Charges to the Ad-Hoc Computer Services Committee for 2004-2005

Membership

Michael A. Mackey (Chair) BME May 2005
Gary Aurand CBE May 2005
Asghar Bhatti CEE May 2005
Tom Casavant ECE May 2005
Geb Thomas MIE May 2005
Douglas Eltoft CSS May 2005 (Ex officio and non-voting)

Standing Charges

The Computing Services Committee (CSC) shall be responsible for gathering faculty input on policies and budget issues governing hardware, software and computing services provided by Computer Systems Support (CSS) service unit and making appropriate recommendations to the faculty and the dean.

Standing charges to the Computing Services Committee:

1. Maintain minutes of their meetings and distribute them regularly to the EFC.
2. Gather input from faculty and all other important constituencies on computing services issues by any effective means it deems appropriate, including surveys, forums, etc.
3. Make recommendations to the Engineering Faculty Council for matters requiring faculty approval.
4. Make recommendations to the faculty and dean on the budget for the College of Engineering Computing Services and Infrastructure.

Specific Charges

1. Develop a working structure for the committee that is consistent with the standing charges.
2. Act on specific items forwarded to the committee by EFC as needed.
3. Identify and propose resolutions for pressing Collegiate computer issues consistent with standing charge 2. For example, the EFC has identified the following issues as potential areas to be addressed:
   (a) the role of CSS in the teaching and research missions of the College;
   (b) the role of CSS as a service provider in centralized vs. distributed computer services architectures(including scenarios with services centralized at the University and/or College level);
   (c) faculty satisfaction with the existing desktop computer administration options; and
   (d) the advantages and disadvantages of centralized web page development and maintenance within the College.
4. Submit to the Engineering Faculty Council an interim report on January 17, 2005 and a final report on April15, 2005. The final report should offer recommendations on specific issues to be taken up by the CSC committee during the next academic year.

Final Report of the Ad-Hoc Computing Services Committee for 2004-2005

Executive Summary

The Computing Services Committee (CSC) was charged to examine issues related to College computer support, especially as they relate to the research and educational mission of the the College. This year, CSC focused on the development of a new mechanism for computer software support allocation that is based upon software usage. In the course of the CSC meetings, an accounting system was discussed which would provide a quantitative basis for both new software acquisition and the continue maintenance of existing software packages.

The Committee makes the following recommendations:

- The EFC should request that the Dean charge CSS with the development of a software usage accounting system.
- The CSC should in the future develop a software retirement policy based upon its usage in coursework which will maximize the quality and usefulness of computer software in the College. This effort should employ extensive input from College faculty in order to develop appropriate criteria for the retirement of unused software packages.

Synopsis

The CSC committee was formed in September of 2004 as an Ad-Hoc committee that reports to the EFC. The CSC committee was charged to perform its duties through May 2005. The CSC committee was comprised of the following members: Gary Aurand (CBE) (Asghar Bhatti (CEE), Tom Casavant (ECE), Doug Eltoft (CSS - *ex officio*) Michael Mackey (BME – Chair), and Geb Thomas (MIE). Although there were only two meetings of the committee during this period, there were several communications *via* email pertinent to committee business. A third meeting for early April had to be postponed indefinitely due to the absence of Doug Eltoft, whose presentation would be the subject of this meeting.

The chief focus of the committee this year was to evaluate current mechanisms for software support in the College. As outlined in the attached minutes, this issue became an initial focus for the Committee, and continued to occupy its efforts.

As it now stands, software used for the educational mission of the College is chosen in a rather *ad hoc* fashion. This practice appears to work satisfactorily, but support costs continue to rise, and no objective accounting for the use of this software is in place. Furthermore, no formal mechanism for the retirement of software exists in the College. In fact, there is no information available as to the actual usage of the software being supported by the College. As described more fully in the minutes for the February committee meeting, the current College policy involves allocation of student computer fees to departments based upon "ownership" of the education software in question, not its actual usage. The committee feels that this model might lead to a breakdown in accountability of the proper expenditure of student computer fees. Proper administration of these fees would benefit from the use of actual software usage data on a package-by-package basis. In this era of increased budget cuts, it is possible that a useful software package might not be obtainable due to the continued support of underused software. For example, as detailed in the minutes for the February committee meeting, over one-half of the College educational software budget is expended in the continued support of 5 finite element analysis packages. Although the continued support of this software might well be acceptable, there are no data

as to the use of each of these packages. Further, the current mechanism for allocation of student computer fees towards the support of this software is based mainly upon faculty and staff impression as to their use, and not upon actual usage data.

In the course of discussing these aspects of College computer support, the committee became aware of a new feature of the CSS software administration which might provide important software usage accounting data which would be useful in new software acquisition, the maintenance of existing software, and the allocation of student computer fees to departments. In the new software license management model for the College, users are authenticated using a key server. This authentication is performed on a per-program basis, and uses HawkID's for authentication. It is possible that the accounting function of this key server might allow for the acquisition of software usage data that would be useful for the purposes discussed above. There might be other benefits related to the assessment of ABET outcome metrics provided by these data.

Recommendations of the Computer Services Committee

The Committee recommends that the EFC request the College Dean to charge CSS with developing this accounting system for computer software usage. It is intended that the results of these analyses be used by the Dean and the Departmental DEO's in the allocation of software support. Specifically, the accounting data should provide software usage organized by course and by department.

It is also recommended that the Committee in the future be charged with the development of a policy for software retirement, based upon usage data obtained from this new accounting system. This policy, reached after extensive input from College faculty, would then be presented to the EFC as an alternative to the current practice.

Conclusion

The College Computer Services Committee has recommended the establishment of a new accounting-based method for the selection of computer software for use in the College's educational mission. In addition, software usage data would also provide a more quantitative basis for the allocation of student computer fee monies towards the support of this software. This system might be useful in the establishment of a usage-based policy which would guide both software acquisition and its continued support by the College.

MINUTES - COLLEGE OF ENGINEERING COMPUTER SERVICES COMMITTEE

10/25/2004 - Committee members present: Michael Mackey (Chair), Tom Casavant, Geb Thomas, Doug Eltoft

1. The charges to the committee from the Engineering Faculty Council (EFC) were reviewed
2. There was a general discussion on the role of the Committee as an advisory body to the EFC. After some discussion, it was decided to focus on issues of CSS support with regards to the education and research missions of the College. Doug Eltoft described changes in the structure of CSS which would impact upon these issues. For example, a new software acquisition policy is being developed by CSS. Under the new policy, CSS will absorb the cost of new software needed for the educational mission of the College, but 75% of the software maintenance will have to be paid for by those departments interested in using the new software. A particular case was the request by Prof. Weincek for the addition of FEMLAB, a finite element software package. In the discussion it was noted that the College already supports several finite element packages, and this type of software has expensive licensing fees (~10-20K/package/year). It was noted that although new software has been frequently added to the College's computer systems, no packages have been retired, and thus the cost of licenses has increased rather substantially. Further, the addition of new software has historically proceeded in a rather ad hoc fashion. The problem is that many faculty rely on code developed for many different packages for both teaching and research, and the impact of removal of an older package might be substantial.
3. It was decided that in next committee meeting Doug Eltoft would give a summary of the new College software policies, and give information as to the licenses that the College supports, including amounts contributed by CSS and various departments.
4. Further, it is the Committee's intent to recommend an administrative structure whereby software usage would be periodically reviewed, and which would evaluate and act upon new software requests. For instance, at the University of Michigan, a forum is formed on a regular basis to evaluate new software requests within the context of the currently supported software packages. To facilitate this process, CSS should be able to provide software usage statistics by undergraduates in the College of Engineering. It was considered likely that these usage data would be very useful in the tracking of program outcomes for ABET.
5. Discussion also ensued as to the possibility of centralized web development in the College. Might this be a function of the College's library staff? Although it was generally thought that centralization might not be in the best interests of all faculty, in other areas (undergraduate/graduate recruitment) it might be quite beneficial. Further discussion for this topic was deferred until after Doug Eltoft's presentation concerning the budget and new policies for CSS.

MINUTES - COLLEGE OF ENGINEERING COMPUTER SERVICES COMMITTEE

2/3/2005 - Committee members present: Gary Aurand, Asghar Bhatti, Tom Casavant, Michael Mackey, and Doug Eltoft

1. Discussion continued related to the review of software used in the College's teaching mission. Specifically, it was noted that there is no systematic mechanism in place to review ongoing support for software installed on CSS computers, as there is no accounting for its use in courses. Doug Eltoft made a presentation outlining how software support is allocated in the College.
2. Highlights of Doug's Report:
    1. Software costs can be broken down into two categories: purchase of new software, and maintenance of existing software packages.
    2. All software purchase decisions reside within the academic departments. Software maintenance costs are funded by state-allocated funds, but these funds are allocated on a yearly basis to COE departments based on "ownership" of software that has established use in the departments curriculum. No mechanism is in place to review existing software; instead the practice has been to continue support of all software that is installed for educational use.
    3. Software funding uses a cost-sharing model. CSS pays 100% of the initial purchase cost of packages, and contributes 25% of the annual maintenance costs, with the departments using the software providing the remainder (75%) of the maintenance. Note that the cost of the maintenance in general far outweighs the initial cost of the software.
    4. The software provided in this model is only that to be used in the educational mission of the College; research software must be purchased and maintained by the individual researcher.
    5. In order for software to be installed on CSS computers, the following requirements must be met with regard to maintenance:
        1. An annual maintenance contract must be purchased for each software package, and this maintenance agreement must include phone support. Software must be able to run as an ordinary user (i.e., not requiring administrative privileges), and all software must support a network licensing model and be capable of being run on any computer in the College.
        2. Enough licenses must be purchased to adequately support the class (or classes) where it is used, a minimum of 33 licenses is suggested.
        3. Any reporting requirements for a particular package as to its usage is the responsibility of the department(s) that "owns" the software.

            Upon review of the current years expenditures (2004-2005), it was noted that a total of about $50,002 was spent on software for the College, with about $12,000 being spent on CSS system software and about $6500 being spent (through CSS) on research software. The remainder (about $32,000) was spent for the educational mission of the College. As the majority of these funds were for support of existing software, this amounts to about $24,000 being spent by departments from funds allocated by the Dean's office. These funds (along with the CSS system software costs) were derived from student computer fees; the research costs were absorbed by individual research grants and contracts.

            Review of the existing software being supported in the College revealed that there are no formal mechanisms as to the continued support of some of these packages. A discussion then ensued as to possible ways to evaluate whether a particular package should continue to be supported. For example, about 5 finite element packages are currently supported, for a total annual cost of about $13,000 (half of the total

educational software commitment). Historically, while new software packages have been added to the College's computers, no packages have been removed when another package with similar or enhanced functionality is introduced. It was generally accepted that the chief obstacle to developing any policy for the systematic review of software usage was the lack of accounting of the actual use of these packages.

A new method of software license management which is being implemented by CSS involves using a key server which authenticates a user's request to run software on CSS computers. As a side-effect of this authentication mechanism, it is possible to provide an ongoing and accurate accounting of software use on a course-by-course basis. Since students' access to these resources is controlled by HawkID authentication, extensive usage data can be acquired which would allow software usage by departments as well as by specific courses to be evaluated on an annual basis. This method might also allow for the determination of research use of these packages by Graduate students and professors in the College. Note that support for some of these packages is provided solely by student computer fees. In some cases, it was thought that some software was being used for research in the College which was paid for by these fees, which is contrary to the approved use of these monies.

The committee felt that this usage data might be very useful in the evaluation of continued support for some of the College's software packages, especially the older ones. Additionally, software use for research grants might be better accounted for using this method. If such data were available, both the Dean's office and the individual departments might be able to make better decisions as to the allocation of student computer fees. In addition, support for underused software might be reduced, thus allowing for new software to be obtained.

An actual implementation of such a usage-based accounting model for software maintenance will be presented at the next meeting by Doug Eltoft. CSS is in the process of installing the key server authentication system, and the ease of performing these usage analyses is not entirely known at this time. This implementation will then be considered by the Committee for possible recommendation to the EFC.

5. Due to travel and grant review schedules of the committee members in March, the next meeting was scheduled for early April, when Doug Eltoft will present a plan for the implementation of the software usage accounting system.