Middlesex Community College

Status Report
October 2007

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MIDDLESEX COMMUNITY COLLEGE

Technology Status Report October 2007

Technology Equipment Lifecycle Management

Life cycle management includes the scheduled replacement of desktop computers, networked printers, and data projectors. The CTO made a tactical decision to extend the life cycle of desktop computers to five years. This is based on the good service history of the Dell computers purchased in FY2003 and the reality that we are running the same Microsoft software suite in FY2007 as we did in FY2003. The FY07 strategy was to acquire a sufficient number of shelf machines (10 units) to support replacement of failing workstations. The FY08 approach, then, required additional analysis of the inventory to determine replacement based on the revised life cycle.

The replacement schedule summary can be found on the Middlesex Portal (mymcc.middlesex.mass.edu) in the Technology Center Services/Inventory section.

We use Remedy for the Help Desk contact management software. We also use the Remedy asset management module as the authoritative inventory of record database for asset management and audit purposes. During the Summer of 2006, after application of a release upgrade, a complete physical inventory was performed in order to inventory system components, including monitors. This allows different components to be tracked as well as to be replaced on different schedules.. During Spring 2007 a complete review of the inventory was prepared for review by the senior leadership as part of the analysis and planning for a life cycle deployment during FY08.

A tactical decision was made to divide the FY08 inventory replacement into two phases: Phase I, to be completed by the start of the fall academic term, addressed the life cycle replacement on classroom and laboratory facilities. Phase 2, to be completed by the start of the spring academic term, will address faculty and staff replacements. Additionally, after a review of policy, it was determined that new faculty would receive new laptop systems, rather than acquiring the systems vacated by their predecessor. As a result, for Phase I a total of 311 desktop systems were identified for replacement, with an additional 14 desktop systems approved for backup. A total of 15 laptops were purchased, with four immediately deployed to the new faculty members and 11 available for backup. Because monitors can be replaced separately and typically have a longer life span, a total of 150 monitors were purchased in Phase I. This approach is being evaluated for Phase II, since monitors appear to be failing at a faster rate than expected.

The inventory replacement requests from Deans and Vice Presidents have been reviewed and are being integrated into the overall plan for Phase II. As that process concludes the precise purchase requests, plan and deployment compiled.

An additional concern related to the upgrade itself is ensuring that all new systems are Windows Vista-ready. Most of the older inventory is not Vista ready, but all new inventory is. This has some implications for the inventory replacement cycle for the upcoming year.

During Phase I a competitive bid process resulted in a change of vendor to Hewlett-Packard based on the price of configurations. The pricing resulted in significant savings over original estimates.

The full Phase I deployment, with the exception of a small number of systems in the nursing labs that required specific attention because of specialized software requirements, was completed by Tech Center staff by the start of the semester. To comply with IT audit requirements, inventory was delivered to Room 402. This room is secured, with access on an as needed basis to authorized Tech Center staff. All inventory is asset tagged as it is opened, with the tags scanned into the Remedy inventory system. The standard image appropriate to usage is pushed to each system, using the LanDesk software management tool. With these systems in place, and with the support of the facilities team, all systems were received, delivered, tagged, logged, imaged and deployed in an efficient manner.

This same approach will be used for the Phase 2 deployment. See discussions later in this document related to the software to be pushed to these systems, as well as additional information regarding planning for a conversion to the Windows Vista operating system.

Action Items:

- Complete FY08 Phase II Purchasing Plan: 11/9/07
- Order computers for the FY08 lifecycle replacement: 11/15/07 or as the budget process allows
- Schedule and complete implementation: 12/1/07 – 1/15/08
- Project FY09 lifecycle replacement for budget planning purposes: 2/1/08

Academic Classroom Technology

Technology in Academic Spaces

The Technology Center completed a review with the academic technology committee and Deans to determine the software configuration for academic labs for the 2007/2008 academic year. Two major items were addressed: upgrades to Office 2007 and upgrade to Windows Vista. Office 2007 and Office 2003 are installed on all classroom and library systems. Windows Vista is planned for Fall 2008 implementation, though that may be reconsidered in light of challenges with Vista licensing and functionality.

The software and hardware configuration of academic classrooms can be found on the Middlesex Portal (mymcc.middlesex.mass.edu) in the Technology Center Services/Room Technology.

The strategy for supporting technology in academic classrooms was to provision rooms with permanently installed equipment. All academic classrooms have working Internet connections. Academic classrooms are provisioned as smart classrooms with data projectors and computers through the capital budget process, prioritized by the Deans. Small unit cost equipment is purchased and deployed on demand, funded by the Technology Center operational budget. The Technology Center has replenished its inventory of DVD/VHS players, boomboxes, and overhead projectors. These are installed in classrooms on demand through requests to the help desk.

Fall 2007 found a number of classes that needed technology – either computers and projection equipment or simple audio/visual/DVD capability – scheduled in rooms that were not configured for these services. In most cases, the Technology Center was able to respond with some purchases or by redeploying equipment, as articulated above. Continued enhancement to the Resource 25 rollout should help the Tech Center to be proactive in planning. It is also time to consider some fall back options related to mobile options. This type of plan would outfit divisions with a set number of portable projection devices, audio speakers and laptops that could serve classrooms on an as needed basis in order to provide faculty with additional flexibility.

Special needs in the Anatomy and Physiology classroom as well as Art classrooms were addressed with the installation of high resolution digital projectors. Work is underway to provide network connectivity in the Music Technology classroom.

Flooding again inundated the Cyber Café in Spring 2007, requiring removal of all technology equipment. The equipment was returned to the facility when it was deemed safe to occupy.

Action Items:

- Develop mobile computing options

- Continue to refine the provisioning of classroom equipment

Blackboard Course Management System

Currently the Blackboard system is used for course management and provides the portal framework for the College. For academic purposes, an upgrade from 6.3 to 7.2 was necessary and planned over several months. The upgrade, which required the production system to be unavailable for several days, was scheduled at the end of July. To support the portal functionality required for students, staff and faculty the Tech Center developed a "temporary portal" that was in place for the duration of the upgrade period.

The upgrade of the course management system was problematic. At this point, the technical problems affecting student and faculty use of the Blackboard system have been resolved through an upgrade to Blackboard 7.3. The Tech Center, working with Academic Resources, will review the relationship with Blackboard and examine alternatives given the upcoming contract negotiations.

Action Items:

- Work with Blackboard to complete outstanding problems and ensure sufficient hosting support: ongoing
- Develop negotiating strategy with Blackboard for upcoming contract renewal: 12/1/07
- Consider and develop recommendations for longer term course management solutions: 2/1/08

Wireless Capacity in Academic Spaces

A long standing request to add wireless capability to the Bedford Library was addressed over the Summer of 2007. This addition has been generally well received

A request to boost wireless capacity in Henderson Hall in order to be able to utilize the laptops in more areas is in the design process. As with many building of this nature it is important to place the wireless equipment to maximize coverage and minimize saturation. This is a planning and design effort that should be completed during the Fall of 2007.

Action Items:

- Develop a plan for mobile computing systems for academic divisions/departments as part of the FY09 budget process: 2/1/08
- Enhance training aids for classrooms as equipment is deployed: ongoing
- Identify needs, order, and deploy small unit cost equipment: ongoing

CCSSE Findings

Though the precise findings of the CCSSE study have not yet been reviewed by the Tech Center, access to technology is cited as a problem by student respondents. It appears that this may have to contributing factors: access and connection to other services.

Access to open computing is a function of the library hours, as the majority of open computing access is in those learning spaces.

Open computing for students was, in the past, near where students could receive other services, especially tutoring. So, a student working on an account problem using Quickbooks who experiences a question may find it anywhere from an inconvenience to a learning impediment to need to close their work and walk to the tutoring center.

MCC has adequate systems for open computing, but may not have adequate access.

Classroom Energy Management

Class room and laboratory systems are prepared during deployment to minimize energy usage. The newer the systems the better the energy efficiency. The current energy management deployment information is provided in Appendix A.

Administrative Systems

Banner Student and Financial Aid Systems

The College continues to enhance its use of Banner to support the business of the College. CampusWorks has worked with the Financial Aid office to develop a strategy for automating a number of currently manual functions. Those tasks are itemized here.

- Implementation and testing of satisfactory academic progress (SAP) rules. Currently this is entirely manual and takes a significant amount of financial aid staff time. This work has been setup and is available for testing.
- Revisit the current implementation of tracking requirements and budget rules. The financial aid office has made a good start on this. However, some rules related to association with packaging, memoing and disbursement are actually increasing the workload for financial aid.
- Review and restructure EDE loads to gain efficiencies through load rules and locking rules. Currently the entire award is being locked and corrected EDE records are not being loaded as current. This requires manual intervention each time a corrected record arrives. The alternative is to lock the need analysis and load records as current to allow the system to make appropriate adjustments rather than a financial aid officer needing to do so.
- Implement packaging rules and test packaging simulation. (Six packaging groups proposed: instate need, out of state need, NE regional need and instate no need, out of state no need, NE regional no need). Currently this process is entirely manual.
- Setup and testing of hold/release processing to gain efficiencies in loan processing.
- Setup and testing of transfer monitoring.
- Implement use of ROAMESG for messaging on financial aid award letters. Currently messages are being manually added to award letters on paper. Messages specific to funds appear to be working, but messages specific to an individual are not. This means a lot of extra work for clerical staff. This can be implemented quickly.

Banner Finance Implementation

The College successfully completed its first year of production with the Banner Finance system. Success was measured by two key tasks: rolling the budget from FY07 to FY08 and completion of an audit with no material findings. The budget roll process was supported by CampusWorks consultant Kate Hebert, following several months of work by CampusWorks consultant Steve Barcus. The audit reports and associated detail were developed by Tech Center staff in close collaboration with staff in the Finance area.

With a year of experience and general confidence in the system, the Finance area will continue to examine their business process to determine what adjustments

Blackbaud Development System

The External Affairs area has been reviewing its implementation of the Blackbaud system to address data quality, reporting and configuration for current business functions. Plans are being developed to work toward implementation of additional functionality to parallel the expanded fundraising and alumni relations goals of the department. The Tech Center currently provides technical support for installations and backup. This support needs to be extended, following the model of the very successful Banner Finance implementation, where the partnership between functional users and technical staff was key.

Action Items:

- Determine the appropriate Tech Center staff to support the Blackbaud implementation
- Identify training opportunities for Tech Center and External Affairs staff
- Continue business process development and review

Administrative Governance

To support the changing and specific needs of the Banner Users, a new governance structure is being implemented. A Banner Steering Committee, made up of senior leadership and representatives of all Banner constituent users, is being formed. A Banner Student User Group and a Banner Finance/HR User Group will focus on the specific requirements of those user areas.

Oracle 10g Upgrade

The underlying Oracle engine must be upgraded within the next few months. Preparation for the Oracle 10g upgrade is ongoing, with CampusWorks consulting DBA, John Pearson, supporting the Tech Center staff in this effort.

Institutional Reporting

HEIRS Project

The goals and of objectives of this project are to build database views for the field elements required for the HEIRS reports. The views will be used to generate the HEIRS reports directly from the Banner data store. The views will also be used to extract the data out of Banner and add the data to a longitudinal datamart for institutional reporting. The views will include construction of a data dictionary so that Institutional Research staff can see directly the Banner field elements used and/or referenced to produce each HEIRS report element. The views will replace the current C language programs maintained by programming staff in IT.

CampusWorks consultants including Carol Thomas and John Pearson have worked with Tech Center and Institutional Research to develop the underlying reporting infrastructure for the HEIRS degree file, fall file and annual file. The OSFA financial aid file has also been developed.

The functionality is being extended from the creation of the file extracts to include additional local data elements for analysis along with the historical files as submitted to BHE. These files will be used as the first training datasets for the Argos reporting rollout, described under New Initiatives.

Additional requirements include adding 4 fields to all files, adding 5 fields to Fall File, 7 additional fields to Annual file; provide for better address collection through use of zip codes to determine city/town names; load transfer track data for local reporting requirements; create a spring file that parallels the fall file; create an interim degree file for summer grads.

Action Items:

- Complete minor adjustments to the financial aid file and degree files
- Complete annual file and fall file to be ready by spring 2008
- Create interim degree file for summer grads
- Create a spring file (that parallels fall file)
- Acquire zip code file from postal service and load into GTVZIPC
- Add transfer track data to datamart

Disaster Recovery/Business Continuity

The telephone system has been upgraded so that the switch at Bedford and Lowell are peers. This enables a survivable telephone service in the event of a failure of the telephone switch at either campus. These enhancements also prepare the system to provide detailed caller ID and enhanced 911 services.

Action Items

- Complete Phase 3 of implementation ISDN
- Prepare E911 proposal

- Funding review and approval
- Implementation

An ISP connection is now present at the Bedford campus. This provides a survivable Internet connection in the event of a loss of the Lowell Internet connection. The firewall implementation is complete. Redundant Exchange and Web Servers are being configured and tested to provide business continuity on email and web services.

Action Items

- Complete implementation of redundant Exchange and Web Servers

Infrastructure

Network

The Avaya data network electronics are at end of life and will go off maintenance beginning in FY08. Preparation of an RFP for a comprehensive replacement of network equipment is ongoing. The strategy will be to replace the core switches at both campuses, followed by the edge switches.

Action Items

- RFP for replacement of data network electronics
- Funding review

Telephone Service

The telephone system has been upgraded as described in the Disaster Recovery/Business Continuity section of this report.

Storage

An Equallogic iSCSI SAN was acquired through the NEMLEC project to support WEBDAV shares for faculty and staff. Space for students is made available when requested by faculty. The capacity of this SAN was doubled during FY08 to accommodate most production and development system data.

While the availability of WebDav shares has been shared in a variety of ways, additional marketing of this service is required.

Action Items:

- Market the WebDav service
- Continue storage consolidation

Backup Infrastructure Replacement

The enterprise backup system was replaced with an EMC Legato Networker system during FY07. This backup system will support snapshot and disk to disk to tape backup strategies. The advantage of these technologies is higher availability of application systems. This system was upgraded in order to accommodate the extended SAN capacity and to provide even faster backups during Summer 2007.

The backup system server is in the Lowell machine room. The backup tape writing unit is in the Federal Building with the fireproof backup tape vault.

Identity Management

Identity Management is fully implemented using the Microsoft Identity Information Server (MIIS) product and Windows 2003 Server Active Directory. Development objectives were to reduce the prevalence of userid/password challenges and to automate de-provisioning of services. The provisioning of accounts is automatic based on characteristics in Banner or on rules associated with De-provisioning is now triggered from Banner using specific keys specified by HR for faculty and staff. Student accounts are retained in order to allow students to register in the future.

Search Engine

Implementation of a Google search appliance. The search appliance allows the institution to tag information so that the results of a search can be ordered to serve the needs of the College. Two specific applications have been developed using this tool: Course Search (currently in beta awaiting review by Enrollment Management) and Directory Search (a large scale project described in the New Initiatives section of this report).

New Initiatives

Single Sign On

The implementation of Identity Management at the College has facilitated account maintenance through a common sign on to all systems. Single sign on – offering credentials one time and gaining access to all authorized systems – is the next logical step. Banner, Exchange student email systems are the priority.

Action Items:

- After upgrade to Oracle 10g, implement single sign on for Banner systems
- Address technical issues associated with single sign on to student email system
- Determine best strategy for single sign on to Exchange for faculty and students

ID System

The College determined that an ID system was needed. In collaboration with Facilities, the Tech Center has supported the choice of Andover Controls ID system. This system allows for the creation of simple IDs as well as intelligent IDs that can be used for door access control and other functions. Priority for Fall 2007 was issuing ID cards to students at Lowell to support parking validation. All students were offered the opportunity to receive an ID. The Tech Center and Facilities, supported by the vendor, made sure ID creation stations were in place, provided training to ID system operators and provided general support during heavy production cycle. The Tech Center pushed a one-time load of student data into the ID system.

Action items:

- Develop the support business process delineating the responsibilities of the Tech Center, Security, Facilities, Student Services and Enrollment Services.
- Collaborate on planning rollout to faculty and staff
- Collaborate on Spring 2008 production

Emergency Notification System

The College has chosen to participate in a state-wide purchase of the Dialog/Ecosoft emergency notification system. This system provides the means to distribute email, SMS and voice mail messages to enrolled users. The Tech Center will participate in the state-wide kickoff of the project and provide ongoing technical and project management support for the implementation. This project is a collaboration between the Tech Center, providing infrastructure support, and College Communications staff, making decisions on when to use, what message to send and deploying those messages. State-wide target date for system availability is January 1, 2008.

Action items:

- Attend state-wide kickoff
- Determine the staff to attend state-wide training in December
- Determine data management requirements and implement those
- Support the College's marketing effort around this technology.

Directory Project

We created a new directory application in collaboration with Enrollment Services and HR. The new application incorporates data from both Banner and the existing telephone directory. An additional field – Job Function, was added with a Banner validation table. Authorized users (Enrollment Services and HR) can add Job Functions to the validation. With the new directory application, individuals in the directory can be tagged with one or more job functions that describe their role at the institution.

After the initial rollout of this application, the user interface was revised with Phase 1 of the redesign delivered at the start of the Fall 2007 semester. Additional functionality provides the opportunity for faculty and staff to add a picture of themselves to the directory. The source of

this picture can be either the ID System, Academic Resources or a personally provided photograph.

Phase 2 of the rollout is continuing during the Fall of 2007 and includes a hierarchically selection structure to assist users in identifying the person they need to contact.

Action Items:

- Development of Phase 2 user interface and hierarchical menu structure and underlying data structure revisions
- Testing of revisions by Enrollment Services and others for accuracy and usability
- Implementation in Production

Argos Reporting

The College has done an outstanding job of using and supporting the Microsoft Access program as its primary reporting tool. With the rollout of the Banner Finance product and the development of the Datamart, it became clear that the College would be well served to acquire a tool that was designed to work with Oracle and that would minimize the security and performance problems that are endemic to the Microsoft Access environment.

The College acquired the Argos tool and the Tech Center staff has begun working with it in support of the Finance implementation and the generation of standard reports as well as effectiveness/assessment reports.

Institutional Research will begin learning Argos and using it against the BHE datamart during the late Fall of 2007.

Action Items:

- Develop user training plan
- Develop technical rollout plan
- Implement in Finance

Datamart

A datamart is the consolidation of institutional practice and data. It provides one place to go to produce reports and analyze data, removing the programming complexity that is required to report against baseline Oracle tables. The focus of the last year has been on building the datamart for the purposes of the BHE reporting. The model works well in Banner as well as in Resource 25.

Action items:

- Continue development of reporting datamart for Student and Financial Aid
- Develop Resource 25 datamart structure for meeting Facilities and Security reporting needs

Catalog System

The College has a need for a centralized repository, preferably a database, of catalog material. This would allow one location for all updates. The Tech Center will be recommending an approach for this and scheduling vendor presentations as needed. This process has begun, and will proceed through the Spring term.

Action items:

- Develop requirements document
- Identify vendors
- Arrange for presentations
- Funding review and approval
- Implementation

Grants

EUT

The Technology Center has provided project management leadership in the buildout of the EUT lab. The lab was scheduled for use on the fall 07 term, with some availability during summer 2007.

NEMLEC

The Technology Center collaborated on the application for the NEMLEC grant for homeland security. The technology component of the budget for this grant is $187,000. The technology now supports:

- Networked based sharing of information
- Audio/video creation and dissemination of information
- Sophisticated software products to be used for training law enforcement staff
- Mobile technology to be used in instruction

Action Items:

- Ongoing support
- Collaboration on new grant award

RFID Grant

The Technology Center has provided project management leadership in the buildout of the RFID lab. The lab was scheduled for use on the fall 06 term. The Chief Technology Officer serves on the RFID advisory board.

Action Items:

- Ongoing support

Dental Clinic

The Technology center collaborated on the development and implementation of technology in the College dental program. The dental clinic opertories were networked and fitted with computers. The Dentrix software product was installed in the 401 server room with computers implemented in the Dental Clinic for access to the Dentrix software.

Action Items:

- Ongoing support

CampusEAI Oracle Portal

The College was awarded a hardware, software and services grant valued at over $1 million over five years to implement the Oracle Portal at Middlesex Community College. Implementation planning began after contract was signed in February 2007. After preliminary planning and assessment it became clear that the implementation would need to be altered to support the Middlesex identity management system. In partnership with Campus EAI, Tech Center staff began the process of analyzing, designing and developing the software necessary to add the portal as an application recognized by identity management. This process took about four months to accomplish and was successfully tested using a remote test system provided by Campus EAI.

After the server configuration, initial design template and initial portlets were determined, the servers were configured and received at MCC in early November 2007. They have been installed in the racks and are currently being added to the backup environment and tested.

With these technology requirements in place, the project can now move into the design and implementation phases. This is a highly collaborative process, guided by the College's senior leadership team.

Action items:

- Develop and work through Phase II portal prototype, focusing on the prospective student portal and home page rework
- Develop plan for integrating OU Campus content
- Develop phased implementation plan

APPENDIX A

This appendix describes the current energy management processes in place within the Tech Center. It is divided into three sections.

1. Requirements for new systems
2. System shut down and protocols
3. Frequently asked questions (FAQs)

Requirements for new systems

Energy management is a significant consideration in the choice of desktop and laptop systems for the College. A considerable amount of research was done to identify the most energy efficient desktop computer for this year's (FY08) life cycle replacements. The details, which facilities and others may be interested in, are available through the links provided at the end of this document.

Energy efficiency is a result of hardware and operating system decisions. Moving to Vista next year will introduce even more system wide management tools that will enable reductions in energy consumption.

Systems shutdown and protocols

Computers in academic areas with the Student Image installed have a shutdown program installed, (AMP Win OFF) which shuts the computer down at 10pm Mon-Thurs and earlier on Fridays. This software is installed via LANDesk scheduled software policy.

Systems in the following rooms are shutdown at 10pm

BEDFORD
AR 101
AR 107
AR 108
AR 109
AR 211
AR 213
AR 212
Alcott room in library
HH 211
NA102

LOWELL
LC201
LC202
LC203
LC206
LC213A
NETLABC
LC402
LC403
LC406
LT200
LT314A
LT401
LT416
LD200
Cyber Cafe
Lowell Federal Bldg Student Computers

Bedford and Lowell Libraries are shutdown at 7:45 Mon-Thurs and 4:30 on Friday

FAQs

What systems are not shutdown through the central process?
All faculty and staff systems are excluded from central system management as are the following areas:
All Mac Labs
EUT
RFID
CAD
Graphic Design
Specific rooms excluded are: AR 209-210, SA 201-202-203 and FM rooms.

The Divisions that manage these programs should establish their own manual shutdown protocols. These protocols are not available through the Tech Center.

Additionally, any systems that are not on the network, such as the Music Tech room, cannot be centrally managed.

What is a shutdown?
System shutdowns are not the same as full power downs. They are close. A system shutdown turns the power off on the main CPU and minimizes the power consumption of monitors by putting them in standby mode. Systems that are shutdown will still show blinking lights on the network connection and amber lights on the monitor. An

operating system shutdown is not the same as an actual power off, especially for monitors. It is not the same as pressing the power button.

When staff sees an amber light on the monitors or blinking lights on the network jack it is important that they understand the system has been shutdown and consumption is minimized.

Can a full power down be accomplished centrally?
No. The operating system controls what a shutdown does, and only a shutdown can be completed centrally.

Is there a way to know, centrally, that systems fail to shutdown properly?
No. The current tools initiate the shutdown but do not have an error monitoring capability. Help desk staff regularly monitor rooms to ensure that not only desktops are shutdown, but that projectors – which are not on the network and therefore cannot be centrally managed – are turned off.

What happens if a system is restarted by a person after the automated system shutdown?
The automated shutdown only happens at the scheduled time. If a system is restarted, the person restarting the system will need to shut it down.

Who should be notified is systems in the rooms itemized above are not shutdown?
Call the helpdesk so an assessment can be made.

HP Desktop System Power Design & Consumption: Energy Efficient Computing
http://www.hp.com/sbso/solutions/pc_expertise/energy-efficient-computing.html

Core 2 Duo processor info and performance & benchmarks vs. Pentium D (P4-based) processors:
http://www.intel.com/products/processor_number/chart/core2duo.htm
http://www.intel.com/performance/desktop/performance40.htm
http://www.intel.com/performance/desktop/digoffice/index.htm

80+ power supply for HP Desktops
http://www.hp.com/sbso/solutions/pc_expertise/energy-efficient-computing/80plus.html

Energy Star 4.0
http://www.hp.com/sbso/solutions/pc_expertise/energy-efficient-computing/energy-star.html