DAVE

MEMORANDUM

To: F. Heart

From: Dave (with consultation from Joel, Steve, John, and Bernie)

Subject: Initial Thoughts on TENEX Characteristics We Would (perhaps) Require to Use One for the IMP Development Effort

Date: 18 September 1972

The reasons for sticking with the 1d center around reliability, availability, and control.

The reasons for moving to a TENEX center around flexibility, power, speed, more and better subsystems (they have FORTRAN for example) and the possibility of using many TENEXs.

If we were to give up the 1d and switch to using TENEX satisfactory solutions to the following problems would have to be found:

1. We need good line printer response; for instance, it would be nice to be able to get listings during the day.

2. We need a paper tape reader and punch as good as those on the PDP-1d or the 516s. The current TENEX reader and punch are perhaps not good enough.

3. For a period of several months at the time of switch over (and a tiny bit all the time after that) we would need software consultation from the TENEX staff on how to write our X16 and SUE software.

4. We would like 50 million characters of mass storage available for our use.

5. We must be able to get access to the network without using any protocols; that is, just sending and receiving messages.

6. We may need non-sequential files (TENEX may have them).

7. We would not like to have any limits on the amount of free time we use (job number 0). This point and point 4 perhaps suggest that we should try to arrange for a flat yearly rate for all our TENEX usage.

8. Jobs should rarely be killed. This means that the TENEX system would have to develop a method of logically letting jobs run over system restarts, dumps, software work, etc.

9. Whatever the TENEX load, we should always be able to login; perhaps, we should even ask for a minimum guaranteed amount of CPU time per minute.

10. TENEX must be up all the time. There is really no difference between days and nights and weekends. Down one hour per day is better than down half a day per week. Down for a half day is insufferable.

11. Our offices should be permanently patched to TENEX. We would require perhaps 15 TENEX ports all the time.

12. There should not be any breakpoints in the TENEX system we use.

13. We would like a member of our group to be given TENEX wheel status so we could call this person in the middle of the night to restart or debug the system the way we now call Bernie for the ld.

14. Since many people know TENEX, perhaps we need better file protection for our proprietary IMP stuff than we have now on the ld.

15. While we would want IMP access from TENEX to inspect IMP cores around the net or to reload an IMP, there must be someway of preventing other TENEX users from looking at the IMPs. We may also need priority in our network accesses and guaranteed access to the network.

16. Hardware problems (e.g., dead paper tape reader or line printer) should be fixed instantly.

17. The hardware and software system should be solid for months at a time. This is not to say there can't be changes, but changes can't jeopardize system reliability -- for instance, the system can't be down for a week to install a new scanner without the provision of an equally reliable replacement. Software work and hardware testing should be done on a backup system.

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There is a rumor that they are now developing a multi-processor on the TENEX in the next building. Any such development is probably incompatible with our using the system.

nlg

cc WRC
AMcK