

DATE: May 1, 1974

To : J. Lederberg/T. Rindfleisch

FROM : E. Levinthal *EL*

SUBJECT: Allocation of SUMEX Computer Resources

I would like to suggest the following method of handling the allocation problem as an alternative to use of a "currency".

We define a few classes of users (three may be sufficient). The membership in the highest or primary priority class should be limited to primary projects (not necessarily all projects) of users who are central to the goals of SUMEX. The number in this class should initially be small enough so that we can be certain this use by itself will lead to an acceptable load factor. The secondary classes should include secondary users and secondary projects of primary users. Similarly the third class would be non-priority users and non-priority projects of primary and secondary users.

A user signs on with a particular project name which has received a classification. The user can ask for a histogram which would give graphs of usage for each class by time of day and day of week. These graphs should be designed so that both what was used and what was available can be deduced. This should be integrated back sufficiently far in time to give good statistics but not so far back that it doesn't represent the current distribution of users. Secondary and then tertiary users "get on" only if the load factor is less than a predetermined maximum.

This system would have the following advantages:

1. The users could adjust their scheduled use of the most favorable times without having to make detailed (and probably unsuccessful) intra or inter-class predictions of use or negotiations for use.
2. It avoids a difficulty that existed with ACME "funny money" allocations. Namely the reluctance to turn off users who "ran out" of allocations, whose expected grants didn't get funded, etc., etc. "Delay is a deadly form of denial" but it is easy to administer. This problem diminished but didn't disappear in the case of Provost Funds. The fact that the source of "funds" was remote from users helped. However, there still remained the problem of collecting overdrafts.
3. This system could and should also be used for system development work. There will undoubtedly be a great deal of language improvements, additions of systems features, etc., that while nice are diversionary from primary goals. By assigning such systems tasks secondary or even tertiary status, efforts in these directions can be contained.
4. It still allows "currency" to be used for some resources such as storage and perhaps I/O facilities.