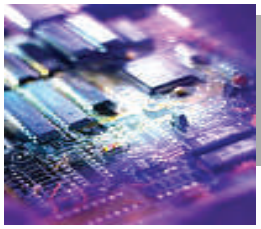
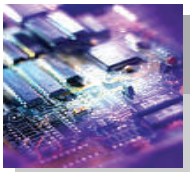
Sinclair Community College

# Information Services Status Report & Strategic Objectives For FY 2007-2008



# Information Services

# Status Report & Strategic Objectives For FY 2007-2008



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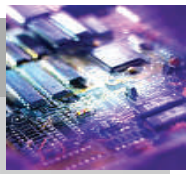

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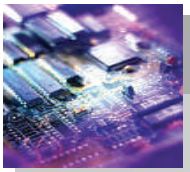



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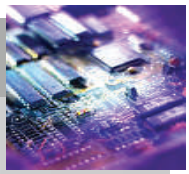

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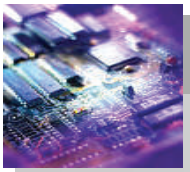



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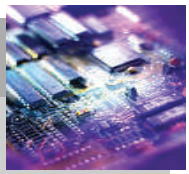

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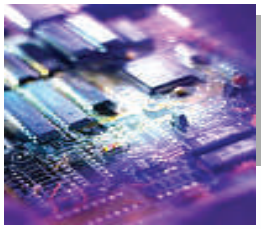
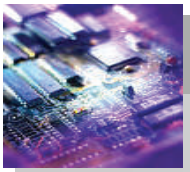




# Section 1

# Executive Summary



# Executive Summary

The primary goals of the Information Services departments are to enhance the strategic value of information and information technology tools for teaching and learning, to mange Sinclair's information and information technology resources effectively, to fully comprehend and manage the expectations of all students, faculty, and staff, to ensure fiscal discipline regarding the acquisition and utilization of information and information technology resources, and to satisfy the strategic objectives of Sinclair Community College.

## Major Accomplishments for FY 2006-2007

A wide variety of projects were in process or started during FY 2006-2007. Several were delayed due to budget constraints; some were cancelled due to the emergence of more effective technologies or alternative methods to achieve the same end result; a few will continue into FY 2007-2008.

This section includes only a few examples of these projects

### Millennium Project

The Library's computer system is a turn-key product purchased from Innovative Interfaces, Inc. (III), the library vendor used since 1992 by all state university and community college libraries in Ohio because of the OhioLINK project. It includes modules or subsystems for circulation, materials booking, cataloging, serials, and acquisitions. The III OhioLINK consortium system facilitates direct lending of library materials between institutions via a direct patron request feature.

Sinclair continued to use the basic text version of the III software that was introduced in 1992, although the vendor moved to a GUI product called Millennium about five years ago. All new product development has taken place in Millennium. OhioLINK purchased the Circulation and Materials Booking modules for Sinclair, but the remaining modules had not been upgraded. This project involved conversion from the older software modules for cataloging, serial processing, and acquisitions to the current standard. In addition, it provided improved report building capabilities for improved utilization data.

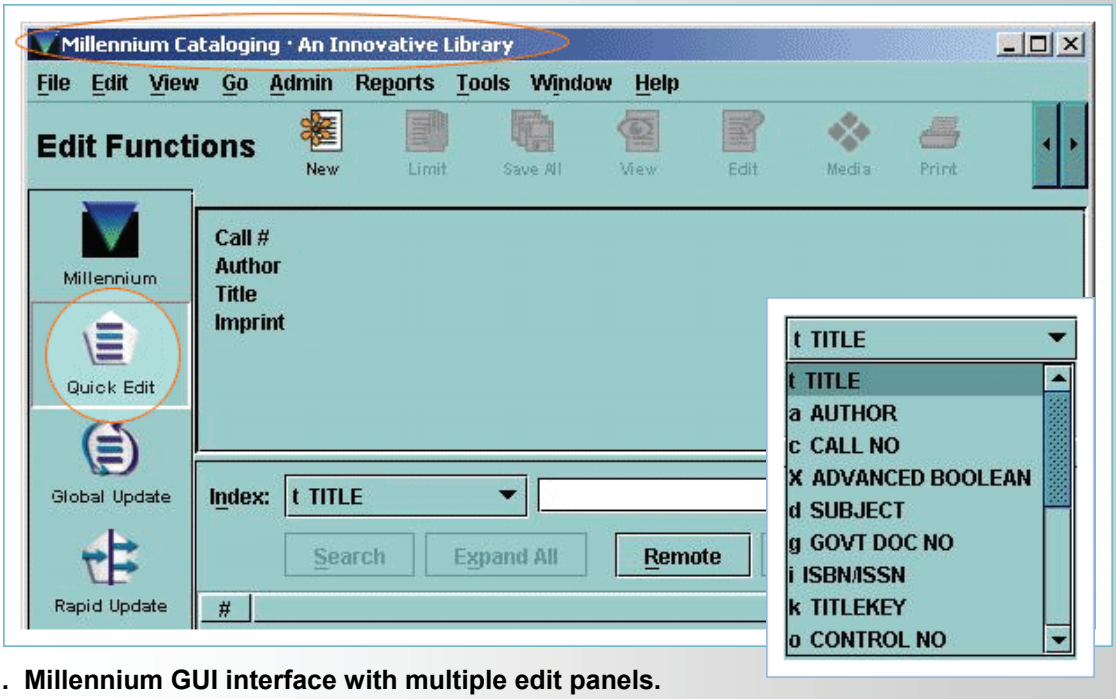



**Figure 1-1. Millennium GUI interface with multiple edit panels.**

## Continuation of Project DAWN Implementation

Several new reports have been made available in the DAWN portal such as FTE/Average Class Size report, Learning Center Demographics, and Program Alignment Reports. Several other reports from other sources like the Course Catalog report from CMT, Student Transcript Report from SSP, and Student Last Access Report from Angel are now available in the DAWN portal.

The SAS Strategic Performance Management project has been started, and it is expect to be completed by December 2007.

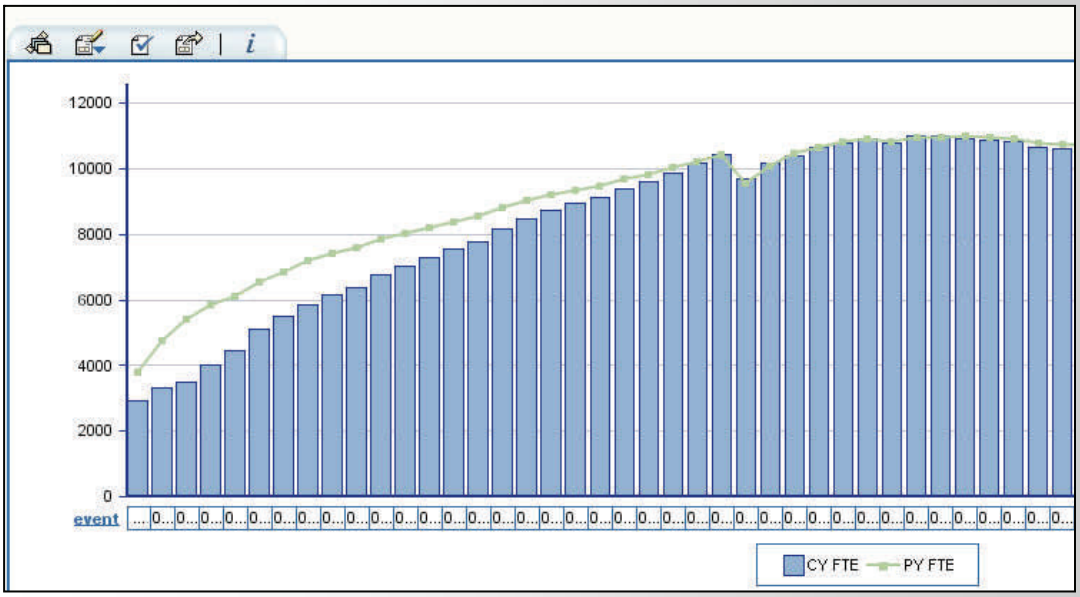



**Figure 1-2. The graph above is an example of information reported on the DAWN information delivery portal. The graph shows day-by-day enrollments for Spring 07 compared to the prior year's daily enrollment pattern.**

## Angel Learning Management System

The Angel Learning Management System course feature allows faculty and students to conduct all course related business in one web-based, central location. Faculty can post syllabi, notes, lessons, resources, grades, etc. Students can engage in discussion forums, send course email to the instructor and fellow students, participate in live chat, respond to surveys, and post announcements. Unlike the previous LMS solution used at Sinclair, Angel provides one common look-and-feel for course support for both fully distance courses and for enhancements to campus based courses.

For Systems Development and Maintenance, the specifics of this project included installation and configuration of the software, creation of course shells for each course offered by Sinclair, and implementation of the load of courses and attendees into Angel course shells.

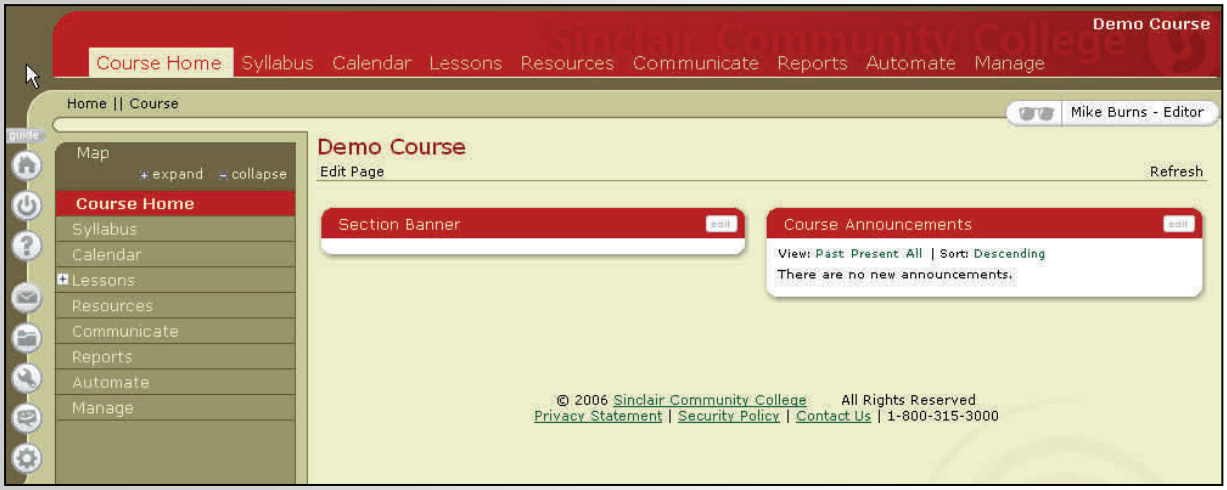



**Figure 1-3. The Angel Learning Management System course feature allows faculty and students to conduct all course related business in one web-based, central location.**

## Create Tool to Post Emergency Messages

This project involved the creation of a tool that can be used by the Help Desk and Sinclair's Office of Public Information to post emergency messages to the three main websites of my.Sinclair.edu, our.Sinclair.edu, and www.Sinclair.edu. Each authorized office has editing privileges that allow them to post a free-text message to any or all of the sites listed above. Use of this tool has been written into Sinclair's emergency closing plan, and it is now established practice to communicate closing information to these websites in addition to the previously used media outlets of radio and television.


**Figure 1-4. The Magic Whiteboard/Miscellaneous box in the above image shows where and how emergency messages would be displayed on the our.Sinclair.edu website. The same message feature can be directed to my.Sinclair.edu and to www.Sinclair.edu.**

## Network Infrastructure Upgrade

Information Technology Services (ITS) maintains a plan (budget) for the annual renewal and replacement (R&R) of information technology infrastructure components. The plan is used to project expenditures over a five year period. Each year, during the annual planning and budgeting cycle, the plan is updated with any new information that would change expected expenditures for the coming year as well as the next four years.

Each item that is identified on the R&R plan has a useful life. This useful life and the total cost of the equipment determine the funds that must be set aside each year to replace the equipment when it has reached its end of life. In FY 2006-2007, ITS replaced the four SmartSwitch 8600 routers that form the core of our network infrastructure.

These devices, while at the forefront of technology when purchased, are now obsolete technology and were replaced with devices that will provide expanded capabilities and much greater reliability over the next 5 years. This upgrade will also allow us to provide ten fold increases in speed within Sinclair's network core.

In FY 2005-2006, the edge devices were upgraded to the latest technology, which has enabled Sinclair to provide policy based networking and network port based security. For FY 2006-2007, the four core SmartSwitch 8600 routers were replaced with six Enterasys Matrix X routers that provide higher speed routing and ten gigabit bandwidth within the network core. The additional two routers that were added to the core allows us to remove the routing function from the computer room switches to provide for better isolation of problems and smoother upgrades in the future.

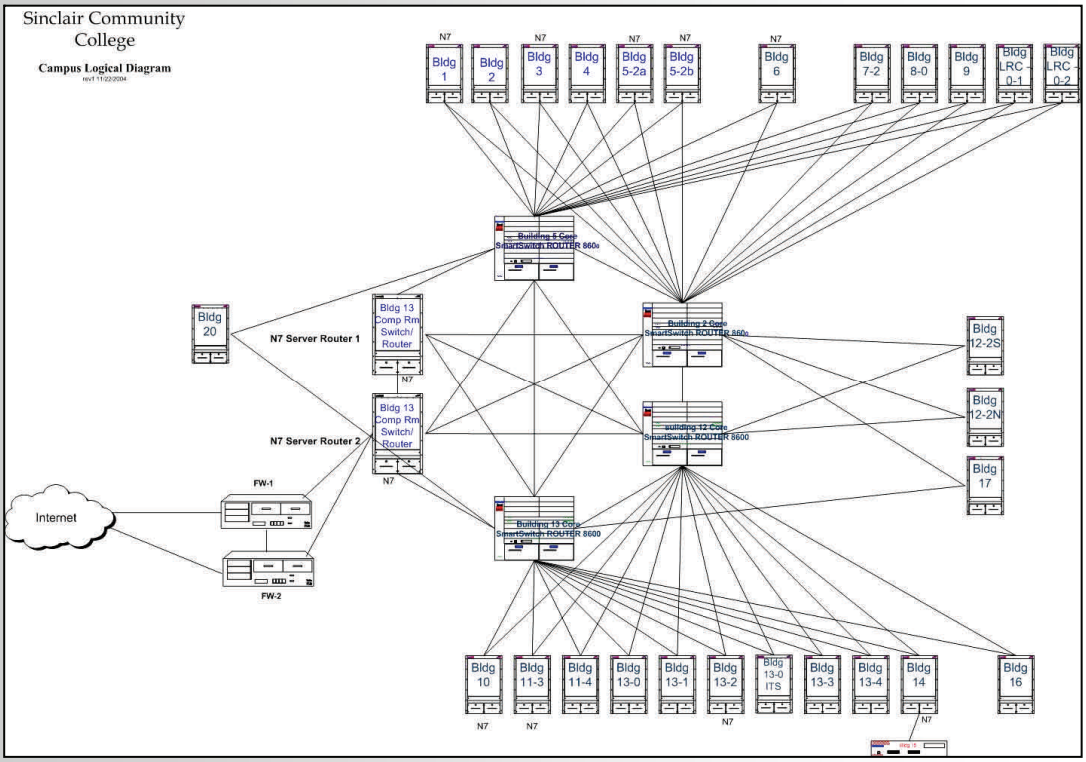



**Figure 1-5. The routers in the core of the Sinclair network provide redundant inter-connections between all of the edge switches.**

## SynchronEyes Implementation

SynchronEyes classroom management software connects an instructor's computer to every computer in a networked classroom. SynchronEyes offers a variety of features that enables faculty to:

- Monitor students' computers from the teacher's desktop
- Lock students' computers to focus their attention
- Create, send and receive quizzes
- Broadcast teacher's screen or any student screen to the entire class
- Interact with students through questions, chats and surveys
- Monitor students on both wired or wireless networks
- Connect to a variety of technology products, including laptops, mobile devices and desktops

Requests were made from multiple departments to allow the instructors to connect to the computers in a classroom. Some of these departments already had hardware/software solutions for this function.

ITS purchased ten licenses of the SynchronEyes software for $7790 to standardize this service. This replaced the other hardware/software solutions already being used in multiple labs. SynchronEyes is currently installed in 7L05 - ENG, 12363 - SOC, 11222 – EGR, 14306E – ITS.

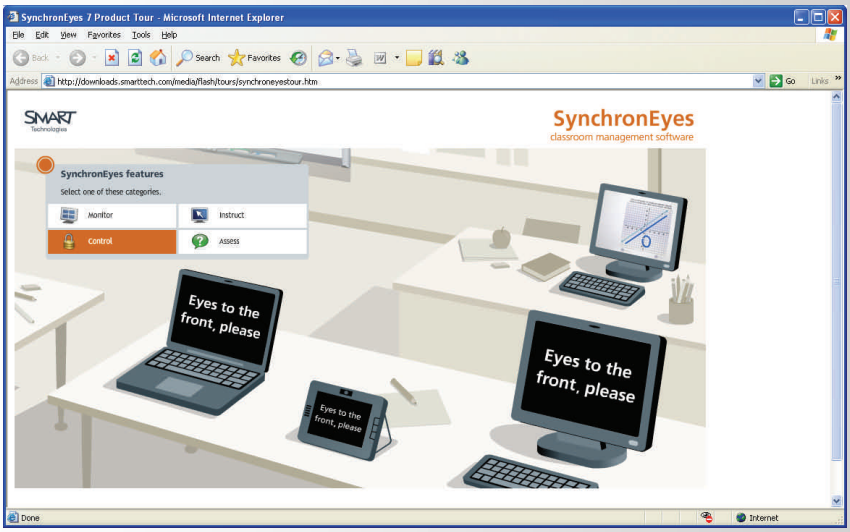



**Figure 1-6. SynchronEyes can prevent network access.**

## KIOSK Hardware Upgrade

The self-service Kiosk hardware was outdated and the programming was being changed to the Web based version. ITS reviewed the requirements for the new web-based access and proposed replacement equipment. The proposal was reviewed by the Student Services Disability Office to ensure compliance, and the kiosk enclosures were modified by Facilities to accommodate the hardware change. ITS also reduced the total kiosk count to six kiosks based on annual usage reports. The new kiosks are located in the high student traffic areas and use standard PCs and LCDs.


**Figure 1-7. Kiosk with hardware upgrade.**

# Major Projects for FY 2007-2008

A variety of innovative projects is in process or planned to start during FY 2007-2008. This section describes only a few of these major projects.

## Fair Access to Information Project

While the new Library expanded the number of computers available to students, it also produced an increased demand for access to the technology. This demand often exceeds the supply of available computers and students end up circling the floor watching and waiting for a free computer. In many cases, the Library can loan a laptop to meet this demand. However, there are also times when all laptops are in use or students prefer – for legitimate reasons – to use a desktop unit.

The goal of the Fair Access Project is to find and implement a technological solution that will manage the waiting cycle and assure that all students have equal and timely access to information technology. Software has been identified to accomplish this task, and it will be tested and installed on the library's public desktop computers.

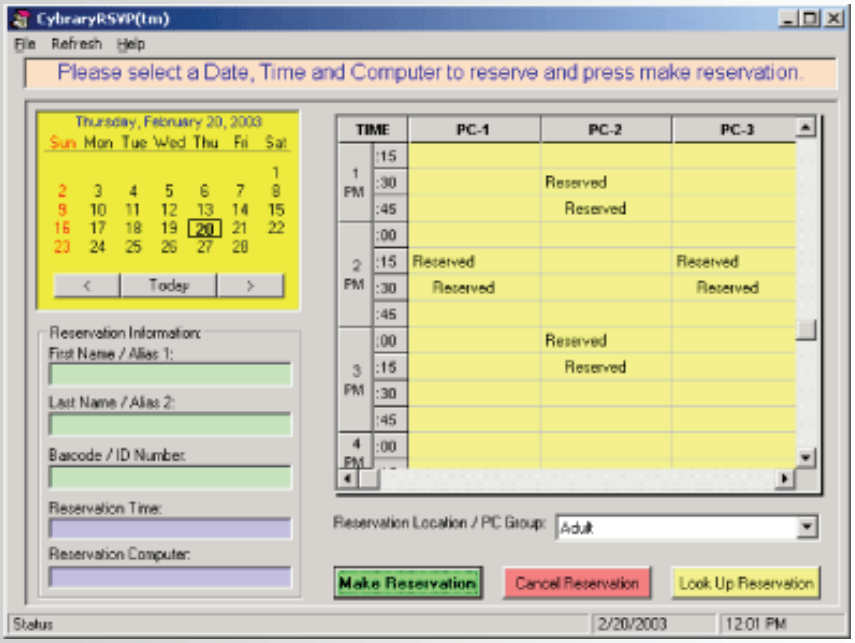



**Figure 1-8. Sample computer reservation screen.**

## Distance Learning Reports and Support

Data exploration is a continuing opportunity the business intelligence warehouse provides. While the majority of reports generated from the Department of Research, Analytics and Reporting are developed through the establishment of the Research Agenda, several projects in support of distance learning are mentioned here: 1) creation of online reports such as last login, course

survey results, success of online course sections when compared to traditionally-delivered sections; 2) using predictive analysis through data mining to help determine the number of online sections that should be offered, minimizing the need for cancellation or for the last minute creation of sections; and 3) the development of metrics using Angel reporting capabilities, including such things as uptime.

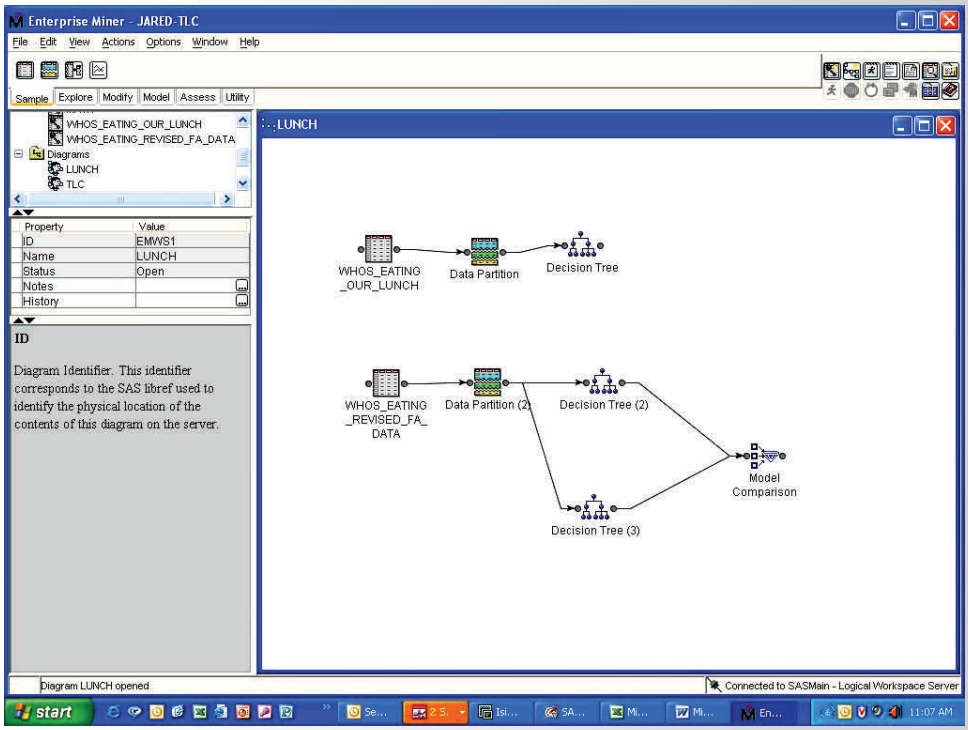



**Figure 1-9. An example of a SAS predictive modeling setup done by Research, Analytics and Reporting.**

## Convert to Colleague Release 18

This project will include taking all of the necessary steps to assure that the next release of the Colleague software can be installed without disruption to business operations. The next version, Release 18, is a complete change in the underlying architecture supporting the student information system. This architectural change requires that every program ever written by Sinclair staff needs to be upgraded. In addition, every user of the student information system will need to become proficient in using a graphical-user-interface as the access mode for Colleague. This project is extremely large and complex, and it is estimated that the project will require in excess of 11,300 hours of staff time.

A second part of this project is to gather information necessary to redesign the manner in which course information is conveyed. Currently, SCC uses a two-character course section code that contains many pieces of disparate information about the section. Building “intelligence” into the section codes has some advantages, but the extent of the intelligence conveyed in the section code has become so complex that the utility of this approach to information dissemination is now problematic. This project will involve identifying all locations within the Colleague system that rely upon the existing section code logic, so that in a future project this logic can be removed and

relocated to more appropriate data fields. Since all pieces of Colleague code need to be examined as part of the R-18 project, this is the logical time to locate the areas where section code logic is used.

Another activity that will be leveraged as part of the R-18 project is a reexamination of the custom Colleague programming that is associated with Sinclair's financial aid transmittal process for awards from sponsors. This custom programming has a history of high maintenance costs and performance variability. Now would be an appropriate time to reexamine business practices that would allow use of the Colleague baseline product and thus would reduce long-term costs of ownership for the product.

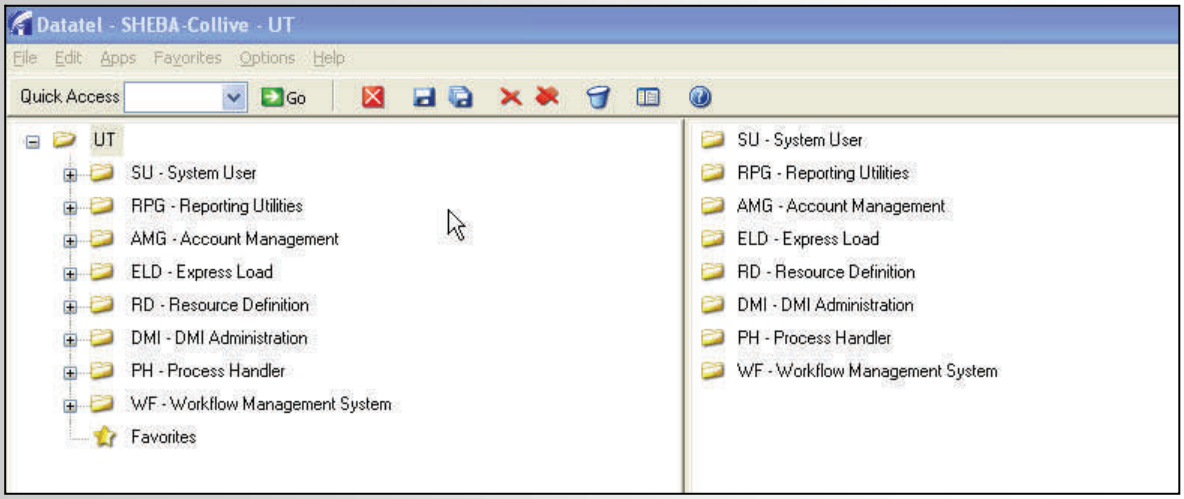


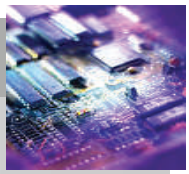

**Figure 1-10. Converting the user experience to a graphical user interface (GUI – shown above) is one of the major features of going to Colleague Release 18.**

## Implement New Web Site Design

The college web presence needs to be refocused to more actively engage and attract students to Sinclair. The overall look and content of the site needs to be reviewed and refreshed based on a cohesive web marketing strategy developed by Sinclair's marketing group. This project calls for Web Systems to support marketing initiatives by providing technical support to reshape the website to meet the changing needs of Sinclair. The full scope of this project will depend upon marketing decisions yet to come, but it is anticipated that the changes to the website will be extensive enough to require significant project effort.

## Veritas NetBackup Vault Software

ITS has purchased a product from Veritas known as NetBackup Vault. NetBackup is the software that ITS uses to perform all of the backups of the data on the College's servers and Vault is an additional component of NetBackup. Vaulting software decreases the ongoing cost of purchasing backup tapes and provides improved file restore response to users. Implementing the Veritas NetBackup Vault option reduces the number of tapes sent offsite for storage and provides a full



copy backup in the tape library in the computer room. When tapes are due to be sent offsite, the offsite option is executed in the Vault software; vaulting then takes the set of 25 tapes in the library, writes only the data to tape; and creates an offsite copy that is at least ½ the amount of tapes as the onsite backups.

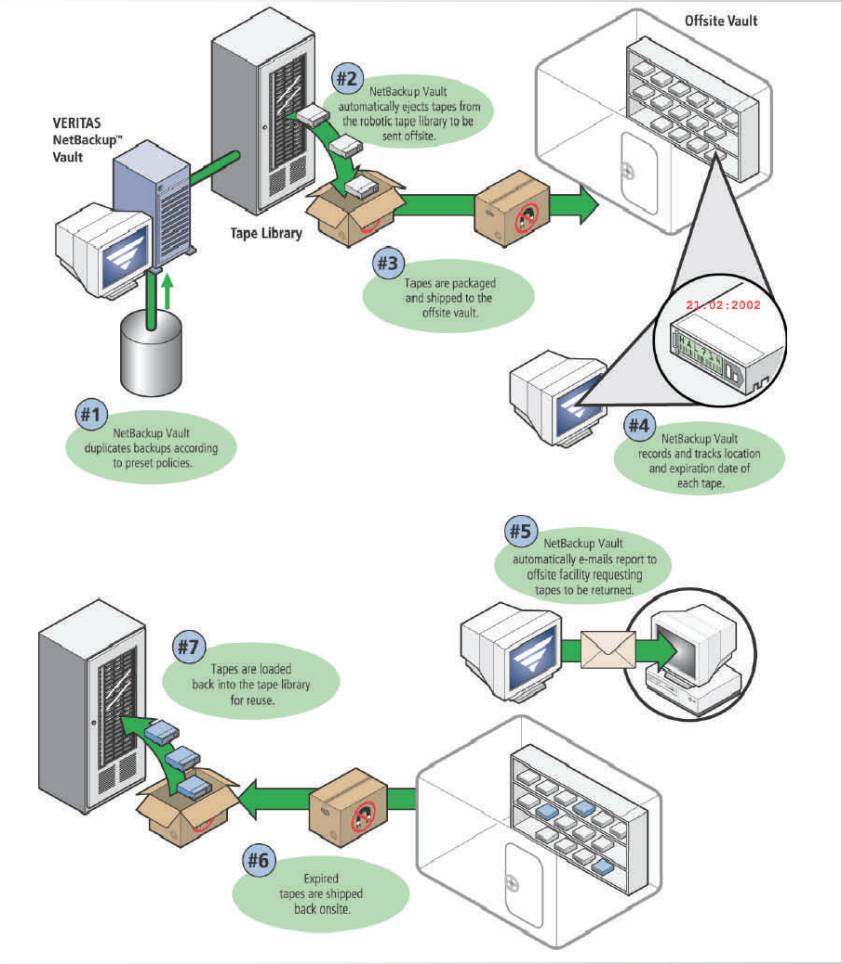



**Figure 1-11. The NetBackup Vault software manages the tape duplication and vaulting function.**

## Encryption of Personal and Other Sensitive Information

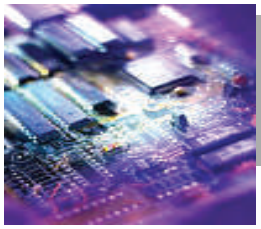
Theft of personal information has become the primary goal of today's cyber criminal. In the US, during the two-year period spanning February 2005 -2007, Colleges and Universities publicly disclosed over 115 major information security breaches involving personal information. Higher education institutions are prime targets for a number of reasons, the primary ones being the sheer volume of personal information stored in systems and the open to the public nature of campuses. The current most effective technical solution for protecting personal data is data encryption.

The objectives of this project are to research, test, and implement encryption solutions, and to develop guidelines, policies, and procedures for these solutions, to protect personal information on campus systems and media.

## Digital Community College Top 10

In April, 2007, Sinclair Community College was among a select group of large community colleges to be honored with the designation as a **Digital Community College Top 10**. The honor was bestowed by The Center for Digital Education and Alcatel-Lucent (CDE/A-L) in association with the American Association of Community Colleges. Sinclair was one of an elite group of colleges located throughout the country to be recognized as having an extremely broad and impressive array of information technology services available for students, faculty, and staff.

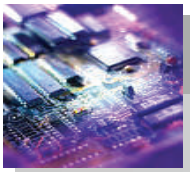

**Figure 1-12. Top 10 tech-savvy Community Colleges for 2007 Award.**





# Section 2

# Introduction





# Introduction

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Indications of success in accomplishing these stated goals, are the many National Awards received over the past few years. Following are brief descriptions of several projects and the various awards associated with them.

## Content Management System (CMS)

### Description

Web based Content Management System (CMS). As a part of the original web strategy project Web Systems developed a custom CMS to manage the main Sinclair web site (http://www.sinclair.edu). The tool allows users with no technical expertise to create and maintain web pages while providing a cohesive navigation and appearance throughout.

Several months of planning and development, by a team of people, were required to build this tool. At the time it was the largest project Web Systems had yet undertaken. The system was fully rebuilt and updated in 2006, to update our technology for the future.

### Awards

**2004 ACUTA Institutional Excellence**
Based on our communication strategy using the CMS to develop and manage the Sinclair web site. This comprehensive strategy was undertaken to improve Sinclair's web presence and to enhance communication among students, faculty, and staff.
**2005 Innovation of the year**
Sinclair internal process, forwarded to the League. Based on technology and ability for many people to contribute to the successful presentation of the website without being technical.

## Student Success Plan (SSP)

### Description

Student Success Plan (SSP). SSP is a counseling record management system developed as a unique solution for monitoring student progress through counseling services at the college. The application provides counselors with an integrated suite of tools to manage and report on student progress. SSP is also a Rich Internet Application (RIA) written in Flash and using cutting edge techniques for web application development.

# Introduction

This application has been in process for over 4 years. It has had many thousands of man hours of time devoted to its design, development and implementation. Work continues to upgrade the system to the very latest in technology and make improvements to the counseling model.

**Awards**

**2004 Educause Excellence in Information Technology Solutions Award**
Awarded for the SSP process and technology. Competition included all colleges and universities in the US, not just 2 year schools.

**2005 Macromedia Higher Education Innovation Award**
Awarded for Sinclair's use of innovative technology to solve a real need.

**2005 National Council for Student Development Exemplary Practice Award**
Awarded for the SSP process and tools.

**2005 NCSD and League for Innovation Terry O'Banion Shared Journey First Place Award**
Awarded for the SSP process and tools.

**2006 MetLife Best Practice College Award**
Awarded for the SSP process and tools.

**2006 Innovation of the Year**
Awarded for the SSP process and technology.

**2007 Bellwether Award**
Awarded for the SSP process and tools.


**Figure 2-1. Awards won for excellence in information technology.**

**Figure 2-2. Ken Moore, Senior Vice President, and Russ Little, Manager, Web Systems receiving the Educause Award.**

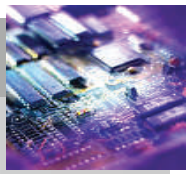

**Figure 2-3. Bellwether Award.**

## Curriculum Management Tool (CMT)

### Description

Curriculum Management Tool (CMT). The CMT system provides a means of creating, approving, and tracking all curriculum changes at the college. The process incorporates the best practices for curriculum design and creates linkages for assessment and outcomes and enforces quality control. The tool also dynamically provides the master syllabi, catalog information, web site content and reporting on all college curriculum changes.

# Introduction



This application has been in process for over 4 years. It has thousands of hours of time invested in its design, development and deployment. Work continues to upgrade the system to the latest in technology and to improve the features of the system.

**Award**

**2007 Innovation of the year**
Awarded for the technology and process design.

## Virtual Tour

**Description**

Web based Virtual Tour (http://tour.sinclair.edu). The virtual tour was proposed by marketing and designed and developed by Web Systems. The tour consists of an interactive map, photos, 360 panoramas, descriptions and wifi locations. The tour is an interactive Flash application that is dynamically driven by information in a database. We also created a CMS style administration tool for maintaining the content so marketing does not need IT help to maintain the tour. This project came together over many months of time and much of that effort being outside regular working hours since the project did not have a high overall priority. The principle parties involved put in extra time to make sure this tour came to life.

**Award**

**2005 National Council for Marketing and Public Relations Regional Medallion Award**
Awarded for our design and technology.

## Wireless Networking

**Description**

The growth in wireless networking, the need to provide protection from the introduction of wired and wireless “guest” computing devices, and the need to protect the network from the proliferation of network-borne viruses and worms prompted Sinclair to develop a comprehensive Secure Local Area Network Strategy. The strategy was completed in 2004 and provided a roadmap for the implementation of a Secure LAN solution.

**Award**

**2006 ACUTA Institutional Excellence in Communication Technology Award**
In July 2006, the Association for Communications Technology Professionals in Higher Education (ACUTA) awarded their annual Institutional Excellence in Communication Technology Award to Sinclair Community College for our Secure Local Area Network Strategy project. This award recognized the considerable work that went into researching, testing and implementing technologies that would build intelligence into network devices, transparently limiting the type of communication they will allow.


**Figure 2-4. 2006 ACUTA Institutional Excellence in Communication Technology Award.**

## Network Storage Solution

### Description

To maintain the highest availability level, servers occasionally require maintenance to repair problems, prevent problems and install new hardware or software. Concurrently, Sinclair has a goal of achieving as close as possible to 100 percent service availability, or uptime, for these servers.

### Award

**2006 Computerworld's Best Practices in Storage Awards Program**
In October 2006, Computerworld's Storage Networking World chose Sinclair's Information Technology Services (ITS) department as a finalist in the Best Practices in Storage Awards Program in the category of "Securing the Storage Fortress." This award recognized the cumulative effort of a Network Service Availability system implemented in June 2002. This system is used to report on the total service availability, to create improved availability controls and processes, and to create an environment in which decisions are made with the customer's expectations always in the forefront.


**Figure 2-5. 2006 Computerworld's Best Practices in Storage Awards Program.**

## Top Digital Community College

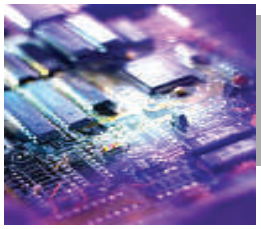
### Description

Nearly 200 community colleges across the country participated in the survey. Colleges were grouped into three categories based on student enrollment: small (less than 3,000 students), mid-sized (between 3,000 and 7,500 students) and large (more than 7,500 students). Community college officials responded to a set of 24 multiple-choice questions and five narrative questions regarding online services and technology provisions offered to students, faculty and communities. Colleges provided Web site addresses and background data for final verification and validation.

### Award

**Top 10 Tech-savvy Community Colleges for 2007**
The top 10 tech-savvy community colleges for 2007 have been named by the Center for Digital Education and the American Association of Community Colleges (AACC). A ranking was established based on the third national Digital Community Colleges Survey, which examined how colleges are deploying technology to streamline operations and better serve students, faculty and staff.

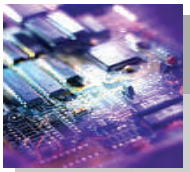

**Figure 2-6. Top 10 tech-savvy Community Colleges for 2007 Award.**





# Section 3

# Major Accomplishments For FY 2006-2007





# Major Accomplishments for FY 2006-2007

A wide variety of projects were in process or started during FY 2006-2007. Several were delayed due to budget constraints; some were cancelled due to the emergence of more effective technologies or alternative methods to achieve the same end result; a few will continue into FY 2007-2008. Many of those completed provide innovative processes for students, faculty, and staff. This section describes many of the more significant project accomplishments. Each project title has associated with it a color coded object to reflect the Sinclair Strategic Cluster supported. These clusters are shown at the bottom of each page.

## Library

Following are the Major Accomplishments for FY 2006-2007 for the library:

- Millennium Project
- Library Patron Data Project
- Measuring Student Response Project

### Millennium Project

The Library's computer system is a turn-key product purchased from Innovative Interfaces, Inc. (III), the library vendor used since 1992 by all state university and community college libraries in Ohio because of the OhioLINK project. It includes modules or subsystems for circulation, materials booking, cataloging, serials, and acquisitions. The III OhioLINK consortium system facilitates direct lending of library materials between institutions via a direct patron request feature.

Sinclair continued to use the basic text version of the III software that was introduced in 1992, although the vendor moved to a GUI product called Millennium about five years ago. All new product development has taken place in Millennium. OhioLINK purchased the Circulation and Materials Booking modules for Sinclair, but the remaining modules had not been upgraded. This project involved conversion from the older software modules for cataloging, serial processing, and acquisitions to the current standard. In addition, it provided improved report building capabilities for improved utilization data.

**Qualitative/Quantitative Return on Investment:** With training, staff should realize productivity benefits from being able to perform multiple functions such as moving from data authority records to data input screens with cut and paste operations or simultaneous viewing. With the text version, this was impossible. Also, by moving to the Millennium product, the college will now be able to adopt new features and services as they are developed by III.

**Cost savings/Cost avoidance:** By purchasing the software in the 2006 fiscal year, Sinclair participated in a group purchase contract that resulted in a 30% discount on the purchase price.

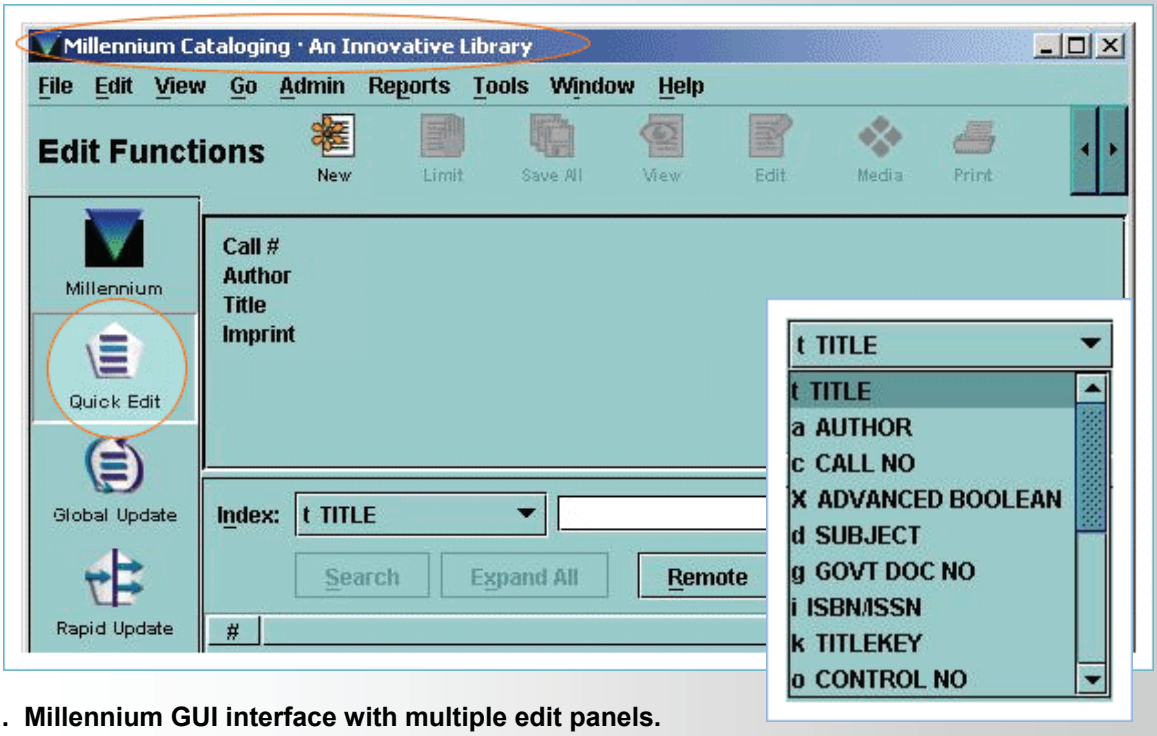



**Figure 3-1. Millennium GUI interface with multiple edit panels.**

**Target Completion Date:** June 2007

**Actual Completion Date:** Installation, training, and implementation of all modules was completed on target.

## Library Patron Data Project

The Library patron database in the III Circulation system is built with data from the college's ERP system. Librarians or Information Technology Services staff transfer data in a series of FTP "patron database loads" each quarter. It is a repetitive and labor intensive process. Patron data moves between the college's ERP system and the library's III system and between the library's III system and OhioLINK. This data is used to check out books, to facilitate OhioLINK borrowing between schools, and to authorize remote use of library research databases when students and faculty are off campus. It requires a separate user name and password from that used by students and faculty with my.Sinclair.edu.

This project included two elements:

1. Assure that data transfer between the library's III system and OhioLINK was secure. This involved setting up data encryption via an SSL certificate on the library's system to secure communications with the central OhioLINK server. Sinclair staff had to work with III and OhioLINK to acquire and set up the certificates for multiple servers.

2. Investigate the feasibility of setting up an active server link via the III LDAP module to eliminate the need for a separate username and password and allow for direct patron verification using the college's ERP system. Sinclair staff determined that the current III product was prohibitively expensive and that other III libraries are exploring alternative solutions. Further research will be needed.


**Figure 3-2. Library SSL certificate.**

**Qualitative/Quantitative Return on Investment:** Having secure student and faculty data is essential if the college is to observe the law and avoid identity theft.

**Cost savings/Cost avoidance:** Cost avoidance by reducing the chance of penalties in the event of a security breach.

**Target Completion Date:** August 2006

**Actual Completion Date:** The SSL certificate was ordered in December 2006, following discussions between Innovative and Sinclair ITS staff on processes. The III LDAP module was found to be prohibitively expensive with few institutions adopting it at this time. Further investigation of other products is called for.

## Measuring Student Response Project

Library instruction is an important part of information literacy education at Sinclair - one of the college's general education competencies. In most cases, however, library participation involves a single training event and measuring the effectiveness of this training can be difficult because it is hard to gather meaningful data in a timely manner. One method of gathering timely data from student participants is to use an audience response system where students use a remote control to answer questions. This kind of system could be used to conduct on-the-fly tests of student understanding. Response data is quantified in real time and captured for later analysis.

In this project, the library investigated audience response systems that can be used in with library instruction sessions - both those that may already be owned by the college and those on the market today.

**Figure 3-3. Photo illustration of non-Sinclair students using an audience response system.**

**Qualitative/Quantitative Return on Investment:** Measures of library information literacy instruction effectiveness are generally indirect - after the fact questions and comments made to faculty and the appearance of good sources in student papers and projects - neither of which can be directly measured nor attributed to library instruction. Library instruction is expensive when faculty and librarian time are considered in addition to the dedication of an actual class period to the activity. If a relatively inexpensive and easy-to-use response system can be identified and used to provide immediate, measurable feedback to the librarian, classes can be better designed to respond to student needs.

**Target Completion Date:** December 2006

**Actual Completion Date:** Several products have been identified, but none were purchased yet. Costs of these products have been dropping during the year. One tested product dropped 33% in price and another viable product was identified at a further reduced price. Additional testing of alternative products is needed to determine whether the less expensive product will meet the needs of the project. An onsite test has been requested, and this project will be extended into the new year.

# Research, Analytics and Reporting

Following are the Major Accomplishments for FY 2006-2007 for Research, Analytics and Reporting:

- Processes to Improve Data Quality
- Project DAWN User Training
- Continuation of Project DAWN Implementation
- New Data Elements/Sources for DAWN
- Implement Procedures for Large Data Warehouse Loads
- Retention Study Using Enterprise Miner

## Processes to Improve Data Quality

Sinclair has partnered with a web service company called Service Objects to perform real-time address verification through the web. To date, the Online Application has been modified to perform address validation and correction. As an applicant enters his/her address as part of the online application process, the Service Objects software verifies that the address is valid according to USPS standards and fills in address related information such as county and zip code. In addition to monitoring newly entered information, the software has been run against all of the existing addresses in the student information system.

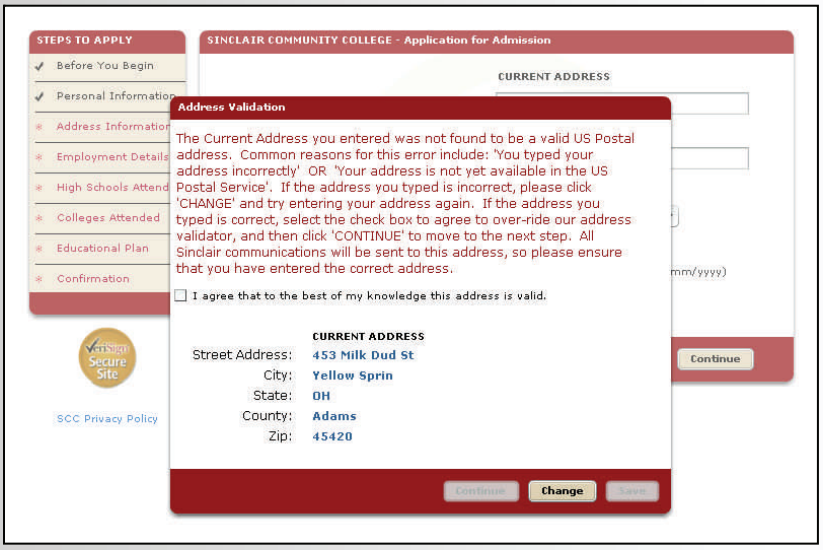



**Figure 3-4. As applicants enter addresses, the information is checked against a database of valid addresses. The above image shows the online application in the background with the pop-up box for an incorrectly entered address in the foreground.**

**Qualitative/Quantitative Return on Investment:** Since Sinclair's tuition is location based, with the lowest rate offered for Montgomery county residents, accurate address information is essential for collecting the correct amount of tuition.

**Cost savings/Cost avoidance:** Correct addresses have a direct effect on the amount of tuition collected. Every credit hour enrollment from an out-of-district student results in an additional $30 of revenue for the college.

**Target Completion Date:** April 2007

**Actual Completion Date:** July 2006

## Project DAWN User Training

Scheduled DAWN training has been conducted throughout the plan year, and special topic training has been offered on an ad-hoc basis whenever additional features have been added to the DAWN information portal. On average, approximately 150 individuals view and use reports from the DAWN portal on a daily basis. Use peaks during term registration periods since DAWN has

become the source for day-to-day enrollment reporting.

**Qualitative/Quantitative Return on Investment:** Nearly 300 people have attended the DAWN portal and DAWN Report Studio training sessions.

**Cost savings/Cost avoidance:** While the DAWN portal cannot be solely credited with the results coming out of last summer's Success Squad enrollment initiative, it is true that DAWN day-by-day enrollment reports were instrumental in giving warning that such an effort was needed. The Success Squad effort is generally credited with turning a negative fall enrollment picture into a positive actuality.

**Target Completion Date:** June 2007

**Actual Completion Date:** June 2007

## Continuation of Project DAWN Implementation

Several new reports have been made available in the DAWN portal such as FTE/Average Class Size report, Learning Center Demographics, and Program Alignment Reports. Several other reports from other sources like the Course Catalog report from CMT, Student Transcript Report from SSP, and Student Last Access Report from Angel are now available in the DAWN portal.

The SAS Strategic Performance Management project has been started, and it is expect to be completed by December 2007.

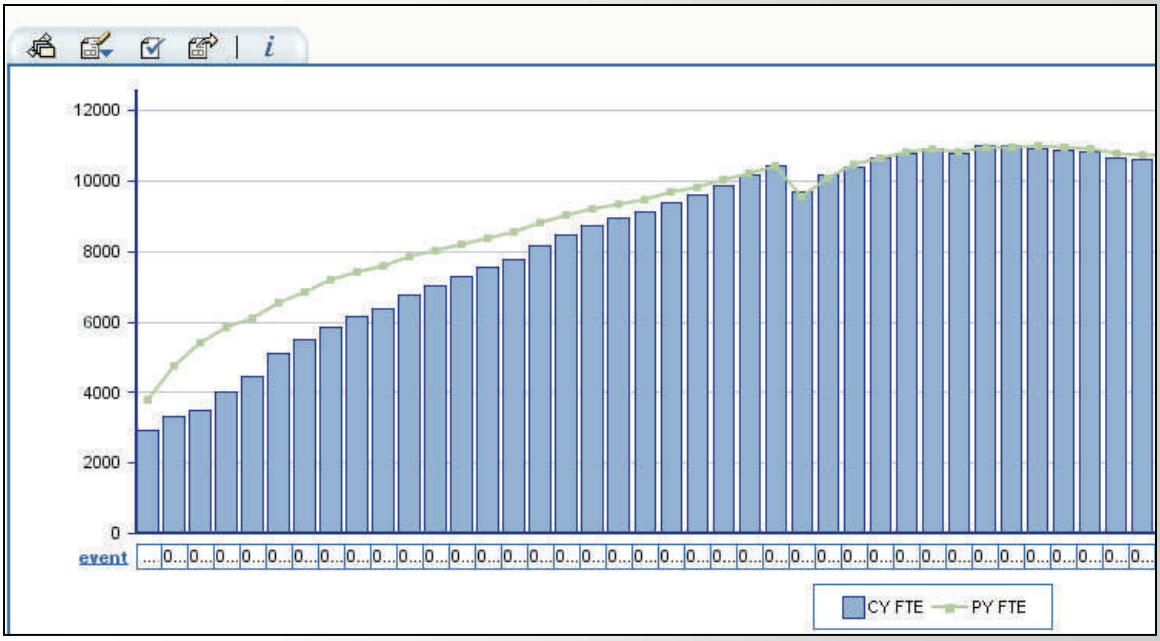



**Figure 3-5. The graph above is an example of information reported on the DAWN information delivery portal. The graph shows day-by-day enrollments for Spring 07 compared to the prior year's daily enrollment pattern.**

**Qualitative/Quantitative Return on Investment:** It is difficult to associate a specific value to information, except it is well known that in the absence of good information the likelihood of good decision making decreases dramatically.

**Cost savings/Cost avoidance:** Assuming a relationship between data driven decision making and ultimate increases in the number of enrolled students, every decision that adds an additional FTE to enrollment increases revenue by approximately $7,000.

**Target Completion Date:** June 2007

**Actual Completion Date:** June 2007

## New Data Elements/Sources for DAWN

New elements have been added to the Data Warehouse during the FY2006-07 time period. The major subject area added was the Human Resources and Payroll modules. Also, the Student Success Plan (SSP), Curriculum Management Tool (CMT), and Average Class Size (ACS) have been made available for reporting in the SAS data environment.

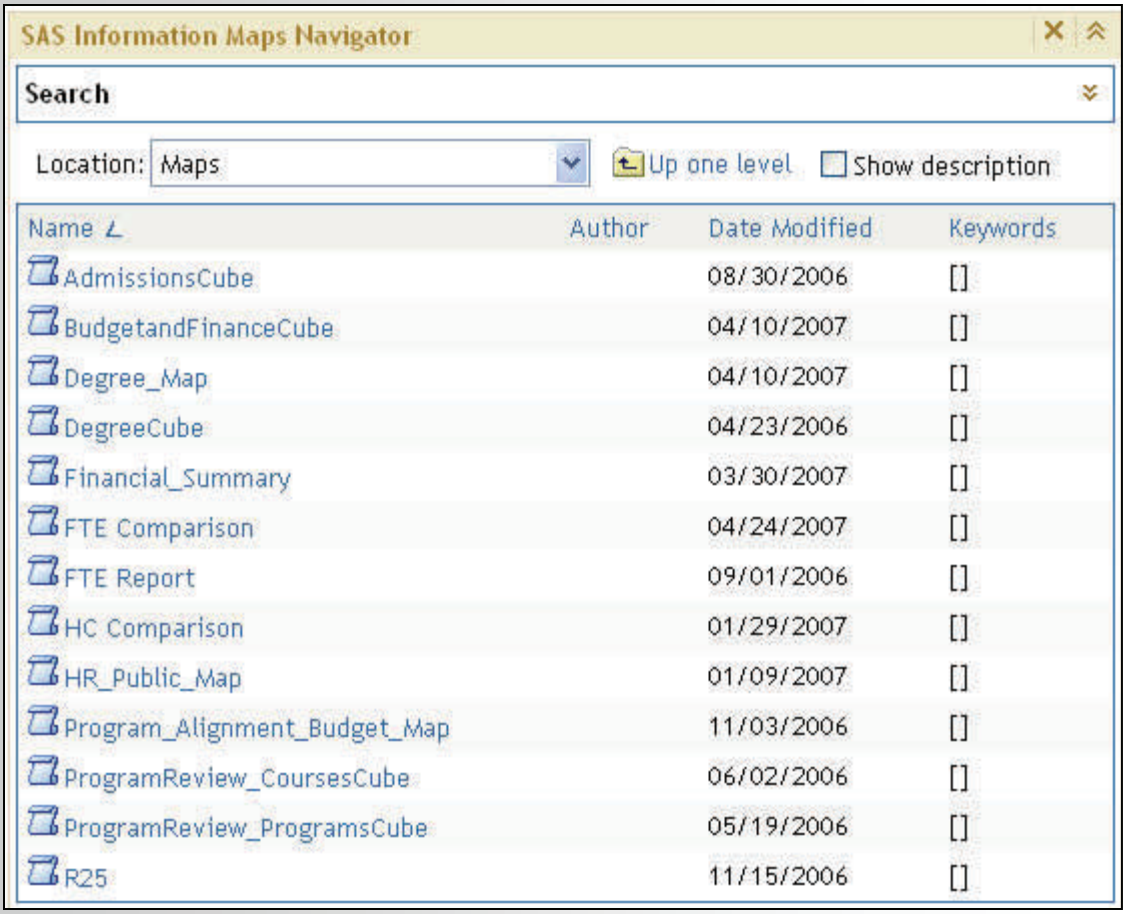
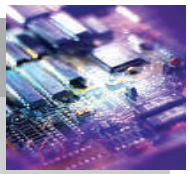



**Figure 3-6. The image above shows some of the data sources that are now available through the DAWN information delivery portal. Financial Summary and HR_Public_Map are some of the new additions for this year.**



**Qualitative/Quantitative Return on Investment:** It is difficult to associate a specific value to information, except it is well known that in the absence of good information the likelihood of good decision making decreases dramatically.

**Cost savings/Cost avoidance:** Assuming a relationship between data driven decision making and ultimate increases in the number of enrolled students, every decision that adds an additional FTE to enrollment results in an increase of approximately $7,000 in revenue to the college.

**Target Completion Date:** June 2007

**Actual Completion Date:** June 2007

## Implement Procedures for Large Data Warehouse Loads

Sinclair's data warehouse holds near-real-time information. Each evening, the warehouse is updated with information from the ERP system that has changed within the last 24 hours. Under exceptional circumstances, too many transactional changes can take place within a 24 hour period to allow the warehouse to be updated within one evening. In these cases, the warehouse update process can be so lengthy that it actually extends into the next business day. Thus, warehouse reports are not available, as expected by users at the beginning of the work day. This project was undertaken to provide safeguards to prevent such occurrences.

Processes have been put in place to allow the warehouse load process to accommodate massive data conversions that have taken place in the preceding business day. Programs have been written to provide warnings to warehouse staff when transactional changes exceed a given threshold, and the nightly warehouse load processes have been changed to run multiple iterations per night when transaction levels have been high on the preceding day.

**Qualitative/Quantitative Return on Investment:** These procedural changes have eliminated instances where the warehouse is unavailable due to lengthy nightly loads.

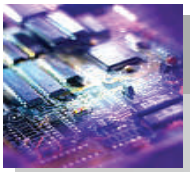
**Cost savings/Cost avoidance:** There is no direct cost savings or avoidance as a result of this project.

**Target Completion Date:** July 2006

**Actual Completion Date:** July 2006

## Retention Study Using Enterprise Miner

The purpose for this project is to conduct a quantitative analysis of drop/add data with the expectation of being able to isolate identifying characteristics of those who tend to register for courses but then drop their enrollments prior to the commencement of classes. It is expected that the availability of the SAS enterprise miner software, combined with data available from the historical registration transactions, will make it possible to identify a target population of registrants





who might be counseled into continuing with their coursework who would, without intervention, otherwise drop their courses. If successful, the analytical model resulting from this effort could have a significant, and positive, impact on retention.

**Qualitative/Quantitative Return on Investment:** The overarching goal of Sinclair's Achieving the Dream initiative is to increase the college success rate of at risk students. This analytical effort has the potential to be a major supporter of this goal.

**Cost savings/Cost avoidance:** Each fall, approximately seven hundred students are dropped from enrollment because of non-payment of fees. Each FTE that could be saved through focused intervention would result in increased revenue of approximately $7,000.

**Target Completion Date:** December 2007

**Actual Completion Date:** The project is scheduled for completion by the end of June, but may need to be extended into next year.

# Systems Development & Maintenance

Following are the Major Accomplishments for FY 2006-2007 for Systems Development and Maintenance:

- Single-Sign-On for Additional Web Services & Desktop
- Account Provisioning Processes
- Colleague Enhancements
- Next Generation ERP
- Conduct Feasibility Studies
- Angel Learning Management System
- Web Systems Product Enhancements
- www.Sinclair.edu Redesign
- Custom Faculty Payload Process
- Switch my.Sinclair.edu to Angel Portal
- Web-based Recruitment/Admission Enhancements
- Support Program Alignment Process
- Implement Colleague Cashiering System
- Create Tool to Post Emergency Messages

## Single-Sign-On for Additional Web Services & Desktop

The main accomplishment under this project was the integration of single-sign-on with the new Angel learning management system and the latest version of Colleague's web-advisor product. Both pieces of software changed the underlying technology that had previously been in place, and

these changes required that the single-sign-on solution be reconfigured for both pieces of software. Because of the efforts needed to respond to these changes in basic services, time was not available to extend the single-sign-on solution either to other web applications or to desktop software.

**Qualitative/Quantitative Return on Investment:** As with the initial deployment of single-sign-on, the primary benefit has been the qualitative improvement in student and staff web experience. Single-sign-on has eliminated the need for multiple logins to web resources and has made access to these resources appear to be seamless.

**Cost savings/Cost avoidance:** There are no direct cost savings and/or cost avoidance associated with this project.


**Figure 3-7. my.Sinclair.edu portal showing Web-Advisor spawned as a separate web frame. With SSO in place, no second login was required to access the Web-Advisor application.**

**Target Completion Date:** November 2006

**Actual Completion Date:** September 2006

## Account Provisioning Processes

This project was completed as originally planned in the FY2006-2007 IT master plan. The project called for the creation of processes that would allow for an online applicant to Sinclair to move seamlessly and automatically through the application, admission, account(s) creation, and registration processes. What has been put in place is a series of automated process connections

that allow the completion of one process to serve as the start notice for the initiation of the next process.

**Qualitative/Quantitative Return on Investment:** When all application information has been provided and the applicant does not need pre-enrollment academic intervention, an individual can now move from applicant to enrollee in as little as fifteen minutes. Prior to the completion of this project, the applicant to enrollee transition took a minimum of twelve hours and, more often than not, at least 24 hours.

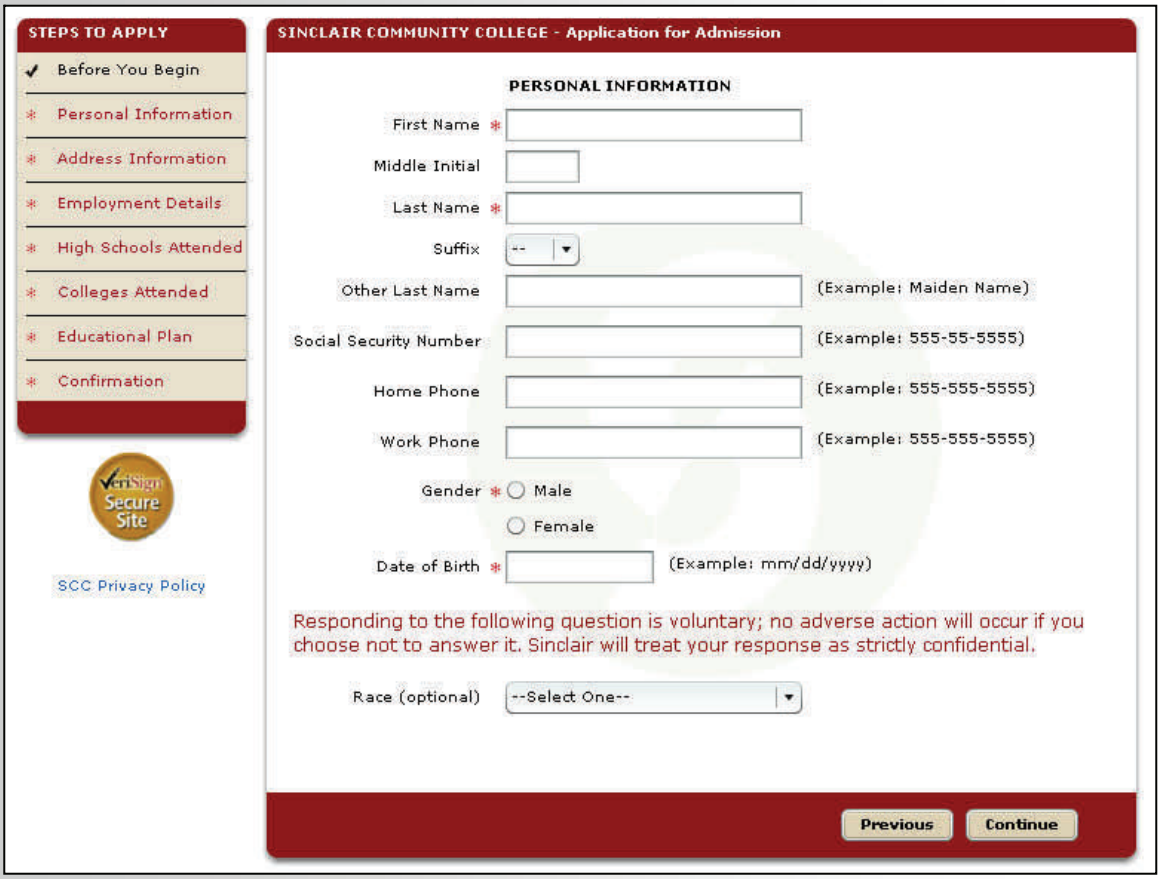



**Figure 3-8. Screen shot showing the personal demographics page of the Sinclair online application. Information entered through this process triggers automated steps that lead to eligibility to register for classes.**

**Cost savings/Cost avoidance:** It is difficult to put a price on the value of the improved service to students, but the effects on time spent on process control and rework can be estimated. Since this project was completed, the number of calls to the help desk by applicants inquiring about account availability has been reduced by an estimated 50%.

**Target Completion Date:** December 2006

**Actual Completion Date:** February 2007

## Colleague Enhancements

This project included making several enhancements to the Colleague Web-Advisor system that is available to students and campus staff. In addition, the project involved installing the latest version of the Web-Advisor product. A third component of the project involved upgrading the underlying data management system that supports the Colleague ERP system. In the first instance, staff enhancements included online access to pay notification and online time entry and approval for hourly employees. In the second instance, the new version of web-advisor significantly improved the administrative overhead required to make this service available to the campus community. Previous versions of Web-Advisor had limited flexibility as to what information could be added and placed on web screens, and the addition and placement of this information required a fairly high level of understanding of web programming language. The new version of Web-Advisor significantly lowers the need for programming expertise and expands the content placement and scope options available to system administrators.

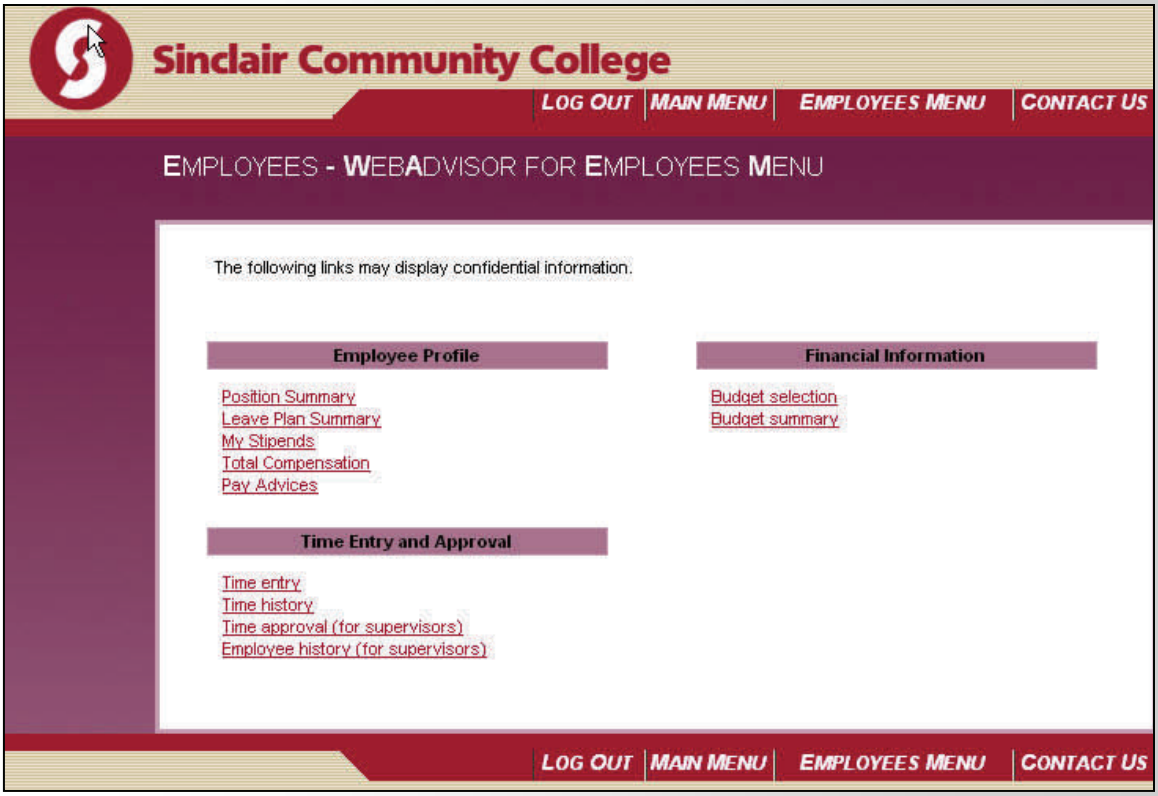
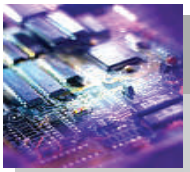



**Figure 3-9. Screen shot showing the employee menu screen from the Colleague Web-Advisor System. Enhancements added this year include 'Pay Notification' and 'Time Approval.'**

**Qualitative/Quantitative Return on Investment:** Online availability of online pay notification eliminates the need for printing check stubs each payroll cycle for all employees. Time entry removes the need for paper timesheets and decreases the rework time needed to correct data entry errors.

**Cost savings/Cost avoidance:** Online pay notification eliminates the $600 annual paper cost of pay stubs, not to mention the savings in labor costs associated with printing, sorting, and





distributing these paper copies. The online timesheets allow the payroll office to focus their efforts on productive work instead of spending time in correcting incorrectly submitted timesheets.

**Target Completion Date:** June 2007

**Actual Completion Date:** June 2007

## Next Generation ERP

Sinclair has been with its current ERP vendor for close to seventeen years, and the vendor has, at times, been perceived as not being as responsive to technological changes as Sinclair might hope. This project called for the hiring of a consultant to perform an evaluation of Sinclair's current use of its ERP system and to evaluate alternative vendors in the higher-education ERP market space. The consultant presented Sinclair with a report identifying areas where there was potential to realize increased value from our current ERP system. In addition, the consultant provided an analysis of other ERP options available to Sinclair.

The report confirmed the suspicion that the current vendor has not, in the past, kept pace with evolving technology trends. However, the consultant reported that this situation is also true of other major vendors in this market space, or those vendors who appear to be adaptive also tend to carry significantly higher risks of implementation failure due to high cost and/or unfamiliarity with the public, higher education market segment.

The consultant's findings were taken to the college's Operations Council with the goal of having the council give a near-term and long-term recommendation with respect to Sinclair's ERP future. The Council recommended that, in light of the other significant structural changes facing Sinclair at this time, it was not appropriate to undertake a conversion to a completely new ERP system. The Council recommended that Sinclair proceed with the implementation of the next version of the current ERP system – this version is expected to address many of the technology concerns that prompted the initial concerns about ERP effectiveness. Furthermore, the Council recommended that the ERP question be re-examined in two to three years.

**Qualitative/Quantitative Return on Investment:** The consultant's costs were approximately $25,000. For this investment, Sinclair acquired a decision on the strategic direction for its ERP future, and Sinclair identified specific process areas where we can realize savings by more efficiently and effectively using the existing ERP system. Many of these process changes have been incorporated into next year's projects.

**Cost savings/Cost avoidance:** At a minimum, a higher-education ERP system is a multi-million dollar investment and multi-year time commitment. Inadequate preparation and planning for ERP implementation is the primary contributor to implementation failure. By undertaking this project, Sinclair has significantly decreased the risk of making a multi-million dollar mistake.

**Target Completion Date:** August 2006

**Actual Completion Date:** March 2007

## Conduct Feasibility Studies

Part of Systems Development and Maintenance's responsibility is to be on the look out for technological solution that could result in increased service and/or reduced cost in support of Sinclair's mission. This project involves conducting feasibility studies to fulfill this responsibility.

The major feasibility study conducted this year was an examination of the benefit that could be realized by implementing a document imaging solution at Sinclair. A group of approximately six people examined products available in this market segment, and the group prepared a report for management identifying the pros, cons, costs and ROI associated with this solution. This report will be used to guide management's decisions with respect to the future application of this solution at Sinclair.

A second feasibility study involved identifying products that could support the Career Services Office's need to identify local employment opportunities for graduates. Career Services currently uses a third-party product that is technologically out-of-date and that has limited technical support available. This feasibility study identified the possibility of making modification to an existing Sinclair web application so that it could fill the needs of the Career Services office. With minor changes, the Service Learning tool could be turned into an employment posting and notification tool.

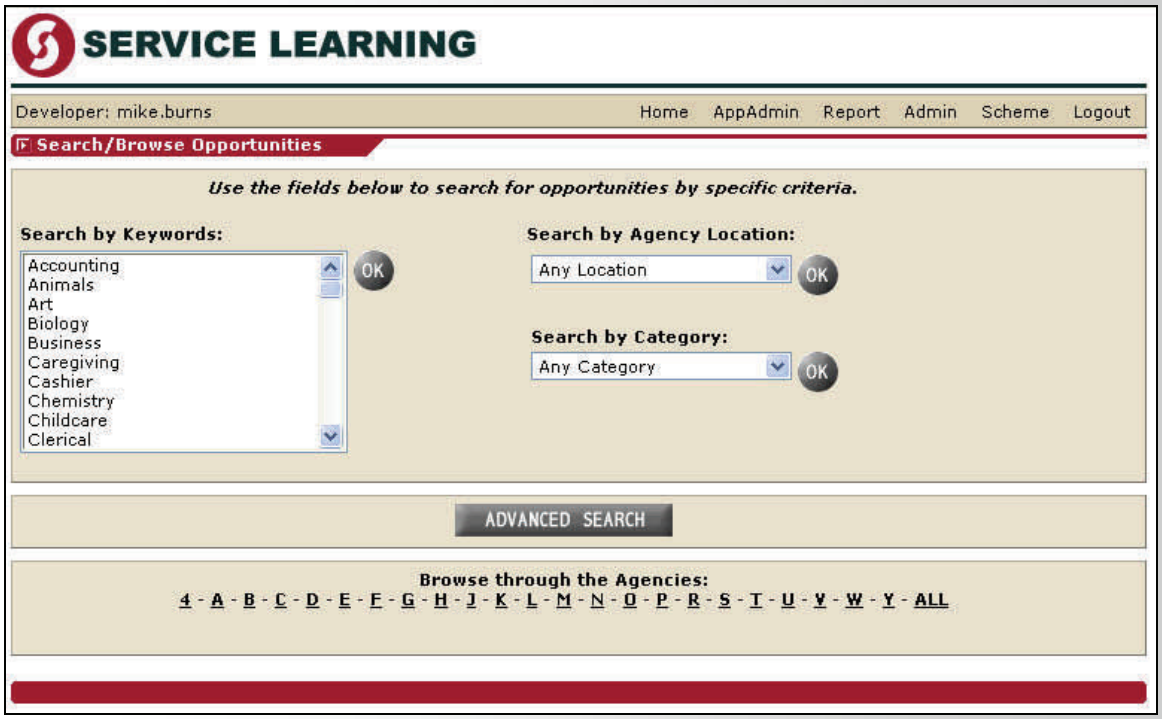



**Figure 3-10. The existing Service Learning application (shown above) can be reconfigured to serve as a career posting and search tool for graduates.**

**Qualitative/Quantitative Return on Investment:** The exact figures from the ROI analysis for a document imaging solution will not be available until the end of the fiscal year. However, initial indications are that the imaging solution would have a three to five year payback period.

**Cost savings/Cost avoidance:** The use of the Sinclair Service Learning Tool to support Career Services job search services will result in the elimination of the need to purchase an external software product. These products can run in excess of $25,000.

**Target Completion Date:** June 2007

**Actual Completion Date:** June 2007

## Angel Learning Management System

The Angel Learning Management System course feature allows faculty and students to conduct all course related business in one web-based, central location. Faculty can post syllabi, notes, lessons, resources, grades, etc. Students can engage in discussion forums, send course email to the instructor and fellow students, participate in live chat, respond to surveys, and post announcements. Unlike the previous LMS solution used at Sinclair, Angel provides one common look-and-feel for course support for both fully distance courses and for enhancements to campus based courses.

For Systems Development and Maintenance, the specifics of this project included installation and configuration of the software, creation of course shells for each course offered by Sinclair, and implementation of the load of courses and attendees into Angel course shells.

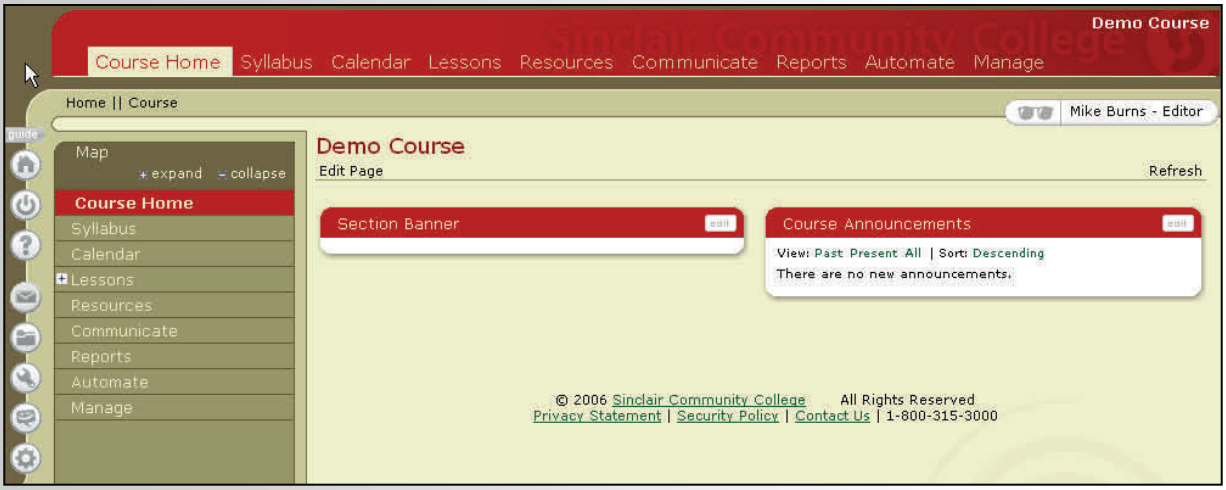



**Figure 3-11. The Angel Learning Management System course feature allows faculty and students to conduct all course related business in one web-based, central location.**

**Qualitative/Quantitative Return on Investment:** The reception of the Angel LMS has been overwhelmingly positive. The implementation met the target go live date of 9/1/2006 with virtually no problems, and most post-implementation problems have been the results of external factors that had an impact on Angel performance.

**Cost savings/Cost avoidance:** The Angel LMS replaced two previously used learning management systems. The use of one system instead of two will result in an annual savings of approximately $45,000.

**Target Completion Date:** April 2007

**Actual Completion Date:** January 2007

## Web Systems Product Enhancements

The Web Systems department within Systems Development and Maintenance has developed two premier products that have received national awards and recognition. These products are the Curriculum Management Tool (CMT) and Student Success Plan (SSP). The most recent recognition is the selection of CMT for Sinclair's 2007 Innovator of the Year award.

Both of these products are dynamically developed, and this project refers to the continuing efforts to incorporate new features and enhanced functionality. During this year the major change to SSP has been a complete rewrite of the underlying SQL database structure so that as the product is sold to other schools it can be more readily implemented in a non-Sinclair setting. The database now more closely conforms to national database standards, and the amount of time Sinclair staff needs to use to support non-Sinclair implementation has been significantly reduced. The changes to CMT are of a similar architectural, behind-the-scenes nature. CMT coding has been rewritten to incorporate a more modular structure which will be easier to maintain and debug as future enhancements are added.

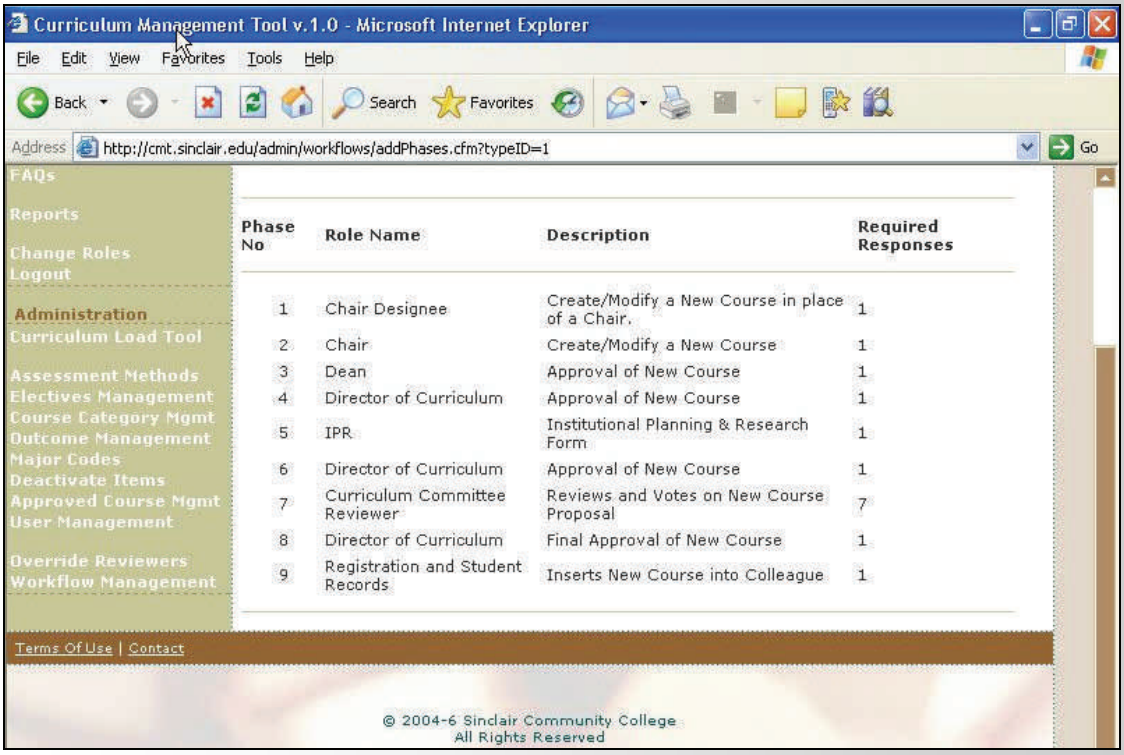
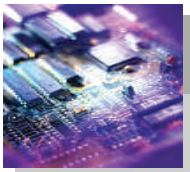



**Figure 3-12. The Curriculum Management Tool (CMT) was selected for Sinclair "Innovator of the Year" award. The tool was developed by Web Systems and is continually undergoing refinements and improvements.**





**Qualitative/Quantitative Return on Investment:** As evidenced by the Innovator of the Year award, these products continue to bring recognition to Sinclair. At the time of this writing, approximately ten additional schools have expressed interest in purchasing SSP.

**Cost savings/Cost avoidance:** During fiscal year 2006-2007, three institutions purchased SSP. These sales resulted in $37,000 in revenue.

**Target Completion Date:** December 2006

**Actual Completion Date:** June 2007

## www.Sinclair.edu Redesign

When this project was originally identified for inclusion in the FY 2006-2007 IT Master Plan, it was expected that the project would concentrate on the complete redesign of the www.Sinclair.edu website. However, changes in the leadership of the student services areas, combined with an institution-wide refocus on enhanced marketing, caused this concentration to shift to the courseview.Sinclair.edu site. The redesign of the www.Sinclair.edu site was put on hold pending decisions about the college's institution-wide marketing efforts. Resources were directed instead at creating a web presence for the Warren County area that would be visually and structurally engaging and that would increase the likelihood that visitors would delve more-deeply into what Sinclair has to offer.

**Qualitative/Quantitative Return on Investment:** The Warren County portion of Sinclair's service district will be the fastest growing well into the next decade. An attractive, user-engaging website will be one of the important tools used to turn that area growth into actual Sinclair enrollments.

**Cost savings/Cost avoidance:** No appreciable costs savings are anticipated as a result of the creation of the courseview.Sinclair.edu site.


**Figure 3-13. The courseview.Sinclair.edu website emphasizes portlet design principles that engage visitors to take a closer look at what Sinclair has to offer.**

**Target Completion Date:** April 2007

**Actual Completion Date:** March 2007

## Custom Faculty Payload Process

Over the past several years there have been various attempts to automate the processes used to calculate and pay faculty teaching expenses. These efforts have generally been unsuccessful either due to complexity of implementation or inflexibility of the solution pursued. This project took a different approach to the pay load issue by separating the process for assigning and calculating faculty course load from the process of actually creating payment for these loads. By tackling only the first portion of this continuum, a system was able to be put in place that automates the payload assignment and calculation without burdening academic chairs with additional steps in this process. The system has been pilot tested through three academic terms and has had a very positive reception. The pilot process will be completed during the 2006-2007 plan year, and putting the production system in place has been included in the 2007-2008 plan.

**Qualitative/Quantitative Return on Investment:** One of the most significant recommendations coming out of the program alignment process was to move the full-time/part-time instructional ratio to a 50/50 percent split. In order to reach this goal it will be essential that the full costs associated with teaching courses be captured. This project has resulted in a tool that allows this information to be gathered.

**Cost savings/Cost avoidance:** If Sinclair were to move to the above stated teaching ratio, Sinclair would move in-state rankings from one of the highest expense-per-credit-hour institutions to be more in line with the average expenses reported for Ohio.

**Target Completion Date:** December 2006

**Actual Completion Date:** March 2007

## Switch my.Sinclair.edu to Angel Portal

As mentioned in the project "Implement Angel LMS", the Angel system replaced two previously-used learning management systems. One of those systems had also been used as the portal entry to several web services such as student email, Web-Advisor, and the FACTS payment plan. Once the Angel replacement was made, the portal functionality of the previous system went away. This project called for making custom changes to the Angel LMS so that the Angel entry screen could serve double duty as both the access to LMS features and also as the entry point for other web services.

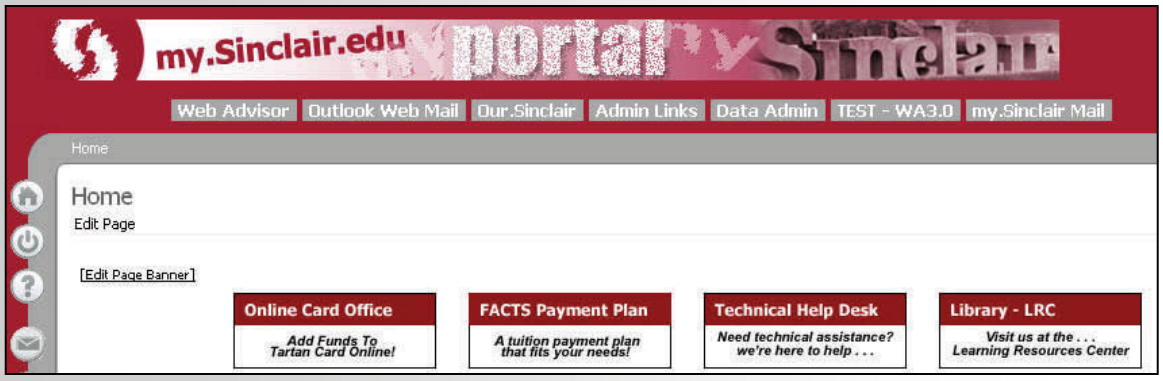



**Figure 3-14. The generic entry screen to the Angel LMS has been customized for students and staff to serve as a portal to multiple web services such as Web-Advisor, email, help-desk, etc.**

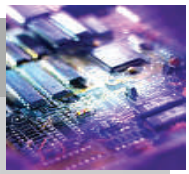
**Qualitative/Quantitative Return on Investment:** As with the Angel LMS implementation, the conversion of the Angel entry screen to serve as a general purpose portal was accomplished with virtually no problems.

**Cost savings/Cost avoidance:** Conversion of Angel to serve as the campus-wide portal results in an annual cost savings of $26,000. This is the amount that was paid for annual portal maintenance under the old portal arrangement. Angel's portal maintenance costs are included within the LMS maintenance cost.

**Target Completion Date:** August 2006

**Actual Completion Date:** August 2006

# Major Accomplishments



## Web-based Recruitment/Admission Enhancements

As originally envisioned, this project included making changes to the online application to assure that needed information for determining residency state was collected, thus improving the internal turn-around time for application processing and improving services to applicants. The project took on a much greater scope with the arrival of the new Senior Vice-President and the college's renewed efforts to implement systems that support strategic enrollment management. While the changes to the online application have been made, the real emphasis of this project has become the support provided to student services as they make their selection of a strategic enrollment management software package. Systems Development and Maintenance staff has guided a "Request for Information" process that has resulted in the identification of two software vendors who have products meeting our needs for strategic enrollment management. It is expected that the selection process for the software will be completed by the end of May, 2007. The implementation phase of this project has been included in the FY 2007-2008 projects.

**Qualitative/Quantitative Return on Investment:** Successful recruitment is founded on the concept of a recruitment funnel where individuals move from the status of prospect through to a state of becoming an enrolled student. Each level of the funnel requires variations in communication plans and recruitment efforts. Without the ability to identify and track individuals through these stages, recruitment efforts are disjointed at best and counter productive at worst. Strategic Enrollment Management software provides the tools needed to successfully track individuals as they progress through the recruitment funnel.

**Cost savings/Cost avoidance:** It is estimated that each new FTE enrollment results in approximately $7000 annual revenue to the college. At this level, the costs of strategic enrollment management software would be offset by the addition of only 20 new FTE's.

**Target Completion Date:** December 2006

**Actual Completion Date:** June 2007

## Support Program Alignment Process

Program alignment is an effort that is pervasive throughout all of Sinclair's departments and services, and the full impact of the program alignment efforts is outside the scope of this report on System Development & Maintenance (SD&M) accomplishments for FY 2006-2007. However, SD&M has played a significant, and unique, role in supporting these college-wide efforts. Specifically, the unit has been called upon to create web resources that support all college units, to collect, analyze, and display data for all budget categories and units, and to facilitate the activities of the program alignment cross-functional team - one of the important deliberation committees in the program alignment process. Overall, this support represents a significant time investment by SD&M staff.

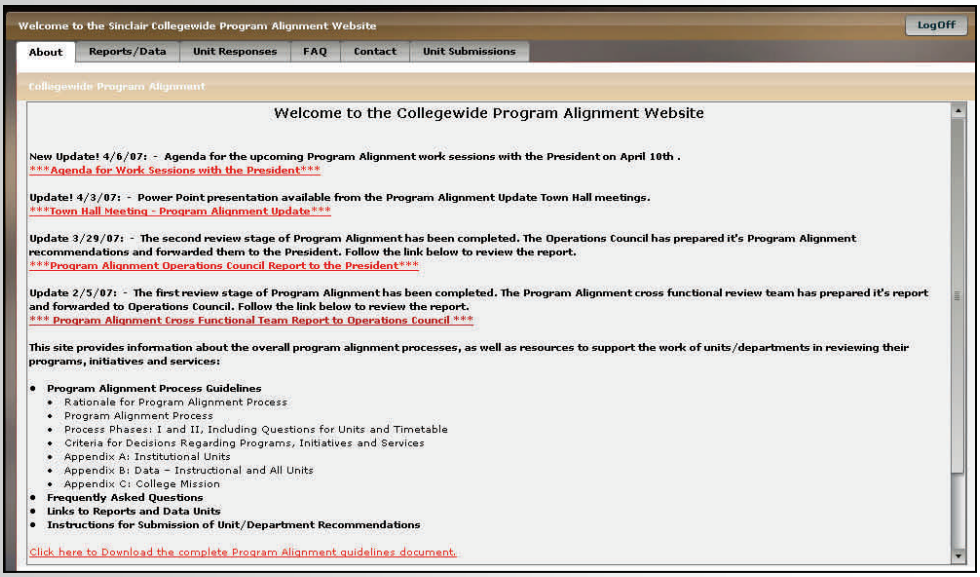



**Figure 3-15. In support of the college-wide program alignment initiative, Web Systems created a secure website where process guidelines and information could be accessed and where supporting data could be found.**

**Qualitative/Quantitative Return on Investment:** Because of the program alignment efforts, Sinclair is well positioned to internally respond to the significant funding reductions that have been directed by the governor and legislature.

**Cost savings/Cost avoidance:** The program alignment strategy is the tool Sinclair is using to respond to the Sinclair Board of Trustees mandated directive to move to a revenue positive budget position.

**Target Completion Date:** February 2007

**Actual Completion Date:** February 2007

## Implement Colleague Cashiering System

In fall, 2006, the Bursar's office came very close to experiencing complete failure of their cashiering software. The problem was caused by the fact that the cashiering software was written many years ago and was based upon an operating system that had long since gone out-of-support. Even though the system contained features that were attractive to the office, the environmental situation made it necessary to rapidly move to a different cashiering solution. This project involved System Development and Maintenance staff's efforts to install, test and implement the cashiering module that was available, but unused, as part of Sinclair's Colleague ERP.

**Qualitative/Quantitative Return on Investment:** The previous cashiering system was built on antiquated technology that was extremely difficult to support. The new cashiering system is based on current industry standards

**Cost savings/Cost avoidance:** Converting to the Colleague cashiering system has allowed Sinclair to discontinue the software support contract with the vendor of the previous system. This is a $5,000 annual savings. There is no additional cost for maintenance for Colleague since the cashiering module is part of the Colleague base system for which Sinclair already has a maintenance contract.

**Target Completion Date:** November 2006

**Actual Completion Date:** November 2006

## Create Tool to Post Emergency Messages

This project involved the creation of a tool that can be used by the Help Desk and Sinclair's Office of Public Information to post emergency messages to the three main websites of my.Sinclair.edu, our.Sinclair.edu, and www.Sinclair.edu. Each authorized office has editing privileges that allow them to post a free-text message to any or all of the sites listed above. Use of this tool has been written into Sinclair's emergency closing plan, and it is now established practice to communicate closing information to these websites in addition to the previously used media outlets of radio and television.

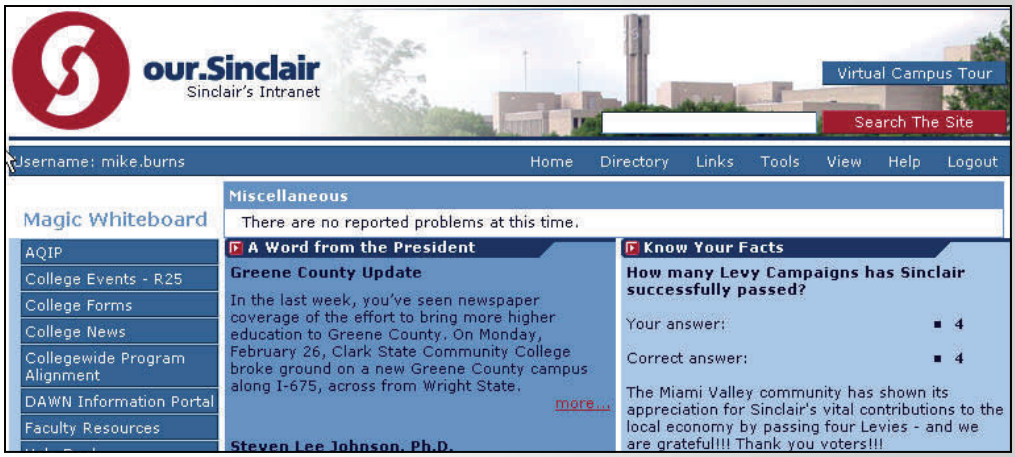
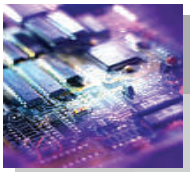



**Figure 3-16. The Magic Whiteboard/Miscellaneous box in the above image shows where and how emergency messages would be displayed on the our.Sinclair.edu website. The same message feature can be directed to my.Sinclair.edu and to www.Sinclair.edu.**

**Qualitative/Quantitative Return on Investment:** The world-wide-web has established its position as a primary information source on an equal par with both print and broadcast media. To respond to this change, Sinclair's emergency message handling protocols need to include this information outlet.

**Cost savings/Cost avoidance:** There is no significant cost savings or cost avoidance associated with this project.

**Target Completion Date:** December 2006





**Actual Completion Date:** December 2006

# Information Technology Services

Following are the Major Accomplishments for FY 2006-2007 for Information Technology Services:

- Network Infrastructure Upgrade
- Network Authentication
- Huber Heights YMCA Fast Track Center
- Reserve Bandwidth for SAS Training Classes
- Daylight Saving Time Changes
- Microsoft Student Select
- Spam Wars Central Site
- WinZip Encryption
- IT Lab Management Improvements
- Pay for Print Implementation 2006-2007
- SynchronEyes Implementation
- Plan to Upgrade Magic
- ELC Home Networking Class
- SAN Expansion
- Move of Central Operator to Call Center
- VoIP Pilot Project
- VoIP Network Preparation
- Campus Messaging System
- Sports Café Media Upgrade
- Distance Learning Classroom Upgrade
- Investigate Ways to Improve Television System (CATV) Reception
- Investigate Ways to Improve the Center for Interactive Learning Exhibits
- Help Desk Improvements
- Desktop Management Improvements
- KIOSK Hardware Upgrade
- Mobile Student Services Recruitment
- my.Sinclair Community for Test Scanning
- Implement DriveLock on College-owned Laptops
- Alternative Image Strategies
- Firewall Upgrade
- Internet Usage Optimization
- Mail Relay Server Improvements
- Internal Process Security Review
- Systems Vulnerability Assessment Plan
- Guidelines and Tools for Security of Mobile Computing
- CALEA Assessment and Response Plan
- 2006 IT Controls Audit (Crowe-Chizek)
- Initial e-Discovery Law Review/Evaluation

## Network Infrastructure Upgrade

Information Technology Services (ITS) maintains a plan (budget) for the annual renewal and replacement (R&R) of information technology infrastructure components. The plan is used to project expenditures over a five year period. Each year, during the annual planning and budgeting cycle, the plan is updated with any new information that would change expected expenditures for the coming year as well as the next four years.

Each item that is identified on the R&R plan has a useful life. This useful life and the total cost of the equipment determine the funds that must be set aside each year to replace the equipment when it has reached its end of life. In FY 2006-2007, ITS replaced the four SmartSwitch 8600 routers that form the core of our network infrastructure.

These devices, while at the forefront of technology when purchased, are now obsolete technology and were replaced with devices that will provide expanded capabilities and much greater reliability over the next 5 years. This upgrade will also allow us to provide ten fold increases in speed within Sinclair's network core.

In FY 2005-2006, the edge devices were upgraded to the latest technology, which has enabled Sinclair to provide policy based networking and network port based security. For FY 2006-2007, the four core SmartSwitch 8600 routers were replaced with six Enterasys Matrix X routers that provide higher speed routing and ten gigabit bandwidth within the network core. The additional two routers that were added to the core allows us to remove the routing function from the computer room switches to provide for better isolation of problems and smoother upgrades in the future.

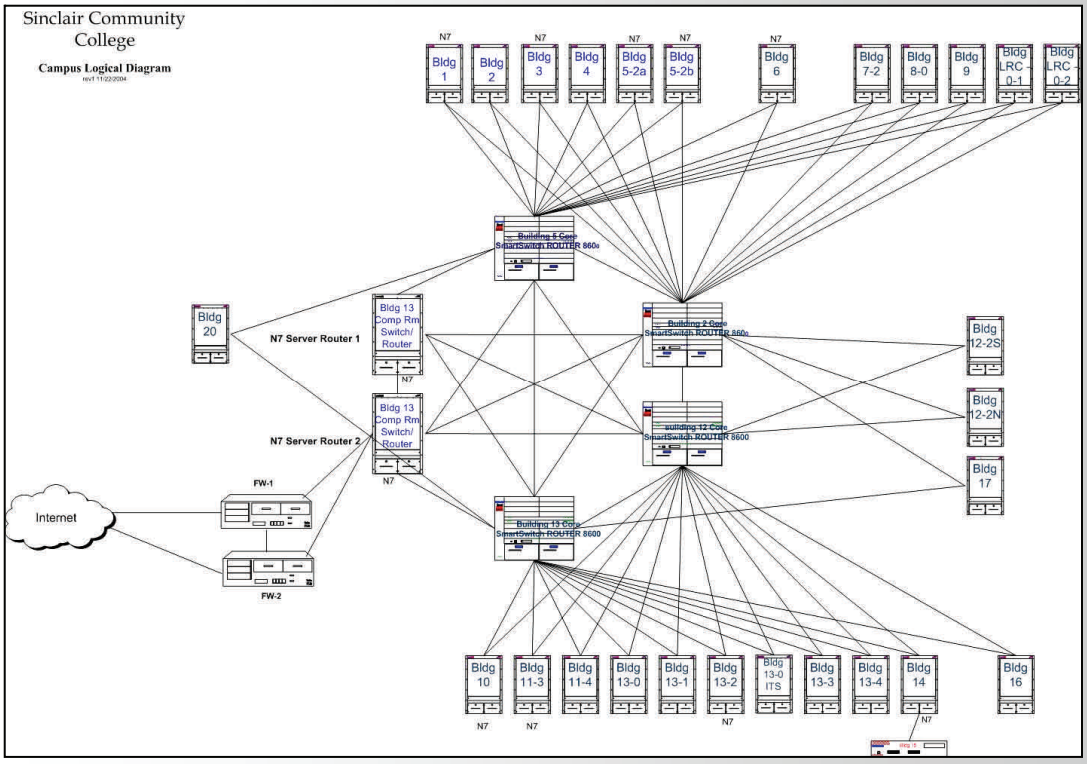
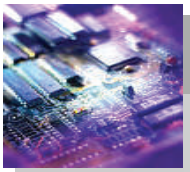



**Figure 3-17. The routers in the core of the Sinclair network provide redundant inter-connections between all of the edge switches.**



# Major Accomplishments

During the initial planning for this project, ITS evaluated alternative designs, equipment, and vendors that could be used in the upgrade of the network. The chosen solution is the Enterasys Matrix X router, which provides maximum compatibility with the existing edge equipment, also manufactured by Enterasys. Upgrading the core infrastructure will help ensure reliability in the network infrastructure and provide the increased performance necessary for future bandwidth and latency sensitive applications, such as streaming media and voice over IP.

**Qualitative/Quantitative Return on Investment:** The increased reliability of the network and improved capability of the new equipment will allow much higher productivity for the end-user community.

**Cost savings/Cost avoidance:** Due to the size of this purchase and the longstanding relationship with Enterasys, ITS was able to negotiate an additional 2% discount beyond the already discounted price for the equipment. The total amount of additional discount was $128,000.

**Target Completion Date:** March 2007

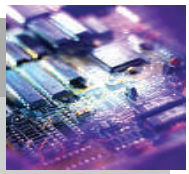
**Actual Completion Date:** April 2007

## Network Authentication

Most network infrastructures allow unrestricted access once a physical connection is made by a client with the assumption that the only necessary security is to protect the resources on the network servers where there are very sophisticated authentication and access control mechanisms. The main goal is to route communication on the network as fast and efficiently as possible. This leaves the entire network exposed to any software that can take advantage of this openness to find and exploit vulnerabilities in the connected systems.

This project was initiated to build intelligence into network devices so they can limit the type of communication that they will forward. These limitations vary based on the type of user and the type of device that is attempting to connect to the network. This puts the control over the network's security into the hands of the College rather than at the mercy of the various devices that can be connected.

As soon as a connected device is powered-on, it is required to authenticate using 802.1x security protocol. The network switch passes the authentication request to IAS, and if it is successful, the user is required to authenticate. If the user authentication succeeds, access is provided as defined by the Acceptable Use Policy. If the device authentication fails, the device is isolated into a quarantine VLAN. This separate network authenticates the user and then requires the machine to be scanned and remediated, if it is found to have vulnerabilities. The user who is able to be authenticated on a device that was not authenticated is provided with web-only access but only after the scanning and remediation steps are performed.



| Sinclair Network Access Levels | | |
|---|---|---|
| **Access Level** | **User** | **Device** |
| **Level One**<br>This is the highest level of access. The user must login with their Sinclair network username and password. | **College Employees**<br>This includes all faculty, staff, and student employees. It also includes student use of login IDs that are assigned to campus lab computers. | **College-Owned Laptops and Tablet PCs with the Sinclair Administrative Software Image** |
| **Level Two**<br>"Web Only" access similar to the type of access when connected to the Internet off-campus. The user must login with their Sinclair network username and password. | **College Employees**<br>This includes all faculty, staff, and student employees. It also includes student use of login IDs that are assigned to campus lab computers. | **Devices without the Sinclair Administrative Image or Not Owned by the College**<br>Examples would include PDAs, non-imaged laptops, personal laptops, smart phones, etc. |
| **Level Three**<br>This is a "Guest" access granting "Web Only" access similar to when a user is connected to the Internet off-campus. A login is NOT required. | **Anyone**<br>This includes all students and the public. | **Any Type of Device** |

**Table 3-1. Access levels based on user and device type.**

### Additional Resources:

Wireless Access tour of Sinclair Community College Campus (Click on Wireless Access under Tour Mode) http://tour.Sinclair.edu

Informational site about wireless services for Sinclair faculty and staff
http://our.Sinclair.edu/sites/its/itswebsite/it_policies/procedures/its/wrless/wrless.htm

2006 ACUTA Institutional Excellence Award for Sinclair Community College Secure LAN Strategy Project
http://www.acuta.org/relation/downloadfile.cfm?DocNum=437#r5

2006 Campus Technology Innovators Award from Campus Technology Magazine
http://campustechnology.com/article.asp?id=18944

Computerworld's Storage Networking "Best Practices in Storage" Awards Program http://www.snwusa.com/awards.html#results

Press releases from Sinclair Public Relations Office http://www.Sinclair.edu/departments/its/pub/ACUTA_Award-Honnert.pdf

Article published to promote and inform campus users about expanded wireless access and the levels of available access
http://www.Sinclair.edu/departments/its/pub/flyers/wrlknit9-05.pdf

**Qualitative/Quantitative Return on Investment:** The ability for college employees to perform their job duties and students to access necessary resources, without the interruptions that can be caused by improperly configured computers, has been greatly improved.

**Cost savings/Cost avoidance:** The capabilities of existing network infrastructure components were used in this project so there were no costs that are directly attributed to the project implementation.

**Target Completion Date:** March 2007

**Actual Completion Date:** March 2007

## Huber Heights YMCA Fast Track Center

The Huber Heights Learning Center opening followed closely on the heels of the Englewood Learning Center opening. The planning for these sites required ITS to investigate various technologies to provide services at these remote locations that match those provided to faculty, staff and students on the Dayton campus. While the service expectations are fairly similar, the ability to use the same technologies as those used on the main campus is limited by the cost of connectivity between the remote sites and the main campus.

Examples of the technologies implemented at the Learning Centers include: a Voice over IP phone system; local domain controllers with network authentication capability; replication of data for backup at the main campus; and remote image deployment. In addition to investigating and implementing new technologies, the remote sites required a new model for providing user support and technical support. All lessons learned in the support of the Huber Heights and Englewood Learning Centers will be very useful as we plan for service at the new Courseview Campus Center in Mason.

**Figure 3-18. Huber Heights Learning Center.**

**Qualitative/Quantitative Return on Investment:** The infrastructure that was designed and implemented at the Learning Center provides the faculty, staff and students with all required capabilities.

**Cost savings/Cost avoidance:** Existing contracts and known technologies were used where appropriate to save equipment and support costs. Newer technologies were investigated in areas that would not make economical sense to install in a smaller site.

**Target Completion Date:** September 2006

**Actual Completion Date:** August 2006

## Reserve Bandwidth for SAS Training Classes

Sinclair began using a data warehousing/business intelligence tool from SAS a few years ago. In FY 2007, a relationship was formed with SAS to become a regional training center for the use of the software. This relationship is beneficial for the college beyond adding revenue to the Corporate & Community Services function as it also enables Sinclair staff to attend SAS training at no cost.

The software used in the SAS training is not installed on servers at Sinclair but is instead installed on servers at the SAS site in North Carolina. Every computer in the training class must be able to communicate with the server in North Carolina over a connection that has a minimum guaranteed amount of bandwidth. In order to meet the bandwidth requirements, some changes had to be made with multiple systems in the Sinclair network infrastructure including DHCP and the campus firewall. Both of the College's ISPs also had to configure their routers to reserve the necessary bandwidth.


**Figure 3-19 SAS website.**

**Qualitative/Quantitative Return on Investment:** The participants in the class are able to perform all of the required functions, and the college is able to increase revenue by continuing to offer facilities to conduct these classes.

**Cost savings/Cost avoidance:** The money that would have been required to add additional bandwidth for this single need was used to add to the overall bandwidth available to the college.

**Target Completion Date:** November 2006

**Actual Completion Date:** October 2006

## Daylight Saving Time Changes

The Energy Policy Act of 2005 extended Daylight Saving Time by three weeks in the Spring and by one week in the Fall effective in 2007. This year that meant that Daylight Saving Time began on March 11 and ends on November 4. Software programs with automatic adjustments for Daylight Saving Time that are affected by this change included Microsoft Windows, Outlook, and Exchange. This change required software patches to be installed on all 130 servers maintained by ITS. In addition, all campus PCs had to be patched as well as PDAs that are used to sync with electronic calendars.

Several months before the patches were made available, ITS started seeing issues with meetings scheduled between the new DST start and end dates, and created communication materials to increase awareness and provide work-around suggestions until the patches became available. ITS also published information to help individuals understand how the change would affect their home computers and other personal devices that automatically adjust for Daylight Saving Time.

**Outlook Scheduling Recommendations Due to Extended Daylight Saving Time Start and End Dates**

The Energy Policy Act of 2005 extended Daylight Saving Time by three weeks in the Spring and by one week in the Fall effective in 2007.

**Daylight Saving Time begins on March 11 and ends on November 4 in 2007.**

Software programs with automatic adjustments for Daylight Saving Time are affected. Examples of this type of software include Microsoft's Windows, Outlook, and Exchange.

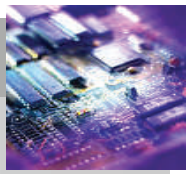
Software patches are required for these types of software to allow for the Daylight Saving Time extension. Information Technology Services is installing patches for Windows, Outlook, and Exchange.

**Figure 3-20. Flyer to inform users about DST changes.**

**Qualitative/Quantitative Return on Investment:** College employees were minimally impacted by this change.

**Cost savings/Cost avoidance:** No external assistance or purchase of equipment was required as all tasks were completed by internal staff.

**Target Completion Date:** March 2007



**Actual Completion Date:** March 2007

## Microsoft Student Select

For the last three years the BIS department has been providing the department's students with Microsoft Office software at a reduced rate under the Microsoft Student Select program. The requirements of this program dictate that certain procedures must be followed, including obtaining the student's signature on a form, providing the student with a copy of the license agreement, and maintaining information on all students that have purchased the software in a database. Due to these administrative requirements, it was too difficult to extend this program outside of the BIS department.

With changes that have been made to the POS system in the Tartan Campus Store, many of the administrative functions of the Microsoft program can now be automated within this system. During FY 2007, ITS worked with BIS and the Tartan Campus Store to move the availability of the software to the Bookstore and to expand the availability of the software to all students. This program will also allow faculty and staff to purchase the software at the same discounted rate as students.


**FIgure3-21. Microsoft Student Select License symbol.**

**Qualitative/Quantitative Return on Investment:** Students will be able to save money purchasing Microsoft software. The college will also have another offering that can be used to market the benefits of attending Sinclair.

**Cost savings/Cost avoidance:** The capability to provide this software is covered under an existing contract so there is no cost for expanding the service.

**Target Completion Date:** April 2007

**Current Status:** The Bookstore is ordering the software, and ITS will work with them to publicize the availability once it is received.

## Spam Wars Central Site

In a continuing effort to fight Spam on the campus network, an informational site about Spam and the techniques used to fight it at Sinclair was created for faculty and staff.

The site is located at the following link:
http://our.Sinclair.edu/sites/its/itswebsite/it_policies/procedures/otlk/spm/spm.htm


**Figure 3-22. Spam Wars Central home page.**

**Topics found on the site include:**

- Spam - Frequently Asked Questions – general information about Spam
- Spamigette - How to reduce your risk for Spam – techniques to lower your for Spam
- SpamAssassin -Instructions – instructions about the SpamAssassin application used on campus to fight Spam
- SpamAssassin - Frequently Asked Questions – answers to questions about how this application works.
- Filtering Spam with X-Spam Scores and Outlook Rules – instructions about using Outlook rules and X-Spam scores to filter Spam.

**Qualitative/Quantitative Return on Investment:** Users are informed about efforts to fight Spam on the campus network. The site serves as a Spam reference source for users.

**Cost savings/Cost avoidance:** Reduce calls to the Help Desk about Spam and save users time when dealing with Spam.

**Target Completion Date:** October 2006

**Current Status:** The drafting and publishing of the site was complete in October 2006; however, this is an ongoing project.

## WinZip Encryption

Documents, spreadsheets, databases, and other files that contain personal or sensitive information should be encrypted when saved on hard drives, CDs, Floppies, USB drives, and other non-central media. The WinZip application was identified as an easy and convenient way to do this on a Sinclair Imaged PC. WinZip can compress single files, multiple files, and entire folders as archives.

**Qualitative/Quantitative Return on Investment:** An encryption method was needed for files and data distributed for College purposes. WinZip was already included in the campus image, and it provided an easy and convenient way for users to encrypt files.

**Cost savings/Cost avoidance:** This can help avoid potential costs due to lost personal data.

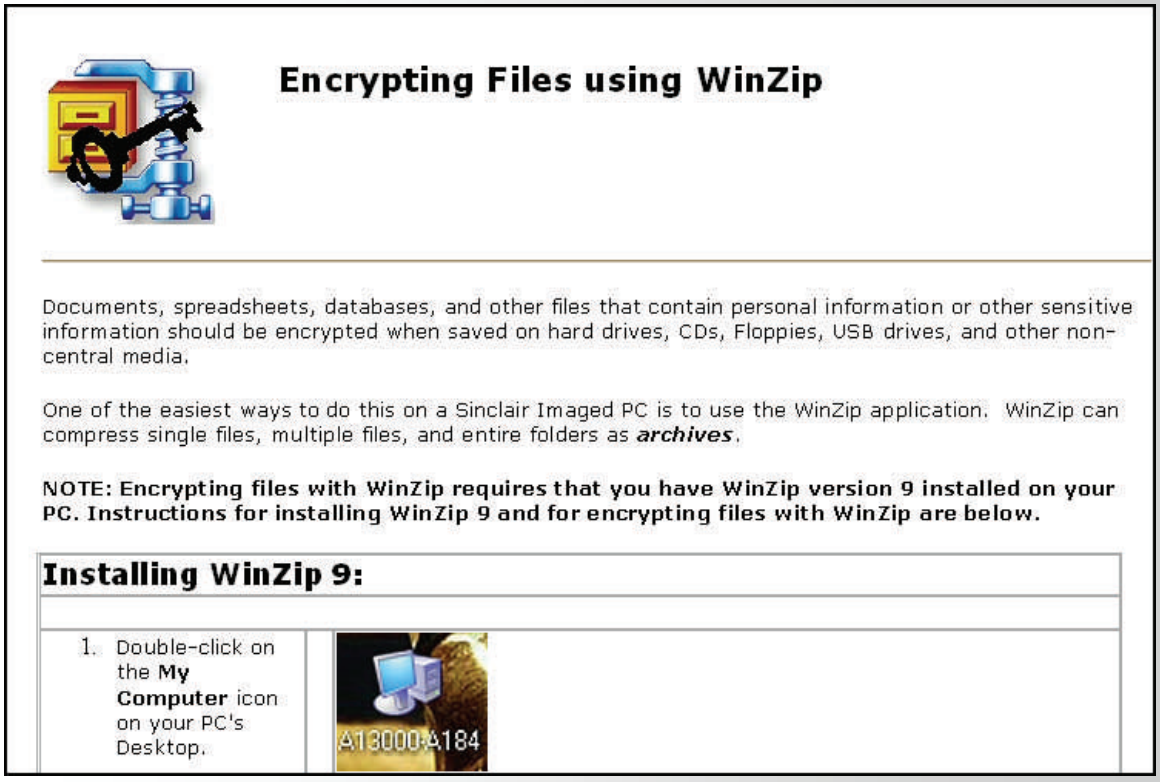



**Figure 3-23. WinZip Encryption documentation page.**

**Target Completion Date:** January 2007

**Actual Completion Date:** January 2007

## IT Lab Management Improvements

Increased services and new technologies required IT Labs to look at current processes and procedures to identify areas that could be improved while continuing to provide an excellent work environment that encourages student success.

Some of the improvements in management of IT Labs include:

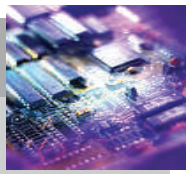
**New Hire Orientation** - IT labs have updated their New Hire Orientation. This orientation now includes information about the ITS organization, payroll, IT lab procedures, communication, job responsibilities, resources for the IT lab staff ,and a Welcome letter with password information and management expectations. IT Labs has also enhanced the training in each lab. A checklist was created and a part-time staff member is assigned to review the checklist with each new employee.

**Schedules** – IT Labs looked at the schedules in each lab and compared them with lab usage. Reviewing the lab's use showed utilization was low during Saturdays, breaks, and the Summer quarter. Teleport in Building 13 has been closed during these times to help reduce costs.

**Procedures** – Along with the New Hire Orientation, all staff needed a place to find procedures when needed. To standardize the communication of procedures, IT Labs created an IT Labs Manual online at http://intranet.Sinclair.edu/sites/ITL_Manual/.


**Figure 3-24. The IT Labs group online procedures manual.**

**Coordination/communication** – The part-time IT Labs staff was using a database to record problems that had been reported to the Help Desk. However this information was already in Magic, the Help Desk's system for tracking problems. To eliminate this duplication, part-time lab staff was given read-only privileges to access the Magic database allowing staff to run reports of problems reported to the Help Desk. This has also helped to eliminate duplicate Help Desk tickets.



**Software Updates** – ITS created a new process to ensure the Lab Coordinators knew about software images that were being updated in their labs. Since the Help Desk receives the software request form, if the form did not come from the Lab Coordinator, the Lab Coordinator will be contacted and informed that updates have been requested. The Coordinator will need to approve the update before the ticket is forwarded to be processed. If the Coordinator does not approve the update, the ticket is closed with instructions for the requestor to contact the Lab Coordinator.

**Qualitative/Quantitative Return on Investment:** Prior to the re-opening of the Library, Teleport I closed on Saturdays and breaks. When Teleport I moved to the Library, we could no longer close the Teleport when the Library is open. To prevent our costs from increasing, Teleport II is now closed on Saturdays and breaks. The New Hire Orientation, schedules, procedures, and other improvements will increase efficiency and save costs.

**Cost savings/Cost avoidance:** $ 22,599.66 in increased staff costs were avoided by closing Teleport II on Saturdays, and during breaks and summer quarter.

**Target Completion Date:** April 2007

**Actual Completion Date:** March 2007

## Pay for Print Implementation 2006-2007

This past year ITS implemented GoPrint, a web based pay-for-print solution, to be used by the labs/classrooms on campus. GoPrint has been implemented in BIS 3241, TLC 7L07, ECE 9108, Library 7L00, RAT 3341, IT Labs Teleport 13223 and IT Labs CIL 14109 and 14115.

The GoPrint system requires students to authenticate using their my.Sinclair usernames and passwords, and funds are deducted from their Tartan Card to print in certain labs on campus. To help offset the printing fees, students receive $7.50 a quarter or 150 pages (8 1/2 x 11) of free prints.

**Qualitative/Quantitative Return on Investment:** Year after year the amount of paper and toner used has continued to rise. With the Fall 2006 implementation of GoPrint, labs have reduced waste and in turn reduced the cost of supplies.

During Fall 2006 IT Labs had an estimated savings of 49,000 sheets of paper which equals a savings of $584.65 in supply cost.  Along with supply cost reduction, the project created revenue of $2,267.05.

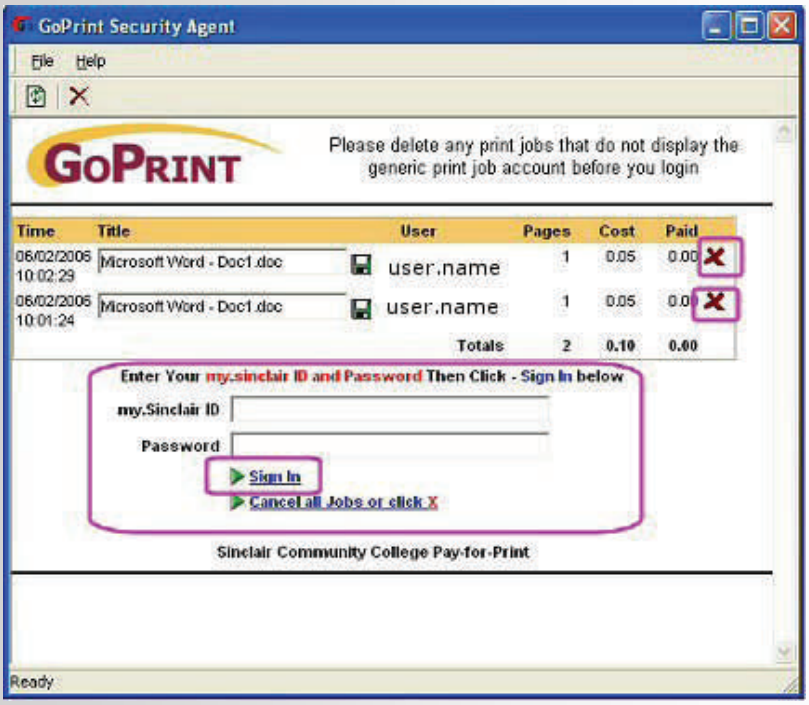



**Figure 3-25. GoPrint authentication page.**

**Cost savings/Cost avoidance:** Estimated savings for IT Labs Fall 2006 = $584.65 + $2,267.05 = $2,851.70

**Target Completion Date:** September 2007

**Current Status:** GoPrint has been implemented in a number of rooms and is being pilot tested in DEV classrooms. DEV and ITS will collect and review data to determine if classroom implementation is feasible.

## SynchronEyes Implementation

SynchronEyes classroom management software connects an instructor's computer to every computer in a networked classroom. SynchronEyes offers a variety of features that enables faculty to:

- Monitor students' computers from the teacher's desktop
- Lock students' computers to focus their attention
- Create, send and receive quizzes
- Broadcast teacher's screen or any student screen to the entire class
- Interact with students through questions, chats and surveys
- Monitor students on both wired or wireless networks
- Connect to a variety of technology products, including laptops, mobile devices and desktops

Requests were made from multiple departments to allow the instructors to connect to the computers in a classroom. Some of these departments already had hardware/software solutions for this function.

ITS purchased ten licenses of the SynchronEyes software for $7790 to standardize this service. This replaced the other hardware/software solutions already being used in multiple labs. SynchronEyes is currently installed in 7L05 - ENG, 12363 - SOC, 11222 – EGR, 14306E – ITS.

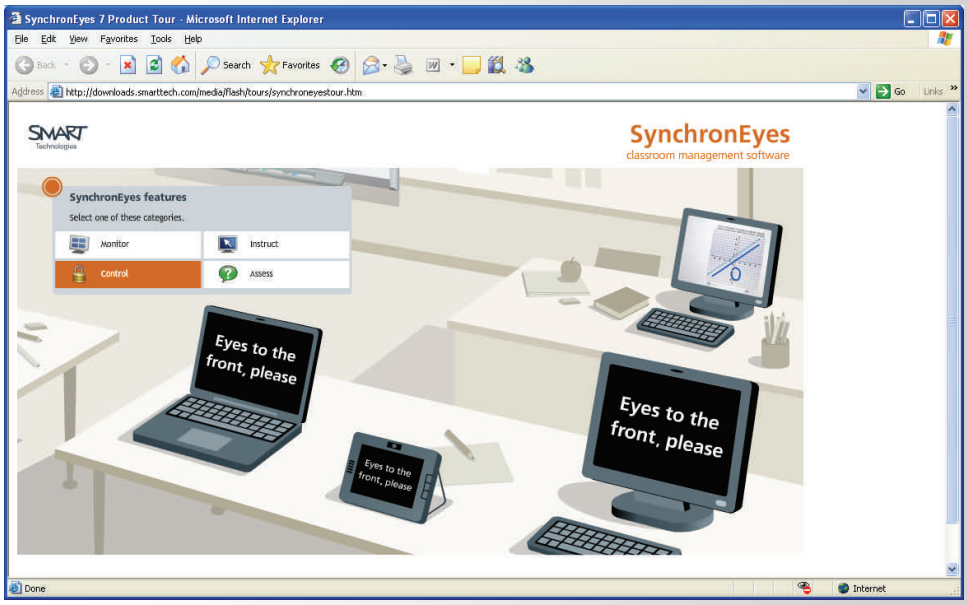



**Figure 3-26. SynchronEyes can prevent network access.**

**Qualitative/Quantitative Return on Investment:** Cost for these other solutions is unknown, but support was very inefficient and timely. Standardizing this service made it easier for ITS to support.

**Cost savings/Cost avoidance:** When problems occur it is quicker for support to assist in the resolution of the problem.

**Target Completion Date:** April 2007

**Current status:** Software has been installed in all planned rooms with the exception of the Math Lab.

## Plan to Upgrade Magic

Magic Total Service Desk is used by the Help Desk and Facilities Management to assign, view, and track requests, and to separate reports. Magic also allows Sinclair faculty, staff or students to enter work requests, to report problems, and check the status of requests.

This project provided the information needed for the upgrade of Magic Service Desk Version: 7.53.2518 to BMC Service Desk Express Suite Version: 9.0. This upgrade will allow ITS to maintain the vendor's support and to have additional functionality.

To upgrade, ITS will need to import data, business rules, client information, support staff members and groups. Some of the concerns related to upgrading to the BMC Service Desk Express Suite are:

- Currently we use the API Wizard software, an optional tool that was purchased separately to import client data. With the upgrade, importing data is done with a tool built into the BMC Service Desk Express Suite.
- There are 983 jobs in the queue that releases using a business rule used by Facilities Management. With the upgrade there is a Preventive Maintenance Schedule that replaces this business rule.
- Currently, the Help Desk creates and manages generic accounts for all staff that uses Magic. With the upgrade, Active Directory API software will allow staff to login with a Network account. However, there are generic accounts already in place and we will need to address these accounts.

There are multiple steps ITS will need to take prior to BMC Service Desk Express Suite going live. One of the biggest steps is testing to ensure the import process, Preventive Maintenance Schedule, business rules, self service and other functionalities are working correctly. Below are the steps to upgrade to BMC Service Desk Express Suite:

- Send a Network Engineer and the Help Desk Coordinator to training.
- Install BMC Service Desk Express Suite onto a test server
- Import data
- Customize screens and forms
- Test functionality
- Copy new data
- Change test server to live

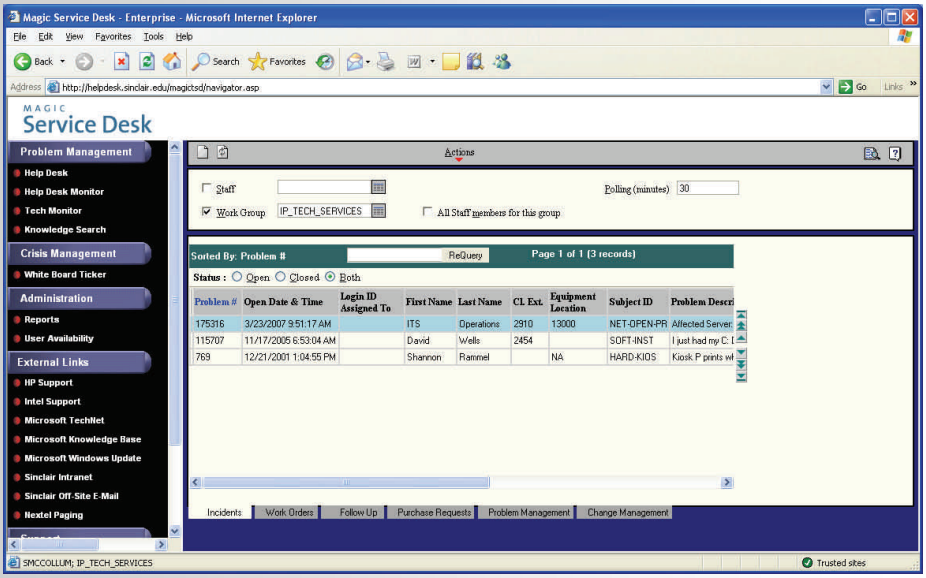



**Figure 3-27. Magic Service Desk screen.**

**Qualitative/Quantitative Return on Investment:**
Maintaining obsolete technology can be costly because of the lack of vendor support. By upgrading, additional functionality will allow processes to be more efficient.

**Cost savings/Cost avoidance:** ITS will perform the upgrade using internal resources and will use hardware purchased through the normally planned replacement of servers so there will be no additional funds required for this project.

**Target Completion Date:** October 2006

**Current Status:** The planning for this project was completed in January of 2007. ITS is in the process of setting up the test server and will perform the upgrade during the summer of 2007.

## ELC Home Networking Class

ITS received a request to provide equipment for the CIS 101 Home Networking Class at the Englewood Learning Center Winter quarter 2007. CIS 101 Home Networking Class provides students with the information and skills to setup and provide security for a personal and/or home office network. The instructor teaches the students to setup computers and routers and to complete some computer programming.

To provide this service to ELC, ITS had to provide Internet connectivity separate from the Sinclair Network connection. After looking at the different possibilities, ITS used a Sprint Merlin Cellular AirCard with a Junxion router to provide the Internet connectivity. ITS also provided four surplus desktop PCs and four laptops. ITS re-imaged the loaned PCs and laptops with basic software and student administrative permissions.


**Figure 3-28. Junxion wireless router and Sprint PCS connection card.**

**Qualitative/Quantitative Return on Investment:** Providing Internet connectivity separate from the Sinclair Network connection gave ELC and CIS the ability to run this class and register more students. fourteen students registered for the CIS 101 9B Home Networking Class Winter 2007.

**Cost savings/Cost avoidance:** The equipment that was provided for the support of this class was readily available so there was no additional cost.

**Target Completion Date:** January 2007

**Actual Completion Date:** January 2007

## SAN Expansion

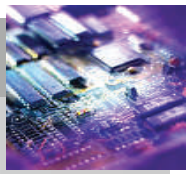
Sinclair's Storage Area Network (SAN) is a dedicated network for data storage devices (i.e. disk drives, tape drives, etc.). It is separate from the Local Area Network (LAN) that connects the workstations and servers. This separation allows high-speed access to data and applications by the servers without impacting LAN traffic.

In the fall of 2004, Information Technology Services upgraded the SAN per the R&R schedule to provide increased storage space as well as better fault tolerance and performance. At this time, SAN disk storage capacity was increased from 4 TB to 9 TB. Of this, 1 TB was used for disk based backups leaving 8 terabytes (TB) for user data. Based on storage growth at Sinclair in the past, it was estimated that this 100% increase in storage space would be sufficient until the next replacement cycle in 2009. However, increased use of rich media in instruction along with an increased usage of centralized storage by faculty and staff has resulted in the consumption of storage space increasing at a faster rate than previously planned.

Every user and department at Sinclair is provided with file-server based storage space to use for saving data files. As user storage space needs vary greatly, setting space limitations will always result in some users that need to use all the available space while many others will not use the space they've been assigned. The solution is to intentionally "oversubscribe," or allocate more space than is actually available, but constantly monitor to determine when a change must be made to the limits or to the total available space. This storage space management will continue, but as more users are using centralized storage, the oversubscription model has to be revised and additional capacity purchased.

This project involved increasing SAN storage space by 6.2 TB, increasing data backup capacity by 50% through the purchase an additional tape library (shown in Figure 3-29), and increasing the capacity to connect additional devices to the SAN by 50%.

**Figure 3-29. Front view of EML Tape Library.**



**Qualitative/Quantitative Return on Investment:** User requirements for centralized data storage has continued to increase at an accelerated pace. Storage requirements for critical software applications such as SAS, Colleague R18, SQL Cluster and others will only help deplete Sinclair's storage resources at a faster rate. This project provides an increase in the capacity of our SAN infrastructure to help meet these demands.

**Cost savings/Cost avoidance identified with the project:** Due to advances in technology since the initial SAN purchase in 2004, data classification during the planning stages, and the addition of software updates to our current system, ITS was able to purchase more storage capacity than originally planned. By classifying the data stored on the SAN, ITS was able to save money by purchasing lower cost and larger hard drives to house backup and less critical data.

**Target Completion Date:** June 2007

**Actual Completion Date/Current Status:** This project is on schedule. The tape library has been installed and the backup software configured to use the new tape library. The additional tape library capacity is expected to decrease backup times from 30-40%. Other tasks related to this project have been scheduled and are progressing according to plan.

## Move of Central Operator to Call Center

As a result of the increased emphasis for the Call Center to be a focal marketing point in the overall strategy of the "Success Starts Here," it became necessary to review the status of the central operator function for the phone system. It was determined that shifting the present operator load of incoming calls would not significantly increase call volume for the Call Center. In fact, it was also determined that many of the incoming calls to the operator were already being transferred to the Call Center.

**Qualitative/Quantitative Return on Investment:** The phone system was changed so that any incoming calls through the 512-2500 number were being directed to the Call Center and any internal zero dialed calls would be directed to the auto attendant. This change improved the handling of calls from students and the general public by giving them quicker access to the Call Center.


**Figure 3-30. Call Center web page.**

**Cost savings/Cost avoidance:** This effectively eliminated a part-time position saving over $10,000 annually.

**Target Completion Date:** October 2006

**Actual Completion Date:** October 2006

## VoIP Pilot Project

Although this project was started in 2006, it has progressed on-track and it has been very instrumental in determining our overall strategy to replace the main phone system. The ShoreTel VoIP system was selected as the vendor of choice for this pilot. During 2006-2007, the pilot system has been installed and working for over 20 users. The users have been introduced to the new system in phases as follows:

Phase 1- initial setup
Phase 2- connecting the ShoreTel switch with the Fujistu switch
Phase 3- connecting the Englewood and Huber Heights Learning Centers to the ShoreTel pilot switch
Phase 4- change of existing Fujistu user phones to ShoreTel phones

At the present time, the first two phases have been completed and the goal is to have the last two phases completed by June 30, 2007.

**Qualitative/Quantitative Return on Investment:** As a result of this trial, many network and phone systems issues have been identified and resolved. On-going support issues are being identified since this system will also involve the use of SCC technicians in the future. Without a carefully planned trial, it would have been very difficult to understand the issues that will be encountered in the future and, at the same time, careful planning will be needed to ensure a quality conversion over the next two years.

**Cost savings/Cost avoidance:** The initial budget was $40,000; $34,000 has been spent so far.

**Target Completion Date:** Phases 3 & 4 to be completed by June 2007.

**Current status:** The project will continue into next year.

## VoIP Network Preparation

In the planning for the implementation of VoIP and its use of the existing data network, significant issues needed to be addressed such as reviewing our existing wiring, reviewing wiring closets for power and HVAC considerations, and reviewing performance assessments of the data network. With the advent of IP telephony, power over Ethernet was also a significant issue in the implementation. Because of these concerns, a committee was formed to identify, research, and provide a recommendation of how to address and plan for issues. Based on these recommendations, a budget was developed for planning purposes in the process of fully implementing a new VoIP telephone system at SCC. These recommendations included the use of mid span Power over Ethernet devices to deal with the requirement for power to the phones and additional network switches to accommodate the need for additional data ports.

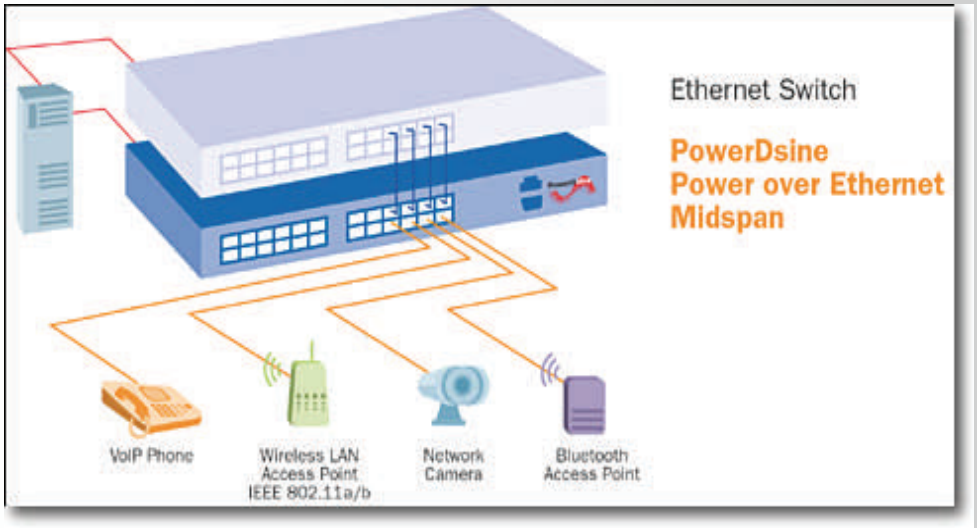



**Figure 3-31. Power over Ethernet illustration.**

**Qualitative/Quantitative Return on Investment:** Based on the identification of the issues involved with the network preparation, a cohesive and comprehensive plan was developed with the expected costs identified so that these costs can be properly budgeted and planned in the overall implementation of IP Telephony.

**Cost savings/Cost avoidance:** There are no costs associated with this project as it was a research and analysis project for the purpose of identifying future needs.

**Target Completion Date:** June 2007

**Current status:** The final report for this project will be completed by the end of June 2007. Funds to complete the necessary preparation of the network to support the expansion of the VOIP pilot have been requested in the 2007-2008 R&R budget.

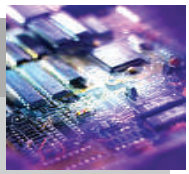
## Campus Messaging System

This project was implemented to meet three separate needs. First, Corporate and Community Services required an updated messaging system to replace the aging message system used to post the daily schedule and events for corporate clients in Building 12. Second, Student Services identified a need for a messaging system to post up-to-date information relating to student registration and financial aid. Third, there was a need to replace the existing video wall in the CIL. In addition, this system will provide the Public Information Office with a means to electronically post general interest messages such as athletic events, theater productions, etc. The project included two new monitors for C&CS and three monitors for Student Services as well as the replacement for the video wall in Building 14.


**Figure 3-32. The replacement for the video wall displays CastNet and campus cable system content.**

**Quantitative/Qualitative Return on Investment:** The new campus messaging system is currently displayed in the following locations throughout the main campus:

- CIL - Building 14 – second floor walkway
- Admissions lobby - Room 10112
- Registration & Student Records lobby – Room 10200
- Third floor walkway of Building 10 – outside Room 10309
- Library near Starbucks café
- Student Activities Center hall plasma and monitor #1 (in game area)



The messaging system is also being sent to the DECC – Dayton Educational Cable Channel 22 through Sinclair's Time Warner channel. The messaging system is currently managed by the Public Information office who works closely with the Sinclair Marketing team for content and look/ feel input.

This system also provides for a website to distribute the same information over the Internet, making that information available to students and the public from any PC, on or off campus. The video wall replacement had been needed for some time as the original video wall had been extremely expensive to maintain. The new video wall will be easier and less expensive to maintain. In addition, the original video wall was no longer functioning and replacement parts were no longer available for it. It had to be replaced to retain the high-tech look for the CIL.

**Cost savings/Cost avoidance anticipated for the project:** This project originated with a request from Corporate & Community Services to replace their messaging system. Funds that were requested for that purpose were combined with additional funds to create a single system that will meet that need and also the Student Services need, the Public Information need, and provide several channels for future expansion. Since the system utilizes the existing campus cable TV system for distribution, it will be possible to add additional locations and channels at a later date at minimal cost.

Cost savings have been realized in the elimination of maintenance needs for the old Building 14 video wall. The new equipment looks high-tech, is easy and inexpensive to maintain, and is in keeping with the original concept for the Center for Interactive Learning building. In addition, there is a cost savings in electricity as the new monitors are automatically turned off at night and on again in the morning.

**Target Completion Date:** September 2006

**Actual Completion Date:** September 2006

## Sports Café Media Upgrade

The multimedia audio and control systems in the Student Activities Center required an upgrade in order to correct existing problems and meet current needs. While Media Services made some repairs and adjustments to the existing audio system, there was a need for additional equipment and more repairs to make the system perform adequately. The control system was be upgraded to use Crestron multimedia control, which is the current College standard.


**Figure 3-33. The TVs and projection screens in the Student Activities Center.**

**Quantitative/Qualitative Return on Investment:** The new control system and new sound system have already been used extensively. The new control system is more user friendly and allows for control not only from the control room but wirelessly as well as from any PC with permissions to interact with the system. This capability provides redundancy for the control of the system and helps to ensure that those who are counting on the system can use it when they need it. In addition, Sinclair purchased the rights to ownership of the control processor code which enables Sinclair to update the system in the future without having to purchase the control code again.

**Cost savings/Cost avoidance anticipated for the project:** Costs will be saved in future maintenance by resolving ongoing problems with the systems. Man hours will also be saved in operation and support by simplifying, streamlining and standardizing the control system. The original multimedia control system was designed using an AMX/Panja control package which was out of date and could not be updated without extensive cost to the College. The Crestron control source code has been provided to Sinclair along with the upgrade so that future upgrades will be less costly. Furthermore, maintenance and support costs will be reduced by updating equipment and simplifying and standardizing the control system.

**Target Completion Date:** September 2006

**Actual Completion Date:** September 2006

## Distance Learning Classroom Upgrade

Room 14-108 was successfully converted to Crestron control during the Synergy to Crestron conversion project completed in August 2005. The new system has been tested and is fully functional. This project included the upgrade of the two remaining distance learning classrooms to Crestron control and the upgrade of the head end switching system in Room 14-207. This conversion was completed using existing R & R funds.


**Figure 3-34. The CIL's Forum being used for a distance learning class.**

**Quantitative/Qualitative Return on Investment:** Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs but also prevents loss of revenue due to the ability to provide a service in a satisfactory way to the customer.

**Cost savings/Cost avoidance identified with the project:** This project resulted in cost savings to Sinclair because it included a revision of and the purchase of new control system code. Without ownership of this code, Sinclair was reliant on one specific company for any and all changes to equipment or functionality in these distance learning classrooms, and that company recently stopped providing this service to Sinclair. The revision, update, and purchase of this code provides Sinclair renewed control of functionality and upgrades to these classrooms and the multimedia head end (Room 14-207).

Additional cost savings will come in the future as the new system was designed so that proprietary equipment is not required. An example is that any microphone can replace a broken one. We are not required to purchase older, more expensive, or more difficult to locate equipment as the system requires upgrades in the future.

**Target Completion Date:** December 2006

**Actual Completion Date:** January 2007.

## Investigate Ways to Improve Television System (CATV) Reception

The Cable TV System exhibits inconsistencies in quality of reception in locations throughout campus. Signal quality differs from channel to channel and within one channel at different viewing locations. This project was initiated to investigate causes and possible solutions to the problem.


**Figure 3-35. Video wall located in Building 14.**

**Qualitative/Quantitative Return on Investment:** The Television System is becoming increasingly important as a means to deliver information to the college community via the newly implemented Campus Messaging System as well as a means to deliver instructional content.

Quality of signal is important in maintaining the value of the system. This project has identified a problem with the fiber infrastructure that has been corrected with substantial improvement in signal quality. Additionally, system assessment and consultation have verified components essential to planning future operation and upgrades in preparation for the anticipated arrival of digital television signal broadcast.

**Cost Savings/Cost Avoidance anticipated for the project:** Fiber optic cable project completion and verification of installed coaxial cabling confirmed the viability of existing infrastructure. Project to-date costs have been met within the existing Media Services budget without the need for additional funds.

**Target Completion Date:** January 2007

**Current Status:** Fiber optic cable project completed, January 2007. A new project has been created to assess the Head End and improve signal level at that point.

## Investigate Ways to Improve the Center for Interactive Learning Exhibits

The Center for Interactive Learning (CIL) exhibits were conceived in 1996 by Lorenz and Williams Inc., a local architectural firm. According to the original task force planning documentation, the CIL is meant to be a place where people of diverse backgrounds can see and experience the future of learning and work. In the CIL, students, faculty and staff connect with global paths to that future. The original concept of the CIL was to provide an assimilation of our best ideas into the fabric of Sinclair's academic programs and culture.

The exhibits conceived in 1996, which are part of this assimilation experience and a show piece for Sinclair's most innovative ideas, are outdated and some are not working properly. This project was initiated to investigate ways to bring the CIL back to its original, impressive state while reducing the costs and resources associated with the care and maintenance of the exhibits.

**Qualitative/Quantitative Return on Investment:** The CIL is located just off the faculty and student parking garage and is one of two gateways to the main campus. Many students, faculty, staff and visitors pass through this building each year. The CIL exhibits provide an exciting marketing avenue both to current and future students.

**Cost Savings/Cost Avoidance anticipated for the project:** The current CIL Exhibits are costly to keep running and costly to update. For example, the Cyber Column, an interactive display that provides information about Sinclair's innovative academic programs, contains outdated information. In order to update this exhibit in its current form, $250,000 is required. For this project ITS will work with Facilities Management and outside consulting firms to update the display in a way that will be cost effective both now and in the future.

**Figure 3-36. The Cyber-Column, one of the CIL's high tech exhibits.**

**Target Completion Date:** June 2007

**Current Status:** During 2006-2007 a consulting firm, KLH, was retained and a combined effort between Media Services and Facilities Management has resulted in a draft of a proposal from KLH. During 2007-2008, the proposal will be refined and a recommendation will be made for implementation.

## Help Desk Improvements

Customer expectations gathered during last year's department CIT process were investigated to determine what support processes provided by the department via the IT Help Desk could be improved. A cross-functional team consisting of ITS staff and campus users developed a list of recommendations to implement.


**Figure 3-37. Help Desk Whiteboard in the Help Desk Tickets Online application.**


**Figure 3-38. Whiteboard as seen in our.Sinclair.edu.**

**Quantitative/Qualitative Return on Investment:** Determining how to improve ITS communications using a team approach provides the users and IT staff a voice in processes they are directly affected by. Effective communication reduces staff time spent notifying the users of downtime and other IT issues and ensures that consistent information is published to users.

**Cost Savings/Cost avoidance identified with the project:** The recommendations utilize existing resources, such as email, existing communication tools and current staff. The implementation of these recommendations will ultimately save staff time because the processes are documented and can be followed by staff.

**Target completion date:** May 2007

**Current status:** The team has met and created documents for the critical tickets notification and recommendations on how the second and third level support staff should notify Help Desk staff.

## Desktop Management Improvements

ITS has been working to consolidate all desktop PC management components. These components are intertwined and dependent upon accurate data. The desktop management applications are e-Policy Orchestrator, McAfee Host Intrusion Prevention, the PC Physical Inventory, and Altiris. These applications working together can track a PC to see: if it has all of the latest anti-virus files; if its windows patches are up to date; if the PC is listed in inventory; and if it shows up in the Altiris database as being in use on campus.

ITS teams were created for each component in FY 2005-2006. Each team met monthly to discuss their application, its purpose, and its issues.

The goal for FY 2006-2007 was to have all of these components in use on every networked PC on campus and to have all of these systems reporting accurately. A daily report lists any discrepancies. The technicians follow up daily and all discrepancies are resolved. The desktop infrastructure is maintained campus-wide, with the individual information available for each PC.

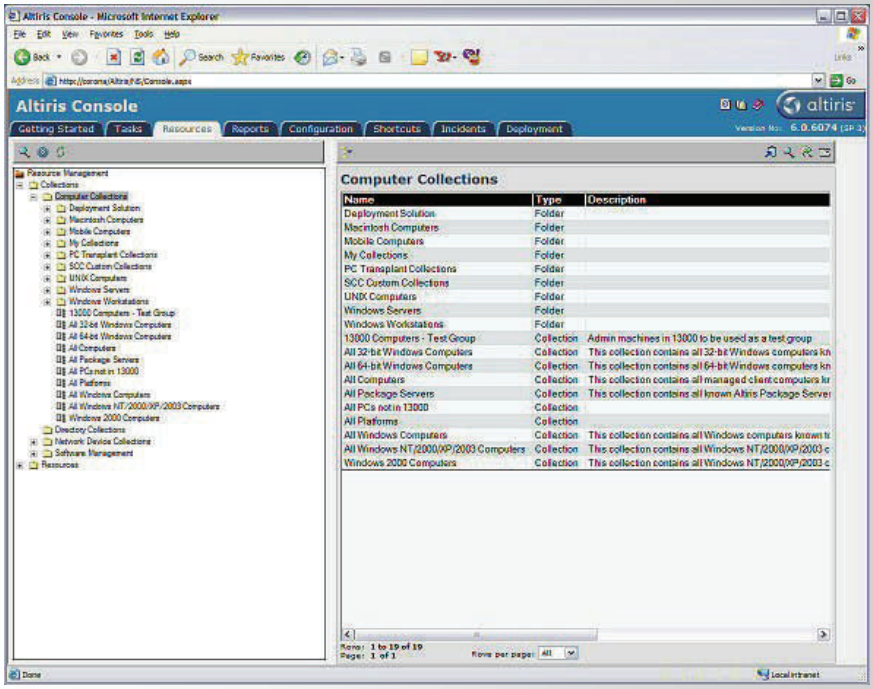



**Figure 3-39. Altiris Console.**

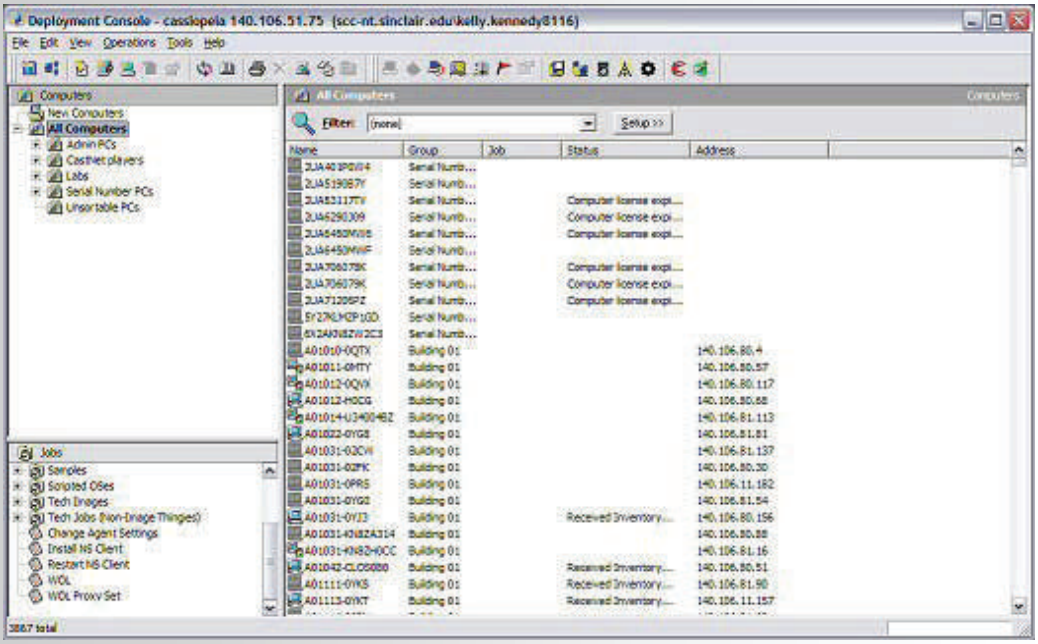



**Figure 3-40. Deployment Console.**

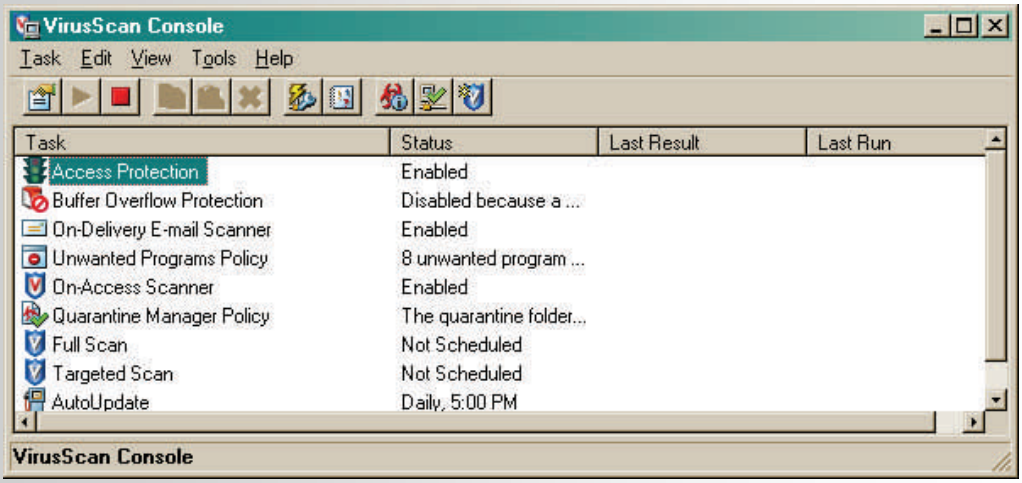



**Figure 3-41. McAfee VirusScan Console.**

**Quantitative/Qualitative Return on Investment:** These improvements will provide a window into each individual PC for trouble-shooting and to determine if a PC is running all the agents required to keep the PC up to date with necessary Windows and anti-virus patches. The PC network on campus will be kept safe from unprotected PCs as unprotected PCs will be isolated and deactivated until all required updates and agents are in place.

**Cost Savings/Cost avoidance anticipated for the project:** Desktop management tools are essential to Sinclair's security strategy. Security incidents can create intangible costs to the College such as lost productivity or lack of customer satisfaction.

**Target Completion Date:** June 2007

**Current Status:** Comparison reports have been created to identify differences between computers that are logging on to the network, in the physical inventory, and are being logged by the various management tools. These reports are being used to ensure that all computers are being managed effectively.

## KIOSK Hardware Upgrade

The self-service Kiosk hardware was outdated and the programming was being changed to the Web based version. ITS reviewed the requirements for the new web-based access and proposed replacement equipment. The proposal was reviewed by the Student Services Disability Office to ensure compliance, and the kiosk enclosures were modified by Facilities to accommodate the hardware change. ITS also reduced the total kiosk count to six kiosks based on annual usage reports. The new kiosks are located in the high student traffic areas and use standard PCs and LCDs.


**Figure 3-42. Kiosk with hardware upgrade.**

**Quantitative/Qualitative Return on Investment:** Sinclair Community College has provided updated kiosk access for the students to their records and reduced the annual cost associated with these kiosks.

**Cost Savings/Cost avoidance anticipated for the project:** Replacing the Kiosk hardware with standard PCs, LCDs and printers and retrofitting the kiosk enclosures has enabled ITS to avoid kiosk enclosure replacement costs.

**Target Completion Date:** August 2006

**Actual Completion Date:** August 2006

## Mobile Student Services Recruitment

Student Services requested the ability to register students at the Dayton and Fairfield Malls for their Enrollment Fair. They needed access to Colleague via an Internet connection to advise and register students. ITS had previously investigated Internet access via Sprint wireless cards and was able to provide this connection to Student Services at the malls.


**Figure 3-43. Sprint Air Cellular cards were used at the Malls to provide access.**

**Quantitative/Qualitative Return on Investment:** This remote online access can be used for future enrollment fairs and services.

**Cost Savings/Cost avoidance anticipated for the project:** Providing mobile online access to Colleague resources allows Student Services and other Sinclair Community College departments to "reach-out" at malls, high schools, businesses, etc, wherever potential students may be. This functionality has already been utilized at the Learning Centers for a CIS course that needed Internet access when the lab was not available. This capability also enabled ITS to provide Internet access immediately to the temporary office in Mason that is being used during the construction of the Courseview Campus Center.

**Target Completion Date:** September 2006

**Actual Completion Date:** September 2006

## my.Sinclair Community for Test Scanning

EMS faculty requested the ability to access reports from scanned tests online instead of receiving the current hard copy format. Network Operation Staff met with EMS faculty to determine access needed. Based on the requirements submitted, they set-up an area on my.Sinclair community for this access. EMS faculty now submit their tests for scanning and the reports are published to a my.Sinclair community. They can access their test results at any time without having to "physically pick-up" the printed reports. This process is being piloted using the EMS department's faculty, but it will be announced to the campus during the summer of 2007.


**Figure 3-44. Test Scanning Report in my.Sinclair.**

**Quantitative/Qualitative Return on Investment:** This project will provide faculty with online access to their test results as well as eliminate the costs of printing the reports.

**Cost Savings/Cost avoidance anticipated for the project:** ITS will realize future savings on paper costs as this functionality is adopted by more faculty across campus. The project utilized existing resources.

**Target Completion Date:** June 2007

**Current Status:** This project is being piloted and will be offered across campus during summer 2007.

## Implement DriveLock on College-owned Laptops

In response to Ohio House Bill 104 which is designed to increase security and privacy of personal information, ITS is implementing DriveLock on all College-owned administrative laptop and tablet PCs. DriveLock protects the contents of the entire hard drive in the event the laptop is lost or stolen. When DriveLock is enabled on a laptop or tablet PC, the user must enter a password before the PC's hard drive will be initialized. Users are not permitted to disable this protection. The process has been published to the College Intranet and is being implemented with every new administrative laptop and tablet PC assignment and re-image.


**Figure 3-45. DriveLock password screen.**

**Quantitative/Qualitative Return on Investment:** House Bill 104 imposes significant penalties on institutions that experience a security breach involving personal information that is not protected by some type of technology to render the data inaccessible to the unauthorized individuals. DriveLock accommodates the requirements stipulated in HB 104. DriveLock is provided with the laptop and tablet PCs at the time of purchase and is not an additional cost to the College.

**Cost Savings/Cost avoidance anticipated for the project:** Implementing DriveLock on all College-owned administrative laptops and tablet PCs ensures compliance with House Bill 104 and avoids potential lawsuits to the college by increasing the security of sensitive information stored on College laptop and tablet PCs.

**Target Completion Date:** June 2007

**Current Status:** Updates began in December 2006; ITS has implemented DriveLock on 75% of the administrative laptop/tablet PCs.

## Alternative Image Strategies

ITS uses a number of tools for creating desktop workstation images and other tools that help with the deployment of those images over the network. These tools were selected based on the capabilities that were required as well as limitations of the Windows operating system and of the applications that need to be installed. This project looked at the processes and tools and compared them to other options that are available.

Some of the technologies that were researched included blade PCs, thin client computing platforms, virtual machine technologies, and application virtualization systems. Of these, application virtualization appeared to be the most promising technology in the context of the way that Sinclair uses its classrooms and labs and how the necessary software for particular academic programs needed to be made available.

Application virtualization technologies eliminate the need to install applications to the operating system and could provide Sinclair greater flexibility when deploying applications to users. Prior to

beginning this project, Information Technology Services (ITS) was given a presentation from a Vendor named Softricity, who had an application virtualization product called SoftGrid. The application and technology looked promising, but its high cost precluded any future evaluations. During the span of this project however, Microsoft purchased Softricity and the price for this software decreased enough to warrant an evaluation. Also during this time period, Altiris released their own application virtualization product called Software Virtualization Solution (SVS). These two products became the focus of the evaluation.

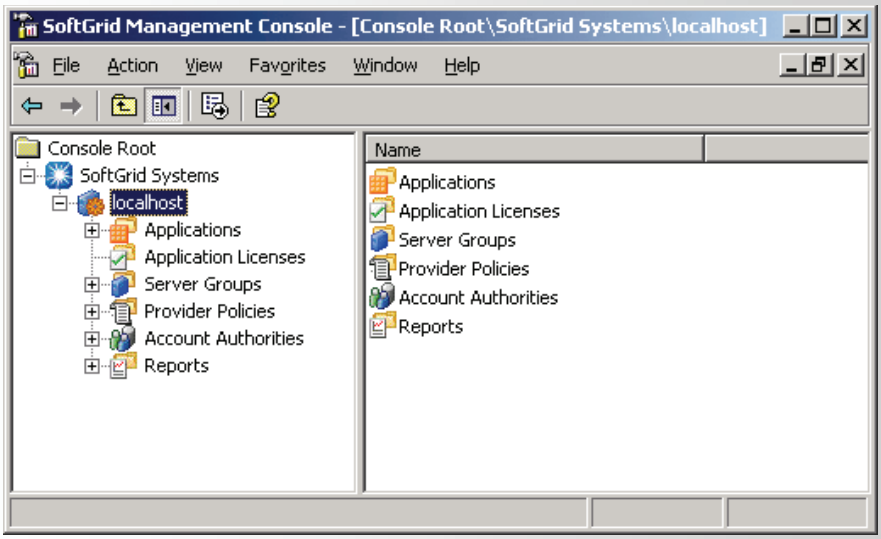



**Figure 3-46. SoftGrid Management Console.**

**Qualitative/Quantitative Return on Investment:** Improving the flexibility of image creation and deployment processes could save time for the technology staff while also allowing the College to more efficiently use its computer classrooms and labs.

**Cost savings/Cost avoidance anticipated for the project:** There is some potential for savings in licensing costs, depending on how the actual application is licensed, due to only having to purchase what is actually used versus what is installed.

**Target Completion Date:** May 2007

**Actual Completion Date/Current Status:** This project is behind schedule, partly due to having to wait for the Microsoft acquisition of Softricity and the release of the Microsoft branded product and difficulties encountered in testing the software. This Project will continue into 2007-2008.

## Firewall Upgrade

The firewall, a device that sits at the boundary between the secure campus network and the unsecured Internet, protects Sinclair's network and data from unauthorized access. It examines each transition and either allows or blocks the traffic based on security rules. Many advances have been made in firewall technology in the three years since the current devices have been deployed. During the same period, attempt at unauthorized access has increased at an exponential rate and our available Internet bandwidth has increased from 6 Mbps to 35 Mbps, requiring our current

devices to work harder to secure the campus network. The current firewall devices have provided three years of reliable service and have reached the end of their projected useful life.

This project began by assessing current needs and projecting what those needs would be in the next three years. After researching and talking with vendors, a firewall device was chosen that would meet those needs and stay within the budget.

**Qualitative/Quantitative Return on Investment:** Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs, but also prevents loss of revenue due to the ability to provide a service in a satisfactory way to the customer.

**Cost savings/Cost avoidance identified with the project:** The risks associated with not adequately securing Sincair's network and data, such as loss of productivity, tarnished reputation and monetary penalties, can be very large. Replacement of the firewalls, our first line of defense, will help minimize these risks.

**Target Completion Date:** June 2007

**Current Status:** This project is on schedule. The equipment has been ordered and has been received. Meetings have been scheduled with the vendor to determine time lines for configuration, testing and installation of the new firewall devices.

## Internet Usage Optimization

The College's dependence on Internet connectivity continues to increase. While Information Technology Services (ITS) has addressed this issue by increasing the capacity of Internet connections, this is not the only strategy that should be pursued. In March 2006, ITS installed a piece of equipment called a PacketShaper. The purpose of this device is to categorize network traffic and allow the manipulation of that traffic in order to improve network performance.

The decision was made to install the PacketShaper in front of the firewall. This gave ITS the advantage of being able to see which computers were using the most bandwidth and the type of traffic that was being used. After several months of data analysis, it became apparent that inbound HTTP, or web traffic, had the highest utilization. ITS also found that higher than normal bandwidth was being used by public PCs in the Library and Bldg. 14. In fact, some PCs in the Library were each using greater than 40 Mbps of bandwidth. Based on this analysis, and after careful testing, ITS separated out the PCs in the Library and Bldg. 14 and limited each PC to 1 Mbps of inbound HTTP bandwidth. This prevents any single PC from using too much Internet capacity and enforces a more equitable sharing scenario.


**Figure 3-47. PacketShaper real-time utilization statistics.**

**Qualitative/Quantitative Return on Investment:** This project has already shown a qualitative ROI by creating a more equitable bandwidth sharing of inbound HTTP traffic. Even after this project is completed, continued analysis will allow ITS to manage and prioritize network traffic and delay the costs to add additional bandwidth until absolutely necessary.

**Cost savings/Cost avoidance anticipated for the project:** By making more efficient use of our Internet connection, the need to increase the capacity of the connection can be avoided until absolutely necessary.

**Target Completion Date:** December 2006

**Current Status:** This project is still in progress and data analysis is on-going. The next steps will be to limit all inbound HTTP traffic to each PC on campus to 1 Mbps. In addition, file sharing applications, such as Kazaa, Napster and Bit Torrent, will be limited to 1 Kbps due to these programs having limited instructional value and posing security and copyright risks.

## Mail Relay Server Improvements

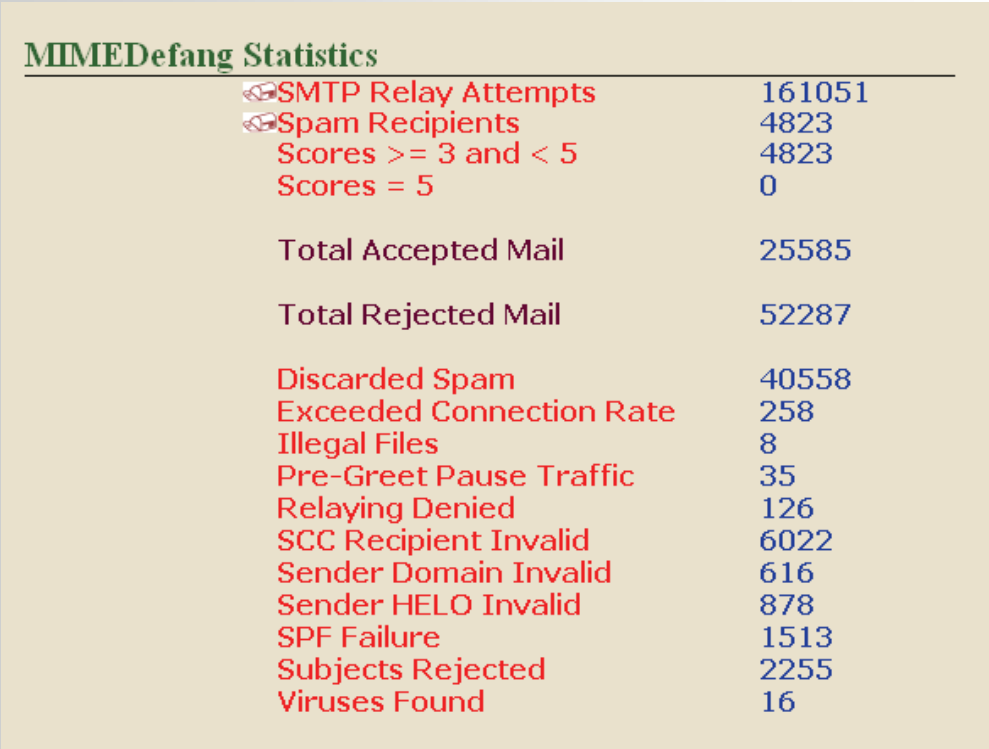
A mail relay server's primary function is to route mail. At Sinclair, the mail relay servers also provide first level virus scanning of email messages and SPAM protection. In 2006, Sinclair sent/ received over 60 million email messages. This number is expected to grow in the future as email is increasingly used as a form of legitimate communication as well as illegitimate communication in the form of SPAM. As such, it is important to ensure that the servers involved with email reliably

send/deliver email while, at the same time, protecting users from SPAM and viruses that consume network, server and personnel resources. This project analyzed our mail relay servers to see if there was a potential to increase performance, reliability and/or security of our email system.

To enable more efficient email processing, four additional mail queues were created on each mail relay server. This allows email to be processed at different rates so the mail destined for domains that delay mail will not delay mail destined for other domains. In addition, it will keep the mail queues smaller so they will process more efficiently.

As Spammers become more sophisticated in there techniques, so too must IT evolve to keep ahead of these threats. Along these lines, a Sender Policy Framework (SPF) was configured on the mail relay servers to help decrease the amount of SPAM received. SPF is intended to be an anti-forgery email solution. Domain owners can publish records in the Domain Name System (DNS) specifying which of its hosts are allowed to send email. This can help mail servers distinguish authentic messages from forgeries before messages are accepted. This moves SPAM detection from the actual email message up the food chain to the servers that are sending the SPAM. Qualitatively, SPF appeared to dramatically decrease the amount of SPAM that made it through to user mailboxes.

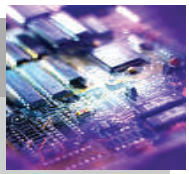
To improve reliability, the Common Address Redundancy Protocol (CARP) was evaluated as a way to provide load balancing among the mail relay servers. After testing on test servers, CARP was configured on the production mail relay servers. After monitoring and further testing in a production environment, it was determined that CARP did not provide the load balancing functionality as expected and did not justify the resources needed to use this protocol. As a result, it was decided not to use CARP at this time and the configuration changes were removed.



MIMEDefang Statistics

| | |
|---|---|
| SMTP Relay Attempts | 161051 |
| Spam Recipients | 4823 |
| Scores >= 3 and < 5 | 4823 |
| Scores = 5 | 0 |
| Total Accepted Mail | 25585 |
| Total Rejected Mail | 52287 |
| Discarded Spam | 40558 |
| Exceeded Connection Rate | 258 |
| Illegal Files | 8 |
| Pre-Greet Pause Traffic | 35 |
| Relaying Denied | 126 |
| SCC Recipient Invalid | 6022 |
| Sender Domain Invalid | 616 |
| Sender HELO Invalid | 878 |
| SPF Failure | 1513 |
| Subjects Rejected | 2255 |
| Viruses Found | 16 |

**Figure 3-48. 1 day's SPAM detail.**



**Qualitative/Quantitative Return on Investment:** Quantitative benefits of these incremental improvements to the mail relay servers are difficult to estimate. Qualitatively however, SPF appeared to dramatically decrease the amount of SPAM that made it through user mailboxes. This was based on statistics available at that time plus favorable user feedback. In addition, the creation of additional mail queues help ensure the timely receipt/delivery of email messages.

**Target Completion Date:** October 2006

**Actual Completion Date:** October 2006

## Internal Process Security Review

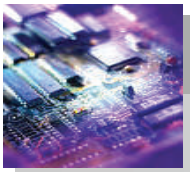
Due to the distributed nature of today's information systems environment and the increasing expectation of 24/7 global access to information resources, there is an ever-increasing number of internal processes to 'endeavor to meet the need,' and an ever-increasing demand for rapid deployment. The distributed responsibilities throughout the IT division for design, development, implementation, administration, and management of these processes and projects sometimes leads to 'stovepipes' that can result in reducing the effectiveness of an existing control, or rendering such controls obsolete or redundant due to technological improvements. The rapid pace of technology changes and the increasing complexity of information systems infrastructure further influence these processes.

The overall goal of the review is to ensure effective and efficient controls are in place to ensure the confidentiality, integrity, and availability of Sinclair's information assets. This project involves identifying internal IT processes that are most susceptible to security-related issues, prioritizing the processes for review, reviewing selected processes with stakeholders, comparing Sinclair practices with generally accepted 'effective practices,' and recommending improvements as warranted.

During the process identification phase, 36 processes were identified as candidates for review. Based on risk, complexity, ROI, and other variables, for FY 2006-2007, processes selected for review included:

- Server building/commissioning
- Server decommissioning
- Firewall change process and documentation
- PC Disposal process
- Employee provisioning
- IT Employee orientation
- Web Application deployment

**Qualitative/Quantitative ROI:** Periodic review of internal IT processes serves as an internal audit control. Reviewing processes helps identify vulnerabilities that could lead to exploits, and very often identifies redundant processes or controls that add minimal or no value to protection of the asset. Ensuring security controls are effective and efficient maximizes the College investment in security resources.





**Cost savings/cost avoidance:** The project has minimal direct cost other than staff time and administrative resources. Cost savings may result from elimination of obsolete or redundant controls, but these savings may also be offset by safeguards required to patch identified vulnerabilities. Cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

**Target Completion Date:** June 2007

**Current Status:** Due to the number of potential processes identified during the identification/ prioritization phase, this project has been extended to a multi-year project. Processes that have been completely reviewed include the server build/commissioning process, the server decommissioning process, and the firewall change process.

## Systems Vulnerability Assessment Plan

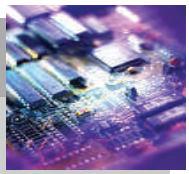
The Increasing scope and span of information security attacks and the multiple systems access points and mobility of today's information systems environment require dynamic assessment and response. Nearly all systems have inherent vulnerabilities—software code can be faulty, global protocols have weaknesses, installation may be done improperly, and customization can bypass original safeguards. This project is similar to and heavily dependent on the results of the internal process review project, but its focus is on the systems and technology used as opposed to the processes employed. The goal of the project is to determine/document effective and efficient vulnerability assessment protocols for each major information system used by the College. One of the deliverables is development of a specification document that can be submitted as part of an RFP when soliciting penetration testing from a third party security vendor.

**Qualitative/Quantitative ROI:** Recognizing and capitalizing on strengths, weaknesses, opportunities, and threats is fundamental to effectively and efficiently deploying information security resources. Vulnerability assessment is a proactive measure to assess weaknesses, identify possible exploitation, and apply effective mediation measures. It is historically less expensive to discover weaknesses than to recover from a malicious third party exploit.

**Cost savings/cost avoidance:** Unknown. Cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

**Target Completion Date:** June 2007

**Current Status:** Like the internal process review project, the number of systems and processes identified during the identification/prioritization phase has resulted in this project evolving into a multi-year project. The formal and documented assessment plan is still in the development stage. However, many of the systems requiring periodic vulnerability assessment and some of the tools used to conduct the assessments have been identified and implemented. One of the tools identified and implemented was a third-party service that automatically scans critical Internet-facing servers every day for known vulnerabilities, reports any possible vulnerabilities found, and



suggests remediation methods. Other assessment tools include the Microsoft Baseline Security Analyzer and the Microsoft Malicious Software Removal tool. Use of these tools has been included in the server build/commissioning process to check for vulnerabilities before deploying a new server. Periodic use of these tools on live servers will likely be specified in the overall assessment plan. Also, a consulting firm was utilized to conduct a limited penetration test. Strengths and weaknesses of the report resulting from this test will be used to help develop the specification criteria in the RFP for future penetration tests.

## Guidelines and Tools for Security of Mobile Computing

Information systems are getting increasingly smaller and more portable, and also more robust and powerful. Free wireless access permeates downtown Dayton. Notebook systems, tablet PCs, PDAs, Blackberries, and mobile telephones are ubiquitous. Today's mobile phones have as much or more functionality and resources than the desktop PCs of just a few years ago. However, the 'always connected' lifestyle these devices and systems bring also injects varying degrees of risk to the information accessed and/or stored in the systems. Convenience generally overrides security.

The goals of this project were to develop guidelines for and recommend tools for increasing the safety of information processed by Sinclair's increasingly mobile stakeholders. Guidelines will be developed and published for situations such as safe use of public PCs, safe use of public wireless, home access of Sinclair resources, security of notebook computers, and other topics related to mobile computing. Mobile devices owned by the College will be evaluated for risk, and appropriate, user-friendly, mitigation measures and tools will be recommended, developed, and implemented.

**Qualitative/Quantitative ROI:** Incorporating mobile computing into the overall information security program is essential for the program to succeed. Historically, the 'bad guys' attack the weakest—most vulnerable—part of the system. Deploying the most effective security controls on the 'wired' network infrastructure is futile if the remote access and mobile access methods are not as equally secure.

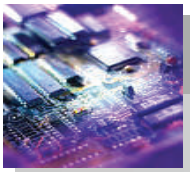
**Cost savings/cost avoidance:** Unknown. As with most security measures, cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

**Target Completion Date:** June 2007

**Completion Date:** June 2007

## CALEA Assessment and Response Plan

In September 2005, the Federal Communications Commission released an Order and Further Notice of Public Rulemaking applying the Communications Assistance for Law Enforcement Act (CALEA) to "facilities-based broadband Internet access providers," including higher education institutions, K-12 schools, libraries, and interconnected Voice over Internet Protocol (VoIP) service





providers. In simple terms, this Order requires covered entities to be capable of conducting real-time 'wiretap' surveillance of specific individuals and communications on their data networks. This order was challenged in the Federal court system, and the FCC rule was upheld (with dissention). The FCC mandated a May 14, 2007 compliance date.

This project involved assessing Sinclair's status as a 'covered entity' and developing a strategy and plan to ensure the College is compliant with this law. This project was particularly challenging due to the complexity and ambiguity of the law, the complete lack of standards as to what constitutes 'compliance,' and the FCC's position that it would not set any standards but would rely on Law Enforcement Agencies and affected industries to develop the standards. There was also no precedent or guidance, and the institutions and organizations of Higher Education often reached opposing conclusions as to their status and compliance requirements.

After much research, it was determined that Sinclair's best interest was to seek exemption under the 'private network' clause in the FCC Final Rule. An evaluation of the Sinclair network was completed and a strategy for ensuring that this status could be attained was developed. The approach and rationale was documented and submitted to internal and external legal counsel for review and validation.

**Qualitative/Quantitative ROI:** The FCC Order applying CALEA to all "facilities-based broadband Internet access providers" mandated compliance by all covered entities. As one plaintiff in the legal appeal stated, "this is possibly the mother of all unfunded mandates" for covered entities. The objective of this project was to ensure Sinclair met the FCC compliance requirements and deadline in as cost effective, minimally intrusive, and efficient manner as possible.

**Cost savings/cost avoidance:** As compliance was mandated, the primary goal of this project was cost avoidance. Estimated costs for covered entities to attain compliance range from $20,000 for very small networks to millions for larger networks. If the College was not able to achieve 'private network' exemption, estimated costs for hardware alone would have exceeded $100K.

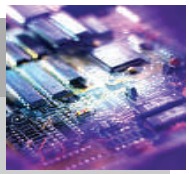
**Target Completion Date:** May 2007

**Actual Completion Date:** March 2007

## ⎔ 2006 IT Controls Audit (Crowe-Chizek)

The State of Ohio requires all publicly funded institutions to undergo an annual financial audit conducted by an objective third party auditing firm. A subset of this audit is an audit of Information Technology controls as they relate to the security of financial information. In 2006, this audit was conducted by the consulting firm Crowe-Chizek.

Prior to the on-site visit 9/11/2006, the IT controls auditor submitted an extensive list of policies, procedures, and other documentation to be reviewed during the audit. The auditor reviewed all documentation for compliance with information security 'effective practices.' During the on-site visit, the auditor randomly selected processes and procedures to test and verify.



The auditor found no discrepancies in Sinclair's IT controls. No Management Letter comments were generated. The auditor did not offer any suggestions for modifying or changing controls. His final comment was that Sinclair's controls and documentation of the controls were much better than the majority of institutions he had audited.

**Qualitative/Quantitative ROI:** Audits conducted by objective third parties who specialize in specific areas provide valuable insight to current effective practices. Audits also validate that the controls and processes used within the institution meet or exceed 'due diligence' requirements practiced by other similar institutions.

**Cost savings/cost avoidance:** Audits verify appropriate controls are in place and reduce the risk of fines, sanctions, and negative public reputation associated with security leaks and noncompliance with statutes.

**Target Completion Date:** December 2006

**Completion Date:** October 2006

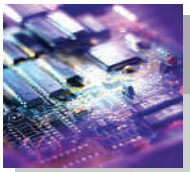
## Initial e-Discovery Law Review/Evaluation

On Dec 1, 2006, the US Supreme Court amended the Federal Rules of Civil Procedure dealing with preservation and production of electronically stored information in the event of litigation. These rules apply to virtually anything that can be stored in an electronic format, including electronic documents (and drafts), databases, spreadsheets, e-mail, system logs, cache and temporary Internet files, digital recordings, voice mails stored in an electronic format or accessible via a computer, and telephone logs.

The focus of this project was to determine the effects these new discovery rules have on the College and in particular on IT. The process included review of policies and procedures, consultation with legal counsel, records management personnel, and other stakeholders, and determining what changes, resources, and new processes were required for compliance.

The review/evaluation revealed that the College has procedures in place and the ability to retrieve this data in large-scale, large volume instances (i.e. the ability to fully restore a complete system to a previous state), but that these procedures are resource intensive, unwieldy, and not efficient for retrieving targeted information. The College's General Counsel has indicated the need for a 'litigation response team' with the CISO as a member. The CISO will spearhead a project for e-discovery response.

**Qualitative/Quantitative ROI:** The Supreme Court ruling makes this a Federal mandate; compliance is mandatory. Failure to comply, or at least make reasonable efforts to comply, could subject the college to significant sanctions and costs in the event of future litigation. In one recent case, for example, a court fined a company $15 million for failing to properly identify electronically stored information.

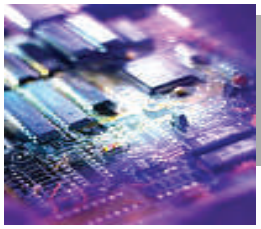


# Major Accomplishments

**Cost savings/cost avoidance:** Project is primarily cost avoidance. Proactively developing policies and procedures, and otherwise planning for preservation, retention, and production of electronic information 'on demand' is significantly less expensive than forensically retrieving and restoring this information from backup tapes and other archival media.

**Target Completion Date:** May 2007

**Completion Date:** April 2007





# Section 4

# Major Projects For FY 2007-2008

# Major Projects for FY 2007-2008

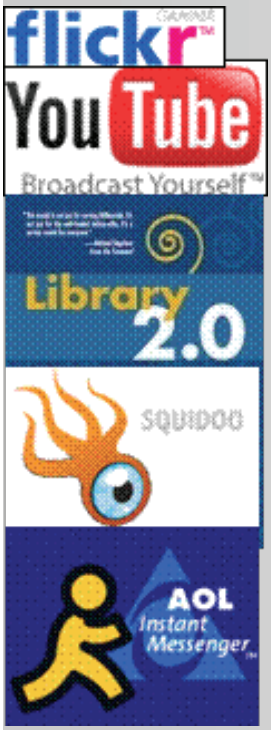
A variety of innovative projects is in process or planned to start during FY 2007-2008. This section describes many of these major projects. Each project is color coded to reflect the Sinclair Strategic Cluster.

# Library

- Exploring Library 2.0
- Fair Access to Information Project
- Measuring Student Response Project (Clickers)

## Exploring Library 2.0

Social networking applications such as Facebook, Myspace, Flickr, YouTube, wikipedia, LiveJournal, Digg, and del.icio.us have become popular among the students at Sinclair and other colleges and universities. Students use these applications to enhance communications with peers and build communities through blogging, podcasting, wikis, file sharing, tag clouds, and RSS syndication.




As a group, these social networking applications and technologies are often referred to as Web 2.0. The question for colleges is, as Joanne Berg wrote in the March 2007 ***Educause Review***, "how can campus professionals…learn to use these technologies to think differently about communicating with students and about facilitating learning?"

Library 2.0 refers to the continuous improvement of library services through the use of technology and social networking tools to create a customer-centered, participative library environment. In part, it is the application of Web 2.0 to the Library. Librarians have always tended to work with static documents, whether web page, article, image, or book. Today's "digital natives" are much more comfortable using technologies such as IM, text messaging, and the like to actively engage with each other and accomplish tasks in a very participative manner. To be effective in the future, librarians must be able to engage new users in a manner they are comfortable with. Before this can happen, however, library staff must learn the technologies and develop the skills needed to use social networking tools effectively. Exploring Library 2.0 will be a year long staff development process, modeled in part on the Learning 2.0 project originally developed by Charlotte Mecklenburg Library System.

**Estimated Cost of Project**: As the staff learn how to use these Web 2.0 technologies, it will be possible to reassess library services in the context of social networking. It will also be possible to better assess new library products that use these technologies. Thus, there are potential improvements in choice and delivery of library services, more acceptance of library resources by students, and better decisions made by library staff about the purchase of new products.

**Target Completion date:** By September 2007, develop a program of study for professional and support staff similar to Charlotte's "23 Things." During Fall and Winter Quarters, complete exploration and skill building phase. During Spring Quarter, develop services that incorporate, as appropriate Library 2.0 applications.

## Fair Access to Information Project

While the new Library expanded the number of computers available to students, it also produced an increased demand for access to the technology. This demand often exceeds the supply of available computers and students end up circling the floor watching and waiting for a free computer. In many cases, the Library can loan a laptop to meet this demand. However, there are also times when all laptops are in use or students prefer – for legitimate reasons – to use a desktop unit.

The goal of the Fair Access Project is to find and implement a technological solution that will manage the waiting cycle and assure that all students have equal and timely access to information technology. Software has been identified to accomplish this task, and it will be tested and installed on the library's public desktop computers.

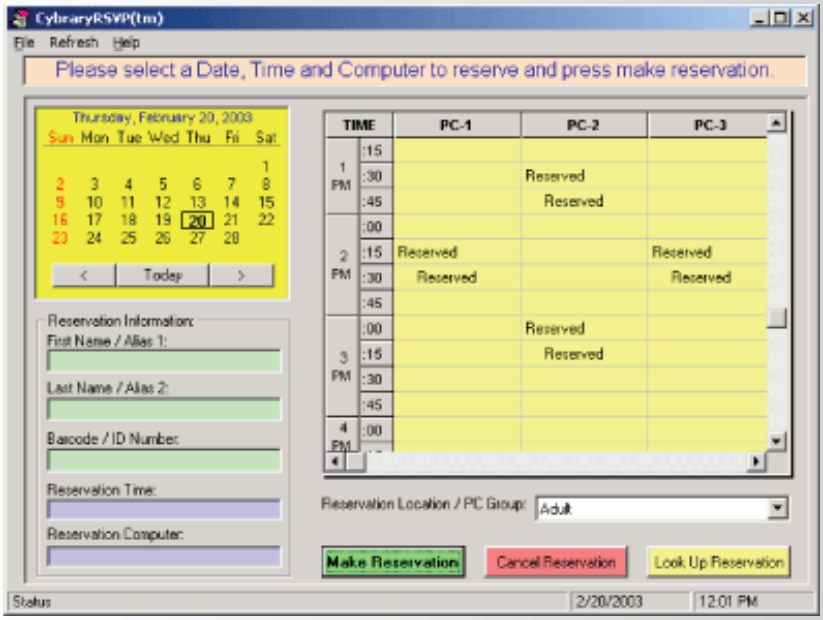



**Figure 4-1. Sample computer reservation screen.**

**Estimated Cost of Project**: There will be a $4600 initial fee to be paid from an Information Literacy grant, plus staff time for installation and maintenance.

**Cost Savings/Cost Avoidance Anticipated for the Project:** The objective is improved efficiencies for students and staff. If students have to wait for a computer, they will do so knowing that there is a fair process in place for assigning access. This will reduce the potential for frustration and anger. It will also improve the efficiency of operations by allowing staff to monitor use and assure that all available resources are used effectively.

**Target Completion date:** August 2007

## Measuring Student Response Project (Clickers)

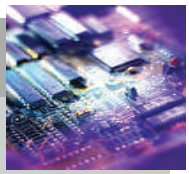
Audience response systems where students use a "clicker" to select an answer or vote on a question have been available for many years. In recent years, these systems have become more portable and user friendly. Advocates claim that use of such systems improves student learning and assists faculty in gathering meaningful data to measure learning. The Library looked at audience response systems last year with the intent of purchasing a system for use with information literacy instruction.

After review and discussion, it seems likely that other faculty might find such a system useful in classroom instruction. The Library will therefore purchase a system for use in information literacy instruction and to share with interested faculty who wish to learn the technology and experiment with it in their classes.

**Figure 4-2. Student uses "clicker" to answer questions in class.**

**Estimated Cost of Project**: $2000 to be paid from an information literacy grant.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Measures of library information literacy instruction effectiveness are generally indirect - after the fact questions and comments made to faculty and the appearance of good sources in student papers and projects - neither of which can be directly measured or attributed to library instruction. Library instruction is expensive when faculty and librarian time are considered in addition to the dedication of an actual class



period to the activity. Use of a response system will provide librarians with direct measures of in-class engagement and short term learning.

Further, by allowing faculty to use the clicker set, the benefits of the purchase can be expanded.

**Target Completion date:** Purchase during the early summer 2007. Use in classes by Fall Quarter 2007.

# Research, Analytics and Reporting

Following are the Major Projects for FY 2007-2008 for Research, Analytics and Reporting:

- Data Access and Reporting through the DAWN Portal
- Distance Learning Reports and Support
- Centralization of Data via the Data Warehouse
- Add Reports on Web Usage to the DAWN Portal
- Support Allied Health's Selective Admissions Processes

## Data Access and Reporting through the DAWN Portal

The DAWN Portal and associated business intelligence warehouse offer the institution many opportunities to improve its decision-making capabilities and to provide easier access to information used on a daily basis. Several activities for 2007-2008 will move the College forward in this regard.

The department of Research, Analytics and Reporting shall spearhead the movement of existing Colleague reports (that are not reliant on live data) to the DAWN portal as part of the migration to Colleague's Release 18. With the introduction of R18, the process for running and retrieving reports historically generated from Colleague will be notably more complex. An improved solution is to move the reports to the DAWN portal, which will provide easier and timely access to end users of the required reports.

The development of personalized dashboards to inform end users of process and personal progress against goals and standards will serve the College well. This year's efforts will have special ramifications for the student services arena and processes housed within that group such as strategic enrollment management, marketing and outreach, financial aid, and registration.

In order to facilitate data users' ability to readily create reports customized to their needs, increased utilization of the web report studio functionality will be developed in conjunction with end users. This capability will allow users to determine what elements they want to display, time periods they want to use, and how they want their report displayed in a user-friendly manner.

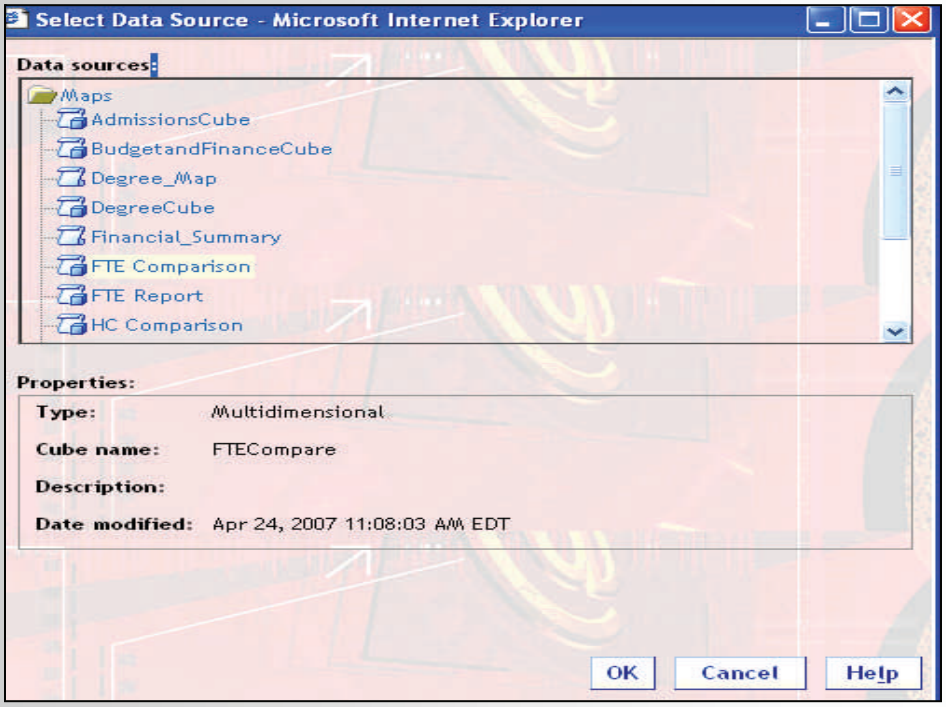



**Figure 4-3. Example of Web Report Studio cubes currently available for end users.**

**Estimated Cost of Project**: Migration of reports currently coming from Colleague to the Portal is estimated to require 700 hours of staff time; formation of departmental dashboards will require 1200 hours of staff time, and the expansion of web report studio development is anticipated to require 400 hours of staff time. Estimated total cost is $80,500.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Notable on-going savings of time and effort by end users will result with this project, while maintaining the expected quality of the end product. This project will provide process monitoring and guidance for personnel action with prospects, applicants, and students. This in turn will inform what actions are most valuable in maximizing the institution's return on investment by increasing prospect and applicant yield as well as student retention. This project will markedly increase end-user access to data while eliminating substantial ad hoc requests through the department of Research, Analytics and Reporting.

**Target Completion date:** April 2008

## Distance Learning Reports and Support

Data exploration is a continuing opportunity the business intelligence warehouse provides. While the majority of reports generated from the Department of Research, Analytics and Reporting are developed through the establishment of the Research Agenda, several projects in support of distance learning are mentioned here: 1) creation of online reports such as last login, course survey results, success of online course sections when compared to traditionally-delivered sections; 2) using predictive analysis through data mining to help determine the number of online

sections that should be offered, minimizing the need for cancellation or for the last minute creation of sections; and 3) the development of metrics using Angel reporting capabilities, including such things as uptime.

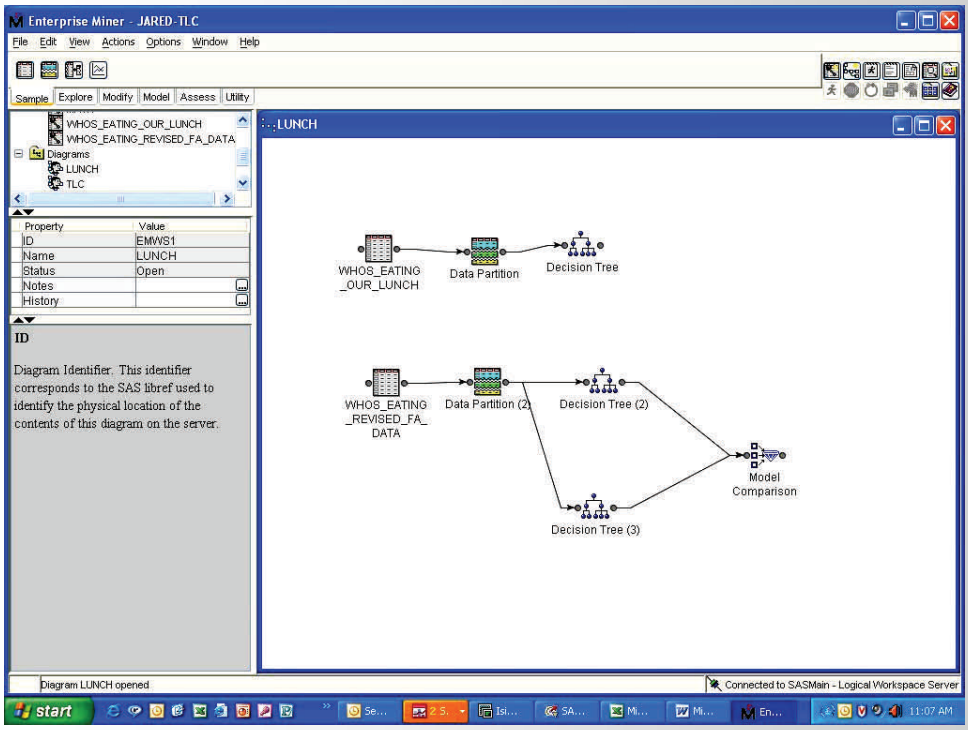



**Figure 4-4. An example of a SAS predictive modeling setup done by Research, Analytics and Reporting.**

**Estimated Cost of Project**: It is expected that these efforts will require 600 hours of staff time for an estimated cost of $21,000.

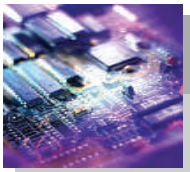
**Cost Savings/Cost Avoidance Anticipated for the Project:** These reports will directly help monitor student experience in online courses, and facilitate the continuous improvement of the department in helping students learn. Additionally, the data mining project is anticipated to produce information that will inform the course scheduling process, providing sufficient access to students while minimizing instructional overhead.

**Target Completion date:** March, 2008

## Centralization of Data via the Data Warehouse

This project involves the continued use of the data warehouse to increase the institution's ability to inform decision making through the centralization of data. This effort will require the addition of data elements, and external databases. This year's projects regarding centralization of data will include:

- combining human resource information with instructional information to exploit such opportunities as tracking faculty training;





- establishing expectations, product definition and criteria related to automating the institution's ability to find and assign faculty qualified and available to teach new sections as other sections fill and new sections are required;
- exploring the feasibility of collecting data from the Academic Resource Centers to use in conjunction with the warehouse.

**Estimated Cost of Project**: It is expected that these efforts will require 400 hours of staff time at a cost of $14,000.

**Cost Savings/Cost Avoidance Anticipated for the Project:** The centralization of data via the DAWN Portal and Business Intelligence Warehouse will substantially impact the institution's understanding of the return on investment associated with professional development and technology used to facilitate student learning. Additionally, through the exploration and development of automated processes that align faculty with sections, there will be notable savings of time and resources, minimizing student's inability to find courses that fit their needs, and assuring that the appropriate faculty skill sets are within the institution.

**Target Completion date:** May 2008

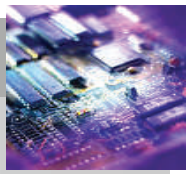
## Add Reports on Web Usage to the DAWN Portal

Analysis of web traffic patterns, such as hits, navigation paths followed, when paths are abandoned, etc., has the potential to provide to decision makers information as to how website visitors are currently using this source of information. This analysis can tell decision makers what web practices and placements work and what opportunities for improvement exist. The web has become a marketing and information dissemination tool on a level equal with or exceeding print and broadcast media. Unlike these other media channels, however, feedback loops are not in place to give decision makers information on the effectiveness and impact of web-based messages. This project would involve the creation of a collection of reports that inform decision makers about the usage levels and patterns of visitors to that portion of the main Sinclair website owned and maintained by the decision maker. Sinclair subscribes to a web data gathering service that collects the usage information that would be summarized in these reports. What is lacking is an automated and consistent method of aggregating these data and placing them conveniently in front of the appropriate decision maker.

**Estimated Cost of Project**: It is expected that this project would take approximately 240 hours of staff effort for an estimated cost of $8,400.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Increasing appropriate web traffic patterns and minimizing the frustration on the part of the external user is invaluable to the institution as it attempts to serve numerous constituents through this essential communication channel.

**Target Completion date:** June, 2008



### Support Allied Health's Selective Admissions Processes

Allied Health departments currently use custom screens that were developed in the Colleague student information system to capture and analyze information that assists the departments in the management of the admissions processes to academic programs. The usefulness of these screens is limited since these admissions processes rely on analysis of data from multiple sources – a feature that is not readily supported by Sinclair's transaction-based, student information system. At the time that the screens were created, the data warehouse, which easily handles multiple data sources, did not exist. This project calls for replacing the Colleague screens with a series of reports and analyses provided by the data warehouse.

**Estimated Cost of Project**: It is expected that this project would take approximately 600 hours for an estimated cost of $21,000.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Sinclair has been chided publicly for the length of the waiting time that students must go through while attempting to enter several of the Allied Health academic programs. Successful completion of this project would have some beneficial effect on these wait times.

**Target Completion date:** June, 2008

## Systems Development & Maintenance

Following are the Major Projects for FY 2007-2008 for Systems Development & Maintenance:

- Convert to Colleague Release 18
- Implement Colleague "Wait-listing" Feature
- Implement Faculty Payload System
- Implement the E-Transcript Process
- Implement Recommendations of AQIP Online Services to Students Project
- Implement Financial Aid Changes
- Rewrite the Accuplacer/Colleague Upload Process
- Automatic Checking for Degree Completion
- Automate & Streamline HR, Corporate, & Business Services Processes
- Implement Enhancements to Angel LMS
- Support Strategic Enrollment Management Initiative
- Combine our.Sinclair.edu with my.Sinclair.edu
- Create an Online Workflow System for Forms Processing
- Create Next Version of Curriculum Management Tool
- Implement New Web Site Design

### Convert to Colleague Release 18

This project will include taking all of the necessary steps to assure that the next release of the Colleague software can be installed without disruption to business operations. The next version,

Release 18, is a complete change in the underlying architecture supporting the student information system. This architectural change requires that every program ever written by Sinclair staff needs to be upgraded. In addition, every user of the student information system will need to become proficient in using a graphical-user-interface as the access mode for Colleague. This project is extremely large and complex, and it is estimated that the project will require in excess of 11,300 hours of staff time.

A second part of this project is to gather information necessary to redesign the manner in which course information is conveyed. Currently, SCC uses a two-character course section code that contains many pieces of disparate information about the section. Building "intelligence" into the section codes has some advantages, but the extent of the intelligence conveyed in the section code has become so complex that the utility of this approach to information dissemination is now problematic. This project will involve identifying all locations within the Colleague system that rely upon the existing section code logic, so that in a future project this logic can be removed and relocated to more appropriate data fields. Since all pieces of Colleague code need to be examined as part of the R-18 project, this is the logical time to locate the areas where section code logic is used.

Another activity that will be leveraged as part of the R-18 project is a reexamination of the custom Colleague programming that is associated with Sinclair's financial aid transmittal process for awards from sponsors. This custom programming has a history of high maintenance costs and performance variability. Now would be an appropriate time to reexamine business practices that would allow use of the Colleague baseline product and thus would reduce long-term costs of ownership for the product.

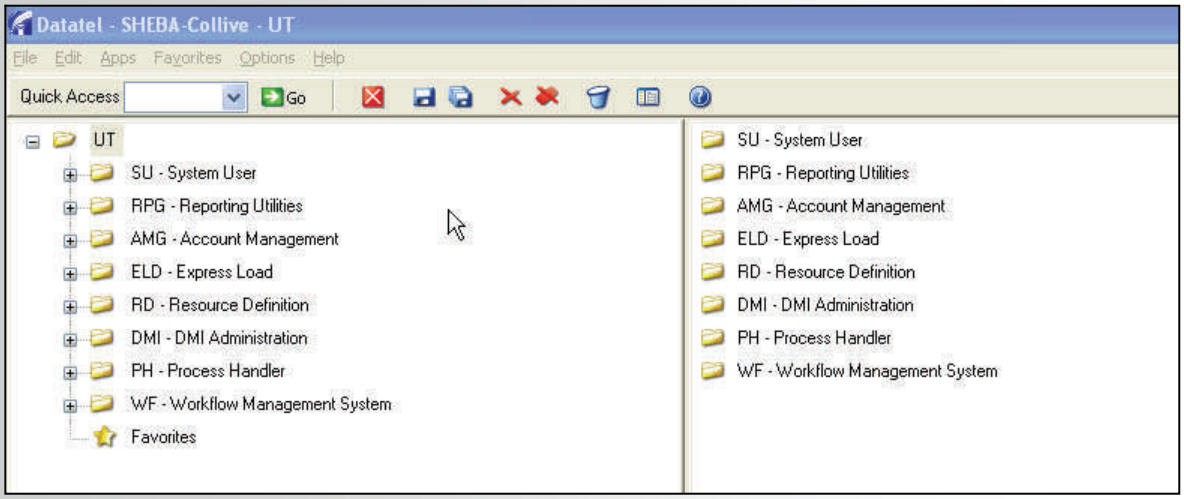
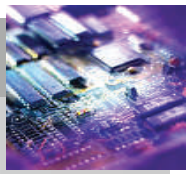



**Figure 4-5. Converting the user experience to a graphical user interface (GUI – shown above) is one of the major features of going to Colleague Release 18.**

**Estimated Cost of Project**: The redo of the sponsored billing portion of the project is estimated to take approximately 330 hours of Administrative Systems staff time. In addition, the Bursar and Financial Aid offices will need to commit approximately 220 hours of staff time to determine and test needed changes to current processes. The Administrative Systems and bursar office staff time combined come to a total cost of $18,100 to implement the sponsored billing portion of the



project. It is estimated that the analysis of course section logic will require approximately 330 hours of Administrative Systems staff time at a cost of $11,550. The conversion to R-18 portion of the project will cost $830,500. Of that amount, $350K is for hardware, $75K is for third-party services, and the remainder, approximately $406K, is the salary and benefits cost of Sinclair staff for time spent on implementation, evaluation, and testing. The sponsored billing, section logic, and R-18 portions combined come to a total cost of $860,150.

**Cost Savings/Cost Avoidance Anticipated for the Project:** The vendor of the Colleague product has announced that product maintenance for the current version will be discontinued in August 2007; therefore, in order to stay current in areas such as financial aid and payroll compliance, it is necessary that Sinclair move to the next version of Colleague.

**Target Completion date:** February 2008

## Implement Colleague "Wait-listing" Feature

Over the years interest has been expressed to implement the wait-listing feature of Colleague, but the ability to follow through on this interest has always been hindered by the high levels of labor associated with maintaining a wait-listing system. With recent changes to Colleague, this labor cost is now less of a problem. Under the previous version, when a student encountered a course that was full and requested to be put on the waitlist, it fell to the registration office to manually maintain records of what contacts had been made to a student once a seat in the section opened up. This labor intensive activity came at the same time as the hectic beginning-of-term activity. Under the new version, the Colleague program takes on the responsibility of managing the student notification, expiring eligibility, etc. This project will be undertaken after the conversion to R-18.

**Estimated Cost of Project**: It is estimated that this project will require approximately 160 hours of Administrative Systems staff time for a total project cost of $5,600.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Every new FTE student brings in approximately $7,000 in new revenue to Sinclair.

**Target Completion date:** June 2008

## Implement Faculty Payload System

This project has as its goal to replace the current paper based faculty payload system with Colleague screens that update the course load/pay database in real-time. During plan year 2006-2007, the software change and pilot testing phases of this project were completed. This project involves rolling these features out to all academic chairs that have responsibility for making faculty instructional assignments. Use of this system will allow Sinclair, for the first time, the ability to have a comprehensive view in one centralized database of all instructional resources used to deliver courses.

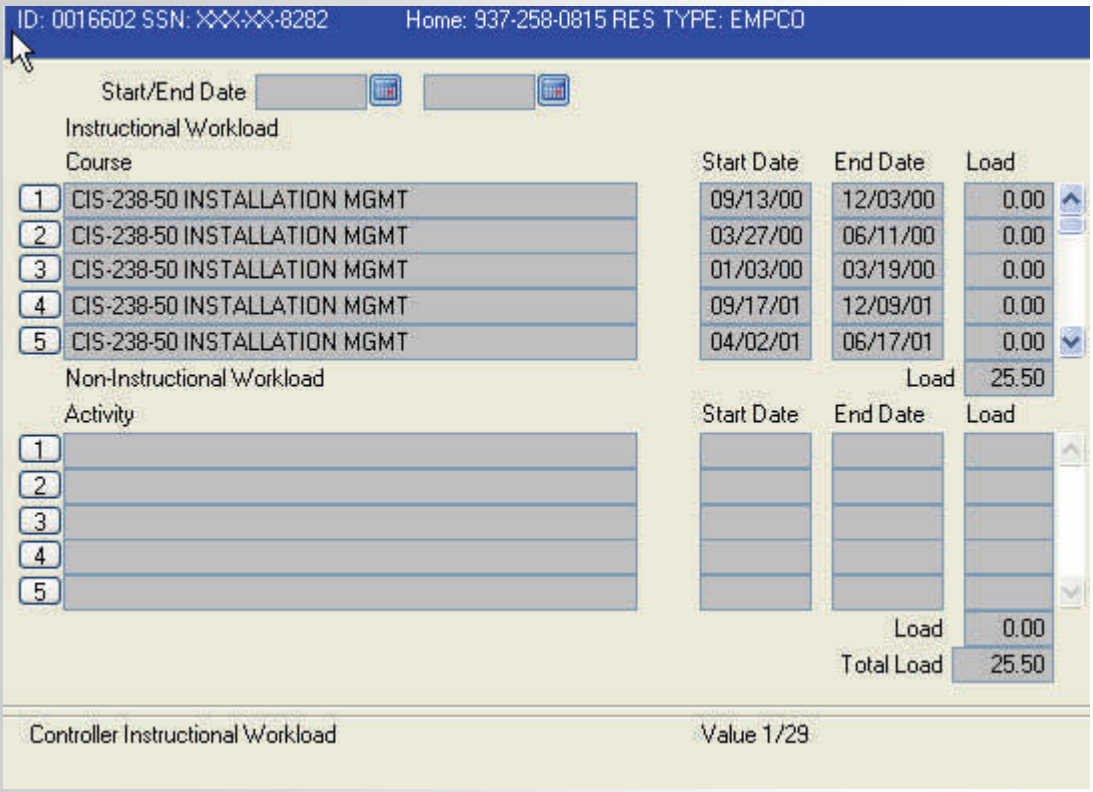



**Figure 4-6. The data entry screen above shows an example of how faculty payload information is entered into the Colleague ERP by academic chairs.**

**Estimated Cost of Project**: It is estimated that this project will require approximately 160 hours of Administrative systems staff time for a total project cost of $5,600.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Successful implementation of this project will be a major milestone in Sinclair's efforts to move to 50/50 percent full-time to part-time teaching faculty ratio. Accurate measurement of instructional costs is an essential component of reaching this goal.

**Target Completion date:** September 2007

## Implement the E-Transcript Process

The Ohio Board of Regents (OBOR) has mandated that all public funded higher education institutions develop software to transmit academic transcripts according to Postsecondary Electronic Standards Council (PESC) XML standards. OBOR has also mandated that 40 courses will be 100% transferable to any public funded higher education institution in Ohio and that communication of this transferability will be accomplished via PESC XML standards. This project involves writing the necessary computer programs to allow compliance with these mandates.


**Figure 4-7. The image above shows the transcript exchange standards developed by the Postsecondary Electronic Standards Council.**

**Estimated Cost of Project**: It is estimated that this project will require approximately 330 hours of Administrative Systems staff time for a total project cost of $11,550.

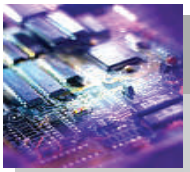
**Cost Savings/Cost Avoidance Anticipated for the Project:** Administrative Systems staff has been working with a third-party vendor who has an interest in partnering with Sinclair to provide the software and service needed by other colleges in Ohio to comply with the Regents requirements. If this route was chosen, Sinclair would realize a royalty for each time the software was used. At the very least, OBOR has given preliminary indication that they will reimburse Sinclair up to $20,000 for development work done in exchange for the Regents being able to distribute the work to other Colleague institutions in Ohio.

**Target Completion date:** OBOR has not yet set a mandated compliance date; however, Sinclair will be ready with a functioning system in October 2007.

## Implement Recommendations of AQIP Online Services to Students Project

Sinclair has identified services to distance education students as one of the core tasks of its Academic Quality Improvement Program (AQIP). One initial step in this process has been to convene a group to study and to make recommendations on how Sinclair provides non-academic related services to students who will likely never visit the campus. The work of this committee is still underway, but it is expected that very soon specific recommendations and expectations for Systems Development and Maintenance will be set for the upcoming plan period. This project involves putting those recommendations in place.

**Estimated Cost of Project**: It is not possible to precisely calculate the cost of this project since the specific recommendations of the AQIP action committee have not yet been made.





**Cost Savings/Cost Avoidance Anticipated for the Project:** Distance education is the fastest growing component of Sinclair's offerings. Plans coming out of the distance learning office indicate that distance education enrollments are expected to double in less than three years. Providing related educational services such as advising, career planning, course scheduling and payment, will become essential to how Sinclair conducts business in the future.

**Target Completion date:** June 2008

## Implement Financial Aid Changes

The Financial Aid office has recently undergone an extensive audit conducted by experienced financial aid leaders from other community colleges. The results of this audit indicate that the office could significantly benefit by using features that are built into the base Colleague financial aid module. This project involves providing support to the financial aid office as they implement these previously unused features.

**Estimated Cost of Project**: It is estimated that this project will require approximately 330 hours of Administrative Systems staff time for a total project cost of $11,550.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Financial Aid availability is one of the primary determinates for an individual to decide to undertake college work. Any action that Sinclair can take to make financial aid more readily available will be an essential support to the college's goal of increasing access to higher education.

**Target Completion date:** August 2007

## Rewrite the Accuplacer/Colleague Upload Process

Political leadership in the state appears to have a goal of creating uniformity across state institutions of higher education as to what an entry placement test means with respect to initial course placement. To advance this goal, there is a strong likelihood that a single placement product will be mandated for use at all colleges and universities. Since this mandated product is not the one that Sinclair currently uses, this project calls for making the programming changes to convert to this new product. Sinclair currently has in place an automated process to take the output from the standalone placement test system and to seamlessly load the test result information into the Colleague student information system. This project would accomplish the same goal, but the source information would now be coming from a different testing system.


**Figure 4-8. Accuplacer from College Board is one of the standard placement tools for beginning math and English coursework.**

**Estimated Cost of Project**: It is estimated that this project will require approximately 330 hours of Administrative Systems staff time for a total project cost of $11,550.

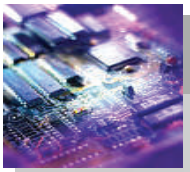
**Cost Savings/Cost Avoidance Anticipated for the Project:** Uniform placement score and cutoff points have the potential to enhance transferability within state institutions. Students will know that a placement score of "x" will translate into the same expectations and requirements at any state institution.

**Target Completion date:** June 2008

## Automatic Checking for Degree Completion

In fall 2007, it is expected that the Registration and Student Records office will be putting new practices in place that will eliminate the need for students to apply for graduation. Instead, degree and certificates will be awarded as requirements are completed. This project calls for developing Colleague programs to assist in implementing this practice. The programs will search for students who are within ten hours of completing an academic program or certification. The programs will also identify students who have already met the requirements for certificates or degrees, regardless of whether or not the student has applied for graduation.

**Estimated Cost of Project**: It is estimated that this project will require approximately 330 hours of Administrative Systems staff time for a total project cost of $11,550.





**Cost Savings/Cost Avoidance Anticipated for the Project:** A manual examination of credentials conducted by the Registration and Student Records office in spring 2007 indicates that there are a significant number of un-applied-for degrees and certificates completed each term. Since state funding trends appear to be in the direction of placing more emphasis on graduation rates as a basis of funding, efforts to improve the numbers of degrees and certificates reported will have a direct financial impact.

**Target Completion date:** May 2008

## Automate and Streamline HR, Corporate, & Business Services Processes

Several offices are in the planning stages of implementing technology changes that have the potential to increase efficiencies and decrease costs. This project anticipates the resource requirement from Systems Development and Maintenance to support activities coming out of these plans. Some of the possible areas for action include:

- Install and configure Web Advisor purchase requisition forms that will allow web-based creation of requisitions
- Clean up of PT and Student Worker records in Colleague
- Create course shells in the learning management system to support faculty and staff training and required annual certifications
- Consolidate policies on the Web
- Maximize use of the Employee Directory
- Develop plan for incorporating workforce development/continuing education registrations, payments, and accounting into either the Colleague information system or other technology support system(s) that corporate services may select

**Estimated Cost of Project**: Since the specific activities under this project have yet to be identified, it is not possible to identify estimated costs or actual cost savings/cost avoidance at this time.

**Target Completion date:** June 2008

## Implement Enhancements to Angel Learning Management System

Angel, the college's learning management and portal solution, will require some upgrades and improvements to meet the growing needs of distance learning. Linkages between Angel and other systems, like CMT, need to be expanded and exploited for increased benefit of faculty and students. New technology to allow collaborative learning will be investigated and evaluated for a determination of best fit and budget concerns.


**Figure 4-9. Some of the instructional tools faculty can use with the Angel LMS.**

**Estimated Cost of Project**: It is estimated that this project will require approximately 400 hours of web systems staff time for a total project cost of $13,200.

**Target Completion date:** February 2008

## Support Strategic Enrollment Management Initiative

Strategic Enrollment Management (SEM) and Customer Relationship Management (CRM) has been identified as a major strategy for the college to increase enrollment. This effort must be supported by a major technical system that enables the tracking and management of large amounts of data. Systems Development and Maintenance will be assisting in the technical aspects of the solution selection and implementation. This project specifically involves providing the necessary technical support to assure that the selected software is installed and configured correctly and that systems are in place, such as web portal technology, that allow for full use and exploitation of the software features.

**Estimated Cost of Project**: It is estimated that this project will require approximately 600 hours of web systems staff time for a total project cost of $19,800.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Each new FTE recruited as a result of having a SEM/CRM system in place will bring in approximately $7,000 in additional revenue to the college.

**Target Completion date:** October 2007

## Combine our.Sinclair.edu with my.Sinclair.edu

The long term strategy for Sinclair's portal systems has been to have a single unified system that supports all of the college's user groups. This project is designed to support this goal by combining the our.Sinclair and my.Sinclair sites into a single web presence. This will consolidate information and resources into a single tool for Sinclair users. In the process Web Systems will be updating the our.Sinclair content areas to use the college standard content management system (CMS).

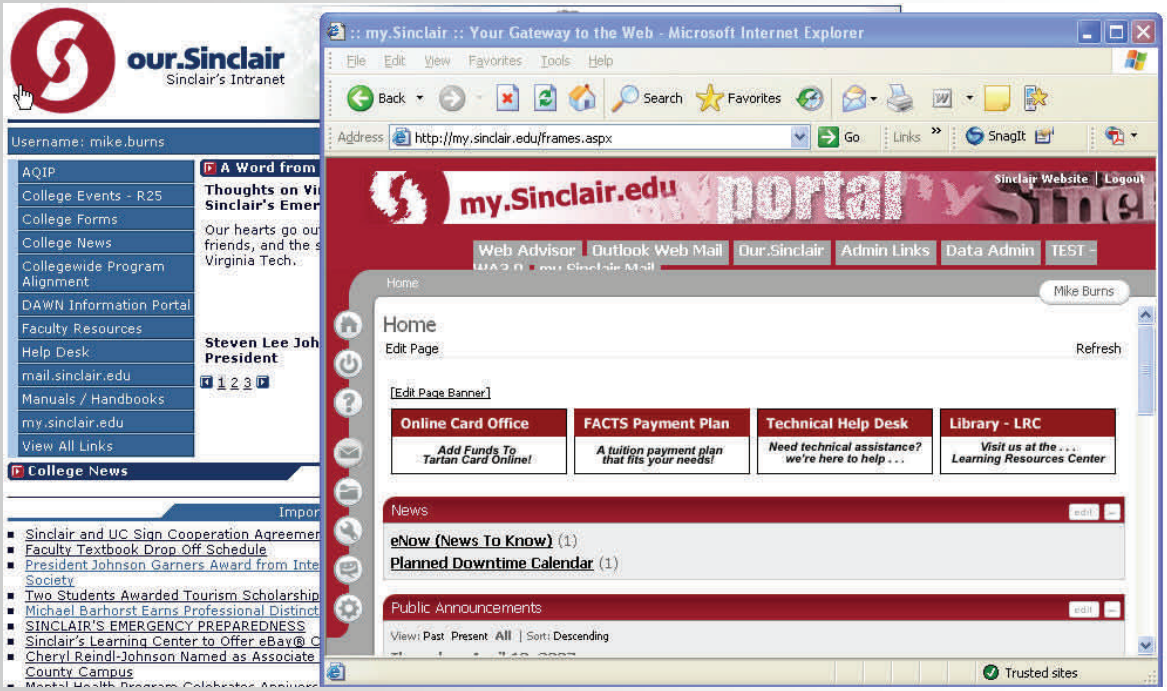



**Figure 4-10. When the project is complete, my.sinclair.edu and our.sinclair.edu would be combined into one site with a common entry point.**

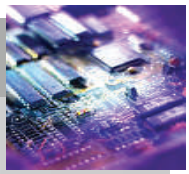
**Estimated Cost of Project**: It is estimated that this project will require approximately 800 hours of web systems staff time for a total project cost of $26,400.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Implementation of this project will eliminate the need for a separate login to access information from the our.sinclair.edu intranet.

**Target Completion date:** May 2008

## Create an Online Workflow System for Forms Processing

The need for routing of forms for approval in an electronic format is well defined. This project will focus on creating a system to meet this need. The resulting tool will be a web-based tool that can manage the routing and track the approval of selected forms. For high traffic forms, and where technology allows, the project will also involve writing programs to integrate form information into other systems such as Colleague.



**Estimated Cost of Project**: It is estimated that this project will require approximately 800 hours of web systems staff time for a total project cost of $26,400.

**Cost Savings/Cost Avoidance Anticipated for the Project:** The leave request and approval process is one of the most paper-intense processes on campus. Every leave request requires paper creation and transport before the leave is actually recorded against an employee's leave record. This project would eliminate all of the labor associated with the creation and transportation of these forms.

**Target Completion date:** February 2008

## Create Next Version of Curriculum Management Tool

Curriculum Management Tool (CMT) 2.0 is the continuation of the highly successful CMT 1.0. This project is designed to upgrade the technology used in the application to leading edge standards and to incorporate new features to increase the systems value to the college. Implementation of CMT 2.0 will continue to support the goal of making the process of creating, approving and disseminating curriculum easier and more efficient.

**Estimated Cost of Project**: It is estimated that this project will require approximately 800 hours of web systems staff time for a total project cost of $26,400.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Many of the enhancements included in CMT 2.0 will focus on making the tool more supportive of Sinclair's goal to measure success and document performance. Since measurement of outcomes is a key component of ongoing accreditation, CMT version 2.0 will directly support the funding that comes as a result of holding accreditation status.

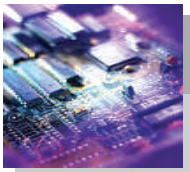
**Target Completion date:** August 2007

## Implement New Web Site Design

The college web presence needs to be refocused to more actively engage and attract students to Sinclair. The overall look and content of the site needs to be reviewed and refreshed based on a cohesive web marketing strategy developed by Sinclair's marketing group. This project calls for Web Systems to support marketing initiatives by providing technical support to reshape the website to meet the changing needs of Sinclair. The full scope of this project will depend upon marketing decisions yet to come, but it is anticipated that the changes to the website will be extensive enough to require significant project effort.

**Estimated Cost of Project**: It is estimated that this project will require approximately 1200 hours of web systems staff time for a total project cost of $39,600.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Information access via the web is the communication means preferred by today's students. Studies indicate that sites have only a few seconds to capture a visitor's interest enough for them to explore the site more thoroughly. A dynamic, engaging, interesting, and interactive site is a prerequisite to attracting new students.





**Target Completion date:** The timeline for this project will be led by the marketing department, which has not yet set a specific target for completion. It is expected that the project will be ongoing throughout the plan year. This project represents the redirection of the 2006-2007 project of redesigning the www.sinclair.edu site.

# Information Technology Services

Following are the Major Projects for FY 2007-2008 for Information Technology Services:

- Vista Planning/Testing
- Mason Campus Planning
- LCD Replacement
- VoIP (Voice over IP) Pilot Expansion
- Redesign TCP/IP Network for VoIP Devices
- Evaluate Alternatives to Student Email System
- Veritas NetBackup Vault Software
- Off-Campus Access to On-Campus Lab Applications
- Office 2007 Rollout
- Extended Help Desk Hours
- Recording Communications Department Student Speeches
- Eliminate Academic Media Delivery
- Television System Signal Improvement
- Systems Vulnerability Test
- Encryption of Personal and Other Sensitive Information
- 2007 IT Controls Audit
- e-Discovery Capability

## Vista Planning/Testing

In early 2007, Microsoft released Vista, the long-awaited successor to its Windows XP operating system. This operating system is a significant upgrade that has much greater hardware requirements than the previous version of Windows due to its enhanced user interface. Vista is not only a significant change for the end user; it also operates much differently in the way it communicates with servers and other network devices.

During FY 2007-2008 ITS will complete the development of a Vista image, pilot test the image and develop a plan for the campus wide implementation of Vista for the replacement of the Windows XP based image. The pilot and implementation plan will need to take into consideration the hardware requirements, upgrading or replacing all of the components of the image, and how the new image will operate within the campus' security infrastructure.

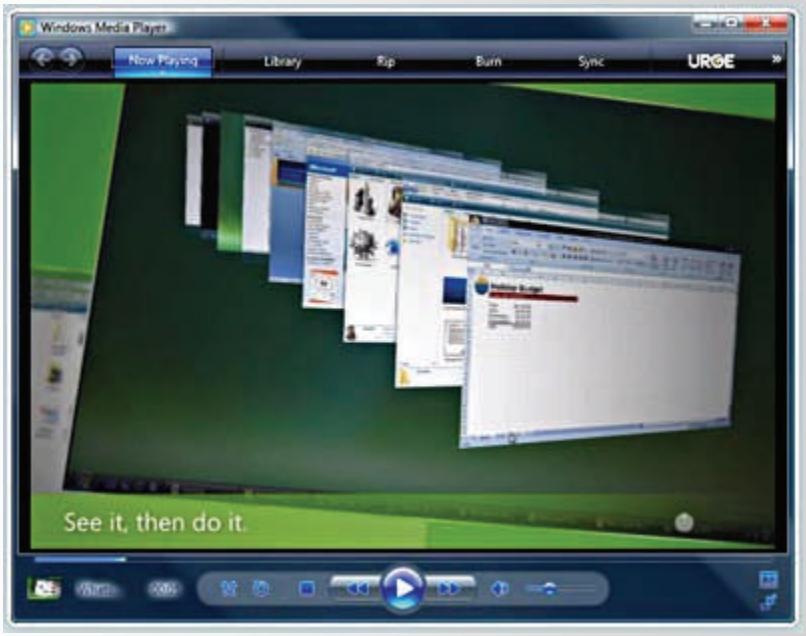



**Figure 4-11. Vista's new user interface, Windows Aero provides a whole new look.**

**Estimated Cost of Project**: There will be no additional cost for this project as the cost for the software is covered within existing Microsoft contracts. The cost of upgrading hardware is covered under the college's Renewal & Replacement model.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Existing hardware and software plans will allow this project to move forward with no additional costs.

**Target Completion date:** June 2008

## Mason Campus Planning

The new Courseview Campus Center in Mason, Ohio will open for classes on September 4, 2007. To prepare for the opening of the facility, ITS will work with the Courseview campus leadership to understand the needs and design an appropriate infrastructure and support structure. Many of the needs of this site will be similar to the needs of the Learning Centers that began service last year. Other unique needs will require additional analysis and new technologies or support models.

**Figure 4-12. Temporary site in Mason.**

**Estimated Cost of Project**: The cost of the technical infrastructure for the Mason campus is still under development.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Existing contracts and known technologies will be used where appropriate to save equipment and support costs. Newer technologies will be investigated in areas that would not make economical sense to install in a smaller site.

**Target Completion date:** September 2007

## LCD Replacement

Several years ago ITS performed an analysis of the cost of LCD monitors compared to the cost of CRTs that had previously been part of the standard PC configuration and determined that over the life of the monitor it would be more economical to purchase LCDs based on their increased useful life and reduced energy consumption. Since that time ITS has received even better pricing than was used in the original analysis. In addition to the financial benefits, ITS identified the following qualitative advantages with the LCD implementation: reduced footprint (space saver): low emissions; and extreme image clarity (150 pixels per inch on LCD compared to 80 pixels per inch on CRT). With these advantages in mind, ITS began purchasing and deploying LCD monitors across campus with the replacement of the system unit.

**Figure 4-13. LCD Monitor**.

**Estimated Cost of Project**: The cost of upgrading all CRTs to LCDs is built into the replacement cost of the PCs in the Renewal & Replacement model.

**Cost Savings/Cost Avoidance Anticipated for the Project:** Upgrading the monitors saves the college energy costs. The extended useful life of the monitor also reduces the average yearly cost for replacing monitors.

**Target Completion date:** December 2008

**Current Status**: The replacement will be complete in all academic labs the summer of 2008. The administrative upgrades are projected to be completed at the end of FY 08-09. ITS has deployed 2100 LCDs in labs on campus and 1,126 to administrative users on campus.

## VoIP (Voice over IP) Pilot Expansion

Over the past 12-16 months, SCC has been piloting the ShoreTel communications system and using it as a primary phone system for the Englewood Learning Center (ELC) and Huber Heights Learning Center (HHLC). In planning for the Courseview Campus Center in Mason, another ShoreTel system is being considered. As a result of the phasing of the implementation of VoIP for the entire campus, the original pilot system installed in 2006 will be expanded to include other user groups across the campus. This will involve selected groups of users so that a carefully planned and phased-in approach can be followed to ensure that further expansion of this technology can be carefully monitored and controlled.


**Figure 4-14. Huber Heights Learning Center and Englewood Learning Center.**

**Estimated Cost of Project**: $200,000

**Cost savings/Cost avoidance anticipated for the project**: A planned and phased approach to the installation of this technology will help to avoid any unforeseen costs and allow the IT department to gain valuable experience in the implementation of this technology.

**Target Completion Date**: June 2008

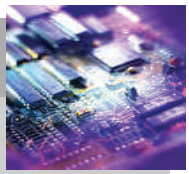
## Redesign TCP/IP Network for VoIP Devices

TCP/IP stands for Transmission Control Protocol/Internet Protocol, a suite of protocols that is used by computers and other devices to communicate over the global Internet. In essence, it is the "language" and underlying rules whereby network devices communicate with each other. At Sinclair, all devices connected to the network use TCP/IP to communicate. For this communication to occur, each device on the network has to have a unique TCP/IP address.

As VoIP is implemented, each of the approximately 2,000 telephones across campus will also require their own unique TCP/IP address. In some cases, the increase in the number of VoIP devices is larger than the number of unique addresses currently available for an area. This project will evaluate alternative IP schemes to use for these IP phones so the solution will be scalable, secure, provide high availability and not affect the other network devices on campus.

**Estimated Cost of Project:** No capital costs are associated with this project as it only encompasses the design process. The designs evaluated will be compatible with existing technologies so additional costs to implement the design are not expected.

**Target Completion Date:** December 2007



## Evaluate Alternatives to Student Email System

In 2002, Sinclair Community College began evaluating various email packages for the soon to be released my.Sinclair portal. Requirements were developed for this email system to help in the evaluation of various products available at that time. No single product met all of the requirements, but a product called iMail from IpSwitch met the majority of the requirements and was selected as the student email system.

Five years later, technology has changed along with some of the requirements. Based on current system performance and Help Desk reports, there are also some scalability concerns, all of which bring into question the viability of the current student email system as Sinclair continues to grow. These and additional reasons have prompted the evaluation for alternative student email solutions. This project will involve developing updated requirements for the student email system as well as researching and testing alternative solutions for this function.

**Estimated Cost of Project:** There is no additional cost for this project as ITS will only be evaluating technologies. If it is determined that there are technologies that could improve the existing student email system, those costs will be budgeted for FY 2008-2009 or absorbed through savings from other projects.

**Cost savings/Cost avoidance identified with the project:** There is the potential that an OpenSource solution could be found that would save approximately $8,000 annually in software maintenance costs. A new system may also result in increased user satisfaction due to better performance and usability.

**Target Completion Date:** October 2007

## Veritas NetBackup Vault Software

ITS has purchased a product from Veritas known as NetBackup Vault. NetBackup is the software that ITS uses to perform all of the backups of the data on the College's servers and Vault is an additional component of NetBackup. Vaulting software decreases the ongoing cost of purchasing backup tapes and provides improved file restore response to users. Implementing the Veritas NetBackup Vault option reduces the number of tapes sent offsite for storage and provides a full copy backup in the tape library in the computer room. When tapes are due to be sent offsite, the offsite option is executed in the Vault software; vaulting then takes the set of 25 tapes in the library, writes only the data to tape; and creates an offsite copy that is at least ½ the amount of tapes as the onsite backups.

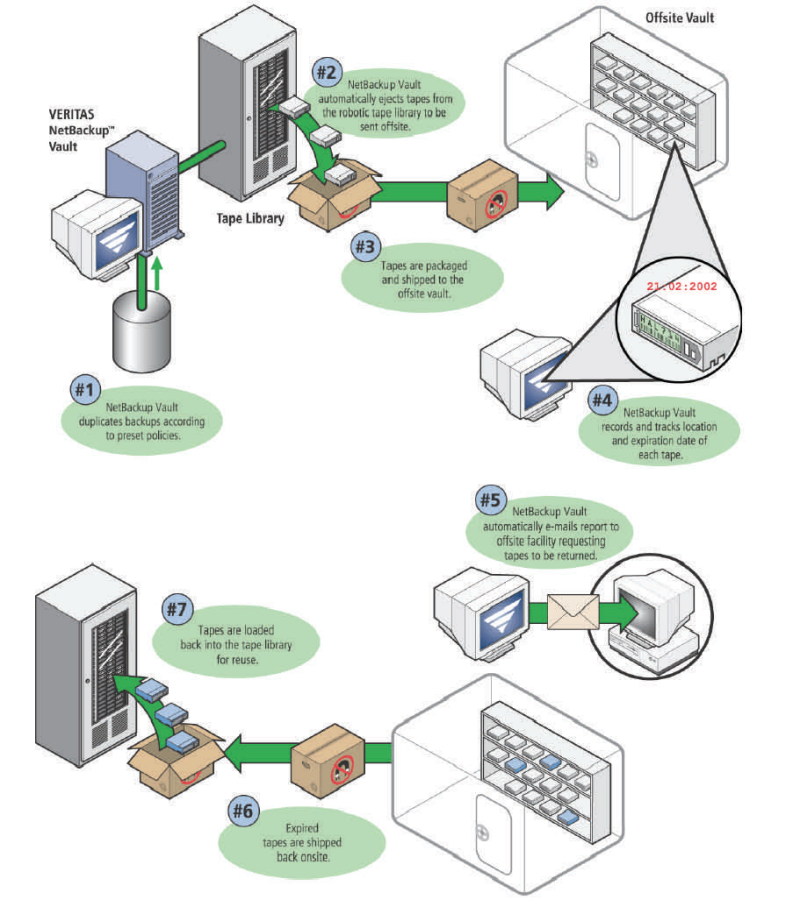



**Figure 4-15. The NetBackup Vault software manages the tape duplication and vaulting function.**

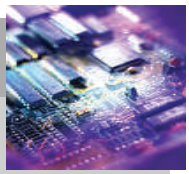
**Estimated Cost of Project:** $ 12,490

**Cost savings/Cost avoidance anticipated for the project:** With the new state discovery requirements, Sinclair will need tapes which can be held indefinitely and the Veritas Vault feature will free up existing tapes that can be used for this. In addition, Vault will enable ITS to restore user files faster. Currently, when a user notifies the IT Help Desk that they need a file restored and it has been several days since it was lost, the data may only be available from backup tapes stored off site in Building 3 or at the Iron Mountain off-site secure storage center. The full backup copy of Colleague, Exchange, and network drive data with incremental backups added daily would allow ITS to provide quicker file recovery for users.

**Target Completion Date:** December 2008

## Off-Campus Access to On-Campus Lab Applications

Two of the Strategic initiatives for Sinclair Community College are increased regional access and workforce training. One way to increase regional access is through the promotion of on-line learning and off-campus instruction. This project supports each of those objectives as follows:



- Increased Regional Access - Off-campus access to applications used in instruction will give more flexibility in designing courses and determining on-line offerings. In addition, the ability to access applications from remote locations may give more flexibility in scheduling classes and determining what classes are offered at these locations.

- Workforce Training – These types of learners may not have the time, flexibility or budget to attend formal classroom training so the ability to provide the training and applications needed for the training, accessible outside the formal classroom, may be beneficial.

In addition, as technology progresses and people become more familiar with technology, the roles and expectations of teachers and learners are changing. New opportunities exist to provide education using technology to assist in these "informal" learning methods that will also provide immediacy and relevancy to the educational experience.

This project will evaluate various technologies that can be used to provide secure off-campus access to traditionally, on-campus lab applications. Since this project is more proactive in scope, due to there being no clear "driver" for this technology, the focus of this project will be to determine what technologies are available, possible usages for a given technology and what the capabilities of each are. This "template" can then be used, when the need arises, to help decide on a solution to meet specific educational goals and objectives.

**Estimated Cost of Project:** Initially, there are no direct costs associated with this project since it will only be evaluating the various technologies and products. Costs may be incurred when a particular solution is needed.

**Cost savings/Cost avoidance identified with the project:** There is potential cost savings associated with application licensing as well as potential cost savings associated with the management of application licensing. There are also benefits of providing the services the evaluated technology will offer.

**Target Completion Date:** August 2007

## Office 2007 Rollout

This project calls for upgrading to Office 2007. This will be accomplished in three phases.

The first phase is to install the Compatibility Pack. The Compatibility Pack will allow users to exchange files between previous releases of Microsoft Office and the 2007 Microsoft Office release.

The second phase is to install Office 2007 on the BIS faculty, classrooms and lab PCs for Fall 2007. This Office 2007 update will include the software listed below and delete the previous version of Office:

- Microsoft Office Word 2007
- Microsoft Office Excel 2007
- Microsoft Office PowerPoint 2007
- Microsoft Office Access 2007

The third phase is to effect a campus-wide roll out office 2007. This Office 2007 update will include the software listed below and delete the previous version of Office:

- Outlook 2007
- Microsoft Office Word 2007
- Microsoft Office Excel 2007
- Microsoft Office PowerPoint 2007
- Microsoft Office Access 2007

This phase will also include updating Outlook 2007 on PCs that still have Outlook 2003.

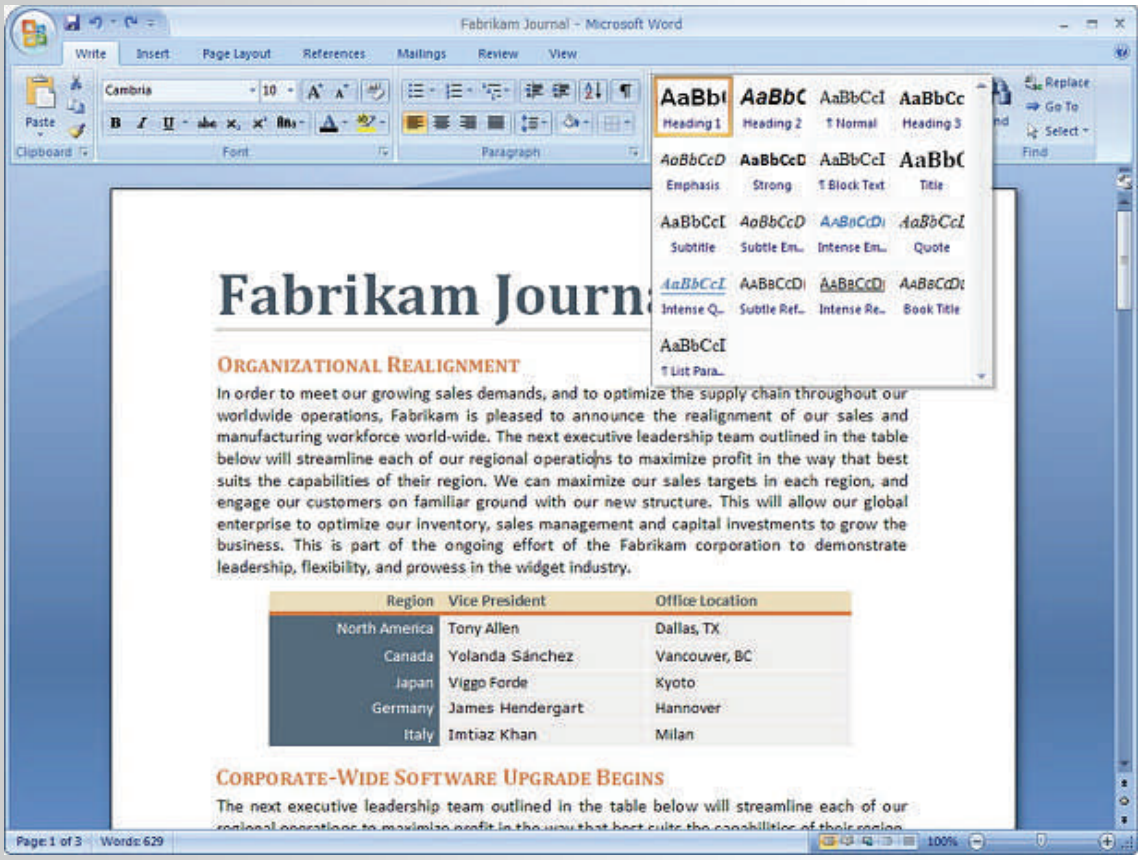



**Figure 4-16. Word 2007 application window.**

**Estimated Cost of Project:** There is no additional cost to rollout Office 2007.

**Cost savings/Cost avoidance anticipated for the project:** Maintaining obsolete technology can be costly because of the lack of vendor support. Upgrading additional functionality will allow processes to be more efficient.

**Target Completion Date:** September 2008

**Current Status:** The Compatibility Pack has been installed in the computer classrooms, labs and on a few administrative PCs.

## Extended Help Desk Hours

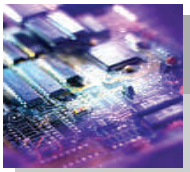
The purpose of this project is to expand the hours of the Help Desk to be a 24 X 7 operation.

The Information Technology Help Desk's main objective is to be the key contact point to assist students, faculty and staff with inquiries on policies and procedures and diagnose, resolve or escalate problems concerning IT services. Requests for this service come from both on-campus and off-campus.

As technology usage increases so will the need to expand service hours to support Sinclair Community College customers. In the last 2 years, overall requests for assistance have increased more than 17%.

It is projected that more and more off-campus customers will request assistance after hours. This goes hand in hand with the expansion of Distance Learning classes, faculty and staff working later hours and an increase the reliance on technology that is available from off campus. Not only will expanding the Help Desk's hours assist our customers after hours, but it will also assist in identifying system problems outside the current hours of operation. This will allow IT staff to respond to critical issues after hours so system problems do not affect the majority of Sinclair customers.

**Figure 4-17. The Help Desk staff.**





**Estimated Cost of Project:** $150,000

**Cost savings/Cost avoidance anticipated for the project:** The Help Desk's success is measured by how efficiently and effectively it can satisfy the inquiries on policies and procedures and diagnose, resolve or escalate problems concerning IT services. If the Help Desk is not available when needed, customers could fail to exploit the features, advantages and benefits of Sinclair systems and the cost of productivity and/or support will be increased. Sinclair could also fail to retain students because of the lack of support to assist students with their learning objectives.

**Target Completion Date:** The Help Desk expansion will begin in September 2007. A phased approach will be utilized in concert with the increasing needs of Distance Learning students. Eventually, the Help Desk will be staffed to operate 24 hours per day, seven days per week.

## Recording Communication Department Student Speeches

Engaging the learner as a partner in their learning experience is a necessary component for student success, one of Sinclair's primary initiatives. Part of this engaging process for the Communications department includes recording student speeches for their immediate playback and critique by the student, the faculty member and classmates. This recording is also used in archival form to track student progress.

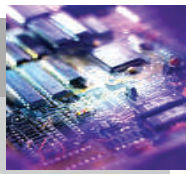
The VHS recorders used in the past were an effective way to accomplish this goal. However, the VHS recorders owned by Sinclair have reached the end of their useful life and an opportunity exists to replace the VHS recording process with a new process and technology.

This project was created to investigate ways to use existing Sinclair resources and/or low cost options to increase ease of use for the students and instructors while also increasing the availability of the recordings both for immediate and future use.

**Estimated Cost of Project:** This project's purpose is to investigate options for this instructional need. There is a temporary solution in place so that no costs should be directly related to the investigative portion of this project.

**Cost Savings/Cost avoidance identified with the project:** Currently, as an interim solution, the Communications faculty members use a DVD recorder to capture student speeches. This method is not preferred because of the time it takes to finalize DVDs in a recorder. The finalization time prevents the results from being immediately available for the faculty or student. In addition, the speech can only be viewed by the person in possession of the DVD, and it is also expensive for the College to provide this type of media for this purpose. It is the intent of Information Technology and the Communications department to eliminate the costs for this media. Research will be done to develop a less expensive and more convenient way to record speeches.

**Target completion date:** June 2008



## Eliminate Academic Media Delivery

Since the year 2000, Sinclair has been an industry leader in regard to the installation of multimedia equipment in campus labs and classrooms. In accordance with the strategic initiative to maintain and improve Sinclair's main campus, the bulk of these installations have taken place on the Dayton campus. As a result of this work, of the 337 classrooms, labs, and open labs on Sinclair's main campus, over 264 are currently furnished with permanently installed multimedia equipment.

The increased availability of multimedia equipment in Sinclair classrooms and labs has reduced the need for equipment delivery to classrooms to the point where elimination of the academic equipment delivery service provides a low-risk, high-impact way to increase College resources in support of workforce development, another college initiative, and in support of new technologies, such as desktop videoconferencing.

This project will manage the elimination of the academic media delivery service by working with partners in the Library, Registration, and all academic departments to ensure that no quality is lost in the classroom as the College shifts resources in support of strategic college initiatives.

**Estimated Cost of Project:** For the 2007-2008 year, there are no direct costs associated with this project. The avenues that are currently being pursued for this project call for the reallocation of, or more efficient use of, current Sinclair resources.

**Cost Savings/Cost avoidance identified with the project:** By reallocating resources no longer needed in one area into developing areas of technical support, the college eliminates the need to hire more staff in order to support new technologies.

**Target completion date:** September 2007

## Television System Signal Improvement

The campus television system is used by Sinclair as a method of bringing the campus together. Satellite conferences and other video events can be viewed in virtually any classroom on campus using the campus television system. In addition, the new campus messaging system, a recently-installed digital signage solution for Sinclair, is delivered to specified destinations via the campus television system.

Now in its sixth year of operation, the campus television system has begun to exhibit some undesired qualities. Among those are picture quality problems and, at times, channels becoming unavailable for viewing.

In keeping with Sinclair's strategic initiative to maintain and develop the downtown campus, these issues were investigated last year. The first steps towards a solution were taken during last year's Fiber optic cable project.

This year's portion of the project will include an assessment of signal-generating and distribution equipment in the cable television head end, room 12-261. The assessment results will then be used to devise a plan for repair of the television system.

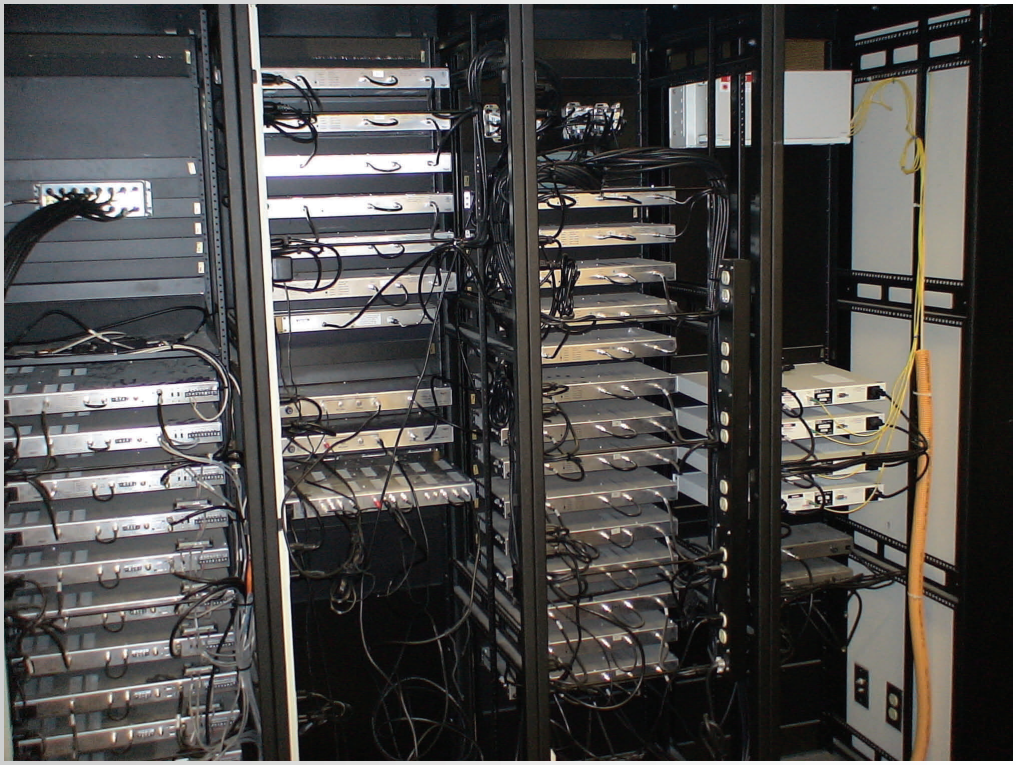


**Figure 4-18. Racks of equipment in the campus' cable television head-end.**

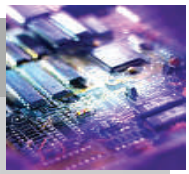
**Estimated Cost of Project:** Signal-generating equipment is generally readily repairable and no components have failed. Costs are expected to arise from service time and materials. Initial assessment and testing on-site by a video engineer is expected not to exceed $1600.00. Some equipment service is expected at $100.00/hr plus parts—to be determined following assessment. No equipment replacement is anticipated. However, repairs deemed necessary are not expected to exceed $8,000.00.

**Cost Savings/Cost avoidance anticipated for the project:** Included in this plan is the installation of currently owned equipment. This equipment will provide immediate backup service capabilities and avoid the need for emergency response and excessive cost during any future equipment failure.

**Target Completion Date:** August 2007

## Systems Vulnerability Test

Increasing scope and span of Internet-based information security attacks, coupled with the increased use of targeted, low-profile attack vectors and zero-day exploits, mean today's Internet-connected network is under continuous attack. New system vulnerabilities are discovered and



exploited frequently, and the patches released to fix an identified vulnerability can sometimes create additional ones. One of the most effective ways the College can assess the security of its systems is to test them. The objective of this project is to conduct a systems vulnerability test in FY 2007-2008. An RFP will be developed and submitted to appropriate third parties to actually conduct the test. The RFP will include a specification document detailing the minimum expectations and deliverables of the test. These requirements will ensure the resulting report is not a list of possible vulnerabilities, but is a useful report that details actual vulnerabilities discovered.

**Estimated Cost of Project:** Systems Vulnerability tests cost between $1,000 and $100,000 based on the size and complexity of the network and on the scope of the test. Sinclair should be able to contract this for less than $10,000.

**Qualitative/Quantitative ROI:** Systems vulnerability testing is a 'best practice' method of finding weaknesses. Proactive self-discovery of vulnerabilities is considerably less costly than recovering from a breach resulting from exploiting a vulnerability.

**Cost savings/cost avoidance:** Unknown. Cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

**Target Completion Date:** June 2008

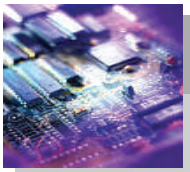
## Encryption of Personal and Other Sensitive Information

Theft of personal information has become the primary goal of today's cyber criminal. In the US, during the two-year period spanning February 2005 -2007, Colleges and Universities publicly disclosed over 115 major information security breaches involving personal information. Higher education institutions are prime targets for a number of reasons, the primary ones being the sheer volume of personal information stored in systems and the open to the public nature of campuses. The current most effective technical solution for protecting personal data is data encryption.

The objectives of this project are to research, test, and implement encryption solutions, and to develop guidelines, policies, and procedures for these solutions, to protect personal information on campus systems and media.

**Estimated Cost of Project:** The average cost of commercial enterprise encryption solutions is $250 per license. However a number of freeware and open source solutions are available. The project will strive to use free software as much as possible and utilize commercial solution only in the most critical areas.

**Qualitative/Quantitative ROI:** Utilizing encryption to protect personal information is currently a De Facto standard, and is a mandatory requirement for some specific types of data (i.e. credit card information). Encryption is also considered a 'safe-haven' under Ohio's and other states' personal data breach disclosure laws.





**Cost savings/cost avoidance:** Unknown. As with most security measures, cost avoidance is the most likely result. Implementing effective encryption solutions as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

**Target Completion Date:** June 2008

## 2007 IT Controls Audit (Crowe-Chizek)

The State of Ohio requires all publicly funded institutions to undergo an annual financial audit conducted by an objective third party auditing firm. A subset of this audit is an audit of Information Technology controls as they relate to the security of financial information. In 2007, this audit will be conducted by the consulting firm Crowe-Chizek.

Prior to the on-site visit, the CISO will coordinate with the auditor to determine the areas of focus and begin collecting the policies, procedures, and other documentation related to the areas and controls being audited. The CISO will coordinate the auditor's on-site visit and facilitate the audit process.

**Estimated Cost of Project:** There are no costs for IT. This is part of the annual financial audit, so costs are borne by Business Operations.

**Qualitative/Quantitative ROI:** Audits conducted by objective third parties who specialize in specific areas provide valuable insight to current effective practices. Audits also validate that the controls and processes used within the institution meet or exceed 'due diligence' requirements practiced by other similar institutions.

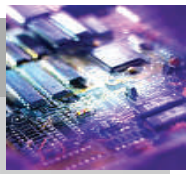
**Cost savings/cost avoidance:** Audits verify appropriate controls are in place and reduce the risk of fines, sanctions, and negative public reputation associated with security leaks and noncompliance with statutes.

**Target Completion Date:** December 2007

## e-Discovery Capability

On December 1, 2006, the US Supreme Court amended the Federal Rules of Civil Procedure dealing with preservation and production of electronically stored information in the event of litigation. These rules apply to virtually anything that can be stored in an electronic format, including electronic documents (and drafts), databases, spreadsheets, e-mail, system logs, cache and temporary Internet files, digital recordings, voice mails stored in an electronic format or accessible via a computer, and telephone logs.

The focus of this project is to ensure Sinclair, particularly IT, has the ability to efficiently and appropriately comply with e-Discovery orders resulting from litigation and other types of legal action. Policies and procedures will be developed, resource requirements identified and acquired,



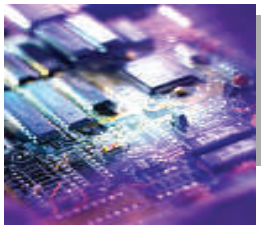
and personnel expertise will be developed to ensure the College can effectively respond to the increasing number and complexity of these demands for electronically stored information.

**Estimated Cost of Project:** Costs are unknown. Freeware and open-source tools and surplus hardware will be used when possible, but there will likely be expenses for storage media, personnel training, and other related items.

**Qualitative/Quantitative ROI:** The Supreme Court ruling makes this a Federal mandate; compliance is mandatory. Failure to comply, or at least make reasonable efforts to comply, could subject the College to significant sanctions and costs in the event of future litigation. In one recent case, for example, a court fined a company $15 million for failing to properly identify electronically stored information.

**Cost savings/cost avoidance:** Project is primarily cost avoidance. Proactively developing policies and procedures, and otherwise planning for, preservation, retention, and production of electronic information 'on demand' is significantly less expensive than forensically retrieving and restoring this information from backup tapes and other archival media.

**Target Completion Date:** May 2008





# Section 5

# Digital Community College Top 10


# Digital Community College Top 10

## What it Takes

In April, 2007, Sinclair Community College was among a select group of large community colleges to be honored with the designation as a **Digital Community College Top 10**. The honor was bestowed by The Center for Digital Education and Alcatel-Lucent (CDE/A-L) in association with the American Association of Community Colleges. Sinclair was one of an elite group of colleges located throughout the country to be recognized as having an extremely broad and impressive array of information technology services available for students, faculty, and staff. This section of the IT Master Plan provides an overview of the services that led Sinclair to receive this honor.

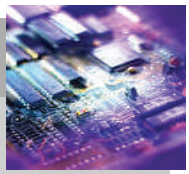
The Center for Digital Education and Alcatel-Lucent (CDE/A-L) developed a survey that asked questions across a broad range of information technology issues. The questions can be summarized by grouping them into the following categories:

- Services provided for students
- Services provided for faculty
- Comprehensiveness of IT policies and services

According to CDE/A-L, when compared to other community colleges, Sinclair is in the forefront of achievement in each of these categories.

## Services Provided for Students

In this category, CDE/A-L wanted to know how colleges used technology to make the student's application process easier. They wanted to measure how much the Web is used to support registration. Other questions centered on the extent to which library services are provided online and how much access to electronic information from other colleges is made available. Colleges were asked to demonstrate how students accessed online academic information such as grades, transcripts, class schedules. Colleges were quizzed about the hours that help-desk services were available; the level of academic advising help that could be found online, and the availability of online support for career services.



Here is how Sinclair stacked up on these questions about services provided for students:

- Sinclair's application process is entirely online. Applications are processed electronically, and a student account is generated within five minutes of receipt of a completed application. This account becomes the single entry point for information technology services such as email, course registration, and academic advising.
- Online registration is web-based and provides real-time access to the most up-to-the-minute course availability information. Course prerequisites are verified automatically, and time conflicts are immediately brought to a student's attention.
- Required textbooks are linked to the course registration process and can be ordered online.
- Students can securely access both their course and assignment grades online. Security is maintained by requiring a username and student-selected password.
- Processes allow students to view and print unofficial copies of their transcripts, and they can order official copies online.
- The Sinclair Help Desk provides support for student owned hardware and software to help students in accessing information technology services.
- Sinclair provides online academic advising, tutoring, and career guidance services.
- The Sinclair Library provides access to all Ohio public college and university library resources via the OhioLink statewide consortium.
- Sinclair provides three levels of access to wireless services on campus. College-owned and configured machines have the highest level of access. A second level provides internet access for college staff working on non-college-owned machines, and the third level is a public, city-wide, wireless network.

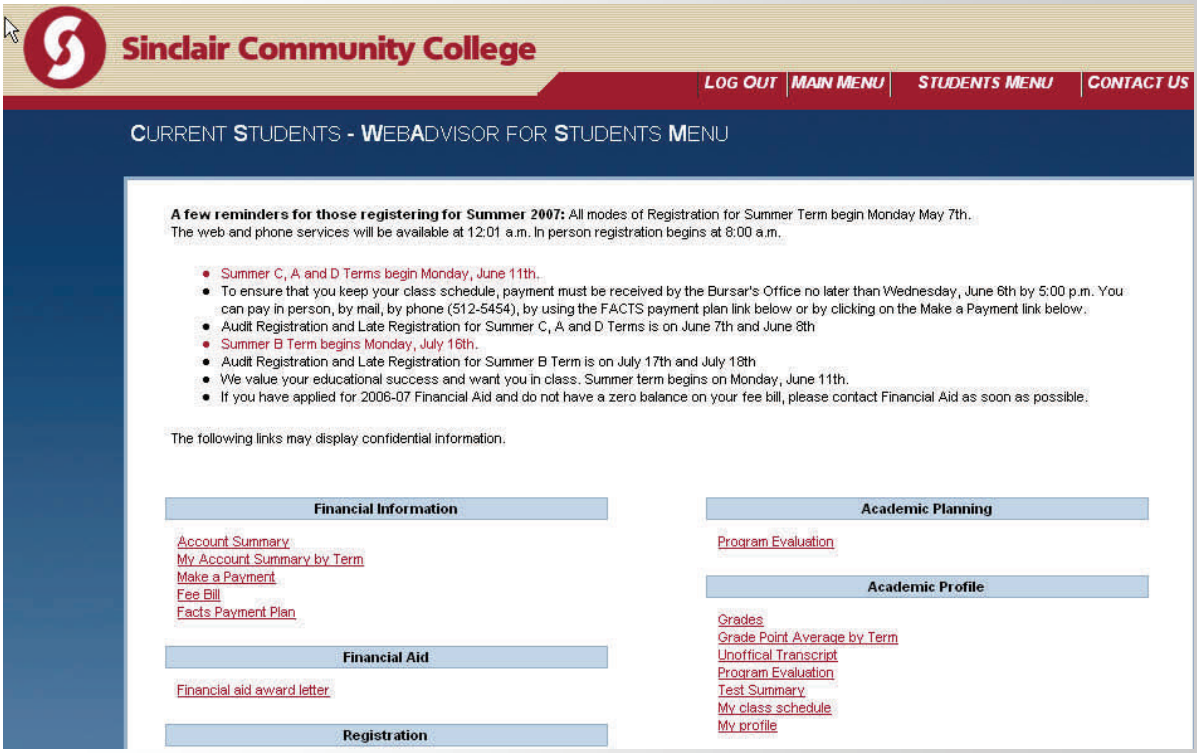



**Figure 5-1. Online services available for students.**

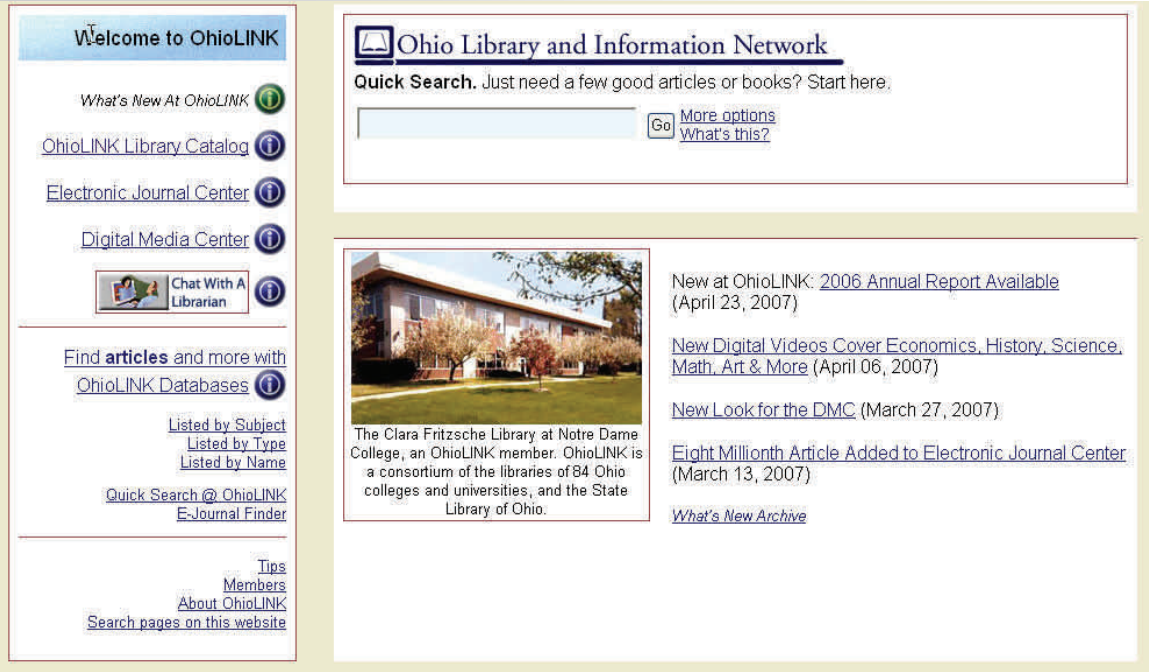



**Figure 5-2. OhioLINK Library website.**

## Services Provided for Faculty

When asking about services provided for faculty, CDE/A-L was especially interested to know what levels of support were provided for faculty when developing online course content. Other questions focused on faculty's ability to provide class related services via the web. CDE/A-L wanted to know if faculty could conduct office hours online, if they could enhance classroom lectures by putting supporting material online, if they could post grades online, etc.

Again, Sinclair stood out by providing the following types of services:

- Sinclair provides a fully staffed distance learning support center whose primary purpose is to assist faculty with the development of online course content. Within the last year, over 400 courses have received support from this distance learning unit.
- Sinclair uses a comprehensive learning management system that is designed both to enhance the student's learning experience and to make it as easy as possible for faculty to manage course content. The learning management system allows faculty to engage in real-time, online discussions with students, to monitor student's submissions on a continual basis, and to post grades online.


**Figure 5-3. Angel Learning Management System.**

## Comprehensiveness of IT Policies and Services

CDE/A-L recognized that information technology services can only be effective if offered within an environment of secure, uninterrupted access. Consequently, CDE/A-L wanted to know how institutions planned for replacement and upgrade of hardware and software. They asked questions about controls that are in place to assure that online content is current and accurate. CDE/A-L asked colleges if they prominently posted policies concerning privacy and access to information. They wanted to know how the institutions were organized to respond to data and network security threats.

Sinclair could respond favorably on all of these dimensions. The following is just a partial list of actions that Sinclair has taken to protect the integrity of and access to its information systems.

- As evidenced by the existence of this plan, Sinclair's information technology units engage in an active planning process. Incorporated in each plan are items to improve system performance and/or to increase security of data. The IT Master Plan is updated annually in concert with the college's overall strategic plan and in coordination with Board of Trustee initiatives.
- Sinclair employs a budgeting process that sets aside funds to cover the ongoing need to replace and upgrade computer equipment. Through this action, Sinclair is acknowledging that information technology needs are continually evolving and must be funded as an ongoing expense.
- Sinclair has implemented a comprehensive web content management system. In fact, Sinclair's content management system is so well respected that it has received national awards.
- A direct link to Sinclair's privacy statement is prominently posted on the college's home web page. In addition, this link is also embedded on every page on the college website.
- Sinclair takes security very seriously. The college has established the position of Chief Information Technology Security Officer, and has given this individual authority to insist that security is integral to all IT systems and services.

- Sinclair has invested heavily in an IP-based video distribution system. This Digital Asset Management (DAM) system allows faculty to store video resources in a central location that is both cost-effective and secure, and then allows these assets to be streamed to any of the 197 podium rooms that exist throughout campus.
- Each of Sinclair's podium rooms has Internet access, document projection cameras, PCs video projectors, VCR/DVDs, and conferencing equipment.
- In order to limit the adverse effects that peer-to-peer file sharing and social networking activities may have upon Internet access, Sinclair has implemented packet-shaping technology to filter and allocate bandwidth. This technology means that Internet traffic that is directly classroom related will receive a larger slice of Internet resources and thus will have a faster response time for users.

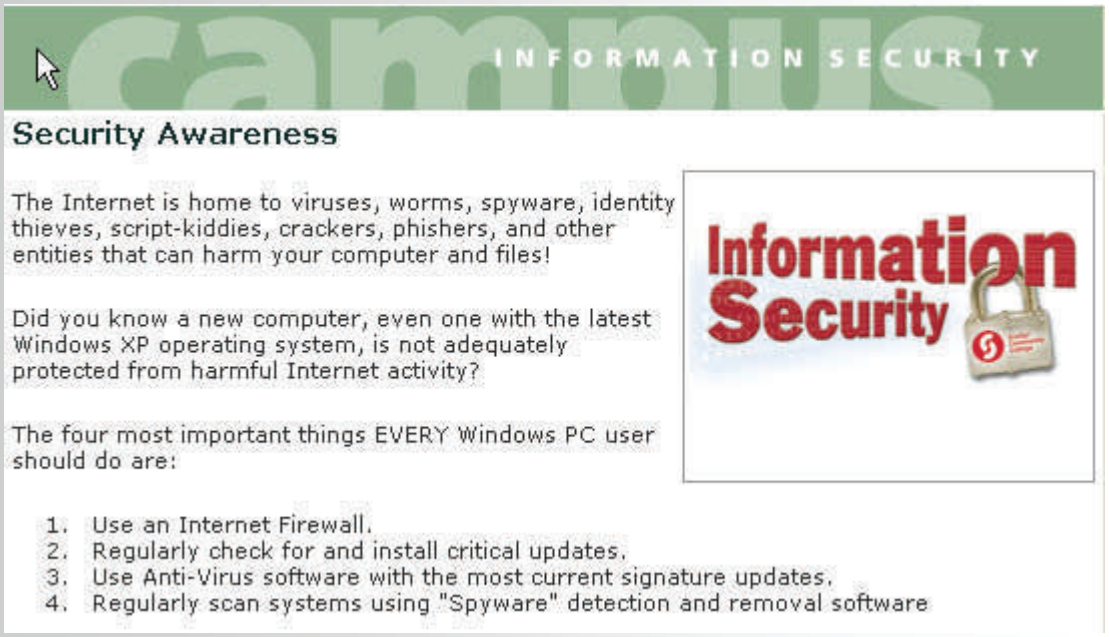
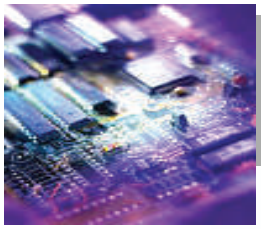


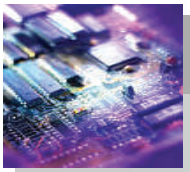

**Figure 5-4. IT security information available to students.**





# Appendix A

# Glossary



# Glossary

**Acceptable Use Policy:** also known as TOS (Terms of Service); a contract specifying what a subscriber can and cannot do while using an ISP's service. Policy contains things like liability disclaimers, lists of actions or behavior that will result in the termination of a customer's account, definition of terms such as "unlimited use," billing policies, SPAM clauses, etc.

**Access:** The technology choices available by which users can connect to the public data network at the level they demand or need (dial-up, cable, DSL, ISDN, wireless, etc.)

**ACS:** Automated Cartridge System is a storage and retrieval system, often used for library management.

**Anti-virus Software:** Programs to detect and remove computer viruses. The simplest kind scans executable files and boot blocks for a list of known viruses. Others are constantly active, attempting to detect the actions of general classes of viruses. Anti-virus software must be regularly updated to be effective against the latest viruses as they are released and discovered.

**Authentication**: The process of verifying that an electronic identifier is correctly mapped to the person using it. Authentication may take a variety of forms and typically relies on one or more of the following:

- Something you know, such as a password;
- Something you have, such as a smartcard with a public-key certificate;
- Some personal attribute, evidenced by a retinal scan, fingerprint, or photo.

**B2B (business-to-business):** The exchange of products, services, or information between two or more businesses using networked technologies.

**B2C (business-to-consumer):** The exchange of products, services, or information between businesses and consumers over the Internet.

**Bandwidth:** The amount of data that can be transmitted in a given amount of time over a particular connection.

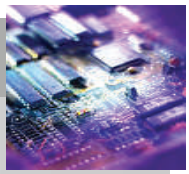
**Blog**: Web-based content consisting primarily of periodic articles or essays listed with the latest entry and visitor comments at the top. Blogs topics can range from personal diaries to political issues, media programs and industry analysis. Blogs are also known as "weblogs" or "web logs."

**bps:** Measurement of transmission speed - bits per second.

**Broadband:** High speed data transmission over which a single medium can carry several channels at once. DSL and cable modem service are broadband services.

**Business Intelligence (BI):** A broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. BI applications include the activities of decision support systems, query and reporting, online analytical processing (OLAP), statistical analysis, forecasting, and data mining.

# Glossary



**Byte:** A byte is a series of 8 bits - also called a character. Computer storage space is measured in bytes. A kilobyte (1 KB) represents 1024 bytes. A megabyte (1 MB) represents 1024 KB. A gigabyte (1 GB) represents 1024 MB. A terabyte (1 TB) represents 1024 GB.

**Cable modem:** A device that enables a personal computer to be connected to a local cable TV line and receive and send data.

**Chat Room:** An online forum where people can broadcast messages to people connected to the same forum in real-time. Sometimes, these forums support audio and video communications allowing people to chat in audio and watch each other.

**CIO:** Chief Information Officer

**CISO:** Chief Information Security Officer

**CMT:** Curriculum Management Tool – Software written by Sinclair's Web Systems unit. The software manages all phases of curricular additions and changes.

**Colleague Application/Database:** The application (developed by Datatel, Inc.) used by the College for Enterprise Resource Planning (ERP). It is a collection of software programs that tie all of the various diverse functions (student services, business operations, finance, HR, etc.) into a cohesive database.

**Common Address Redundancy Protocol (CARP):** Its primary purpose is to allow multiple hosts on the same network segment to share an IP address. CARP works by allowing a group of hosts on the same network segment to share an IP address. This group of hosts is referred to as a redundancy group. The redundancy group is assigned an IP address that is shared among the group members.

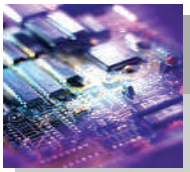
**Course Management System (CMS):** See Learning Management System.

**Customer Relationship Management (CRM) software:** CRM entails all aspects of interaction a company has with its customer, whether it be sales or service related using tools such as help-desk software, e-mail organizers and Web development apps to personalize online experience.

**Data Base Management System (DBMS):** A complex set of programs that control the organization, storage and retrieval of data for many users; extensively used in business environments. Data is organized in fields, records and files. A database management system must also control the security of the database.

**Data Cleansing:** The act of detecting and removing and/or correcting a database's dirty data (i.e., data that is incorrect, out-of-date, redundant, incomplete, or formatted incorrectly).

**Data Warehouse:** A database designed specifically to support decision-making (Business Intelligence). It is a data repository which may be populated from multiple sources, including multiple transaction-oriented databases.



# Glossary

**Dial-up access (modem):** Refers to connecting to the Internet via a modem and standard telephone line. Maximum speed is 56 Kbps.

**Digital Subscriber Line (DSL):** A technology which enables the ordinary copper component of telephone lines to carry data at rates much higher than ISDN. Maximum speed is 8 Mbps.

**Distributed computing:** An industry-standard software technology for setting up and managing computing and data exchange in a system of networked computers.

**Domain name:** The unique name that identifies an Internet site and its address.

**Domain Name System (DNS):** An internet service that translates domain names into IP addresses.

**DriveLock:** Software that is installed on laptops that prevents the hard drive being used without knowing the password to the drive. This software protects against loss of sensitive data in the event a laptop is stolen.

**Dynamic Host Configuration Protocol (DHCP)**: A set of rules used by communications devices such as a computer, router or network adapter to allow the device to request and obtain an IP address from a server which has a list of addresses available for assignment.

**Electronic Advising:** A Colleague module designed to allow students to design and review a program completion plan which can be shared with and receive approval from an academic advisor.

**Electronic Business (e-Business):** The transformation of key business processes through the use of Internet technologies.

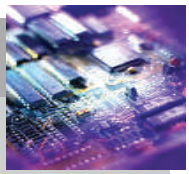
**Electronic Commerce (e-Commerce):** Commercial and noncommercial transactions facilitated through the use of networked technologies, such as over the Worldwide Web.

**Electronic Data Interchange (EDI):** The transfer of data between companies using computer networks, such as the Internet.

**Electronic Mail Services/System (E-mail):** Any messaging system that depends on computing facilities to create, send, forward, reply to, transmit, store, hold, copy, download, display, view, read, or print computer records for purposes of asynchronous communication across computer network systems between or among individuals or groups, that is either explicitly denoted as a system for electronic mail; or is implicitly used for such purposes, including services such as electronic bulletin boards, listserves, and newsgroups.

**Electronic Mailbox:** A file (or folder) designated to a particular user on a particular computer in which received electronic mail messages are stored ready for the user to read them. Using the example firstname.lastname@sinclair.edu, “firstname.lastname” is the name of the user’s mailbox file on the mail server.

# Glossary



**Email Address:** The string used to specify the source or destination of an electronic mail message. A typical college e-mail address format is firstname.lastname@sinclair.edu.

**Email Distribution List:** A distribution list is a group of recipients, all gathered under one name, or address. A distribution list allows you to send a message to all of the recipients by entering just that one address. There are two common kinds of distribution lists: Personal Distribution Lists (stored on an individual's PC) and Public Distribution Lists (server-based). See their individual definitions.

**Email Record/Email Message:** Any or several electronic computer records or messages created, sent, forwarded, replied to, transmitted, stored, held, copied, downloaded, displayed, viewed, read, or printed by one or several email systems or services. This definition of email records applies equally to the contents of such records and to transactional information associated with such records, such as headers, summaries, addresses, and addressees.

**Email Users:** Individuals who create, send, forward, reply to, transmit, store, hold, copy, download, display, view, read, or print email (with the aid of College email services). A (College) Email User is an individual who makes use of (College) email services. Receipt of email prior to actual viewing is excluded from this definition of "use" to the extent that the recipient does not have advance knowledge of the contents of the email record.

**Encrypted/Encryption:** Procedures using algorithms to encode or convert plain text into cipher-text to prevent any but the intended recipient from reading that data. There are many types of data encryption; they are the basis of network security.

**Enterprise Resource Plan (ERP):** A system that supports the planning and management of all the resources in an enterprise - a multi-module software system that supports enterprise resource planning. An ERP system typically includes a relational database and applications for managing purchasing, inventory, personnel, customer service, shipping, financial planning, and other important aspects of the business.

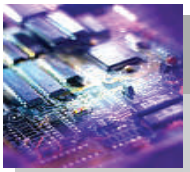
**File Transfer Protocol (FTP):** Used to transfer data from one computer to another over the Internet, or through a network. FTP is a commonly used protocol for exchanging files over any network that supports the TCP/IP protocol (such as the Internet or an intranet).

**Frame Relay:** Used for connecting local and wide area networks - can support data transfer at T-1 and T-3 speeds.

**Gigabits per second (Gbps):** A measurement of the rate of speed at which data is transferred (e.g., 1 Gbps equals 1 billion bits per second).

**Graphical User Interface (GUI):** A computer terminal interface, such as Windows, that is based on graphics instead of text.

**Information Delivery Portal (IDP):** Web-based interface that enables users to view and organize analytical content such as reports prepared by using SAS statistical software.



# Glossary

**Information Map:** A grouping of data warehouse elements that have been joined and linked in a conceptually related manner that is meaningful to end users.

**Information Technology (IT):** The broad subject concerned with all forms of technology used to manage and process information electronically.

**Infrastructure:** The communication networks that connect users to a networked environment such as the Internet.

**Instant Messaging (IM):** A software tool that allows real-time electronic messaging or chatting. Instant messaging services use “presence awareness” indicating whether people on one’s list of contacts are currently online and available to chat. Examples of IM services are AOL Instant Messenger, Yahoo! Messenger and MSN Messenger.

**Integrated Services Digital Network (ISDN):** A service that allows for higher data transmission speeds over telephone lines and is capable of handling at least two services over one line simultaneously (i.e., voice and fax or voice and data). Maximum speed is 128 Kbps.

**Internet Authentication Service (IAS):** Microsoft's implementation of a Remote Authentication Dial-in User Service (RADIUS) server and proxy with Microsoft Windows Server 2003. As a RADIUS server, IAS performs centralized connection authentication, authorization, and accounting for many types of network access including wireless and wired connectivity. IAS stores its authentication data in Active Directory.

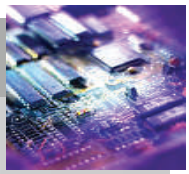
**Internet Service Provider (ISP):** A company or organization that provides users with connectivity to the Internet.

**Kilobits per second (Kbps):** The rate of speed at which data is transferred (e.g., 1 Kbps equals 1,000 bits per second).

**Learning Management System (LMS):** A software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. A learning management system may also provide students with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums. The Advanced Distributed Learning group, sponsored by the United States Department of Defense, has created a set of specifications called Shareable Content Object Reference Model (SCORM) to encourage the standardization of learning management systems.

**Letter or Mail Bomb:** An email message containing malicious code intended to do nefarious things to the recipient’s computer or network. Also, to send, or urge others to send, massive amounts of electronic mail to a single system or person, with intent to crash or spam the recipient’s system. Letter or Mail bombing is a serious offense and is not tolerated.

# Glossary



**Lightweight Directory Access Protocol (LDAP):** An online directory service protocol defined by the Internet Engineering Task Force (IETF) which is a simplification of Directory Access Protocol (DAP). An LDAP directory entry is a collection of attributes with a unique identifier, called a distinguished name (DN). The directory system is in a hierarchical structure.

**List Owner:** Individual(s) who establish the scope and distribution of and perform the maintenance of email distribution lists.

**Listserv:** An electronic mailing list software application that was originally developed in the 1980's and also known as "discussion lists." A listserv subscriber uses the listserv to send messages to all the other subscribers, who may answer in a similar fashion.

**Local Area Network (LAN):** A network of interconnected workstations that share the resources of a single processor or server within a relatively small geographic area, such as an office.

**Mail relay server:** Often referred to as an e-mail server, a device and/or program that routes an e-mail to the correct destination. Mail relays are typically used within local networks to transmit e-mail among local users.

**Malicious Code:** Code is a common term used to describe a set of instructions to a computer, also called program or software. Malicious code in general can be defined as "software which interferes with the normal operation of a computer system." Another general definition might be "software which executes without the express consent of the user." Common types of malicious code include viruses, Trojans, and worms.

**Megabits per second (Mbps):** A measurement of the rate of speed at which data is transferred (e.g., 1 Mbps equals 1 million bits per second).

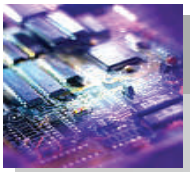
**Megabyte (MB):** A measurement of capacity (e.g., 1 MB equals 1 million bytes).

**Microsoft Outlook:** The Microsoft "groupware" information management and communication software used by the college for email communication, group planning and scheduling, and contact/task management.

**Mobile e-Commerce (m-Commerce):** Commercial and noncommercial transactions facilitated through the use of wireless networked devices.

**Online Analytical Processing (OLAP):** A method of database indexing that enhances quick access to data, especially in queries calling for large quantities of data or viewing the data from many different aspects.

**Online Forum:** A web application where people post messages on specific topics. Forums are also known as web forums, message boards, discussion boards and discussion groups. They were predated by newsgroups and bulletin boards in the 1980's and 1990's.



# Glossary

**Peer-to-Peer (P2P) File-Sharing:** Directly sharing content like audio, video, data, software or anything in digital format between any two computers connected to the network without the need for a central server. Examples of P2P networks are Kazaa, OpenNap, Grokster, Gnutella, eDonkey and Freenet.

**Personal Distribution Lists:** These lists are created by individuals for their own use. Personal distribution list files are stored in the individual's Personal Address Book. Personal Address Books usually reside on the individual's hard drive (or a drive of their choice). These lists are called "Personal" as they should be created for personal (one person) use. Sinclair users are permitted to create and share the lists to facilitate group communication.

**Point Of Sale (POS):** The time and place in which a transaction is made. Point of sale computer systems include cash registers, optical scanners, magnetic card readers, and special terminals. Reading product tags, updating inventory, and checking credit are some of the operations performed at the point of sale.

**Portlet:** A portlet is a Web-based component that will process requests and generate dynamic content. The end-user would essentially see a portlet as being a specialized content area within a Web page that occupies a small window in the portal page.

**Privacy policy:** A statement by an organization describing the ways in which it collects, stores, and uses personal information gathered from citizens and consumers.

**Project DAWN:** Data Analysis Warehousing and iNtelligenge (DAWN) initiative that is deploying business intelligence services to the Sinclair decision makers

**Public Distribution Lists:** These are created by IT staff for use by all Sinclair users. The distribution list files are stored on the Exchange Mail server. These lists are called "Public" as they are designed to be available to all users. Use of these lists is for academic and administrative purposes only as misuse wastes system resources and can affect the entire College network.

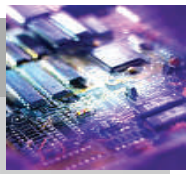
**Remote Authentication Dial-in User Service (RADIUS ):** Multi-user client-server security protocol used in computer networks to provide remote user authentication and accounting. The RADIUS software can read several kinds of password databases and use several kinds of authentication schemes.

**Return on Investment (ROI):** A quantitative analysis of investment in budgets and the resulting return on the investment.

**Role-based Access:** After official authentication, access to Information Technology resources is granted based on the individual's role at the institution. As an example, a faculty member would have access to a totally different set of resources than a student, and a Dean might have access to a greater set of resources than an individual faculty member.

**SAN:** Storage Area Network is a high-speed subnetwork of shared storage devices. A storage device is a machine that contains nothing but a disk or disks for storing data.

# Glossary



**Secure Sockets Layer (SSL):** A protocol developed by Netscape for transmitting private documents via the Internet. SSL works by using a private key to encrypt data that's transferred over the SSL connection. Both Netscape Navigator and Internet Explorer support SSL, and many Web sites use the protocol to obtain confidential user information, such as credit card numbers.

**Sender Policy Framework (SPF):** An extension Simple Mail Transfer Protocol that stops e-mail spammers from forging the "From" fields in an e-mail. SPF is one method that can be used to stop spam from being sent using unauthorized domain names.

**Server:** A computer that provides some service for other computers connected to it via a network. A mail server has a drive that hosts user electronic mailboxes and receives, stores, and sends email messages via the network.

**Single Sign On (SSO):** A software program that accepts a single authentication transaction and brokers this transaction to provide authenticated access to multiple web or computer based services.

**Social Networks:** Websites promoting a "circle of friends" or "virtual communities" where participants are connected based on various social familiarities such as familial bonds, hobbies or dating interests. Examples include eHarmony, Facebook, Friendster, Linkedin, Match.com, MySpace, Plaxo and Yahoo!Groups.

**Spam or Spamming:** Electronic junk mail or junk newsgroup postings. Spam is generally email advertising for some product sent to a mailing list or newsgroup. Spamming is sending or transmitting these junk messages. Receipt of Spam is virtually impossible to control; Spamming to or from college email systems is strictly prohibited.

**SQL Server:** A relational Database Management System (DBMS) supplied by Microsoft.

**SSP:** Student Success Plan – Software written by Sinclair's Web Systems unit designed to serve as a customer relationship management system for "at risk" students.

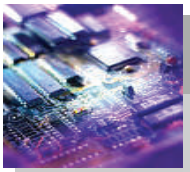
**Staff Person Month:** A metric of cost that equates to the average of all non-management or system maintenance staff within Systems Development & Maintenance multiplied by a 1.30 weight to account for fringe benefits and divided by the total number of staff month available to perform work.

**Structured Query Language (SQL - *pronounced SQL or Sequel*):** A language used to create, maintain, and query relational databases. It is an ISO and ANSI standard. SQL uses regular English words for many of its commands, which makes it easy to use. It is often embedded within other programming languages.

**T-1:** Point-to-point dedicated phone line connection. Maximum speed is 1.544 Mbps.

**T-3:** Point-to-point dedicated phone line connection. Maximum speed is 44.7 Mbps.

**Telecommunications:** Refers to all types of data transmission, from voice to video.



# Glossary

**Terabits per second (Tbps):** A measurement of the rate of speed at which data is transferred (e.g., 1 Tbps equals 1 trillion bits per second).

**Terabyte (TB):** A measurement of capacity (e.g., 1 TB equals 1 trillion bytes).

**Unidata:** The database management system used for Colleague.

**United States Postal Service (USPS):** Commonly referred to as snail mail.

**Usage:** The extent to which business, government and household users utilize the Internet access and infrastructure available to them.

**User Interface (UI):** The means by which a user interacts with a computer. The interface includes input devices such as a keyboard, mouse, stylus, or microphone; the computer screen and what appears on it; the way commands are given, etc. With a command-line interface, only text appears on the screen, and the user must type in commands; with a graphical user interface, windows, mice, menus, and icons are used to communicate with the computer.

**User Login/Logon ID:** The string that, in conjunction with the password, identifies a user to the network. A typical college user ID consists of the user's first and last name separated by a period. As in "firstname.lastname".

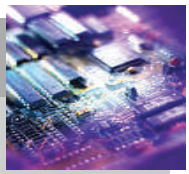
**Virtual LAN (VLAN):** Method of creating independent logical networks within a physical network. Several VLANs can co-exist within such a network. This aids in network administration by separating logical segments of a LAN (like company departments) that should not exchange data using a LAN.

**Virtual Private Network (VPN):** A private data network using the public telecommunication infrastructure with security procedures that maintain privacy.

**Virus:** A program or piece of code that generally executes without the user's knowledge and runs against their wishes. Most viruses are malicious in nature and can also replicate themselves. All computer viruses are man-made and vary in degree of danger. Even a simple virus that replicates itself without actually harming system files is dangerous because it quickly uses available memory and other resources. A more dangerous type of virus is one capable of transmitting across networks and mutating to bypass security systems.

**Web Content Management System (WCMS):** A system or set of tools used to manage the content of a Website. Typically, a WCMS consists of two elements: the content management application and the content delivery application. The content management application allows the content manager or author, who may not know Hypertext Markup Language (HTML), to manage the creation, modification, and removal of content from a Website (via an intermediate database) without needing the expertise of a Web Developer. The delivery element uses and compiles that information along with predefined templates to generate web pages. The features of a WCMS system vary, but most include a data repository, format management, revision control, indexing, search, and retrieval.

# Glossary



**Wide Area Network (WAN):** A geographically dispersed telecommunication network.

**Wiki:** A web application that allows one user to add content and any other user to edit the content. The popular software used to implement this type of web collaboration is known as “Wiki.” A well-known implementation is Wikipedia, an online encyclopedia.

**Wireless access:** A communications system in which radio-frequency or infrared waves carry a signal through the air, rather than along a wire.

**World Wide Web (WWW):** The system of Internet servers and users that support documents formatted in the HTML language.