After three years of study and evaluation, Georgia Tech implemented a policy requiring all incoming freshmen to own a personal computer. The requirement began with the freshmen attending Georgia Tech in the summer of 1997 and will continue with all subsequent classes. This paper will discuss the issues and policies associated with establishing such a requirement, particularly at a state institution, and the lessons we learned with both our summer pilot program and the incoming fall class.

Introduction and Background

The decision to require computer ownership was made because Georgia Tech recognized the importance of the use of information and networked communications technology to enrich the educational experience of our students and to make those students more valuable to the companies and institutions to which they will transfer upon graduation. Because Georgia Tech was fortunate enough to host the 1996 Olympics, we were able to leverage that event to acquire high speed networks linking all of our buildings and residence halls, thus creating an infrastructure supportive of a highly networked body of educational content. Our faculty are well equipped to use computing technology and are intimately involved in selecting the applications our students will use in their coursework. Our library provides network access to its own collections and those of many of our sister institutions and other private institutions throughout Georgia. The time was right for us to move forward and ready our students for the 21st century.
After careful study, the Georgia Institute of Technology adopted a policy requiring all freshmen, beginning with those entering in the summer of '97 and all students joining the class of 2001, as well as all subsequent classes, to own a computer. This initiative recognized the established importance of computers as "personal productivity tools" and their growing use as educational tools. Computer based educational materials are being developed at an ever accelerating rate and their integration into every subject area taught at Georgia Tech is continually expanding. The development of the Georgia Tech advanced FutureNet network provided the infrastructure for increased use of computers. These exciting developments and our desire to provide the best possible education for our students led Georgia Tech to undertake this initiative.

The Strategic Plan of the Georgia Institute of Technology defined a set of strategies that anticipated increased utilization of Educational and Information Technologies to meet the educational, administrative, and research goals of the Institute. Several action items were identified as necessary elements in achieving the goals, one of which is to give serious consideration to a policy of mandatory student computer ownership. Thus Dr. Michael Thomas, Provost, charged a Recommendation Committee to identify the issues associated with such a policy and to recommend the necessary actions to implement the policy, if the Institute were to elect to pursue one.

President Wayne Clough presented the committee’s recommendations to the General Faculty Senate and a motion to accept these recommendations was passed unanimously. After final approval by the Chancellor, the Institute elected to implement this policy to coincide with the arrival of the Freshman Class of '97.¹

Implementation Recommendations

In the latter part of 1996 a Student Computer Ownership Advisory Committee was established by the Georgia Tech Executive Board to provide specific software and hardware recommendations for the new computer ownership requirement. After several months of study, the committee submitted for the Georgia Tech Executive Board’s consideration a document entitled “Information for Students on the Georgia Tech Student Computer Ownership Initiative”. A product of the committee was document intended for distribution to all prospective students.²

Implementation Teams were then created to address the following key aspects identified from the recommendations set forth by the Student Computer Ownership Committee. Noted in parentheses, behind each objective, is the lead department responsible for that specific service delivery. In many instances, it was a shared responsibility.

- Program support and impact on existing support infrastructure (OIT, Housing)
- Specific platform recommendations (Advisory Group)
- Application software recommendation for student productivity tool (Advisory Group)
- Lease/Purchase program agreement (Computer Store)
- Purchasing vehicle or agent (Computer Store)
- Software distribution mechanism (OIT, Computer Store)
- Receiving, staging, configuration, distribution point (Computer Store, OIT)
- Financial aid/loan program (Financial Aid, Enrollment, Executive Board)
- Student orientation/seminars/training (Students Services, OIT, Housing, Computer Store)
- Communication of program to campus and parents (Enrollment, OIT, Computer Store)

Georgia Tech’s Office of Information Technology created a support document to address hardware and software support issues, coordinating efforts to ensure minimal duplication of services to be provided by

¹ A complete report on the recommendations is available at http://www.sco.gatech.edu/docs/3.html
² The URL for the recommendation is http://www.sco.gatech.edu/docs/2.html
the various units involved in the actual implementation. Once the predominate issues were addressed, an information packet and brochure was published and distributed by the Office of Enrollment Services to all prospective and accepted incoming freshman students.

**Pilot and Initial Fall Program**

A pilot program was implemented by the Institute affecting approximately 300 “early entering” Georgia Tech Freshmen during the Summer Quarter, 1997. During this period, the problems encountered were documented, addressed, and changed to better serve the needs of the 1800 incoming fall freshmen. It is important to understand that while several groups such as the Office of Information Technology, Housing, and the Georgia Tech Computer Store worked closely together, these entities do not report to the same Vice President. Due to the different reporting structures, communication was on-going but not constant among all involved, and the details of each service provided were left up to the individual units. What follows is a list of the specific activities and services that were implemented to support the computer ownership requirement. These activities relate to the specific objectives noted on the previous page, and as such, were implemented by the various departments responsible for the particular service.

**Reexamine and refine**

1. The process on how to handle residential network installations should be re-examined. Support groups did not have enough time to test the defined process which led users to complain about a lack of support. Student and parent expectations need to be better managed.

2. Due to the significant increase in incoming calls, the current phone system in OIT’s Customer Support Center needs to be re-examined to better handle the volume and to better direct calls to the appropriate support group. There was confusion among the residents as to who to call for what. Also, if a resident technical assistant (RTA) could not be reached, users felt they should be able to receive the same service by calling OIT.

3. Distribution/delivery of purchased computers to incoming freshmen will need to be improved and expectations better handled. An aggressive training program should be created to teach students how to set up their own systems. We need to examine the possibility of incorporating some training as part of FASET or model it after Cornell where students do not get their accounts until they have gone through an hour long training session.

4. A longer implementation time is needed from the identification of the appropriate software applications to be required, to the negotiation and execution of the various agreements with software vendors. Specific deadlines need to be scheduled to eliminate multiple problems encountered during contract executions and the subsequent delivery of the software. Decisions regarding distribution methods need to be built into the master schedule as well as time to adequately test the entire process.

5. The abstract product being sold is “peace of mind to parents and students”. To provide that ‘peace’ the process should be completely identified, published and communicated to parents and students from the time of initial inquiry of a potential student to actual delivery of services in the fall.

6. Due to the various campus units involved in some aspect of providing or supporting the computer ownership requirement, gaps occur when a smooth hand-off process is not pre-defined. Every request, regardless of its nature or where it might enter the Georgia Tech system, should be tracked to

---

3 URL for the support document is http://www.sco.gatech.edu/docs/0.html
4 URL for the brochure is http://www.sco.gatech.edu/download.html#brochure
5 FASET is Georgia Tech’s orientation program.
completion with ownership identified throughout. Specifically, this will eliminate some of the
chasms between OIT and Housing and make the process transparent to the end user. One way to
accomplish this would be to capture all requests for service in the same problem management system
and transfer ownership of the request to various groups as needed.

7. Training on both the productivity applications and the general use of computing resources must be
addressed from the student’s perspective. While seminars were provided, attendance was completely
voluntary and in conflict with numerous other “fun” activities for new freshmen. Consequently, initial
class assignments brought a rash of problems and requests for assistance as students tried to “learn on the
fly”.

8. Due to the nature of technology, computers are constantly becoming faster and the prices are
decreasing every few months. In order to reinforce and reward families that order their systems early,
it will be necessary to work with vendors to provide greater incentives for early purchases, and educate
parents of the potential fluctuations in cost and performance. The goal is to help families make the best
decision at the time of purchase, at the best possible cost.

9. The decision was made to give students a choice of either a Windows or Mac OS type of computer
with only the minimum configurations for both platforms specified. By providing students with a
choice, we have encountered application and operating system conflicts, inability of documents to be
easily shared, problems with students handing in assignments electronically. To decrease the problems
encountered, the coordination between class assignments and support staff needs to be improved. If at all
possible, support staff should receive advanced notice of computer based assignments for students.

10. A well defined process needs to be established on how and when the required software bundle will
be changed. Again, tighter integration with faculty and communication of potential assignments with
the support structure should be improved. Also, consideration to students, and what they will need to
acquire or upgrade each subsequent year will need to be addressed.

Positive and should be expanded

1. Participation in FASET during the summer and fall proved to be a very beneficial way to
communicate to the parents and students the details of support plans for the ownership policy. OIT
representatives, with representatives from the Computer Store answered questions on acquisition,
delivery, and support.

2. OIT’s Customer Support Center purchased one of each “flavor” of the required hardware platforms
and had the opportunity over the summer to test each configuration and address potential problems. In
addition, the CSC installed the required software applications and created a FAQ/known problems
list on the web.

3. OIT and the Computer Store met no less than weekly to discuss the on-going issues such as acquisition
of software, testing the software, examining the potential of electronic distribution, distribution and
delivery of computers, installation process and expectations, licensing problems. The constant
communication proved to be extremely valuable in the fall crunch.

4. OIT’s technical support group were brought in to identify services arising from the central computer
resources. As a result of their involvement, there was a focus on how to reduce demands on central
resources but still make services more effective and useful to the users. Examples were networking issues,
mail list demands, possible printing problems and potential solutions.

5. OIT worked with the Registrar’s office to provide incoming students with the ability to activate
their Georgia Tech computer accounts during the summer prior to starting classes in the fall. This
distributed the load to a much more manageable level in the fall.
6. Customer Support personnel worked with the Computer Store to preload software on all computers purchased through the Georgia Tech facility. This had a significant positive effect on the initial configuration requirements for students activating their ethernet ports. In addition, this activity provided support personnel a chance to encounter and correct any installation problems first hand.

7. OIT sponsored a number of training seminars during the arrival period for freshmen. The seminars provided a leg up for those students that exercised the option to attend.

While this in no way addresses all of the lessons we have learned in this first round of implementation, it does provide a flavor for the types of issues we still need address, correct, or expand for subsequent fall classes. As with most new requirements and implementing them, the areas still needing work outweigh the things we did right.

Impact on Support Services

A rather significant impact on the existing support services was anticipated. To that end, every attempt was made to capture the service requests and identify specific trouble areas. Those specific areas will be the first to be addressed in terms of changing the method and type of service to be provided in the future.

The following graphs capture the impact of implementing a student computer ownership requirement on the existing support services. Keep in mind we are comparing this year’s data with last year’s data for the same time frame. The caveat is that last year (Fall 1996) Georgia Tech was just coming out of the Summer Olympic games and experiencing an unusual fall term due to the delayed summer session and subsequent delay in the starting date for fall.
Beyond the overall increased workload, there have been a number of configuration and machine specific problems. This may be due to the fact that the minimum hardware configuration was specified, but particular make and model were not. Students were given the option to purchase any one of several different brands of computers through the Georgia Tech Computer Store. Those purchased in such a manner had warranty agreements available as part of the initial service. On the other hand, students could purchase any other make/model outside of the campus resources, as long as the computer met the minimum requirements. Support for equipment brought to campus was available on a per call fee basis. The graph below represents the various types of computers students brought or bought.
Freshmen Computer Selections

Sample size = 503 (35% of Psy1010 students)
Finally, a Windows or Macintosh operating system were the two choices for the required computers. The breakdown of operating systems and the various versions are as follows:

Operating Systems

![Pie chart showing operating system distribution]

Sample size = 488 (34% of Psy1010 students)

The bottom line is the reality that support demands have increased and will continue to increase as each subsequent freshman class brings a new wave of equipment each fall. This, coupled with the probable changes in some of the required software applications will require creative approaches to “just in time” training. In order to minimize possible problems, the support provided will have to be clarified, students will have to be trained, and we will have to take advantage of the residential housing staff to assist in managing student expectations.

Conclusion

As mentioned previously, we are in the process now of refining the support roles and attempting to clarify and identify the appropriate responsibilities for each area involved. A process to make changes to the software applications is being addressed and real time deadlines are to be established. The data from the first round indicates a pentium based machine with the Windows operating system is overwhelmingly the configuration of choice. Logically, training initiatives will focus on this architecture for both the support personnel and the students. Decisions as to who will be designing, scheduling, and providing training to students has yet to be decided. OIT will continue to support the productivity applications and the required operating systems. However, the focus this year has been on providing needed support to the student. In subsequent years that focus may need to be more in line with the faculty and their plans/assignments to anticipate the problems the students will encounter. That
infers an assumption the students will be able to use the productivity applications on their own. To that end, we are working with the campus television network to provide training videos on the productivity applications. This method of training will need to be monitored and if it works well, expanded to address other training issues.

OIT will continue to be the coordinating unit to address ownership issues, bringing together the appropriate departments, service organizations, and technical support to make this program work. There is a commitment on behalf of the faculty and administration to work through the problems, streamline the process and provide that peace of mind to students and their families. We will continue to collect data where appropriate to see how we are doing and to target “opportunities” for improvement. Stay tuned, there are three more years of incoming freshmen before the campus is fully computerized!