

May 12, 2009

TO: Dr. Marc Hoit, Vice Chancellor for Information Technology and CIO

FROM: Keith Boswell, Chair, Task Force on Computer Labs and Student-owned Computing

SUBJECT: Evaluation Report, Computer Lab Reduction Strategy

Strategy Evaluated: Reduce number of seats in traditional computer labs by half.

Charge: Evaluate the proposal as outlined in the University Budget Reduction Strategy (Appendix A) to determine whether or not the proposal has merit as a potential method of achieving significant information technology cost reductions.

Process: A survey (Appendix B) was created and distributed to organizations operating computer labs requesting detailed information regarding the composition and purpose of computer labs that exist within those organizations and an enumeration of the resources being used to operate and maintain those labs. Written instructions and definitions (Appendix C) were provided in addition to the survey template. Completed surveys were obtained from each college, the Libraries, OIT, Student Affairs and the Division of Undergraduate Academic Programs (DUAP). Data from those surveys was consolidated into a Computer Labs Worksheet (Appendix D, Tab A) The information was then analyzed and used to generate a number of discrete data points thought to be useful to the decision making process.

In addition to the Computer Labs Worksheet, A Student-owned Computing Worksheet (Appendix D, Tab B) was generated from data either held by Task Force participants or acquired from knowledgeable parties. This data was also analyzed in an effort to generate an estimated cost of providing expanded technical support to students based on the current support infrastructure already in place at NC State or through the creation of a support infrastructure modeled on UNC-Chapel Hill's Computer Repair Center.

Process and Analysis, Computer Labs:

- As defined in the written instructions, 161 “Computer Labs” consisting of 3571 workstations are currently operated on the NC State campus. Four primary operating systems are represented in these labs; Windows, Linux, Unix (Solaris) and MacOS.
- Computer labs were divided according to primary use, either teaching or general purpose/open. In calculating potential savings from lab reductions, only general purpose labs were considered. While there are circumstances that would allow some teaching labs to be closed in favor of using student owned computers, many are used in ways that are not conducive to being replaced by student laptops. After removing teaching labs from consideration we are left with 76 general purpose labs with 1802 workstations.

- Respondents were asked to report three different annual cost figures. These included the cost of professional (permanent) employees supporting the labs, the cost of student employees supporting the labs and the non-personnel (hardware and software) costs of maintaining the labs. In reporting professional personnel costs, no reporting entity listed a single position as being completely dedicated to computer lab support. In all instances these costs are an aggregate of one or more partial FTE. Total annual expenditures in each category are:
 - Professional Personnel: \$ 853,800
 - Student Personnel: 481,950
 - Non-Personnel: 1,265,300
 - TOTAL: 2,601,050

- An annual average cost per workstation of \$728 was generated by dividing total lab support costs by the total number of workstations. (2,601,050/3571)

- Not considered in the annual cost calculations are the costs associated with image development, the assumption being that unless all computer labs are eliminated image development will still be necessary. In addition, images must still be developed for VCL instances. If physical lab instances are eliminated it may be necessary to generate additional images in VCL to provide equivalent access to specialized software or functions.

- Potential cost reductions were determined for three different scenarios. Savings were calculated by first determining how many workstations were included in each scenario then multiplying that number by the annual average cost per workstation. The scenarios and potential savings are:
 - Reduce the number of general purpose lab seats by 50%
 - $(1802/2)*728 = \mathbf{\$656,272}$
 - Eliminate Unity Labs and reduce remaining GP labs by 50%
 - $(((1802-242)/2)*728)+(242*728) = \mathbf{\$744,406}$
 - Eliminate general purpose labs
 - $1802*728 = \mathbf{\$1,312,543}$

Process and Analysis, Student-owned Computing Requirement:

As stated in the cost reduction strategy paper, the ability to reduce the number of general purpose lab workstations is at least partially predicated on the possibility of establishing a student-owned computer requirement. There are costs associated with establishing such a requirement or even relying on the fact that many if not most students are bringing computers to school with them without a requirement to do so.

- The imposition of a student-owned computing requirement will generate a significant financial aid obligation due to the Pack Promise commitment. The number of students already qualified for Pack Promise financial assistance in the coming academic year is currently at 325. If we assume we can acquire a suitable laptop in that quantity for \$1000 apiece then the amount of additional resources required to fully fund the Pack Promise

amounts to \$325,000. As indicated at Appendix D, Tab B, there are additional financial aid considerations to account for both undergraduate and graduate students who may not be able to afford their own laptop. That number is not presently quantifiable but we can assume it will be some number above zero.

- If we plan to replace general purpose or even teaching lab computers by requiring students to use their own computers then we can expect an increased need for technical support to keep those machines functioning. We considered two established programs on campus already providing such support. Both OIT's Walk-in Center and the College of Engineering's SOC program have established budgets and provide an existing level of support. The spreadsheet uses two possible benchmarks to determine potential support costs. Both benchmarks resulted in a potential requirement of approximately \$1.4 Million. Subtracting the current WIC/COE-SOC costs of \$720K results in a potential requirement for new resources of roughly \$680K.
- Between the potential financial aid requirements of at least \$325,000 and the \$680,000 of additional resources to provide laptop support the total potential additional cost of implementing either a laptop requirement or simply requiring students to make more use of the computers they already bring totals roughly \$1,005,000.

Conclusions:

- The data shows that if NC State University were to undertake the cost reduction strategy of reducing the number of general purpose workstations in computer labs there are potential savings to be realized. Most of these savings would be realized by non-OIT lab operators. As most labs are on a four or five year life cycle potential savings would be realized piecemeal over several years as workstations reach the end of their useful life and are not replaced. Because personnel positions are not dedicated solely to lab support eliminating workstations will have little to no effect on continuing personnel costs.
- Countering the effects of reducing computer lab seats by imposing a laptop requirement will generate significant financial aid requirements. Not imposing a requirement but simply expecting students to make more use of the computers they already bring to campus would result in a need to provide additional technical support and repair capability which will generate a need for additional resources to provide that support.
- In addition to the numbers, any decision to implement this cost reduction strategy must also take into account intangibles such as the importance of the culture that exists around computer labs, the effect that first class computer lab infrastructure has on reputation and recruiting and the appearance that a resource students pay for directly with fees is being reduced without a concomitant reduction in their fee burden or a visible improvement in other resources supported by those fees.

Recommendation: Continue to evaluate this strategy by formulating an implementation plan with enough detail to determine actual savings and additional resource requirements. This should generate a realistic estimate of net savings or net cost to implement the strategy. Any

decision to go forward with this cost reduction strategy should be based not only on the real dollar savings and cost of the plan but also on the effects of the plan on student life and learning.

Task Force Membership

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Appendices

Appendix A, University Budget Reduction Strategy Paper
Appendix B, Computer Lab Survey
Appendix C, Computer Lab Survey Instructions and Definitions
Appendix D, Worksheets