Centralized Computing Support

There is no longer any doubt that the use of computers has become a necessity for the vast majority of the university community to do its work efficiently. This necessity is obvious for the administrative staff, which relies on computers for payroll, communication, and document preparation, but is equally vital for the faculty and students. These groups have their own special needs, including teaching and learning technologies, research and scholarship tools, in addition to the need to communicate with and participate in administrative functions. As representatives of the Academic Senate, we would like to especially highlight the instructional requirements of the teaching community, including lecturers and graduate student instructors as well as ladder faculty. These requirements have never been systematically funded or supported, and individuals often find themselves using research funded equipment and software for instructional purposes.

It remains the case, however, that the responsibility for providing for the necessity of computing resources is fragmented and disorganized, and that there is no clear set of guidelines describing responsibility for the funding, maintenance, and administration of computing hardware and software. In view of the very rapid evolution of the computing industry and the very heterogeneous needs and habits of the communities of users, this situation is understandable. We feel, however, that it may be appropriate for the university, at either the system-wide, campus, or college level, to formulate and institute an integrated approach to the funding, governance, and support of university computing infrastructure.

Among the goals and benefits of a more centralized system are the following:

1. Economies of scale in purchasing hardware and software.
2. Economies of scale in administration of computers, especially involving issues of security, networking, and software licensing.
3. Reduction of the burden on individuals and units (such as departments) of securing and allocating funding for computing, and for deciding on administrative policies.
4. Delivery of services that are most efficiently done on a system level, such as data backup, email, web conferencing, and certificate authentication.

We are aware that centralization has risks and drawbacks as well as benefits. Some units and some users have been reluctant to cede control of their computers to a central authority, often for very good reasons. It is essential that any new system of centralized financing, purchasing, and support provide enough flexibility to accommodate in a convenient way, as many users as possible. We hope that a well-thought out structure that keeps this principle in mind is possible and expect it to be very beneficial.

In view of the very rapid changes in the computing industry, it would not be appropriate for us to make specific recommendations about hardware or software. However we
would like to make some fairly general suggestions, based on our own experience and conversations with users and system administrators. One principle should be that the university should guarantee each faculty member and each graduate student instructor office a fully functional and up-to-date computing environment. This means a networked desktop computer and decent monitor; for some people, a laptop might be more appropriate, or a necessary addition. Because of the constant evolution of hardware, it is probably better to buy new systems often, approximately every three to five years, at a lower price, than expensive systems rarely. This pattern may also apply, to a more limited extent, to central server machines.

Purchase options must allow some platform choice, as well as some flexibility within each platform. We feel that people should be offered a choice of one of at least three possibilities:

1. A machine based on Intel compatible hardware, running an up-to-date version of Windows.

2. A machine based on Apple compatible hardware, running an up-to-date version of Mac OS.

3. Some variant of an open-source unix environment, such as Linux, new Solaris, or Free BSD. Because there are many flavors of such systems, with varying degrees of compatibility, it may be difficult to decide how (and how much) to standardize here. We note that Mac OSX is based on FreeBSD and partially, but not entirely, fits into category this category.

We suggest that the university establish a commitment to providing its users a choice of one of the above three platforms. This commitment should include the purchase, setup, and basic support of the system and its connectivity to the network and peripherals, as well as a basic set of up-to-date software. Users should have the option of upgrading beyond the basic packages with additional funds of their own, or even of purchasing a package of their own choosing, with the understanding that this could limit the support that could be centrally offered. People could also be offered a choice of different levels of support, based on need.

In general, we also recommend that an important (but not necessarily determining) desiderata when choosing both software and hardware should be compatibility with open standards. This applies, for example, to networking connections (wired and wireless), monitor and peripheral connections, and document formats. As an example of the latter, TeX, html, pdf, and xml are in principle preferable to proprietary formats special to specific vendors or word processors, such as Microsoft Word.

Computing technology may be expensive in its own right, but in addition to being necessary, it can also be a cost-saving measure overall. Indeed, recent trends suggest that initial hardware and software costs are smaller than costs for support, security breaches, and lost productivity due to use of out-dated systems and software. We are
confident that a budget plan that looks at the big picture will see the benefits of a more systematic approach to funding and governance of university computing.