of implementing this mechanism.

Host-Host Protocol

   The Host-Host Protocol was discussed and several problems were brought
   to light, among them were the following listed together with the
   group's recommendations.

      The GVB - RET mechanism may prove useful sometime in the
      future so it will be retained though no one appears to be
      using it now, however spontaneous RET commands are
      explicitly prohibited.

      The ECO - ERP commands are useful and should be supported,
      but spontaneous ERP commands are explicitly prohibited. A
      further restriction is that a second ECO will not be sent
      until the first ECO has been answered. Note that any of
      the following may be an answer to an ECO: ERP, RST,
      "Destination dead", or "Incomplete Transmission".

      The RST - RRP commands are useful, but the proper use of
      these commands for determining the status of host software
      is still open for discussion (please direct comments to Jon
      Postel), however spontaneous RRP commands are explicitly
      prohibited.

The problem of unmatched CLS commands are discussed and four
"solutions" were proposed:

   Hold forever

   Send a RST and clear the entry

   Clear the entry and possibly mess up a future connection

   Assign socket numbers in a sequential fashion to reduce
   the possibility of confusion and clear the entry.

Note that the first two suggestions follow the protocol while the last
two do not.

The idea of flow control on the control link was suggested. A Request
for Comments is to be prepared exploring this idea more fully.

The usefulness of the ERR command is compromised if the receiver
mearly throws it out. Thus ERR's are to be logged, if at all
possible, and checked out with the sending site.

The NCP document should make clear the implications of queueing or not
queueing STR & RTS commands.

Initial Connection Protocol

   The Initial Connection Protocol (ICP) was discussed and found to be
   satisfactory however the following points were stressed:

   The socket number sent by the logger (S) must be in
   agreement with the socket numbers used in the STR & RTS
   sent by the logger.

   The implications of queueing or not queueing of RTS & STR
   commands should be made clear in the ICP document. This is
   particularly important if the user chooses the "listen"
   option.

Telnet Protocol

    The Telnet committee has been reactivated to consider the following
    problems:

        Clarification of the terminology half duplex, full duplex,
        character mode, line mode, ASCII, and echoing.

        Clarification of the end of line convention. Especially to
        answer the question "Should there be a special end-of-line
        character?"

        Clarification of the conditions for leaving Hide-your-input mode.

        Clarification of the operation of Break and Synch.

        Specification of a server-to-user Synch.

        Clarification of the definition of the Network Virtual Terminal.

        Preparation of a new document defining the Telnet protocol
        with the above improvements.

The protocol workshop did agree that:

    It is the servers option for disconnection to imply logout
    or not.

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    or not.

    Extra characters used locally to fill the time for format
    effectors to take effect should not be sent over the
    network

    Synch means to examine the data stream from the current
    point to a data mark (x'80'). If any break type characters
    (e.g. etx, sub, Break) are found they are to have their
    normal effect.

    Upper and lower case are to be available to all Telnet users.

Data and File Transfer Protocol

    The Data and File Transfer Committee will report separately.