Faculty Senate Computer Task Force Report

September 18, 1996

In response to faculty queries and skepticism about the proposed upgrade plan for university computing, the Faculty Senate created a small task force to investigate the plan. Members of this task force (Ray White, Rona Donahoe, Marcus Brown & Pat Bauch) reviewed the relevant planning and budgetary documents and interviewed deans, Chet Alexander (Asst. Academic V.P.) and Computer Center administrators to get a measure of the plan.

The current computing plan was precipitated by two crises, one in software, the other in hardware:

1. The major administrative software packages (from SCT) are currently at a version level which does not allow the year 2000 (or beyond) to be entered accurately, so they must be upgraded soon.

2. Computer Center administrators insist that the mainframe is too overburdened to upgrade the administrative software in place.

The University has already bought the administrative software upgrades which solve the "year 2000" problem and the upgrade could have been initiated as long as two years ago. The upgrade has apparently been inhibited by in-house customization performed on the Student Information System (SIS), which makes its upgrade less straightforward.

The existing computer plan proposes to solve the administrative software and hardware crises by spending $13.5 million over 5 years, the single largest expenditure being the $4 million lease of an IBM/MVS mainframe coupled with a $1 million lease of an IBM/AIX computer. The proposed mainframe would have the capacity to take on the administrative software packages and allow them to be upgraded in place. Administrative computing dominates the current consumption of mainframe resources. The proposed smaller IBM/AIX computer is for academic computing and perhaps to test whether the administrative software might eventually be run on an expanded version of the AIX computer.

The Faculty Senate task force assessed whether there are less expensive and better alternatives to the proposed plan. We summarize our findings below in the form of five recommendations.

1. **Implement the administrative software on alternative computers to save 4 million dollars.**

   Other comparably sized universities are running their (equivalent) administrative software on hardware platforms costing only $500,000 rather than the $4-5 million proposed in the current plan. Thus, **the current plan wastes 90%, or about $4 million, of the main computer hardware expenditure.**

   To estimate our hardware and software requirements, we investigated how other comparably sized (or larger) universities are solving similar problems. To determine this, we contacted administrative software vendors (including our own, SCT) who have recently installed their software at such universities and asked about the kind and cost of computer platforms at these universities. In some cases, the vendors were responsible for the total solution to the universities' administrative software needs -- that is, the vendors selected the computer platform and the software suite, converted pre-existing databases, and provided

training for administrative users.

To ensure a direct comparison, we restricted our queries to the main computing hardware, including the processors, memory, and hard disk storage required to accommodate all the administrative needs, but neglecting all peripherals such as client terminals/PCs, printers, and other infrastructure.

Thus far we have accumulated 6 estimates from different technical personnel associated with 4 separate vendors (the sources are detailed below in an outline and include SCT, our current SIS software vendor). The cost estimates cluster around **$500,000** +/- $100,000. This should be directly compared with the proposed **$4-5 million** expenditure ($4 million for the mainframe plus $1 million for the AIX/UNIX computer) of the current proposal.

We strongly believe that this factor of 10 disparity in estimated hardware cost demands that the existing plan be completely reinvestigated. However, we do NOT believe it is necessary to hire another consultant (see below).

2. **Upgrade the administrative software without leasing a new IBM/MVS mainframe.**

   Depending on whether we change software vendors (see below), we can use either of the following plans:

   - **Change software vendors.**
     Many vendors offer software tools and management support that will allow us to convert our current mainframe data to their systems running on much cheaper computer platforms

   - **Stay with SCT and upgrade to SIS+ in place on the current mainframe.**
     To enable this, non-administrative packages may have to be taken off the mainframe and moved to the much cheaper platforms they should be on anyway (see Recommendation #3 and following examples, below).

     At worst, under the second option, more memory and/or storage may have to be leased/purchased until the transition is complete (but the storage should be usable in the new system, so would not represent a wasted expense). After upgrading to SIS+, it is an easy migration to the less-expensive AIX/DB2 hardware platform (SCT says that the necessary conversion tools are already included in our software agreement, so there is no extra cost).

3. **The Computer Center administration must take timely advantage of opportunities to reduce the load on the mainframe.**

   For example:

   - University e-mail could be handled by a $3,000 PC passing mail to departmental servers. Now, hundreds of users login daily on the mainframe to check e-mail.

   - The library has offered to take its system off the mainframe in 9-12 months and put it on their own workstation. This move should be accelerated as quickly as possible.

- All of the major commercial software packages used by academics on the mainframe (eg. SAS, SPSS, etc.) are available in UNIX and can run on $5-20,000 class UNIX workstations. These applications should therefore be offloaded to these more cost-effective platforms.

- The university mainframe web server has been cited as a significant drain on mainframe resources; it is a slow web server and lacks essential functionality found on free web servers on other platforms. Users have been clamoring for a faster, more functional University web server to be put on a different platform for two years, in the face of Computer Center resistance. It was finally put on a PC a few weeks ago, an incredibly cheap ($3,000) solution that could have been implemented at any time in the last two years.

  The Computer Center has further exacerbated the mainframe problems by adding loads that could very well have been accommodated on less expensive alternative platforms. For example, the FAMM room scheduling program was recently put on the mainframe when equivalent programs written for LAN or UNIX systems are available, which could then run on cheaper, less burdened computers.

4. **More efficient and effective management of computer and software upgrades is needed.**

   There are two major areas where being willing to consider alternate software and/or hardware can lead to much more cost-effective solutions:

   - The consideration of alternate software vendors, and client/server options in particular, is persistently criticized as being too disruptive to entrenched user habits. This claim has little merit. Even if we stay with SCT and upgrade to SIS+ on a mainframe, SCT acknowledges that the new version is so different that it will seem like a different package altogether, requiring significant retraining. So staying with SCT is operationally equivalent to switching vendors. This required upgrade thus provides an opportunity to ensure that SCT provides the best functionality and ease-of-use compared to its competitors. Even SCT itself has an attractive alternate client/server package, which was not considered in the previous review. SCT has offered to allow us to switch software packages at virtually no additional cost in order to retain our business.

   - Even more importantly, the Computer Center administration is reluctant to consider seriously hardware/ operating-system platforms other than IBM/MVS for the main workhorse. We have shown that this stance will waste at least 4 million dollars. While some reluctance to change is only natural, we believe the computer administration should be more receptive to cost-effective alternatives for administrative and academic computing. Given the incredible dynamism of computing technology, the willingness to change should be evident at the highest levels of the computer administration, since the most rational solutions five years from now will likely be different from today's solutions.

     We anticipate that the new position of Associate Vice President for Information Services will provide leadership and facilitate change as the University endeavors to provide the necessary resources for academic and administrative computing.

5. **Alternative software solutions should be investigated.**

   We propose that competing administrative software vendors (PeopleSoft, Buzzeo, DataTel) be brought in quickly for comparison to SCT. In talking to the various vendors, it is clear that this can be done in a matter of weeks. The users and programmers of the administrative software should make sure that they will get the functionality they expect and should be aware of the relative benefits and limitations of whatever software choice is made. Some of these vendors have software tools which will allow the direct conversion of current mainframe data to the less-expensive platforms mentioned above. Some vendors can be contracted to perform the data conversion themselves, while others outsource this task (and many universities have sufficient computer expertise to do such conversion in-house). During this software comparison phase, the various software vendors' technical people can provide more detailed hardware cost estimates. Thus, we do not think it is necessary or desirable to hire yet another consultant. One week's worth of shopping has shown that the previous consultation only served to support a costly and very wasteful plan. Once the optimal vendor has been selected, the vendor may be contracted to manage the entire solution: hardware selection, software and data migration, and user training, at a dramatically lower cost than entailed by the proposed University Computing Plan.

In summary, we believe that the primary considerations of any rational computer hardware/software plan should be cost, functionality, and ease of use for all users, including students and faculty. The current plan proposes to spend fully 10 times more than is necessary on the main computing hardware, wasting 4 million dollars on this item alone. We expect there will be additional savings if and when a serious effort is made to cost out other parts of the plan competitively, as well.

We enclose an outline version of our proposed plan on the following two pages. Of particular interest are the computer cost estimates and the DataTel offer at the very end. The plan's implementation logic branches, depending on whether we continue with SCT software or go with another vendor. If we stay with SCT, its upgrade may require that non-administrative applications be pulled off the mainframe to free up resources for the administrative conversion. We may also have to buy/lease a bit more memory and/or storage (but such storage should be usable in the upgraded system as well, so it is not wasted money). All of the non-administrative applications (e-mail, web server, commercial statistical packages) can be ported to vastly more cost-effective platforms such as PCs ($3-4,000) and/or workstations ($5,000-$20,000).

Respectfully submitted,

Raymond White
Rona Donahoe
Marcus Brown
Pat Bauch

Alternative Computer Plan

Two-part crisis:

1. **overburdened mainframe**
2. **administrative software must be upgraded to accommodate year >2000**

Solutions to:

1. **Overburdened mainframe**

   immediately ...

   - peel applications off mainframe:
     - move web server to $3-4,000 PC
     - move e-mail to $3,000 PC, distributing to dept servers
       - (mail itself not much of a load, but now you must log into mainframe to view mail)
     - move library to their own workstation
     - peel off academic sw users to $5-20,000 workstations

   if necessary ...

   - buy more memory ?
   - buy more disk space (that will be usable on next system)
   - port uncustomized admin sw -> SIS+, offload to workstation

   over next 12 months ...

   - if SCT sw chosen, upgrade all admin 88.1 sw -> SIS+ in place, then offload to 1-3 capacious workstation(s) -- (one ws for each major admin application?)
     - ask sw vendors for more detailed estimates of hardware needs
     - ask other universities what sw & hardware they deploy

     Sample costs of such workstations at similar institutions:

	estimate	tech src	company	comment
1)	$400,000	G.Sukor	DataTel	
2)	$500,000	A.Fridrich	Buzzeo	univ in Illinois
3)	$500,000	P.Jones	SCT	
4)	<$500,000	J.Littlefield	PeopleSoft	
5)	<$600,000	G.Rosenberg	SCT	total sol'n at GWU
6)	$600,000+	T.Bendus	PeopleSoft	

2. **admin software must be upgraded to accommodate year 2000**

Note: 20-50% of SCT customers are still at 88.1 version (ours)

either ...

upgrade SCT 88.1 sw --> SIS+ (then to DB2/AIX workstations ?)
- buy more disk space if necessary - cheap - use in next sys

- Advantages
  - have already bought the upgrade

- Disadvantages
  - competing sw may provide more functionality, ease of use, ease of learning, etc
  - requires two conversion steps to get to true client/server: 88.1 --> SIS+ then SIS+ --> AIX/DB2

or ...

go to competitors' sw (PeopleSoft, DataTel, Buzzeo or even SCT's alternative sw) - have users sit in front of demos, contrast & compare w/SCT

- Advantages
  - competing sw may be more capable -- basic expected functionality may be missing from SCT SIS+ => more efficient admin
  - competing sw may be easier to use => less training (lower training costs)
  - competing sw has web interface NOW => do not have to load interface sw on all machines on campus -- just use web browser they already have => MUCH easier system admin
  - competing sw has conversion tools direct from 88.1 => do not have to do intermediate upgrade of 88.1 to SIS+, then on to DB2/AIX

- Disadvantages
  - additional cost (unless we go to SCT alternative sw) -- have already bought SIS+ upgrade, even though not implemented for two years

---------- Tentative software comparisons:

DataTel has offered, in writing, to do the complete software conversion, buy the hardware, provide the new software & the training for $2.5 million.