

To: Frank (c.c. WRC, AAM, BPC, JBL, SMO, HKR)

From: Dave

Subject: Division 6 Use of TENEX -- 3

Date: March 10, 1973

Burchfiel has read my March 2 memo to you on this subject and made several comments:

1. They are planning on getting a second line printer. Presumably, one of these would be used for short print jobs and one for long print jobs.

4,7,9. Burchfiel has proposed a scheduling algorithm to Burt which would permit us to buy for a flat rate per year a percentage of the TENEX system. For instance, suppose we bought 24% of the system. Then in the face of competition for the various system resources, the sum of our jobs which were running would get up to 24% of the machine. Presumably, if there were no competing users at a given instant, the sum of our use could be over 24%. Likewise, if the sum of our use at a given instant required less than 24% of the machine, the sum of the rest of the users could get over 76% of the machine. Under such a scheduling algorithm, Jerry suggests, Division 6 might "own" a share of the machine, ARPA might "own" a share of the machine, and Division 5 might "own" the remaining share of the machine and retail time out of the Division 5 share to smaller users. Mechanisms could be provided in the scheduler to do sub-accounting and sub-scheduling within each big share of the machine.

11. Jerry notes that while we would generally access TENEX via our TIP, Division 5 would occasionally want to access the network (when TENEX is down) via the TIP -- perhaps there is a trade to be made here.

12. Jerry says that there are generally no breakpoints in System A which are used for debugging. The breakpoints which are in System A for cases where the alternative would be for the system to crash (e.g., when an illegal queue pointer is found). In these instances it is obviously better for TENEX to stop on a breakpoint to give Ray a chance to manually rebuild what he can to save as many users as possible. Jerry agrees with my suggestion that it would be good for TENEX to send a message to network users (or to the IMP to forward to network users) saying "TENEX BREAKPOINT" just before halting on the breakpoint.

14. Jerry emphasises that when the TENEX password system was cracked, it was done by one of the operators giving out the system password rather than by a user figuring out the password system without inside help.

Additional points

1. Jerry says that TENEX couldn't presently stand an influx of 15 new heavy users. However, they are getting one or two additional processors in early summer and should then be able to handle the additional load.

2. Jerry says they would love to have our operators help

keep TENEX up weekends, nights, etc. In fact, Chipman and D'Alelio have already agreed to this, but our operators could use additional training to be proficient with TENEX.

A new thought

Perhaps the way for us to get the control, response, and privileges we think we need out of TENEX with reference to the network, is to have our own TENEX IMP interface. That is, TENEX would have two connections to its IMP with two network addresses, one for the TENEX service center and one for the TENEX Network Control Center. Of course, this would depend on TENEX having enough channels to be able to dedicate one to another IMP interface; it would also depend on the IMP having enough Host interfaces to suit all of TENEX's needs and another Host interface. Presumably, this extra IMP interface could be run with a second copy of the existing TENEX network software and no (little) additional code would have to be written. With another Host interface between TENEX and the IMP, each group (the TENEX group and the IMP group) would have a backup system (the other guy's) if their own Host/IMP connection failed.