Request for Technology Fee Funds

NOTE: A separate request should be made for each initiative.

I. Department Number/Department Name: 360 College of Computing

Title of Request *(please be brief):* Virtualized Infrastructure for Information Security

Amount of Request *(formula from detailed budget below):* $28,813

Are there any installation/renovation costs associated with this request?

If "Yes" then indicate the source of approved funding:

(Note: Tech Fees are not allowed for installation/renovation)

Executive Summary of Request (100 words or less):

The College of Computing implemented a redundant co located virtualizaton service to provide high availability and scalability for it's instructional service offerings. The initial proposal covered all current services with some aditional resources to cover the OMS program with room to grow through the course of its expected lifetime. New service offerings for our instructional needs require investment in more resources to add to the current pool.

Specific class and/or lab initiative(s) if applicable: CS 6262, ECE 8813

Contact person for this request (incl. phone #): David Mercer, Manos Antonakakis

Indicate priority per department if applicable: Number ____ of ____

Indicate priority per college or unit: Number 5 of 6

II. Impact on Students - Provide course title, course number, and anticipated enrollments:

Titles/Numbers of Course(s) CS 6262, ECE 8813

Anticipated Enrollments

Graduate:	*107*
Undergraduate:	0
Total:	107

NOTE: Other impacts on students should be described in narrative.

III. Narrative - *Provide narrative justification for your intended use of the technology fee funds. Include narrative on how the education or research of the students will be enhanced. Also include how the request aligns with the Strategic Plan of Georgia Tech. Continue in the block below if necessary.*

The College of Computing converted the majority of it's instructional infrastructure to a virtualized environment, which provides many strategic advantages including making it possible to scale the services for the new OMS CS degree. Virtualization results in significant overall equipment savings by allowing better utilization of a pool of physical servers, and minimizing unused computing cycles. Virtualized server environments are generally easier for technologists to manage, resulting in higher server availability and flexibility to accommodate specialized faculty requests. As new courses are added and instructors take advantage of the newer scalable service it is necessary to add nodes to the cluster to ensure adequate resources.

IV. Detailed Budget - Requested Items by Category *List separately any equipment, software, and other allowable expenses (see Tech Fee Guidelines). There is a formula in the "total column" that multiplies the number of items times the unit price. You may enter a figure into the total column if the unit pricing is not applicable. If you need additional rows, contact the Budget Office to receive a modified form.*

Supporting documentation is required *- Include price justification in some form, such as quotations, published price lists, etc. as a separate PDF attachment. All supporting information should be in a single PDF.*

	Proposed Number of Items	Estimated Price per Unit	Total ($)
Ace Powerworks Servers	**4**	**$7,175**	**$28,700**
Cables	**1**	**$113**	**$113**
	0	**$0**	**$0**

Total *(linked to the total amount of request line above)* **$28,813**

Please return form via e-mail in Excel format to: tina.clonts@business.gatech.edu. Supporting information only in a PDF file.

III. Continuation of narrative justification, if necessary

We are requesting server hardware for student groups in CS 6262 and ECE 8813 to be able to work on their large hands on projects. This server hardware will provide the redundant infrastructure across two buildings to allow for maximum uptime for our users, which is the standard architecture for our Virtual environment. These servers will have a typical life span of 5 years and will be rolled into the overall life cycle refresh for the cluster as a whole moving forward. This will allow us to maximize resource utilization for instruction as a whole rather than having to request extra resource overhead for individual courses.

We often get requests from professors involving specialized software needs, such as this request for dedicated VMs which are hard to offer using standalone servers and services. As part of our virtualization infrastructure, with the additional resources requested, we will have available capacity to quickly allocate VMs on which to host these projects and can scale them as needed.

The objective of CS 6262 is to teach the basics of cryptography and its application to network and operating system security. To that end it will explain core concepts around network security threats and their countermeasures, obtain background for original research in network security, and gain hands-on experience with programming techniques for network security problems.

A critical part of this course is the ability to provide virtual environments that students can control to work on a hands on project related to network security. These projects are often machine learning and modeling in nature and require the student groups to have full access to the servers they are working on which makes it unsuitable for any non dedicated resource.