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MEMORANDUM

To: WPI Trustees
From: Tom Lynch, Vice President for Information Technology and CIO
Date: September 14, 2008
Subject: IT Division Major Initiative Update—October 2007-2008

This document provides an overview and status report for key initiatives undertaken by the staff of the Information Technology Division and the Office for Information Technology this past year.

We completed scores of successful capital and operational project implementations and created new or enhanced capabilities in important areas. These include: SunGard Banner renewal and distributed access and stewardship of data; librarian work with the first year experience and new programs in robotics and interactive media and game development (IMGD); expansion of disaster recovery capabilities; network renewal; policies established jointly with faculty for data security, federal compliance, and campus email use; new academic technologies such as course capturing and tools for distributed learning environments in laboratories; enhanced electronic classrooms and tech suites; information literacy and engineering/scientific software training courses to offload faculty teaching of complex software tools; new library materials, services, and virtual services including digital archiving of IQP/MQPs; digitization of important library collections including portions of the Theo Brown (John Deere) diaries; high performance computing enhancements to create an IMGD rendering farm; faculty technology support programs for course redesign, and much more.

We are nearing the end of our first year of work with the Unified Digital Campus Initiative (UDC). This involves work with the SunGard SCT/Banner administrative system to improve user access, reporting, data integrity, third party system integration, workflow, and process improvements. SunGard consultants completed post implementation audits (PIAs) in nearly all functional areas to determine how well we were using the Banner system and made a number of key, insightful recommendations; we have taken action on most. President Berkey established a governance committee structure to align business units and IT and to initiative and prioritize projects. The group is now establishing project management best practices in order to execute projects efficiently. Information Analysts were hired for most business units. They are responsible for understanding business needs and translating them into specifications and projects for execution in conjunction with IT staff. This is a key step to achieve the goal of distributing data access and data stewardship to the business units. Work has been done to better define and document data elements. An Institutional Researcher was hired who has access to most institutional data. A number of initiatives were identified and prioritized using criteria to ensure focus upon academic needs. We analyzed our modifications to Banner and the business staff decided which to keep; our goal is to move closer to a baseline implementation of Banner which is more capable and easier to maintain. We standardized reporting upon the operational data store (ODS) and chose Argos as the analysis and display tool of choice. There has been much training on Banner, Argos, and other SunGard tools (Luminis, workflow, ODS, etc.). We are in the

process of hiring an enterprise architect to oversee the entire UDC project and a Director of Enterprise Solutions to oversee the Banner Enterprise Solutions Group.

Approximately half of the campus network electronics were upgraded this past summer and two Greek Houses were added to the wireless, point-to-point, network for the fraternities and sororities (GreekNet III). The new residence hall—East Hall—was completed along with all associated IT infrastructure: networking, phone, surveillance systems, e-locks, tech suites, e-conference rooms, and A/V. These services/technologies were also deployed in a significant number of other campus building renewal projects this summer.

There was significant growth in the use of a number of IT services this past year. Technology HelpDesk requests totaled 25,068, representing an increase of about 23% over last year and an increase of 57% over two years prior. Library patron gate count increased from 225,705 in 2007 to 250,995—an 11% increase. Circulation (43,125) and reference (4,232) transactions and interlibrary loan requests (9,609) significantly increased. Attendance at library instructional sessions for students and faculty increased from 3,375 to 4606 participants—a 36% increase. IQPs and MQPs were digitally archived, totaling over 1,232 reports along with 700 older projects previously shelved in the library. The CCC conducted training sessions for scientific and engineering software applications for more than 550 students—reaching over 20% of all WPI engineering students. We purchased networked, secure storage bringing the total capacity to over 40TB to support the academic work of students, faculty, and research projects. The Windows group supported a significant expansion of computing resources to support the UDC project, Microsoft Office SharePoint services, new unified communications technologies for voice and email integration (along with NetOps and Telecommunications), and redundant systems for disaster recovery and business continuity.

Our staff continues to take advantage of opportunities for external visibility—we made presentations at local conferences, received a number of awards, and were recognized nationally and locally through a number of press releases and interviews, quotations, and invitations to speak at events and conferences.

Members of the Academic Technology Center staff collaborated with Professor Dr. Jill Rulfs and her team to win a competitive, national award from Campus Technology Magazine for their innovative work on the The Connected Lab—Enhanced Laboratory Learning Through the Use of Data Sharing and electronic Communication Technology. The Connected Lab connects students to instructions, students to students, and students to information to achieve the following goals: (1) engage students in research process, and to create a community of scientists, (2) integrate procedural and conceptual learning, (3) increase student independence and efficiency in the laboratory. A number of technologies were employed including a classroom performance system (“clickers”) for pre-lab assessment and real time data display, MS SharePoint server (wikis), learning objects (Podcast LX), and Blackboard Learning System.

The IT Division procured over **\$453k** from corporate gifts for hardware, software, fiber/wire, and installation services and through careful and prudent fiscal management ended the fiscal under budget.

I look forward to another wonderful academic year and I hope you enjoy reading about our accomplishments. As always, I encourage and welcome your suggestions and feedback.

The Office of Information Technology (OIT) manages division-wide projects, in addition to its other strategic and operational functions.

Data Protection & System Recovery Projects

The annual renewal of the *Data Protection and System Recovery Plan for IT-Supported Systems* manual was published. The academic departments updated the *Data Protection and Systems Recovery Plan for Academic-Supported Systems in Computer Science, Electrical & Computer Engineering, Extended Education, and Mathematical Sciences Mechanical Engineering*. A web-based database was created to house the system information and IT and academic system information was migrated from MS Word into the new application. This autumn, the data will be reviewed, and updated based on systems upgrades throughout summer 2008.

Information Security Compliance Program

The overall coordination of the compliance and associated policies within the Information Security Compliance Program (ISCP) was transferred from the Information Technology Division (IT) to the University Compliance Officer. The university issues related to these seven acts are briefly described in *IT Security for Higher Education, A Legal Perspective*, <http://www.educause.edu/ir/library/pdf/CSD2746.pdf>. The ISCP policies were identified within the new Business Ethics policy.

IT continues to monitor the following legislation: Electronic Communications Privacy Act (ECPA), the Computer Fraud and Abuse Act (CFAA), and federal and state privacy acts. The associated IT policies are published on the *CCC Policies, Standards, and Procedures* web page, <http://www.wpi.edu/Academics/CCC/Policies/>

- The Network Security Policy remains intact.
- The recently revised Acceptable Use Policy (AUP) is applicable to student effective the beginning of A-Term. Until faculty and administrative review is completed, the former version remains in effect for employees.
- IT developed the Data Outsourcing Policy to address security and privacy in third-party software purchases and implementation. The policy is effectively in use for administrative offices. The policy will be brought to faculty for endorsement and to the university Policy Committee (chaired by the CFO) for approval.

Data Security Project

By detailing specific security measures, the Data Security Policy supports all the legislation and policies identified in the Information Security Compliance Program (ISCP). The Data Security Policy is implemented through a collection of standards. After some minor revisions, faculty Committee on IT Policy (CITP) endorsed the policy and the six Phase 1 standards. CITP is a sub-committee of the faculty Committee on Governance (COG). After faculty appraisal, the policy will be brought to the university Policy Committee for final approval.

The policy and standards are located within the CCC Policies website, at <http://www.wpi.edu/Academics/CCC/Policies/datasecurity.html>.

The six Phase 1 standards are identified below.

- [Home Network Standard](#)
- [Computer Systems Standard](#)
- [IT Incident Response Standard](#)
- [Password Standard](#)
- [Mobile Device and Personally-Owned Device Management Standard](#)
- [System Administrator Standards](#)

IT has begun and is continuing to address standards identifies for Phase 2A. Phase 2A standards require faculty and staff participation and are more involved and complex than Phase 1 standards. All drafts are available to employees on a secure website.

Once prioritized, Phase 2B standards would be addressed by the business units, such as by the Information Analysts and other pertinent personnel. Phase 2B standards are predominately business decisions, and may require IT support to develop and implement.

E-Mail Policy

An ad-hoc faculty committee, the Committee on Information Technology Policy (CITP) reviewed and supported the implementation of several E-Mail lists. This provided for faculty and employee E-Mail lists for distribution of university business only, a faculty-only list, and for an optional potpourri list containing other information such as “for sale”. For each list, the CITP defined an acceptable use policy and determined an appropriate level of moderation.

Auditors Management Letter Response - 2008

Regarding the June 30, 2008 Management Letter, the following three open items remain:

(1) Implement a periodic review of user access rights by business units:

Business areas do not currently perform a periodic review of user access rights for the Banner System to help ensure access remains commensurate with their current job responsibilities. Management has designated the Information Analysts overseeing each of the business units to perform the periodic review of user access rights; however, these reviews have still not formally been performed by management.

Information Analysts for each business unit were hired within the last 9 months. They are members of the UDC Data Access Working Group (DAWG), which is a subcommittee of the newly established IT Governance Committee. The DAWG is working on establishing data standards, data access roles/profiles, rules for data security, and designing a documented process for requesting, allocating, approving and reviewing all requests for user information access. Information Technology staff are advising the DAWG to develop the knowledge, skills, and tools to enable the management and annual review of existing user access rights by staff members within the business units.

(2) Change Control Process that documents business area project initiation, direction, and approvals:

Management has started to implement a formal change management process across all applications; however, it was noted that management does not consistently follow the formal change management process. Following the change control process helps to ensure the requisite authorizations and specification documentation are available to evidence the operation of these controls. Additionally, inappropriate or inadequate changes may compromise the accuracy of system data and or processing.

The Administrative Systems Working Group (ASWG), a subcommittee of the IT Governance Committee, was formed as part of the UDC project. The ASWG is charged with the evaluation, initial specification, recommendation, and management of technology projects, under the direction of the IT Governance Committee which sets university project priorities, assigns resources, and evaluates progress. The ASWG is developing a change management process (the “Initiative Process”) and has rolled out an initiative submission, approval, implementation, and evaluation process. We will continue to develop and refine this change management process over the next year. It will include formal project plans and a common project management process

using best-practices methodology. Project plans will be managed by the Information Analysts within each business unit. Progress will be tracked using Microsoft Project software with sign off by business unit stakeholders and Information Technology at each phase of each project.

(3) Develop System Development Life Cycle ("SDLC") Policy

Management does not currently have a formalized system development life cycle ("SDLC") policy to govern the implementation of in-house or acquired software systems. During 2008, management performed an upgrade to the Banner system which did not follow a formal process to ensure all implementation controls were appropriately applied. Business units have been working with Information Technology over the last decade to develop and implement test plans for all system upgrades including data conversions and validation, user acceptance, and business unit approvals. The Banner Users Group has been the group that reviewed issues and scheduled production roll outs. Testing is accomplished using an upgraded replica of the WPI production database. Each business unit maintains their own list of testing processes. They execute and review the results of these processes and work with IT to address issues and scheduled production roll outs.

Testing is accomplished using an upgraded replica of the WPI production database. Each business unit maintains their own list of testing processes. They execute and review the results of these processes and work with IT to address issues and improve test plans. Post production issues, if found, are resolved and test suites are modified accordingly.

The Data Stewards Working Group (DSWG), a sub-committee of the IT Governance Committee, is now responsible for addressing upgrade plans, data standards, operations, testing, and business unit approvals. The DSWG replaces and expands the scope and responsibilities of the Banner Users Group. The committee has testing as part of the agenda for this year. Standards for testing and user acceptance, including documentation requirements, will be part of the resulting System Development Life Cycle Policy.

The Academic Technology Center (ATC) works with all IT departments to deliver a comprehensive suite of information technology services to support the teaching and learning needs of the WPI community.

Teaching and Learning

The **myWPI** learning and information portal was upgraded to the latest version in August 2008, introducing several new features that provide more flexibility to enhance teaching and learning. New features include a new grade center that allows Instructors to interact with columns and rows much like they would in an Excel spreadsheet, and a peer-assessment tool that allows students to become more engaged in their own learning by reflecting on the quality of their work. In FY07-08, myWPI was used by 317 faculty, a 6% increase over last year and the number of myWPI hosted course, project and organization sites increased by 20% over last year.

The **Course Redesign Grants** program, a joint initiative co-sponsored by the Academic Affairs Division and the IT Division awarded four grants to faculty who are working on incorporating technology into their redesigned courses for the 2008-2009 academic year. This year the grants have been awarded to faculty in History, Mechanical Engineering, Philosophy, and Music.

The ATC continues to pilot “**lecture capturing**,” a system which automatically records a high quality screen capture of everything that is displayed on the computer in the classroom along with the instructor’s audio. The completed recording can then be viewed, and re-viewed 24x7, by students using the myWPI course site. The number of classrooms equipped with lecture capturing capabilities has increased from three rooms last year to eight for the 2008-2009 academic year.

ATC staff provided many diverse training opportunities for the WPI community focusing on common software applications as well as instruction on the new content management system that is being used to maintain the WPI website. In addition, ATC staff offered Adobe Photoshop software training which was extremely popular.

Audio/Visual Operations

In FY07-08, the ATC provided support for 411 events, keeping pace with similar needs of the previous academic year. The vast majority of the meetings require some form of technology from the ATC, whether they are held in the ever-increasing number of electronic classrooms and conference rooms, or require specific A/V set-ups elsewhere on campus.

To address the increased demands of technology to meet academic requirements, and the needs of faculty and staff, the ATC has added the following items to its equipment inventory: hard-drive video camcorders, iPods, Edirol audio recorders, tablet PCs, and mobile workstations, which are loaded with editing software. The ATC has also purchased LCD projectors and digital still cameras to upgrade the inventory that we loan out to the WPI community.

Infrastructure and System Support

The systems engineering staff of the ATC has been extremely busy with e-classroom and e-conference room installations and upgrades.

- Two new classrooms were built in Salisbury Labs during the summer of 2008 with state-of-the-art projectors, electronic switching and Sympodium displays which feature interactive pens for annotating the presentation that is being projected in the front of the

room. In addition, two new computer labs built this summer were outfitted with our standard AV equipment so they can be used as teaching labs.

- Two existing electronic classrooms were updated with new projectors, screens, switching equipment, DVD/VHS players and advanced sound. In the Campus Center, the functionality of the Odeum was greatly enhanced this summer when projectors were mounted in the ceiling, thus eliminating the need to set up projectors on carts on the floor.
- The new residence hall opened in August 2008 with ten rooms equipped with some type of audio-visual equipment. Each floor hosts a high-tech media collaboration space, modeled after the enormously popular Tech Suites in the library. In addition, there are several electronic conference rooms and meeting room on the first floor.



Figure 1. Tech Suite in East Hall

Production Services

The media production services group continued to provide video and multimedia production support for faculty, staff and administrative departments. Several videos were produced in support of marketing initiatives and streamed from the university's home page or departmental webpage. The ATC has provided live streaming of campus-wide events making such forums such as the President's Town Meetings and guest lecturers available to a wider audience.

The Windows Team implements effective solutions and employs both proven and innovative technologies to support business-driven process improvement and to advance the vision of the University.

Our projects include:

- Supporting the **Unified Digital Campus (UDC) project**.
- Continued support of **Macintosh desktop computing**.
- Proactively working with academic and administrative departments to identify IT needs and provide technology solutions.
- **Disaster recovery** planning - replicating basic services off-campus.
- Testing new **unified communications technologies**
 - Voice & E-Mail integration
 - Instant Messaging
- Implemented **Microsoft Office SharePoint Services** to enable WPI student project and administrative groups to collaborate more efficiently.
- Upgraded **myWPI** to Blackboard version 8.
- Implemented **virtual servers** to reduce hardware costs and increase efficiency.
- Investigating **sustainable computing initiatives**.

The Helpdesk maximizes user productivity by enabling and supporting WPI faculty, staff, and students to make the most efficient use of the technology tools and services provided to them through significant investment by WPI.

Support Services and Training

The Helpdesk continues to add value to the WPI Community by maximizing productivity through highly responsive and effective delivery of technology support services and by minimizing user impact of IT changes through effective change communications.

- Helpdesk incident volume continues to increase. **Helpdesk requests** for last year **totaled 25,068** representing an **increase of about 23%** over the prior year and an **increase of 57%** over two years prior. Monthly volume increases were seen in all but one month with some months seeing as high as an 80% increase over the same month in the previous year.
- The Helpdesk continues to partner with support groups outside of the CCC to facilitate request processing, including **Webmaster, CMS support and Registrar's Office**.
- Utilizing HelpDesk Institute's (www.thinkhdi.com) **Customer Satisfaction Index** service allows us to track progress with respect to Customer Satisfaction goals. Results indicate that progress is being made in all categories. The highest ratings have been seen in the "*Courtesy of Analyst*" category with the average ratings in the 4.8-5.0 range. Improvements are being seen in the "Overall Experience" and "Quality of Resolution" categories.
- The PC technicians in the **CCC Computer Shop** deployed over **391 new desktop PCs** and **67 printers** to faculty and staff. They also re-deployed over **170 rebuilt systems** for use in WPI offices. **About 50 end-of-life systems** were donated to a local schools and charities.
- Several high-use **computer labs**, including Kaven Hall 207, the Library and Washburn 226 were upgraded to PCs with Core 2 Duo E8200 2.66GHz processors, 2GB RAM, 160GB hard drives, and DVD burners.

- The **CCC Main lab** previously in Fuller Labs 222 was relocated to a renovated space in Salisbury Labs, room 123. New PCs were installed in the newly renovated space and Fuller Labs 222 was transformed into a new lab for the very popular new major in Interactive Media and Game Development program.



Figure 2. New IMGD Lab in Fuller Labs

Computer Literacy Initiatives and Outreach programs

The Helpdesk and Software Solutions Instructor offered outreach and training programs for staff and faculty including: *Technology Orientation* programs (139 attendees), *Computer Maintenance* brown bag lunches (28 attendees) and over 200 software instruction classes on 30 different topics. They also contributed regular **Computing Tips** for inclusion in @WPI, the community newsletter. In June, they joined in welcoming incoming freshmen to campus through their involvement in **Academic Advising Open House** days, introducing students to WPI technology resources. Similar support was provided to the summer programs and to Mass Academy students as well.

- **695** new students attended our **Computing @WPI** sessions during **New Student Orientation '08**. Attendees were each given a 1 Gig USB Flash drive.
- Recently, over **300** students attended our **Wireless Setup Clinic** where *Network Operations*, the *Helpdesk* and *Computer Shop* staff were on hand to assist students with setting up laptops for use on the wireless network.
- The Office Operations Support staff continued to provide one-on-one training to University Administrators in the use of the **Emergency Broadcast** web system. One-on-one training is provided to faculty and staff as needed to improve computer literacy and enhance productivity.

Staffing and Professional Development

- **Support Services** staff continued to grow professionally by taking advantage of various professional development opportunities offered through WPI, HDI, and NERComp.
- The technicians in the **PC Shop** renewed their Dell support certifications.
- Two Helpdesk staff attended the annual HDI conference. The Assistant Director of Desktop Services continues to serve on the Board of Directors for the HDI New England chapter.
- We continue to struggle with the large number of student staff required to manage our increasing volume. Managing a large student staff drains limited staff resources. This is complicated by the reduction in earnable wages by students with federal work study grants due to recent community service requirements.
- New community service requirements for federal work study students added to the student workforce management overhead. The Helpdesk Support Coordinator organized and supervised several group community service activities to aid student workers toward completion of their individual goals.
- We are concerned that the Helpdesk student staff full-time equivalency exceeds that of the Helpdesk permanent staff.

The Enterprise Solutions Group supports SunGard/Banner which is the university's administrative information system. We collaborate with campus administrators and academic/business unit staff to help them transform data into information and learn how to develop additional functionality for decision making within their business units.

- **Reunion** – Trained and supported a new staff in the Alumni Office on the reunion application setup and reporting. Modifications were made to existing forms and views to accommodate staff functional enhancement requests.
- **TD BankNorth** – Assisted in all aspects of WPI changing banks, with particular attention to testing and modifying of interfaces for ACH money transfers, positive pay (paper checks issued), lockbox payments and account reconciliation.
- **Summer Payroll** – To enable CPE (Corporate & Professional Education) to develop additional ad-hoc reports and extract data relative to summer enrollment. IT developed a view as the basis of an ARGOS reporting block containing student, financial and instructor data. IT provided support and training on the view and associated tools for analysis as well as verified the view reconciled with the standard report used by payroll.
- **InfoEd** – Project to support cross reporting of information in a hosted third party application (InfoEd) for tracking Research Proposals and Awards with internal data in the ERP (Banner) system. Extracted data from InfoEd and created Oracle tables, reporting views, and workbook. Also created a job submission process for the business unit to upload proposals, awards, and PI/Co-PI's as needed.
- **Cashnet** – Provided technical support for the implementation of Cashnet, an outsourced application to provide electronic billing and on-line payment by credit card or wire transfer. Developed a method of securely interfacing Cashnet software with our production database, along with providing programming support for creation of data upload files for customers and bill content. Worked with Cashnet technicians to develop logic to provide students with accurate balance information.
- **ADLN Course Surveys** – To support students in distance learning classes, we prototyped and implemented an on-line process for ADLN surveys using Banner Baseline General Survey functionality. The data integrates with the information from other classes gathered by the ClassClimate paper scanning system.
- **Roommate Preference Process** – Worked with Student Housing to create a new process for matching freshman roommate preferences.
- **ODS - (Operational Data Store reporting environment)** – Provided workshops and open support labs to assist end users in report training and ODS objects. Explained how to validate data, construct queries and navigate different reporting tools.
- **Training and Support** – The team participated in training for Argos (reporting tool), Luminis (portal), Workflow, and ODS training. The team has also been working with the Information Analysts to support their skills and knowledge development on the Banner application, database structure, data elements and the associated tools.
- **BlackboardConnect** - (originally Connect-Ed campus emergency notification system) – Provided a Banner self service web page for users to enter and maintain emergency contact information; integrated into the student enrollment process. Built an interface to feed information to BlackboardConnect.
- **Upgrades** – Installed a major upgrade to Banner which included significant changes in structure, replacing logic within individual forms with called APIs. Installed several ODS upgrades.
- **Advancement and Campaign Reporting** – Provided support to Advancement in understanding ODS data, defining and creating views to organize data to support reporting needs, and to facilitate and assist in debugging a number of reports.

The UNIX Team manages computer systems for interactive and computational use. They support over 7,000 login IDs, including not only individual student, staff, and faculty accounts, but also group accounts for clubs, faculty committees, student project groups, fraternities, and others.

- Nine years ago, we adapted **software developed** at Virginia Tech to manage the **on-line submission** of **theses** and **dissertations**. Subsequently, **on-line submission** of theses and dissertations had been mandated by the faculty. Since projects are a substantial aspect of a **WPI education**, we adapted this same software to handle electronic submission of **Major Qualifying Projects (MQP)** and **Interactive Qualifying Projects (IQP)**. During a three year pilot period, with the cooperation of **CAP (the Committee on Academic Policy)**, faculty volunteered to let students submit projects electronically with the experimental software. In the spring of 2007, the faculty voted that future project submissions be exclusively on-line using this method. Almost 700 projects were submitted during the pilot period and substantially more than half of them were submitted in the last year, showing the growth in participation over the pilot period. While developing the prototype system, we have improved the handling of the submissions in the Registrar's Office, streamlined the submission process for the students, and made changes to ease the faculty advisor's approval process. Some of the changes made in the development of project submission were retrofitted to the thesis and dissertation submission process, at the request of the faculty. As of Term B, 2007, at the request of CAP, the on-line submission mechanism was enhanced to require students who submit IQPs to give an assessment of the IQP experience and their advisor.
- We are moving to an **Enterprise Linux** operating system platform. User access is managed by LDAP directory servers which we have enhanced to reduce the number of passwords needed at WPI. We have developed our Linux computer cluster for researchers. An 8 CPU dual-core AMD Opteron system is another research resource. We worked with a professor in **Computer Science** to help acquire, configure and manage a compute cluster of 20 dual-CPU Opteron systems for her research. The cluster was purchased with her grant funds.
- The 2 password servers were augmented by 2 new ones, running the new Enterprise Linux operating system. They are now distributed in 3 locations; two locations on campus and one downtown in the secure facility which is also the location of our **campus network** edge and the home of some of our disaster recovery equipment.
- The alumni system has been upgraded to **Enterprise Linux** and now offers web mail and local mail storage as well as more secure access to the web server which serves the alums' web sites.
- A **Macintosh X server** with large storage capacity has been acquired and configured to be able to house the **Theo Brown diaries**, in cooperation with the archivist in the library and with the assistance of a grant from the **John Deere Corporation**. The digitized diary pages have begun to arrive and have started to be stored on this system.
- New email list software is in use by faculty and staff. The software allows for autonomous management of the lists; e.g., the faculty list owner manages access to their list. Each list has an Acceptable Use Policy. We are hoping that this new design provides some control of the email flow, so that email doesn't overwhelm the groups.

The Information Security and Networking Team monitors all aspects of campus data networking, including bandwidth consumption, equipment status, and information security incidents as well as responsibility for all network, information security, card access, fiber and copper infrastructure.

During the 2007-2008 academic year the information security and network team performed several infrastructure upgrades throughout campus.

- Upgraded the eight year old network infrastructure in Salisbury Labs, Washburn Labs, Olin Hall, Gordon Library, Campus Center, Alden Hall and Alumni Gym to the Nortel 8300 chassis. We can now offer 10/100/1000 Mbs and power over Ethernet (POE) to the desktop in these buildings.
- Upgraded the university edge router to a Juniper M120 to support greater routing and bandwidth requirements as well offer additional services to our on-campus and Internet2 customers.
- Acquired IPv6 network block from ARIN to support next generation Internet protocol.
- Added redundant fiber network links from the network core to 15 academic buildings and 14 Residence Halls.
- Installed Charter Communications fiber node to provide digital CATV signal to campus.
- Added Sigma Alpha Epsilon fraternity and Alpha Xi Delta sorority to the university network.



We also architected and managed IT infrastructure and equipment requirements and deployment in several building and renovation projects throughout the University.

- Architected, managed, installed and tested the Network, Card Access, Security, CATV and Telecom system in the construction of East Hall.
- Architected, managed, installed and tested the Network, Card Access, Security, CATV and Telecom system in Fuller Labs, Salisbury Labs, and Gordon Library renovations.
- In the process of architecting and managing the IT infrastructure for 85 Prescott Street, Goddard Hall and the new recreation center projects.

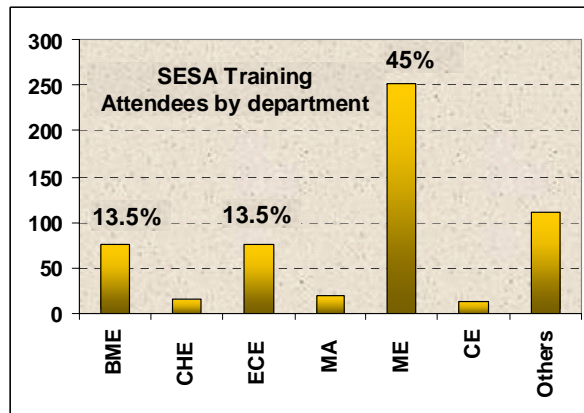
Over the past year we have built on several security initiatives and were offered the opportunity to externally present our findings at national conferences.

- Continued to work with the CSI2 Internet2 working group to develop several tools for use in the higher education security community. The Research and Educational Network Operational Information Retrieval (RENOIR) System under development will be used to automate notification of external incidents to other schools and institutions. We presented the goals and overview of RENOIR to the higher education security community at the 2008 EDUCAUSE Security Professionals conference in April.
- Neil Spellman was hired for the new Network Security Analyst position and tasked with building a training and awareness program for the Data Security and the UDC Projects.
- Re-wrote and restructured the Acceptable Use Policy (AUP) to better reflect current policies, procedures, and technical advancements implemented for students for the 2008-2009 academic year.
- Built an information security incident tracking system to better organize and automate incident response tasks. Created an associated policy in conjunction with HR and Student Affairs leadership.

The Research Computing and Academic Department Support Team provides a variety of services, tools, and scientific and technical expertise to assist the research and academic efforts of students and faculty. The department is also involved in strategic IT planning for all academic departments, as well as coordinating the efforts of academic departmental IT personnel with each other and with the central IT services staff.

Information and Technology Literacy

- We conducted over 110 training sessions for our most popular scientific and engineering software applications (SESA) such as Matlab, Mathcad, ANSYS, Fluent, Labview, with more than 550 students attending (20% of the engineering students), each student taking an average of 2 lectures. The response was overwhelming and enthusiastic.
- Part of these training sessions (54) were customized and integrated into the curriculum of 17 WPI courses, as invited lectures, hands-on workshops or help sessions. We have directly collaborated with 19 faculty members from 7 academic departments.
- We are currently expanding our offerings to include CES EduPack and Comsol and we do consider other applications per faculty/student requests.
- We assisted the staff and faculty from the ECE and BME departments to integrate Labview into the curriculum of undergraduate courses.
- With **Gateway park** coming on line we expanded the **backup and recovery plan** for the protection of **research data** to eventually include all faculty who have moved to this new location. We purchased **additional storage** from Sun Microsystems, bringing the total capacity up to 40 TB of secure storage. These storage arrays have also been used to provide additional protection for the major academic departments and research groups by storing a live image of their most important data in a secure location.
- The **High Performance Computing** initiative has been very well received. The **2 Linux clusters** and the **SGI Altix 350**, purchased by the Math department, have seen very heavy usage. We are replacing one of the Linux clusters this fall which would give us an order of magnitude more compute power.
- **AMD Opteron 64 bit Linux systems**, The CCC Linux interactive systems have been replaced with more of the AMD powered systems and many more servers have been brought online to meet the additional computational needs.
- **Academic software applications** are constantly reviewed and adjusted based on usage to better take advantage of our resources as well as providing more options to faculty and students.
- The **Access Grid videoconferencing facility** has seen greater and wider usage. Faculty and staff have participated in a number of **virtual conferences, seminars and meetings**. The Humanities and Arts Department Music Group plans wider use of the system in their projects. As the technology has improved many personal nodes have come online allowing faculty and staff to participate from any location on campus.



The George C. Gordon Library partners with the WPI community in teaching, learning, and scholarship providing resources and innovative services that anticipate and respond to rapidly changing information needs.

Outreach and Services

- The **patron count** is up significantly from FY 2007. The gate count went from 225,705 in 2007 to 250,995 in 2008. Many factors led to the increase, including intensified marketing efforts, added tour groups, the addition of two more open hours per week, increased Tech Suite usage, and an ongoing initiative to work closely with the Student Government Association to better promote library resources and services.
- Overall **circulations of materials** increased from 39,629 to 43,125 transactions. The increase can be attributed to two main factors: laptop loans increased from 9,759 to 12,370 and Tech Suite bookings expanded from 5,912 to 7,390. Due to the popularity of these two resources almost 1000 were turned away because all Suites and laptops were in use. The circulation of books remained steady.
- There were **250 instructional sessions** offered in FY08 (compared with 275 the previous year) with 4606 participants (up from 3375). These included interactions with courses, IQP teams, and outreach offerings such as orientations.
- Implementation of the 2007 mandate requiring electronic submission and archiving of all **IQP and MQP** reports was successful. Currently there are 1232 MQP and IQP reports in the collection. Librarians catalog each project report with a link to the online document. In addition to those reports submitted electronically, the library also scanned and saved more than 700 projects previously shelved in the library.
- **Interlibrary loan** transactions continue to rise for the third year in a row, with 9609 borrowing and lending transactions in FY08, which is up from 9293 last year. Requests by WPI community members for books at other institutions have more than tripled in the past 5 years from 893 to 2873. Introduction of the first year seminars and a greater focus on research across the curriculum may account for the increase.
- There were 4232 **reference transactions** last year, up from 4053. Sixty-three percent of questions fell into the “Directional” or “Non-Resource Based” categories, which is a proportion similar to previous years.
- A new event during the **new student orientation** week was a great success. Nearly 300 students participated in “Games, Goodies, and More” in the Gordon Library. Students played with early interactive computer games, such as Atari and Nintendo, from the Archives Collection as well as currently popular games such as Wii and Dance, Dance Revolution. Students listened to music and enjoyed home baked goodies provided by library staff.
- The library sponsored six significant **exhibits** during the year:
 - Works by Rachel Katz
 - Cutting Edge: Modern Metallography and the Ancient Secrets of Swordmaking (organized by the Higgins Armory and the Metal Processing Institute)
 - WPI photography club exhibition
 - Woodstock Views: Photographs of Edward R. Rollins
 - George Gladwin and his students
 - Robert Goddard and WPI

Digital Resources

- **Digital Reformatting Center** - The center was set up in a secure area of the library. Kathy Markees was named director of the center and she began researching such issues as imaging standards, file formats, and in-house procedures and standards.
- **Theo Brown Diaries** - A team of enthusiastic volunteers has transcribed nearly all of the 9 diaries which are currently online, making it possible to do keyword searching. Lora Brueck and Rodney Obien made a presentation on the diaries project to design engineers at Deere & Company headquarters in Moline, IL in March 2008. They also presented at the NELINET conference in November 2007
- **Digitizing Dickens** - The library received a grant of \$30,000 from the Massachusetts Board of Library Commissioners to digitize first editions from our Fellman-Dickens Collection. The project is set to begin in October and will continue over a 2-year period. We will be collaborating with the Charles Dickens Museum in London to create a joint digital archive of Dickens's first editions.
- **Fellman Scholarship Prize** - Annie Lin's essay "The Sinister Psychology of Steerforth" was selected as winner of the 2008 Robert Fellman Memorial Scholarship Prize. Annie Lin is a senior at Mass Academy. The Fellman Prize is a cash prize of \$100 awarded to the best essay by a WPI undergraduate or Mass Academy student on the life or works of Charles Dickens. The prize is sponsored by Gordon Library in honor of Robert Fellman, whose world-class collection of Dickens materials was bequeathed to WPI in 1995.
- **Local Arts** - Arts Worcester, the leading art organization in Worcester, will be working with the WPI Archives to organize art exhibitions in the Library's Class of 1941 Gallery. The effort is aimed at providing a venue for the WPI community to explore and enjoy the wealth of the local artistic community. The first exhibitions will be scheduled in the fall of 2009.
- **CMRLS Digital Treasures** - WPI Archives is participating in the Digital Treasures project organized by Central Massachusetts Library System. The Archives is contributing its historic postcard collection of WPI campus and buildings.
- **Video projects** - Jackie Mushinsky created videos on New Books, the George Gladwin exhibition, and the Collections Management Department (for IT Division Luncheon).
- **Federated Searching** - Implementation of the WebFeat Express federated search tool (branded with the name *QuickFind* by the library staff) began in May 2007 and was successfully completed over the summer.
- **ebook Collections** - Books 24x7 EngPro and NanoNETBase were purchased.



The IT Staffing Report identifies staffing changes, such a new position; vacant position; and employees hired, retired, resigned, and promoted.

OIT

Executive Assistant - Debra Ofcarcik filled the Executive Assistant position following **Jennifer Pelletier's resignation** to pursue a high school teaching career. Debbie has over 17 years of executive level support experience having worked as an Executive Assistant in Marketing, Legal Counsel, and the Office of the President of Digital Equipment Corporation, and also the Worcester County Refrigeration Corporation.

ATC

Instructional Technology Specialist - Erin DeSilva joined the ATC this summer in a recently restructured position that provides outreach to faculty and students to familiarize them with academic and instructional technologies and services. Erin also spends part of her time in the library supporting students collaborating on multimedia projects and class assignments in the Tech Suites and Movie Lab. She comes to WPI from Toledo, OH where she worked as an Educational Resource Specialist/Director of Professional Development for WGTE Public Media.

Assistant Director - Ami Ricci recently resigned to become the Director of Online Learning at Johnson & Wales University in Providence RI. This is a great loss for the ATC but a wonderful opportunity for Amy. We're currently in the process of searching for her replacement.

Campus Media Coordinator - Jim Cormier left at the end of the August 2008 to take a position at Clark University as Manager of Campus Media Services. We'll miss Jim's extensive knowledge of anything related to audio-visual equipment as well as his calm demeanor and great sense of humor. A search is currently underway for his replacement.

CCC

Network Security Analyst - Neil Spellman started in the new position of Network Security Analyst. He is charged with developing a security awareness and training program for WPI faculty, staff, and students, develop materials to facilitate this program, and integrate this program into the UDC initiative. Neil was previously with the WPI Police Department. He has a B.S. from Westfield State College, is a graduate of the Massachusetts State Police Academy, and won the Management Department Network Plan Competition in 2005. While with the Police Department, he was the recipient of the UCLEA recognition award for investigations and also provided instruction on Identify Theft Protection. Neil's position is funded through a 2 year gift from Integration Partners.

Database Administrator - Zhonggui Lu filled the Database Administrator position vacated by Min Qiu who left WPI to join a startup company. Zhonggui's comes to WPI from Auburn University where he administrated university mission-critical Oracle databases, including software installation, upgrades and patching, database configuration, user and role management, and performance tuning. He administered SunGard's Banner, ODS, Workflow, and Enrollment Management systems. He administered Evision's Argos web reporting tool. He maintains an Oracle Certification.

UNIX Systems Administration - Mark Taylor was promoted to Senior UNIX Systems Administrator, having ably filled the senior position after Josh Brandt left WPI. **Jessie Banning** fills Mark Taylor's former position as UNIX Systems Administrator. Jessie's experience comes

from WPI's own Computer Science department, where he provided system administration services. He joined IT just before the start of classes this year and we are now ably staffed in the UNIX area after a lengthy vacant period.

Administrative Assistant - Heidi DelVecchio joined the CCC team last October as CCC's Administrative Assistant replacing Bernice Lisk who became Executive Assistant to the Vice President for Student Affairs and Campus Life. Heidi has a B.S. in Computer Information Systems and an A.S. in Management from Bentley College. She worked for Eastman Kodak for several years as a Senior Systems Analyst and then as a Database Administrator. She devoted the next several years to raising her two children. Prior to joining the CCC, she worked as the H/R Administrator at Mass Web Printing. With Heidi's computer and business background she has brought knowledge and experience to her position, and we are looking forward to further utilizing her experience and positive attitude, and creating new challenges for her in the future.

Administrative Applications Manager - Paula Delaney, the Administrative Applications Manager for the Banner group, resigned to accept an opportunity with Clark University. We regret the loss of the wealth of institutional knowledge and experience Paula has from her history at WPI as a student, as registrar when Banner was implemented, and for the last seven years as technical liaison for our business areas. The Administrative Applications Manager **vacancy** provides an opportunity to review the organizational structure and modify the job description to address the needs of the UDC project and associated new technologies.

Director of Enterprise Solutions - A new position was created (as part of the UDC project) to direct the IT Division's Enterprise Solutions Group (Banner Group) in fulfilling our Unified Digital Campus (UDC) and Administrative Computing Initiatives, and to provide forward-looking strategic guidance, and maintain ongoing operations. The Director plays a pivotal leadership role in working with the WPI Enterprise Architect (EA) and business unit staff members to jointly architect, design, develop, and deliver technology solutions that meet strategic and tactical business and operational requirements and serves as a proactive change agent for the institution. **The interview process is underway.**

Library

Assistant Vice President for Library Services - Dr. Tracey Leger-Hornby joined the Gordon Library staff as Assistant Vice President for Library Services on May 5, 2008. Tracey filled the position vacated by Helen Shuster's retirement on October 31, 2007. Before Tracey's arrival at WPI, she held several leadership positions at Brandeis University, most recently Assistant Vice-President for Business Process Redesign and Deputy CIO, Library and Technology Services. Before her career at Brandeis, Tracey served as Library Director at Rivier College in Nashua New Hampshire where she established many customer focused initiatives. She also held managerial positions in the library at Simmons College, including the Associate Director for Instructional Computing and Assistant Director for Library Systems. Tracey received a BA in Psychology and Education from Simmons College, a Master of Library Service (MLS) from Dalhousie University, and a Ph.D. in Education from Boston College. She was a Fellow at the Frye Institute in 2003, sponsored by the Council on Library and Information Resources. Her research interests include women's attitudes toward computing, organizational culture in merged library and technology organizations, and the impact of women's colleges in higher education.

Helen Shuster started working at the Gordon Library in 1975 as Head of Technical Services, and she was appointed Director in 1993. During her tenure at WPI, she was responsible for many different technological innovations for the library and campus. Helen Shuster focused on building a staff committed to service, and she was a tireless advocate for information literacy. In recent years Helen's vision for the evolving role of the library resulted in the creation of

technologically infused study spaces, more efficient shelving arrangements, additional collaborative study areas, and a library web site that meets the very diverse needs of library users. Helen was also very active in the library community outside of WPI. She served as Chairperson for NELINET, which is a consortium of 600 libraries, and she was a board member for the Central Massachusetts Regional Library System.

Access Services Assistant - Tressa Santillo, Access Services Assistant, recently joined the Gordon Library staff on September 2, 2008, filling a position vacated by Ginny Julian. Tressa assists in the operation of the Access Services Department communicating library policies, rules, and regulations to our patrons. She is an integral part of the team in supervising, scheduling, and training student workers for both the Information Desk and book stack maintenance. Before coming to WPI, Tressa was a Library Assistant at the Worcester Art Museum and a copy-cataloger for the American Guild of Organists in Worcester.

Access Services Associate - Ginny Julian was promoted from Access Services Assistant to Access Services Associate. In her new position, Ginny assists in developing and maintaining all routines necessary to ensure the effective operation of the Access Services Department. These duties include the administration of electronic and paper course reserves, management of departmental billing procedures, and supervision and training of approximately 30 circulation student assistants in library procedures and policies with an emphasis on customer service.

Circulation Supervisor- Joan Daughney, Circulation Supervisor, retired on March 17 after 31 years of service in the Gordon Library. Joan started working at the Gordon Library on February 1, 1977. During that time she helped oversee many changes in the circulation department including the transfer from a paper to an electronic checkout system. Her very public position, both with circulation and with coordinating reserve materials, enabled her to create long lasting relationships between the library and the campus community. She was often the first library staff member that a faculty member or student would meet, and her strong commitment to customer service, as well as her pleasant demeanor, always ensured that their initial trip to the library would be an enjoyable one.

Evening/Weekend Supervisor - Michele Reich joined the Gordon Library staff in February as an Evening/Weekend Supervisor. Michele had been a temporary Reference Librarian and Cataloger in the library before making the switch to permanent part-time status. She joined us from the Soutter Library at UMass Med, where she had completed an internship in reference and instruction. Before entering librarianship, Michele was on the faculty at both Dartmouth and NYU, and she served as an Associate Dean in the School of Education at Adelphi University.

Evening & Weekend Supervisor - Jennifer MacMillan, Evening & Weekend Supervisor, left WPI in February to take a position as Reference Librarian at the Harvard Public Library in Harvard, MA.