EXERCISING THE ARPANET

Questions
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1. Can a technically competent person, initially uninformed
   as to network operation and naive as to the capabilities
   of various time-shared terminal systems attached to the
   Network, be able to develop problem solving competence
   at server sites on the ARPANET?

2. What inherent user problems exist that complicate such
   adaptation?

3. Once proficient in the use, what aspects of the various
   sites limit the usability and what modifications should
   be considered at both server and user sites to meet
   various needs?

4. Should a user select a given site for composing and
   editing all of his files for subsequent transfer to
   other sites for processing or should he learn to compose
   and edit at each of the sites doing his processing?

5. What are the problems in starting cooperating processes
   at several sites? How does a user control such
   processes?

Obtaining the Answers

     Under the direction of UCSB Professor James Howard, a test
group of 14 graduate students was formed to pursue the questions
above, and any other aspect of ARPANET operation that they might
uncover.

     The test group has been given access to the 16 console On-Line
System classroom in the E.E. Department at UCSB. The 16 consoles
produce graphic and alphanumeric displays and are tied into the
UCSB Host 360-75 which gains them access to the network. Old
style Culler-Fried keyboards are being used which provide a
limited key set Jim White has managed to program around most of
the protocol problems brought about by these keyboards, but some
still remain.

     Seminars were given to the test group to familiarize them
with software and hardware aspects of the ARPANET, the local NIC
file has been made available to the group, and the group has been
allowed to sign onto the Network to pursue any available system.

     Following the initial period of two weeks, during which the
group developed some familiarity with the network, the test group
has been divided into working groups with emphasis as follows:

          Patric Timlick   }   BBN-TENEX
          Dave Stearns   }   BBN-TENEX B

          John Pickens   }   SRI-ARC (NIC)
          Doug Beaubien   }

          Dave Whittington   }
          Richard Haraguchi   }   MIT-Multics
          Maria deGraaf   }   MIT-DMCG
          Richard Melton   }
          Su Sung Won   }

          Ronald Varekamp   }
          Jeoff Benson   }   UCLA-CCN   HARV-10
          Hasan A. El. Hasan   }   UCLA-NMC   UTAH-10
          George Engelberg   }   RAND-CSG   LL-67
          Rodney Skinner   }

Some Initial Results

     The first real encounters with the ARPANET at large produced
a series of questions and comments. Test group comments are
itemized below with additional comments by the author {In braces}.
We plan subsequent reports on a periodic basis.

     1. We find that we need further information about access
         to the NCPs at various sites. User manuals from the
         sites might provide this. {Site response is solicited}

     2. We sometimes cannot sign into UCLA-NMC directly from
         UCSB, but can do so readily by way of BBN. {Protocol?}

     3. After running a Fortran or PL-1 program at some net
         location we can only display the results on our consoles
         but cannot store them as files. {UCSB programming need?}

     4. When communications break down how can a user be
         assured that he is logged out of some remote site?
         {Need for automatic Log-out?}

     5. How do we make contact with programmers at other sites
         to develop cooperative programs for file transfer, etc?
         {Jim White?}

     6. Is there a best time of day for operation at each site?
         Should contact be made with the site operator prior to
         user sessions?   {Server sites please comment}

     7. UCLA-NMC has assigned a separate user identification
         for test group use. Would other sites prefer to do
         likewise? {Comments?}

     8. Is there information regarding uses made of the
         various time shared systems by internal users at each
         site? Does a bibliography exist to allow contact
         with such users? {Check the Resource Notebook}

     9. MIT-DMCG and BBN provide very good user service,
         especially the site survey. Also these sites have
         good responses to define events. Can UCSB provide
         local users with similar information? {Jim White?}

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