



UNIVERSITY OF WISCONSIN
OSHKOSH

Information Technology Operational Plan

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Information Technology Plan Executive Summary

July 23, 2008

The Information Technology Plan focuses on the use of information technology in support of teaching, learning, and administrative support services. Technology has become an integral part of teaching, learning, research, and most administrative support services. IT provides an infrastructure for interaction, investigation and collaboration. Information Technology can be a transformative agent that not only enhances traditional modes of teaching and learning, but also enables new methods of teaching and learning.

Technology has the potential to facilitate and enable change across the university and help the university achieve its goals. In FY 2007/08, the University made a significant investment in the network infrastructure that will support teaching, learning, and the University's administrative support services for the foreseeable future. In FY2008/09, significant technology investments are being made to improve the University's web presence and wireless network service.

Technology is a key factor in engaged learning. IT assists students and faculty with tools, such as web-based course management (Desire2Learn), classroom response systems (clickers), digitizing course materials for use with iPods or similar devices, campus simulation and research technology. Key accomplishments from 2007-08 include:

- Approximately 1,500 students used classroom response systems.
- Fifteen faculty participated in the initiative to record lectures for distribution via iTunesU.
- Assisted Biology / Microbiology with a Beowulf cluster research project to review gene data.
- Assisted Computer Science with a grid / distributed computing research project, making use of unused GCA lab computer cycles for mathematical computations.
- Assisted the College of Business and Kinesiology and Health with using video feedback via the web and TitanFiles / Xythos.
- Increased participation in a workshop series for instructional design of hybrid courses using effective application of online tools. This series was originally offered in partnership with the Center for Scholarly Teaching and has now expanded to other departments, such as Center for New Learning and Curriculum and Instruction.

In addition to encouraging community engagement from our staff, IT assists with the technology needed for service projects like water quality studies, and has developed a partnership with the Center for Community Partnerships, providing them with technology consulting services. In 2007-08 basic computer skills training was provided through the Women's Center to people referred by Work Force Development and the Christine Ann Center. IT repurposes computers no longer usable on campus to community non-profit organizations at no cost. In 2007-08 approximately 170 computers were redistributed.

Our support of globalization is primarily in facilitating communication via email, videoconferencing, telecommunication services, and other web-based tools.

IT fosters student excellence through our student employees. Our lab consultants are provided with additional technology skills to increase their post-graduation marketability. They also use these skills to assist fellow students with using lab technology. Our technology interns provide essential support in computer and lab maintenance on campus. UW Oshkosh has been fortunate

to hire five former interns as full-time IT staff. Our team of student graphic artists and web developers helps create and maintain web sites for campus departments.

In FY 2008/09, IT looks to serve as a key partner with the Integrated Marketing team to improve the University's web presence.

Other key goals for 2008-09 include:

- Lecture capture (podcasting): Enhance the student learning experience by allowing faculty to efficiently record and distribute their lectures to students for review.
- Immersive learning technology: Support 3-D virtual environments for colleges and departments incorporating this new technology into their curriculum.
- Student collaboration: Upgrade the TitanFiles (Xythos) collaboration system to improve student engagement and collaboration opportunities.
- Wireless: Improve access to network resources by providing wireless coverage everywhere on campus.
- Network service: Provide for the increasing demand for more course content delivered over the network by completing the fiber optic cable upgrade by Fall 2008.
- Student Information System: Improve services to students by being the first campus within UW System to offer the improvements and new functionality in Oracle/PeopleSoft's Campus Solutions 9.0.

IT strives to be internal consultants to and partners with college offices, departments and individuals on campus, in evaluating, planning, and implementing technology that assists in developing solutions to challenges faced by the campus community.

Major challenges in FY 2008/09:

- The Applications Programming staff will lose 4 of 7 staff members to retirement before March 2009. Shortly after the University completes the upgrade of its student information system, senior applications programmers/analysts will be retiring. The loss of institutional knowledge will severely impact the day-to-day technical support for offices across the campus. The rebuilding of this important campus resource will be an urgent priority for IT in FY 2008/09.
- After completing a campus security risk assessment, cross-division collaboration and executive emphasis will be needed to implement recommendations. Maintaining good security and privacy practices will be an on-going challenge.
- Identifying the funding and completing the construction of the alternate data center in the basement of Polk library will be a significant challenge in FY 2008/09.

Vision: To be recognized as one of the leading technology enabled campuses within the University of Wisconsin System.

Mission: Provide cutting-edge instructional technology and leading-edge business-information systems connected to a robust network supported by help desk and training services and skilled technicians delivering operations and programming support.

Purpose and Scope of the Information Technology Plan:

Technology is a critical part of the day-to-day operations of the university and is used to enhance student learning; support the preservation, creation, and transmission of knowledge; and support campus management functions. The purpose of the Information Technology Plan is to guide the ongoing development and evolution of technology in support of the University's mission and strategic initiatives. The Information Technology Plan must be aligned with the University's strategic directions. When new technologies are considered, they are evaluated relative to how they support the campus mission and strategic initiatives.

Information Technology Planning Principles:

The following principles are used when acquiring and implementing hardware, software applications, databases, academic and administrative systems.

- Academic program needs and Administrative requirements drive Information Technology activities. This plan focuses on using technology to (1) improve the teaching and learning experience at UW Oshkosh and (2) improve the administrative systems needed to support the University's mission and goals.
- Information Technology resources are implemented in a manner that will serve the overall campus. Hardware and software resources are implemented in a manner that will serve the maximum number of campus constituents.
- Information Technology resources will be as open as possible while protecting the integrity and security of personally identifiable data and the privacy of individuals to whom the data pertains. The use of IT resources is guided by the Acceptable Use of Computing Resources Policy that addresses privacy, intellectual property rights, relevant laws, and individual responsibilities to avoid infringing on the rights of other users of the University's technology resources.

Current Technology Environment:

A survey of existing information technology at UW-Oshkosh reveals a complex array of systems and services that fall into three broad categories: infrastructure, instructional technology, and information/transaction systems.

Infrastructure. UW-Oshkosh provides universal access and common technology tools for all faculty, staff, and students. This comprehensive support model enables faculty, staff, and students to focus on their creative work and collaboration, rather than spending their time trying to get the technology to work. Information Technology staff are responsible for managing the network topology, operating systems, and desktop applications.

The Technology Infrastructure at UW-Oshkosh includes:

- Switched and Routed Network Backbone including:
 - Gigabit Ethernet service to all buildings.
 - 100 megabit switched fast Ethernet service to most desktops.
 - Gigabit Ethernet service for workstations and servers with high bandwidth requirements
 - Dual core switches with redundant fiber paths to major Academic buildings.
 - Multiple Virtual Local Area Networks (VLANs) to optimize network traffic and maintain network security.
 - 6,870 active network data jacks in the campus network.
- Wireless network presence in Polk Library, Reeve Union, Student Recreation and Wellness Center, and in all academic buildings.
- Server infrastructure including:
 - 26 file, print, backup, and web servers (23 centrally managed).
 - 6 electronic mail servers.
 - 8 directory servers.
 - 9 network support servers.
 - 12 PeopleSoft SIS servers (2 database, 6 application, 4 web).
 - 30 departmental application servers (25 centrally managed).
 - 9 test and development servers.
 - 8 Residence Life servers (managed by MIO).
- Network Management including:
 - Advanced stateful packet filtering.
 - Bandwidth management.
 - Wireless and open access network user authentication.
- Security infrastructure including:
 - Desktop, server, and email anti-virus products.
 - Anti-spam email software.
 - Automatic rollout of anti-virus software updates to desktop PCs and servers.
 - 12 firewalls
 - 2 enterprise-level firewalls

- 10 departmental-level firewalls
- Desktop Support including:
 - Windows, Macintosh, and Linux computers.
 - Anti-virus, intrusion protection, and basic malware detection/removal.
 - Automated software update and patching.
 - Help Desk services.
 - Training on operating systems and applications.

Instructional Technology. Information Technology provides a broad range of technology services in support of the academic mission, including: classroom technology, computer labs, online learning software, and instructional design assistance.

- Classroom technology – installed. UW-Oshkosh has more than 100 computer/video projection systems across campus. Of these, 53 are permanently installed in technology-enhanced general access classrooms. Every effort is made to assign technology-enhanced classrooms to faculty who use instructional technology in their teaching; however, this is not always possible due to high demand.
- Classroom technology – delivered. Media Services also delivers instructional technology to classrooms as needed to supplement the installed high-tech classrooms and to accommodate users who only have occasional technology needs. This also allows Media Services to provide support for new technologies that not have been originally installed in high-tech classrooms. Classroom technology, whether installed or delivered, is available in all academic buildings. The approach is “any classroom, any technology.”
- Distance Education. UW-Oshkosh has two facilities for interactive video distance education. Both have Internet Protocol connectivity. One also has ISDN connectivity and the other connection to the KSCADE fiber optic network. Media Services maintains these facilities and provides training and support to faculty using this mode of instructional delivery.
- Student Computer Labs. In the mid-1990s UW-System established a goal for campuses to provide one computer for every 25 FTE students in a general access computer lab that would be open to all students a minimum of 80 hours per week. For UW-Oshkosh, this meant a goal of 450 computers in the general computer access (GCA) labs. UW-Oshkosh has exceeded this goal and currently provides 466 computers in five general access labs. Included within the GCA labs are four teaching labs (Halsey, Clow, Swart, and Radford). The largest GCA lab, Radford, is a 24-hour lab during the regular fall and spring terms. By combining General Computer Access and Student Technology funds, the University has established a three-year replacement cycle for GCA lab computers.

- In addition to the GCA labs, the campus also provides approximately 20 specialized college or departmental computer labs tied to specific academic disciplines and open to students enrolled in those disciplines. Computers in discipline-specific labs are funded by Lab Modernization and departmental funds; computers removed from the GCA labs (as part of the three-year replacement cycle) are also available for discipline-specific labs. Based on annual demand for Lab Modernization funds, it is evident that available funding does not adequately meet the need to keep these college and departmental computer labs at the level of technology currency desired by the colleges and departments.
- Faculty support. The Instructional Development and Authoring (IDEA) Lab exists to help faculty and staff integrate technology in the teaching and learning process. To this end the IDEA Lab acts as a clearinghouse for instructional technology information and training opportunities, showcases new technologies, and assists faculty and staff in developing technology expertise. IDEA Lab staff provide pedagogical and technical advice on technologies such as digital imaging, web page development, presentation software, electronic discussions, scanning, courseware and multimedia software. Media Services offers primary support for the Desire2Learn course management system. Media Services also offers two specialized services: the Web Creation Group (WCG) is a team of students available to assist faculty and departments in creating or updating web pages, and the Presentations Lab provides students with computers, software, and specialized equipment (such as digital cameras) to assist them in preparing media-rich classroom and research presentations.

Information and Transaction Systems. UW-Oshkosh has implemented more than a dozen information and transaction systems over the past decade, transforming the way the campus engages in educational and business processes. Listed below are the major systems implemented, along with a brief explanation of their purpose and use.

- DARS (STAR degree audit reports) (1997): The Degree Audit Reporting System (DARS) produces the Student Academic Report (STAR) that provides all students and advisors with degree audit reports to assist in planning and registering for courses. DARS has been upgraded to a Windows version of DARS (DARWIN) that allows students to obtain their STAR reports online.
- Campus web site development and redesign (1997, 2000, 2003): The campus web site has become a key information and transaction system. The first major comprehensive design of the campus web page was done in 1997, with complete re-designs occurring twice again at three-year intervals. Each time an ad hoc group of faculty and staff participated in the redesign, led by Media Services staff.
- PeopleSoft Student Information System (1999): The PeopleSoft Student Information System represents the central core database for UW-Oshkosh

students, faculty, and staff. This web-based system is housed on campus and includes the following modules: Admissions, Financial Aid, Records/Registration, and Student Financials. Faculty use this system for viewing class rosters, viewing unofficial transcripts of their advisees, and submitting final course grades. Students have access to their class schedules, unofficial transcripts, and final grades. UW-Oshkosh is one of ten UW institutions using the PeopleSoft SIS. In December 2004 PeopleSoft was acquired by Oracle. Oracle has stated its commitment to bringing out two future major releases of PeopleSoft and maintaining these releases through 2013.

- Schedule 25/Resource 25 classroom and room scheduling (1999): Schedule 25 is integrated with the SIS system and used to assign classrooms based on criteria established by the Registrar's Office. Departments have multiple opportunities to request classrooms with particular technology, room arrangement, or furniture. Resource 25 is a related system that can be used to schedule non-classrooms for any University-related activity; currently it is being piloted by Reeve Memorial Union.
- Shared Financial System (SFS) (2001): The Shared Financial System (PeopleSoft SFS) is a client-based financial management system, which includes modules for General Ledger, Purchasing, Accounts Payable, and Asset Management. The centralized database is hosted on the Madison campus while the SFS client software resides on campus workstations. Access to the transaction system and the WISDM data mart allows campus staff to directly monitor their budgets.
- Desire2Learn course management system (2004): The Desire2Learn (D2L) course management system supports fully web-based courses as well as "blended courses" in which faculty enhance their face-to-face classes with interactive online learning experiences. Faculty can post content, receive student projects, facilitate discussion groups, and manage grades using D2L. The database is managed by the Learn@UW utility in Madison.
- Sun One email/calendaring system (2004): Sun One is an integrated email/calendaring system that allows faculty and staff access to their university email account both on and off campus. It contains a personal calendar linked to the email system that facilitates scheduling of group meetings. Currently only the email system is available to students; the calendar will be deployed to students in 2005. Faculty and staff may use a standard email client (for example, Eudora or Outlook) with the Sun system.
- TouchNet online tuition payments (2004): The TouchNet system allows students and parents to pay their tuition bills via the web.
- Kronos TimeKeeping (2004): Kronos TimeKeeping system is a web-based application managed by the UW Processing Center in Madison. The application is used by all UW campuses as a means of electronically managing student employees' time. UW-Oshkosh successfully implemented the Kronos system in 2004 and student employees and their supervisors use this automated time keeping system.

- Fleet Anywhere fleet management (2005): The FleetAnywhere system is the result of a statewide initiative that will require all state agencies to participate in a fleet management database maintained by the Department of Administration. Business requirements based on all major functional areas of fleet management and necessary training materials are being developed.

Funding for Information Technology:

There are several sources of funding for information technology: general program revenue, program revenue, charge-backs, student fees, grants and grant overhead, contracts, and gifts. General program revenue (GPR) is by far the largest source of funding for the campus and is used to fund the great majority of infrastructure and staff costs. Charge-backs to departments for telephone services and data jacks are used to partially fund costs in these areas.

The University receives earmarked funds from UW-System to support special technology initiatives. These funds were acquired through special legislation and must be monitored for appropriate use:

- General Access funds for student general access computer labs.
- Lab and Classroom Modernization funds. Lab Mod funds are used to fund departmental and college labs; Class Mod funds are used to fund classroom technology, whether installed or distributed. Processes are in place for annual decisions on use of these funds.
- Student Technology Fee funds. This is a 2% tuition surcharge and must be used for technologies that benefit all students. A process is in place for annual decisions on use of Student Technology Fee funds.

Grants, grant overhead dollars, contracts, and gifts have all been used by individual faculty and departments to purchase hardware and software. This source of funding is not ideal because most grants and gifts are one-time revenue sources and computer technology needs to be replaced or upgraded on a regular basis.

Current Trends and Future Directions in Higher Education:

Instructional Technology

e-Learning/Distributed Teaching and Learning. Student and faculty interest in online learning opportunities has continued to grow over the past five years. UW-Oshkosh is well positioned to support the expansion of online learning through the IDEA Lab staff and the D2L course management system. Listed below are some areas that are addressed in the Information Technology Plan:

- Faculty development
- Intellectual property
- Video over IP
- Streaming video/audio
- Classroom student response systems

Classroom and Learning Technology. Technologies that support learning inside and outside the classroom continue to evolve. The following tools and issues are part of this evolution:

- e-Portfolios
- e-Grading
- Intellectual property, copyright, plagiarism
- Digitizing content (text, music, video, images)
- Replacing older graphic technologies (for example, slides) with online digital technologies (whether in-house or via licensure)
- Web page development
- Differences in learning styles
- Online student work groups and discussion groups
- Interactive, experimental learning online
- Simulation technology, 3-D modeling
- Video over IP
- Streaming media

Research Computing. Faculty are becoming more dependent on computer technology for their creative work. The Information Technology Plan should consider:

- Communicating with colleagues across distance and time.
- Collaborating with colleagues (sharing files, critiques, discussion groups)
- Advanced data modeling and computer applications
- Accessing and interacting with live data systems at a distance
- Transferring large data stores across the internet
- Digital imaging
- Online surveys
- Specialized workstations to run equipment and support applications

Student Computing. Today's students have used computers since kindergarten and tend to adapt quickly to new technologies. The Information Technology Plan should address the changing needs of students, including:

- Wireless networks
- Laptop connections
- Smartphones and other mobile devices
- Simulation and interactive instructional technology
- Online student services

Information and Transaction Systems

Many campuses have implemented Content Management Systems (CMS) as a way to integrate and manage various information sources and to make it easier for students, faculty, and staff to locate information. A CMS can also provide easy access to institutional repositories. A CMS can facilitate:

- Institutional branding and marketing
- Management of content from many sources

- Role-based security management
- Improved searching of the campus web and/or databases
- Organization information and resources

Information and Administrative Systems. The campus has more than a dozen enterprise (campus-wide) systems and many additional departmental information/administrative systems. As much as possible these systems should be able to share name and address data to maintain accurate information about the UW-Oshkosh community of users.

Ideally, information about an individual should be stored in the central campus database (PeopleSoft SIS) with other campus systems using the data and updating as appropriate.

New information/administrative systems that could be considered are:

- Electronic records management
- Digital collections
- Archiving digital content
- Online publishing
- Preservation of the scholarly record
- Asset management
- Customer Relationship Management (CRM) system

Web Services/Web-based systems. The campus web site has evolved extensively over the past five years and will continue to change. A significant challenge will be integrating different applications with secure exchange of data over the internet. In the near future, the Information Technology Plan will consider:

- Web services, including blogs
- Web development software
- e-commerce
- Portal technology
- Integration among different systems
- Messaging between systems
- Workflow notification
- iPod and Podcasting

Infrastructure

Infrastructure Management. IT infrastructure refers to the entire technology architecture that supports student, faculty, and staff computing activities on campus and from a distance. The IT infrastructure must also accommodate public access to the campus web site and its various information systems, where appropriate. Issues that must be addressed over the next five years include:

- Wireless data network services across campus and residence halls.
- Access to the network for students, faculty, and staff working away from campus.
- Prioritization of network traffic: Quality of Service (QOS).
- Network services: Internet2, video-over-IP, voice-over-IP (VoIP).

Security and Identity Management. Making information available over the network increases access and efficiency, but also adds the risk of authorized access or inappropriate use of information. The IT Plan focuses on issues such as the following:

- Authentication/authorization policies and architecture.
- Intrusion protection.
- Privacy protection.
- Regulatory issues.
- Single sign-on.
- Illegal file sharing and downloading.
- Digital signature technology.

Academic Computing Operational Plan

July 20, 2008

Trends

- Virtualization – the ability to setup multiple virtual servers on one physical server and multiple operating systems or virtual desktops, especially Intel-based Macintosh computers, on one physical computer is helping to maximize hardware utilization and IT budgets.
- Increasing government regulations regarding data security – data security is now a national concern and the University needs to keep up with the demands of FERPA, HIPAA, GLB, and other federal regulations to safe guard data.
- Off-campus access to campus resources – both faculty and students expect the same access to campus computing resources from off-campus that they have when they are on campus.
- State budget cuts – there are fewer dollars to support technology. Setting and providing standards reduces the total cost of operating on campus, however, there will always be special, academic needs that we must support.
- Self-service – web-based delivery of services and mobile computing put more pressure on the need for 24-hour service or varying forms of self-service.
- Open source – more and better open source software options are available, providing an opportunity to reduce software license costs and reliance on single vendors.
- Rapid change of technology – computing hardware, especially network and mobile computing options are areas of high and rapid development; web-based delivery of software and services is also rapidly expanding

Goals

1. Keep improving customer service
2. Explore new technologies for ourselves and to help campus users
3. Get the most from our technology investments
4. Improve Local Area Network security and reliability (strategies and objectives for this goal are also included in the IT Network Infrastructure Plan)

Strategies

1. Utilize campus standards and centralized computer management to reduce costs (**Goal 3 and 1**)

Objective: Automate desktop deployment and management.

- December 2008: Implement the Apple Task Server and management of campus Macs via a central server.
- June 2009: Prepare for Vista deployment on campus and in the labs for the Fall 2009 semester (Business Desktop Deployment and Key Management Service).

Objective: Implement a new network print management system.

- August 2008: Install Pharos and test in GCA Labs
- September 2008: If GCA Lab pilot is successful, extend Pharos to Residence Hall lab printers, Reeve Union SLIC printer, and Library Reference area printers.
- January 2009: Evaluate Pharos implementation; consider: 1) extending to more printers 2) setting print quotas
- February 2009: If evaluation is positive, extend Pharos to all Library public access, networked printers

Objective: Create a campus plan for computer replacement

- December 2008: Inventory all departmental labs, define the level of support and set an upgrade schedule for each campus lab.
- February 2009: Coordinate end-of-year campus computer purchase among colleges to ensure use of standard hardware also obtain increased vendor discount and lower transaction cost from one large order.

Objective: Implement new Apple Service Agreement for faculty/student PC repair

- August 2008: Set service intake, outtake, and charging procedures with Bookstore staff.
- September 2008: Obtain secure storage for PCs in repair
- December 2008: Review service statistics with Apple and the University Bookstore to assess program effectiveness

Dependencies:

- There is a definite need for secure storage that is adjacent to the technical staff who will be doing the installations and repairs in the two objectives above.
 - With the COLS order the computers it was very difficult moving computers without the Dempsey elevator.
 - We tried to use our break room for storage, but PCs quickly filled the room and made it difficult to use for meetings or to get to other resources

stored in that room.

2. Simplify campus login procedures by connecting campus identity directories (**Goal 1 and 4**)

Objective: Improve campus account provisioning and management.

- December 2008: Test Novell's new OS, OES2, for directory synchronization between eDir and Active Directory (AD)
- October 2008: Consider forced periodic reset of passwords per UW System guidelines for PS-SF users.
- March 2009: Rewrite Account Management System (AMS) from auto-creation to standard disable schedule, including appropriate end-user communication and group identification
- June 2009: Complete single sign-on/directory synchronization between email, Novell, and Windows.
- June 2009: Provide on-demand automated reset as a customer service.

3. Improve off-campus and self-service support (**Goals 1, 2, 3**)

Objective: Upgrade Xythos and extend utilization for work flow.

- August 2008: Upgrade to new version of Xythos
- August 2008: Install and implement EDM for work flow
- September 2008: Provide campus training on the new version and advertise the EDM features

Objective: Implement upgrade of Help Desk management software.

- September 2008: Install new version of Magic Help Desk
- December 2008: Implement Help Desk Self Service tools
- February 2009: Review web resources on Plone to provide more FAQ/Resolution Guide info to the full campus audience
- June 2009: Explore use of 24-hour lab LCs as after-hours Help Desk service, especially for students

Objective: Implement campus VPN solution.

4. Improve network and lab security (**Goals 1, 3, 4**)

Objective: Implement campus security video system in GCA Lab

- October 2008: Review needs and cost to set plan for implementation
- December 2008: Install video surveillance equipment for the recommended

first lab (24-hour lab or Swart lab).

- January 2009: Have staff trained in video surveillance management

Objective: Upgrade SQL servers to version 2005 and utilize virtual servers where recommended.

- July 2008: Install virtual server platform for campus use
- August 2008: Determine which servers will migrate to virtual server platform
- December 2008: Migrate SQL servers to virtual SQL 2005 servers
- January 2009: Evaluate additional servers for migration to virtual platform

Objective: Setup redundant data center site

- December 2008: Construction of site in Polk basement
- January 2009: Determine which servers and services will be replicated
- May 2009: Test second site functionality
- August 2009: Test switch-over to second site during annual power outage

Dependencies:

- Construction of the Polk data center site is dependent on Facilities Management and other construction projects on campus, especially recovery from recent flooding.

5. Continue to use ACUG to show new technology options. **(Goal 2)**

Administrative Computing Operational Plan

July 22, 2008

Trends

- Software vendors continue their efforts toward standards-based software in all sectors of the software development industry.
- The industry is recognizing and beginning to incorporate open source software into core production systems.
- The “Service Oriented Architecture” is gaining industry acceptance as the path to reducing the enormous cost of integrating disparate systems.

Goals

1. Provide an effective and efficient means for addressing the needs that faculty, staff, and students have from the University’s administrative computing systems.
2. Ensure that UW Oshkosh administrative systems are standards based.
3. Reduce the overhead and cost of integrating disparate software systems.
4. Create a robust standards-based architecture capable of seamless and secure integration with administrative systems across the University of Wisconsin System.

Strategies

1. Make UW Oshkosh administrative software environment more standards based and better able to integrate with disparate software systems by aligning with Oracle/PeopleSoft’s “Fusion” strategy. The “Fusion” strategy is a path to creating a “Service Oriented Architecture” that is standards based. **(Goals 2, 3, 4)**

OBJECTIVE: Upgrade the Oracle/PeopleSoft Student Information System to Campus Solutions 9.0.

- July 2008: Prioritize remaining UW Oshkosh customizations still needed in CS 9.0.
- July 2008: Complete testing of the cashiering and new e-billing systems.
- July 2008: Go-live with CS9.0.
- Aug 2008: Complete the UW Oshkosh customizations in CS9.0.
- Sep 2008: Address operational issues caused by peak processing in the fall term.

DEPENDENCIES:

- Financial Aid consult from IoConsulting must complete the transfer of knowledge.
- Cashiering vendor must complete modifications needed for CS 9.0.
- Technical consultant from Satyam must be available if additional customizations are needed.

2. Develop a transition plan for the Applications Programming staff as 4 or the 7 senior staff members plan to retire in FY 2008/09. **(Goal 1)**

OBJECTIVE: Hire an IS Supervisor 2 with the Oracle/PeopleSoft skills and management experience to organize and mentor a new applications programming staff.

- Aug 2008: Develop requirements and position description.
- Sept 2008: Release the position announcement.
- Oct 2008: Organize a search team and develop the interview materials.
- Nov 2008: Hire an IS Supervisor 2 for the Applications Programming staff.

OBJECTIVE: Identify the consulting services needed to sustain the University during the transition of the Applications Programming staff.

- Aug 2008: With CS 9.0 implemented, determine the critical areas where technical expertise is needed.
- Sept 2008: Use the mandatory IT Services Contract to secure needed consulting expertise.
- Oct 2008: If the IT Services Contract vendors cannot locate qualified consults, an RFP or BID process may be needed.

OBJECTIVE: Hire three Programmer/analysts to replace retiring senior staff members.

- Nov 2008: Develop requirements and position descriptions.
- Dec 2008: Release the position announcements.
- Jan 2009: Review applications and interview candidates.
- Feb 2009: Review applications and interview candidates.
- Mar 2009: Hire three new programmer/analysts.
- Apr 2009: Develop training programs based on individual qualifications.

DEPENDENCIES:

- Additional central funding may be needed for external consulting resources.
- Finding a qualified candidate for the IS Supervisor 2 is critical to the successful development of a strong Applications Programming staff.

3. Partner with the Integrated Marketing and Communications (IMC) team on the redesign of the University's Web presence. **(Goal 4)**

OBJECTIVE: Provide the programming resources to customize the Plone Content Management System as needed to deliver the functionality needed by the campus.

- Aug 2008: Develop the requirements for consulting resources needed to support the Web redesign project.
- Oct 2008: Use the mandatory IT Services contract to hire a consultant.
- Sep 2008: Develop a position description for a Web Services Programmer/Analyst
- Oct 2008: Release the position announcement.
- Nov 2008: Review applications and interview candidates.
- Dec 2008: Hire a Web Services Programmer/Analyst

- Jun 2008: Continuing support for the Web redesign project.

DEPENDENCIES:

- The mandatory IT Services Contract can successfully to used to find qualified consulting resources.
- If the IT Services Contract is not successful, an RFP or BID document must be developed.

4. Provide support for 3rd party software and student-written programs used by colleges and/or offices across the campus. **(Goal 3)**

OBJECTIVE: Improve the Information Technology environment across the campus by reducing the fragmented approach to solving data access and reporting problems.

- July 2008: Secure a campus-wide license for GradeMark and PeerReview software that will facilitate faculty feedback to students and learning engagements among students.
- July 2008: Use the workflow features of the Plone Content Management System to develop e-business solutions for colleges and departments across the campus. (Example: Pilot project for the Office of International Education: on-line applications for study abroad)
- August 2008: Develop a web-based test with accommodations for Project Success.
- June 2009: In partnership with the College of Business, expand the use of the OnContact software being used by offices to manage external contacts.

DEPENDENCIES:

- IT staff resources must be available.

5. Provide staff with adequate training to implement and support new technologies effectively. **(Goal 4)**

OBJECTIVE: Use a variety of training venues to achieve and maintain skills in today's rapidly changing technology environment.

- August 2008: Identify security training requirements for the networking staff.
- October 2008: Identify training needs following the CS 9.0 upgrade.
- June 2008: Complete any identified training requirements.

DEPENDENCIES:

- Financial resources must be available.
- Oracle/PeopleSoft classes must be available when needed.

Challenges and Constraints

- Plans will be affected by upcoming staff retirements and the need to maintain the current systems and all current functionality.

Supporting Documents

Higher Education Users Group (HEUG) “Roadmap from PeopleSoft to Oracle Fusion for Large Higher Education Institutions” June 16, 2006

Media Services Operational Plan

July 18, 2008

Trends/Assumptions:

Professional media production capabilities are being put in the hands of users who have no design skills. PowerPoint and other instructional technologies can have negative consequences. Faculty and staff are content experts, but not necessarily the best graphic artists, TV producers, web designers, or instructional designers.

Users expect high levels of usability. They don't try to find solutions to problems with computer multimedia, they just leave.

The current generation of students have different learning styles that may be alien to faculty. They don't want to be told what is right, they want to participate in discovering it or be argued into it. (They can be entertained into it though)

Current students expect content to be presented in a variety of formats, not just text. They seek interactive collaborative processes and activities.

Use of computers and data projectors in the classroom has continued to increase. Despite the increase in the number of technology classrooms, we continue to see increases in the delivery of equipment.

Demand for on-line delivery of content is increasing both to meet expectations of net-generation students in normal face-to-face courses, and to provide access to non-traditional students. A recent expectation is that this content can be viewed on an iPod.

Goals:

1. All technologies will be available in all learning spaces.
2. Media will be effectively used in instruction, research and university administration, both in face-to-face and distance education applications.

Strategies

1. Work with Classroom Modernization Users Group and Classroom Modernization fund to keep technology classrooms up to date and install new technology classrooms.
(Goal 1)

Objective: Fall 2009: Upgrade NE 151 and 152 with control interface more consistent with Halsey lecture halls.

Objective: Fall 2008: Upgrade HS107 and HS109 to two projector systems.

Update: HS107 and 109 will be upgraded in winter interim or next summer depending on Facilities Management's plans. The Clow lecture halls will be updated this fall with brighter permanently mounted projectors and new control systems.

2. Utilize Instructional Technology Services units to maintain and support technology classrooms and to deliver equipment on an on-demand basis to classrooms and laboratories. **(Goal 1)**

3. Utilize interactive television and web-based tools to make instruction available at a distance. **(Goal 1)**

Objective: Promoted and provide training and support for GradeMark, an ancillary product of the plagiarism detection product Turnitin, which facilitates the process of providing feedback and comments of assignments turned in online.

4. Provide expert staff, and software and hardware tools to develop materials, to assist users in creating their own materials, and help them utilize those materials effectively in instruction. **(Goal 2)**

Objective: Fall 2008: Make the Web Creation Group a regular part of the University budget and create organizational structures and policies to make the University web site more usable and "branded"

Dependencies: This will involve numerous departments, additional resources and will need leadership from the level of vice-chancellors.

Update: A web development project led by the Integrated Marketing and Communications department has been initiated. Resources have been put toward this goal, but most of the work will be carried out by Integrated Marketing

Objective: Spring 2008. Offer Plone Content Management system as an option for web development.

Update: Plone was adopted as the University's content management system in July 2008

Objective: Ongoing: Increase communication about services. Develop podcasts, newsletter and presentations about both new and established applications. Possibly develop a faculty liaison group of those interested in supporting other faculty in integrating technology into the curriculum.

Business Operations & Training Operational Plan

July 16, 2008

Trends

- A current trend in the software industry is “open source” software. This software can be obtained and redistributed without licensing or copyright issues. In some cases this “free software” is proving to be an integral part of a viable business model.
- The campus community will expect an array of training options that make training available anytime and anywhere.

Goals

1. Provide training that will meet the campus need to learn and maintain proficiency with “Office Productivity” software.
2. Provide standards-based “Office Productivity” software that is easy to use and cost effective.

Strategies

1. Provide an “Open Source” software alternative to MicroSoft. **(Goal 2)**

Objective: Determine whether Open Office is a viable alternative to Microsoft Office.

- January 2009: With the release of Microsoft Vista and Office 2007 (both significantly redesigned applications), it was determined that this objective should be tabled for 18-24 months so efforts could be focused on Office 2007 and other new software applications that will be available to users in 2008.

2. Provide training and support for “Office Productivity” software that is available on all campus workstations as part of the standard configuration provided by Academic Computing. **(Goal 1)**

Objective: Provide training and support for Microsoft Office 2007.

- July 2008: Continue to develop new curriculum and lesson plans.
- July 2008: Continue to restructure all Microsoft Office training classes offered to faculty and staff to conform to Office 2007 structure.
- Fall 2008: Offer Office 2007 training classes to faculty and staff while continuing to offer Office 2003 training classes to faculty and staff that have not upgraded to Office 2007.

3. Provide training to the campus community on new software technologies that enhance office productivity. **(Goal 2)**

Objective: Provide training and support for Plone open-source web page creation software application.

- Fall 2008: Continue to train trainers on Plone web-page creation software.
- Fall 2008: Finalize lesson plans for Plone software application.
- Spring 2008: Offer Plone training classes to faculty and staff.

Objective: Provide training and support for Xythos file-sharing software application

- Fall 2008: Train trainers on upgraded Xythos file-sharing software, including newly added components.
- Fall 2008: Develop and restructure lesson plans for upgraded Xythos file-sharing software application, including newly added components.
- Spring 2008: Offer Xythos file-sharing training classes to faculty and staff.

Objective: Provide training and support for Microsoft Project 2007 software application.

- Fall 2008: Train trainers on MS Project 2007 project management software.
- Fall 2007: Develop lesson plans for MS Project 2007 project management software application.
- Spring 2009: Offer MS Project 2007 project management training classes to faculty and staff.

4. Enhance new employees' proficiency in the use of "Office Productivity" software. **(Goal 1)**

Objective: Provide new employee orientation training – Essential Skills Training (EST).

- FY 2008/09: Continue mandatory Essential Skills Training program for Classified, Project Appointment and LTE staff as they begin their employment at UW Oshkosh.

5. Provide a quantitative measure of an individual's proficiency with "Office Productivity" software. **(Goal 1)**

Objective: Provide Skills Inventories for finalists in administrative support positions being filled.

- Develop skills assessments criteria based on position job descriptions.
- Upon demand, conduct skills assessments based on exercises performed by applicants to demonstrate their knowledge of office productivity applications needed in positions they are applying for.
- Send evaluation report to recruiting supervisor and Human Resources.

Network Operational Plan July 21, 2008

The goals of the campus network infrastructure support the Mission and Strategic Directions of the University and the Mission of Information Technology. Teaching Excellence, Research, Intellectual Activity and Creative Expression are enhanced through the use of networks. Learning Communities, Regional Outreach, and Domestic and International Partnerships depend on applications that run on a robust network. The network has become a strategic component in the curricula of each of the University Colleges. Business processes depend on reliable network services. The network is essential to core education, research, and business.

Trends

- Demands on network bandwidth and speed continue to increase.
- Capabilities and features of physical layer transport media and devices continue to improve. Voice and network applications continually evolve to take advantage of the new capabilities. Advancements in fiber and copper wiring and the software driving data promote greater speeds over greater distances. Wireless advancements in voice and data open whole new possibilities. Cellular service and Voice Over IP (VOIP) may replace analog service in some locations. Hardware and software advances in switching and routing improve reliability, security, and performance.
- Network applications continue to converge. Data, video, and voice will continue to consolidate over a single network. The campus network already supports formal and informal distance education classrooms. Learning management systems include sound, moving video, and virtualization in their presentation. Personal security appliances, such as security cameras and door controls, as well as maintenance applications, like fire alarms and environmental controls, require network resources.
- Applications and devices to facilitate personal computing and mobility will continue to expand. Users will want the ability to connect to the network from locations around campus and from remote locations off campus. Solving security concerns will become ever more important in order to facilitate effective mobile services.
- Expectations for network availability will grow as the demands on the network increase. Meanwhile, the number of support personnel is likely to remain constant. Automated tools to monitor and support the voice and data networks over extended hours will be required.
- Security will continue to be a concern for public networks, both at the campus level and on the Internet. Threats in the form of unsolicited traffic, attempts to break authentication, exploits against software, and through social engineering must be managed.

- The campus is seeking to improve emergency response to threats to the physical security of people living or working on campus. Telephones and the data network play integral roles in communication and in connecting security devices.
- The campus will continue to work with Badgernet Consolidated Network (BCN) and WiscNet to provide reliable bandwidth to educational partners and to the Internet.

Goals

1. Enhance the infrastructure of the campus to provide a network that is reliable, scalable, adaptable, and fault-tolerant.
2. Maintain reliability and adaptability of the campus network to support current and future network technologies.
3. Protect the integrity of the network and the confidentiality of data in transport.

Strategies

1. Upgrade the Campus Fiber Optic Backbone (**Goal 1**)

OBJECTIVE: Upgrade the campus fiber optic backbone between buildings to fiber capable of supporting speeds up to 10 Gigabits per second. Upgrade termination points in closets.

- Late Summer 2007: Begin construction.
- Through Summer 2008: Construction continues. New underground conduits will be installed in some locations. Single-mode fiber and laser-optimized 50 micron multimode fiber will be pulled to each building.

DEPENDENCIES:

- The installation of fiber to Ceramics, Hazardous Waste, and Aquatics buildings is on hold waiting for the Facilities Utility/Power upgrade project to construct ducts under High Avenue.
- River Center requires new duct work. Clean-up and renovation due to the Summer 2008 flooding will determine the timeline for River Center.

2. Create a Fault-tolerant Core for the Campus Network (**Goal 1**)

OBJECTIVE: Provide a network core with redundancy.

- June 2008: Connect two Catalyst 6509E switches to the campus network to begin transition of building fiber to the new core. Configure redundant routing to each building.

- Summer 2008: Install Catalyst 3750 distribution switches in each building. Configure routing to each of the two core switches. Move building connections to the new fiber. Create one fiber connection to each core switch from each building..
- August 2008: Move servers to new distribution switches. Re-address servers to remove them from VLAN 1 and to assign them to new VLANs.
- Fall 2008: Connect major academic buildings to dual fiber paths.
- 2008: Plan and establish a secondary data center in Polk.
- Fall 2008: Re-configure network core design to remove old core switches.

DEPENDENCIES:

- Two new core switches currently reside in Dempsey. In order to maintain network connectivity in case of a disaster in Dempsey, a second site should be established to house one set of core network servers and switches. A room in the basement of Polk has been identified as the second site. Funding is required to make renovations to the Polk location to make it useable as a data center. Once the secondary site in Polk is established, one of the two core switches will be moved to Polk. Fiber connections will be moved to allow each building to terminate in Dempsey and in Polk.
- The fiber upgrade project installed physically separate paths to the major academic buildings. One path terminates in Dempsey and the other terminates at Polk. Additional fiber patch cords must be purchased and installed in order to connect buildings using the Polk fiber.

3. Telephone service. **(Goal 2)**

OBJECTIVE: Provide reliable and cost-effective telephone service for the business needs; educational purposes; personal use of those living on campus; and the security needs of everyone.

- 2007 and beyond: Investigate emergency response systems.
- Summer-Fall 2008: Disconnect phone numbers in Residence Hall rooms. Install courtesy phones in every lounge.
- 2009: VoIP (Voice over Internet Protocol) pilot.

DEPENDENCIES:

4. Upgrade Electrical/Environmental Infrastructure. **(Goal 1)**

OBJECTIVE: Provide electrical redundancy, electrical grounding and bonding, and environmental controls for telecommunications and network equipment. Provide emergency generator backup and UPS for the main data centers. Install emergency

electrical circuits, UPS and upgrade the electrical grounding in all telecommunications closets.

- October 2007: Install a new generator for the Dempsey building.
- August 2007: Provide UPS support and in-phase transfer switches for networking and server equipment in the Dempsey core.
- 2008: Plan for electrical circuits, UPS, and in-phase transfer switch for Dempsey second floor closet to maintain telephone and data connectivity in case of emergency.
- 2008-2009: Plan for emergency electrical circuits and UPS's in all telecommunications closets.
- 2008-2009: Initiate a project to upgrade the electrical grounding and bonding systems based on current master specifications from the Department of State Facilities in all telecommunications and networking areas.
- 2008-2009: Investigate the need for environmental and monitoring controls in telecommunications and network areas.

DEPENDENCIES:

5. Bandwidth Upgrade. (**Goal 2**)

OBJECTIVE: Provide adequate bandwidth for network applications.

- Summer 2008: Purchase a license to permit the PacketShaper bandwidth controller to allow bandwidths up to 300 Mbps.
- Summer 2008: Replace the campus edge PIX 525 firewall with a ASA 5540 firewall to permit speeds greater than 100 Mbps to and from the campus.
- Summer 2008: Install new fiber and switches to permit speeds up to 1 gigabit to each building.
- 2008 and beyond: Continue to monitor bandwidth utilization.
- 2008 and beyond: Work with WiscNet to provide additional capacity as needed.
- 2009 and beyond: Research new bandwidth shaping technologies.
- 2009 and beyond: Evaluate the need for gigabit connections to end-node devices such as servers and workstations.
- 2010: Evaluate the need for 10 Gigabit connections between buildings.

DEPENDENCIES:

6. Network equipment upgrade. (**Goal 2**)

OBJECTIVE: Upgrade network equipment on a six year cycle.

- 2008: Replace obsolete 1924 and 2924 switches in Clow Faculty 2008: Upgrade unsupported 4006 switch in Dempsey second floor closet.
- Summer 2008: Upgrade Dempsey basement access layer switches to gigabit.
- Summer 2008: Upgrade Residence Life core to provide redundancy to the buildings.
- 2009: Replace end of life Procurve switches in Fletcher, Stewart, and Evans.
- 2010: Replace unsupported 4006 and end of life 2950 and 3550 switches in Halsey, Clow basement, and Dempsey third floor.
- 2010: Replace Procurve, 2950 and 3550 switches in Gruenhagen.
- 2011: Upgrade end of life 2950 switches in Foundations, Kolf, MEC, Nursing Education, Taylor and Webster.
- 2012: Upgrade switches in Arts and Communications, Clow Faculty, Dempsey first floor, Facilities, Radford third floor, Titan Stadium and Tiedemann Field, Breese, Clemans, Donner and Nelson.

DEPENDENCIES:

- The entire network replacement cycle, campus plus Residence Life, will cost \$1,125,000 divided over six years at today's switch costs.
- These estimates are based on 100 Mbps to the desktop, 1 Gigabit to servers in the server farm, and 1 Gigabit to the buildings. New technologies such as gigabit speed to the desktop, 10 Gigabit to buildings and servers, and power over Ethernet will increase the costs.
- Upgrades to other network devices such as firewalls, wireless and authentication have not yet been evaluated.

7 Wireless Access and Mobility. **(Goal 2)**

OBJECTIVE: Provide reliable and secure connections to the campus network for remote users and from personal portable network devices.

- 2007: Install wireless access points in Halsey and Nursing Education to provide full building coverage.
- 2008-2009: Provide printing in public areas for users of wireless devices. Provide laser printing in: Clow Lab, Halsey Lab, Polk Lab, Radford Lab, and Reeve Union.
- 2008-2009: Implement VPN on wireless to improve security. Install Cisco ASA (Adaptive Security Appliances) to provide secure connections to UW Oshkosh. This service can be used by all campus wired and wireless users from on campus and off.
- 2008-2009: Install a centrally managed wireless controller system to provide unified management and control of wireless access points, radio frequency, power, and channel assignments. The controllers will manage both indoor and outdoor (mesh) access points. The new system will provide seamless access to services in wireless coverage areas. The campus will also add a "SECURE" (802.1x) wireless SSID that can provide a secure connection from the user's device to the campus network.
- 2008-2009: Install Airware software with the ARUBA hardware to troubleshoot user problems and monitor the access points for on and off campus wireless threats.

- 2008-2009: Replace current hardware and software (Cisco access points and Bluesocket controllers) with ARUBA unified wireless network hardware and software.
- 2008-2009: Develop educational material in the form of website help.
 - o Add additional wireless help and Frequently Asked Questions (FAQ) information to the Academic web page.
 - o Install signs in wireless and public data jack areas to educate users to the availability of public access.
- | • Annually 2008 and beyond:
 - o Add wireless access points with the goal of 100% building coverage.

DEPENDENCIES:

8. Ensure the Campus Network has Adequate Security for Institutional Data. (**Goal 3**)

OBJECTIVE: Secure the network and the data that travels over it. Implement plans in the *University of Wisconsin Oshkosh Networking Group Information Security Plan*.

- 2008 and beyond: Assist with the creation of secure segments for areas on campus transporting confidential or highly sensitive data.
- Fall 2008: Install MARS (Monitoring, Analysis, and Response System) security device to collect network data from critical network switches and servers, correlate the data, and report on security threats and network anomalies.
- 2008-2009: Investigate Intrusion Prevention Systems (IPS) for the campus to detect and prevent harmful traffic from traversing the network. IPS devices located in strategic areas will enhance the information reported by MARS.
- 2008 and beyond: Continue support for the installation of security cameras, building control devices, and other physical security appliances by creating secure network segments.
- 2008-2009: Investigate methods to ensure virus-free connections from personal portable devices to the network.
- 2008 and beyond: Continue to assist with firewall protection for sensitive data. Consolidate firewalls where possible.
- | • 2008: Investigate new VPN technologies and install a more robust server to provide VPN access to staff and faculty.
- 2008-2009: Review the campus firewall strategy to make more efficient use of devices and to enhance overall security. Consider where firewalls can appropriately be consolidated. Examine firewall policies.
- 2010: Provide VPN access to students.

DEPENDENCIES:

- Departments and Colleges must participate in a comprehensive security evaluation in order to identify areas where confidential data is gathered and stored. Only upon the completion of a security analysis, can networking staff assist with the protection of data transport.

9. Network Management. **(Goal 3)**

OBJECTIVE: Provide the campus network more comprehensive management, uptime, monitoring, and response capability.

- 2006-2008: Integrate network documentation and electronic search tools for easier device location discovery.
- 2008: Implement a cohesive network health monitoring and alert system to enable 24x7 management . A NMS (Network Management Solution) will monitor performance, monitor uptime, provide basic configuration change tools, and provide real-time and history reports for the approximately 400 campus network switches.
- 2008: Implement Netflow, a network traffic accounting system, to maintain network usage statistics.
- 2008: Develop a notification procedure for network outages.
- 2008-2012: Expand the use of internal network monitoring tools.

DEPENDENCIES:

- Financial resources must be available.
- An appropriate response to a network outage must be determined.

10. Campus and Building Systems. **(Goal 2)**

OBJECTIVE: To provide network connectivity for non-traditional network devices in support of physical security and services.

- Fall 2007: Install IP online laundry services to a secure network segment.
- 2007 and beyond: Connect network card readers in support of Food Services. Determine security requirements for devices.
- 2007 and beyond: Continue to connect video security cameras as needed.
- 2006-2008: Install the new campus building environmental management system, Metasys, on a secure segment of the campus network. Develop separate VLANs protected by access lists to isolate environmental traffic from other traffic on the campus network.
- Summer and Fall 2008: Install IP online vending services to a secure network segment. All candy and soda vending machines will connect to the network.
- 2007 – 2008: New door control system will be installed across campus.
- Summer 2008: Connect stationary bicycles to the campus wireless network.

DEPENDENCIES:

11. Integrate Planning with New Construction and Renovation Plans. **(Goal 1)**

OBJECTIVE: Work with Facilities Management and University departments in the planning and implementation of construction projects to provide reliable and robust voice, video, and data.

- Fall 2007-2009: Dempsey second floor renovation: Plan and move connections for voice and data. Prepare temporary sites with telephone and network connectivity.
- 2008 and beyond: Participate in planning for the construction of the New Academic Building.
- 2008 and beyond: Participate in planning for Facilities offices moving to old Cub Food site.
- 2008 and beyond: Participate in planning for University Police move to old Credit Union site.
- 2008 and beyond: Participate in planning for building of a new residence hall to replace Breese, Nelson, and Clemans.
- 2008 and beyond: Participate in planning for clean-up, remodeling, and installation of cables and new cable ducts in River Center. Re-build Telecommunications offices and equipment.

DEPENDENCIES:

- Telecommunications and Networking must be included early in the planning stages of construction and renovation projects.
- Communication between Facilities and IT needs to be improved during all phases of construction projects.

12. Provide Adequate Training for the Network Staff. **(Goals 1, 2, and 3)**

OBJECTIVE: To provide network staff with ability to implement new network technology and to respond in an effective and timely manner to changing scenarios.

- Ongoing: Remain current with training opportunities from vendors and UW resources.
- Ongoing: Seek informational articles from books, trade magazines, and the Internet.
- Ongoing: Attend seminars offered by vendors and UW entities.
- 2008 and beyond: Attend classes specific to major responsibilities and projects.

DEPENDENCIES:

- Financial resources must be available.

- Availability of classes must be determined.

Challenges and Constraints

- Maintaining a six-year replacement cycle for network equipment depends on the continuous availability of funding. Without sufficient funding, switches become old and outdated. Like the core equipment and the fiber, they do not provide bandwidth required for today's network applications. The result of connecting newer computers to older, slower switches is network errors, which the user experiences as frustrating delays. In addition, many features such as network security and device monitoring depend on reasonably up-to-date network equipment.
- The University Strategic Directions call for increased collaboration between the campus and its regional and international partners. A major tool to enhance remote collaboration is video and audio over IP. Collaboration and distance education among colleges, universities, and schools in Wisconsin will travel over the new Badgernet Consolidated Network. The campus will have to work with WiscNet and the Wisconsin Division of Enterprise Technology to ensure that QOS is implemented for smooth video and audio quality for classes and conferences.
- The campus administration must provide leadership to ensure that every department closely examines its security practices. IT must provide the guidance to educate departments and users about proper security practices and specific instructions on how to comply with security mandates.

Supporting Documents

All Agency Project Request, "Fiber Optic Backbone Upgrade"

University of Wisconsin Oshkosh Networking Group Information Security Plan

Addendum

July 22, 2007

Network Security Plan

This security plan constitutes the networking group's policies and procedures to protect University highly sensitive electronic data. Federal laws, such as HIPAA, FERPA, and GLBA, require security plans to safeguard and protect personal information. The University may deem other additional information to be critical or highly sensitive in nature. This plan specifies how the networking group will protect and safeguard such data.

1. Secure network segments

As servers or workstations connecting to the campus network are identified as holding or transporting critical data, the networking group will protect the computers with the following procedures.

- Network segments containing computers holding or transporting 1st level critical, highly sensitive information must be isolated from the campus network by subnets or VLANs.
- Firewalls or access lists should protect the sensitive subnets.
- Firewall and access list policies should allow the minimum access necessary to highly sensitive network segments.
- No computers with personal computing, such as web surfing, e-mail, or personal software, should be included within 1st level critical protected network segments.
- Network segments containing less critical information may also be protected by isolated subnets and firewalls.

2. Data transport between segments

Critical and highly sensitive data being transported over public network segments must be encrypted. Various methods of encryption are available for data transport. The networking group can offer the following methods to secure data transmission.

- Set up VPN secure channels between clients and servers transporting sensitive data.
- Establish private access to subnets or VLANs for data transport within the campus.
- Servers or workstations holding or transferring sensitive data must be connected to switch ports to eliminate the possibility of data being viewed by unauthorized means.

3. Network access restrictions

Access to critical data must be protected and restricted to authorized people. The integrity of the University network is vital to assuring access. Viruses, worms, and other harmful software must be curtailed. Bandwidth must be controlled. Procedures to control access to the campus network are listed.

- All devices connecting to the university network must be registered by Ethernet address with the IP manager or by username and password with an authentication server.
- The *Position Statement on Connecting Devices to the Campus Network* specifies authority for connecting network devices.
- The *Position Statement on Connecting Ethernet Wireless Devices to the Campus Network* specifies guidelines for wireless access points.
- Access to wiring closets should be restricted to authorized telecommunications and networking staff. Whenever possible, the wiring closets should be physically separated from storage rooms or other areas accessible by other personnel.
- Core network equipment must be located in a secure room. Access to the room must be restricted.
- Bandwidth limits may be applied to certain areas of the campus or to certain applications in order to prevent denial of service due to excessive traffic.
- Applications known to cause harm to campus resources may be restricted.
- The networking staff regularly monitors logs and graphs to detect evidence of system compromise. The evaluation and purchase of an Intrusion Prevention System (IPS) is a top priority.
- All users must abide by the *Statement of Acceptable Use of Computing Resources*.

4. Protection of network infrastructure

Networking staff must abide by acceptable security practices to ensure the safety and access to devices in the network infrastructure.

- Network devices, such as routers, switches, firewalls, and authentication servers, should use SSL authentication whenever possible.
- Vendor patches and updates should be applied to network devices in a timely manner.
- Network managers should abide by good security practices for configurations such as those specified in the SANS Top 20 lists and security practices recommended by vendors.
- Core network equipment must be located in a room with good environmental controls.
- Core network equipment must be protected by an Uninterruptible Power Supply (UPS) to provide a graceful shutdown time to servers in event of a power outage. Data loss could result if servers are not shut down properly.
- Management access to network equipment used in network segments containing secure customer information should be encrypted.

- Replacements for network equipment used in network segments containing secure customer information must be available by in-house spares or by replacement contracts with vendors.
 - Configurations and network addresses must be removed from equipment that is to be discontinued for any reason.
5. In cases of suspected computer compromise, the networking staff will co-operate with authorized investigations. If the networking staff becomes aware of security weaknesses or of potential compromises, they will take action and notify appropriate offices in the University. The *Procedure for Requests for Computer System Activity Information* specifies lines of responsibility in case of suspected cases of unauthorized access. All information related to suspected security incidents must remain confidential.
6. Training networking staff
- Networking staff must abide by the campus *Statement of Acceptable Use of Computing Resources*.
 - The networking staff attends security seminars to keep up to date with security practices.
 - The networking staff monitors security web sites and reads security related books and magazines on a regular basis.
 - The networking staff must keep up to date with security best practices for networking equipment.
7. Testing key controls

The networking group is responsible to conduct an annual security test by engaging outside people with security training to test perimeters of secure segments.

8. Contracting with Service Providers

Customer information should never be provided to networking service providers. On rare occasions the networking staff contracts with service providers for troubleshooting or installation of new equipment. In those cases, service providers may be provided short-term usernames and passwords to accomplish the task. In some cases, access to the campus addressing scheme and network layout may be necessary. Only the minimal amount of information to accomplish the task should be provided. The service provider at the completion of an installation or troubleshooting assignment should destroy university network information.

The networking staff will work with University departments in establishing secure network guidelines for data transmission.

9. Review of Security Procedures

Networking staff will review vulnerabilities and security procedures on an annual basis. Modifications to the security plan will be made based on an analysis of evolving risks and best methods to contain those risks. The results will be reported to the Chief Information Officer.

APPENDIX A

UW Oshkosh E-Services

Reference Document: *E-Services Consulting Report - UW-Oshkosh – January, 2002*

X -- all items that are available electronically, * Available but needs revision to make more accessible
 Priority rating scale -- A (first priority), B (secondary) and C (later)

<i>General Services</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
Map of campus	X	X	
Virtual Tour of Campus	X	X	
Daily campus news			B
National news clips			C
Local weather	X	X	
Directories – student, faculty, organizations, administrators	X	X	
List of academic and administrative units	X	X	
E-mail information			A
Event schedule (theater, music, athletic, academic)	X	X	
Daily event listing	X	X	
Purchase tickets for events		X	B
Obtain parking permit			B
Crime Statistics	X	X	
FAQs			A

<i>Services to Campus Community</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
Information about Child Care	X	X	
Information about Credit Union	X	X	
Conduct Credit Union Transactions		X	C
Calendar function to build meetings		X	B
Testing Center Information	X	X	
Schedule test at Testing Center			B
Information about International Activities		X	A
Apply for international activity		X	B
Services for those with Disabilities		X*	A
Library – Renew item	X	X	
Library – Interlibrary loan	X	X	
Library--Universal Borrowing		X	B
Library--electronic databases, journals, and e-books	X	X	
Library--electronic reference and referral (InfoDesk)	X	X	
Library--digital exhibits (Archives)	X	X	
Library--check personal circulation records	X	X	
Services to Retired Faculty/Staff			B

<i>Services to Students</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
GENERAL			
Personal course schedule	X	X	

Register organization with campus			B
Schedule meeting room			B
Register team for intramurals	X	X	
Make Health Center Appointment			B
Answers to health questions			B
Get information about personal financial aid and bill			A
Pay tuition		X	A
Apply for financial aid		X	A
Schedule career advising appointment			B
Access Resume Expert System	X	X	
Listing of student jobs on campus	X	X	
Apply for job			B
Submit time sheets		X	B
ACADEMIC			
Schedule meeting with advisor			A
Add a class		X	A
Drop a class		X	A
Change major			A
Review schedule of classes	X	X	
Register for classes		X	A
Access grade report	X	X	
Access degree audit		X	A
Request and pay for transcript		X*	A
Apply for graduation			A
Obtain books			B
Select room for Residence Life			B
Select meal plan			B
Info about Collaborative Research program			B
Access to student organizations	X	X	

<i>Services to Alumni</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
Access to newsletters		X	B
Request and pay for transcripts		X*	A
Career networking activities	X	X	
Searchable alumni directory			C
Pay membership fee			B
Make donation			B
Permanent e-mail forwarding		X(Oct'06)	C

<i>Services to Potential Students</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
PROSPECTIVE STUDENTS			
Review curriculum that is available	X*	X*	

Obtain data about major	X*	X*	
Obtain data about success of students with that major			A
Recreational activities available	X	X	
Student life experience (culture, athletics, Valley tour)	X	X	
Schedule visit appointment	X	X	
Register for Preview Day	X	X	
Access to chat room hosted by academic units		X*	B
Access to events calendar – reserve tickets	X	X	
APPLICANTS			
Complete application process including payment		X	A
Check status of application			A
Review status of admissions process (Res life, Financial Aid)			A
Register for Odyssey day			A
Automated reminders of due dates			B
Welcome information from academic unit			A
Transfer student credit evaluation and degree audit			B

<i>Services to Faculty & Staff</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
HUMAN RESOURCES			
Review personal HR Information (sick days, 403B, pay, etc)			B
Change fringe benefit declarations			B
Submit leave accounting monthly report			B
Affirmative Action Form			B
Status of searches			B
Submit Classified Reclassification Form			C
Submit PTF			C
ACADEMIC			
Library – Electronic Reserves	X	X	
Schedule a room			B
Order textbooks	X	X	
Reserve media services			B
Using class list E-mail students in classes		X(D2L)	A
Information about Faculty Development	X	X	
Track status of application to Faculty Development			B
Information on External Grants available			B

<i>Services to Faculty & Staff</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
ADMINISTRATIVE			
Submit Travel Expense Report			B
Get materials published (make application, submit, monitor)			C
Purchase supplies	X	X	
Track purchase requisition and delivery	X	X	
Submit materials to Document Services		X	B
Track materials submitted to Document Services			B
Track mail services			C
Review inventory and submit order to Central Stores			B
Reserve Fleet Vehicle			B
Submit and track work order	X	X	
Submit work authorization		X	B
Process payment to individual			B

Transaction transfer request			B
Process Direct payment			B

<i>Educational Services</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
Delivery of course content	X	X	
Threaded discussion – asynchronous	X	X	
Chat room – synchronous	X	X	
Assessment of student performance	X	X	
Provide students with individual performance information	X	X	
Students provide faculty with input on class		X(D2L)	B
Credentialing of students who do not come to campus			B
Students develop and maintain portfolio of work			A
Students access summary of grades in course	X	X	

<i>Services to Community</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
List of resources available	X*	X*	
Contact faculty, staff, student	X	X	
View non-credit courses	X	X	
Register and pay for non credit courses			B
Access Academic Units' Services (e.g. Health Place, Tax Ast)			B
Wisconsin Family Business Forum	X	X	
Access Head Start	X	X	
Access CCDET	X*	X*	
Access Gruenhagen Conference Center	X	X	
Access Center for Community Partnerships	X	X	
Access Sports Camps	X	X	

<i>Services to Vendors</i>	<i>2002</i>	<i>2008</i>	<i>Priority</i>
Check status of accounts payable			C
Inventory status			C
Automatic reorder			C
Current RFPs			C
Status of RFPs			C

APPENDIX B

INFORMATION TECHNOLOGY ASSESSMENT PLAN

University of Wisconsin Oshkosh

July 24, 2008

Vision: To be recognized as one of the leading technology enabled campuses within the University of Wisconsin System.

Mission: Provide cutting-edge instructional technology and leading-edge business-information systems connected to a robust network supported by help desk and training services and skilled technicians delivering operations and programming support.

- Principles and guidelines for assessment:
 - Standardized survey instruments will be used for Information Technology (IT) assessments across institutions.
 - Where feasible, hard data (timing and measurements) will be used to assess the performance of computer systems and the overall network.
 - Customer services such as the Help Desk and Office Productivity Training will use a continuous improvement assessment instrument.
 - General IT surveys will be randomly distributed in General Computer Access (GCA) labs each semester.
- Goal: Provide IT resources and services that meet or exceed student, faculty, and staff needs and expectations.
 - Measures: Campus IT surveys.
 - Student surveys:
 - General Access Computer (GCA) labs will randomly survey 50 students during the final three weeks of each semester.
 - Each GCA lab will survey at least 10 students. If necessary, lab consultants will randomly ask students if they will take a few minutes to complete a survey.
 - Addendum B-1 – Student survey.
 - Faculty and Staff surveys:
 - Participants in the following groups will be offered the opportunity to annually complete or distribute an IT survey to a colleague each spring semester.
 - Academic Computing Users Group (ACUG),
 - Student Information System (SIS) Implementation Team,
 - Project Prioritization Working Group.
 - Addendum B-2 – Faculty and Staff survey
- Goal: Ensure the IT resources, services, and expenditures are in line with comparable institutions.
 - Measures: Standardized survey instruments.
 - Core Data Service Survey provides reliable data about information technology practices, structures, and expenditures at comparable institutions for benchmarking purposes.
 - UW Oshkosh participated in its first Core Data Service survey in 2006.
 - EDUCAUSE Center for Applied Research (ECAR) Survey of Students and Information Technology in Higher Education:
 - UW Oshkosh participated in 2004, 2005, 2006, 2007, and 2008.
- Goal: Ensure the IT infrastructure that supports the University meets campus needs.

- Measures: Hard data (timing and measurements).
- Network Infrastructure:
 - Packet loss will be used to assess video services for Distance Education classes. IT staff will take periodic timings of the network delay and jitter to assess packet loss.
 - Application response times will be used to measure the service level of remote services such as the Desire2Learn Course Management System (CMS) hosted remotely in Madison, Wisconsin. IT staff will use network timing of packet acknowledgements to assess network response times.
 - Bandwidth usage will be measured, prioritized, and limited where necessary to ensure priority services for academic and administrative functions over gaming and legal entertainment media downloading in Residence Halls.
 - Traffic profiling will be used for intrusion detection, limiting malicious attacks over the network, and illegal downloading.
- Core IT Systems: Measure availability for the following systems:
 - Web site:
 - E-mail:
 - Student Information System:
 - Network storage system:
 - LDAP server:
 - SQL database server:
- Goal: Ensure the services provided by IT are delivered in a timely and professional manner.
 - Measures:
 - Help Desk:
 - All completed help desk tickets will be surveyed. The survey will focus on the handling of the reported problem and level of satisfaction.
 - Training:
 - Scheduled IT training classes will include a brief follow-up survey.
 - The surveys will focus on the quality and usefulness of the instruction to the participants' job responsibilities.
 - Media Services:
 - Monitor server logs, job tracking records of production functions and usage statistics of facilities.

Data Analysis: Survey results will be analyzed at the end of the Spring Semester. Within IT, Business Operations and Training will perform the analysis. Survey results will be summarized and include a brief narrative explaining and/or highlighting key indicators and results.

Sharing Results: Survey results will be included in the IT Assessment Plan of the following year's IT Operational Plan. The results will specifically be shared with the Academic Computing Users Group (ACUG), the Student Information System Implementation Team, the Project Prioritization Working Group, and the Enterprise Executive Committee.

Decision-making: The bench mark for success is 85% of survey results are either Agree/Strongly Agree, or Average/Good/Excellent. The bench mark for Core IT Systems will be three or fewer outages in any Fiscal Year and no outage lasting more than 4 hours. The only exceptions are planned upgrades with announced outage schedules. For areas where results fall below the bench

marks, recommended actions will be presented and discussed with the groups identified above. Recommendations will be summarized

Addendum B-1 (Student Survey)

**University of Wisconsin Oshkosh
Information Technology Survey
Spring Semester 2009**

Indicate your class standing (e.g. freshman, sophomore, junior, senior, graduate) _____
 Major: _____ Minor: _____ Undecided: ____

Indicate your opinion by placing a check (✓) in the appropriate column. If you have no opinion, please leave the item blank.

		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1.	Learning is enhanced in courses that use technology extensively (e.g. class notes online, computer simulations, PowerPoint presentations, streaming audio/video, etc.)				
2.	I am more engaged in courses that use technology.				
3.	The technology available in the classrooms meets my expectations.				
4.	General access computer labs have computers available when I need to use them.				
5.	I receive adequate training on the use of Information Technology that I am required to use in my courses.				
6.	Learning is enhanced in courses that use the Desire2Learn course management system.				
7.	I am aware of the Student Technology Fee and how the funds are used to support student access to technology.				
8.	I am given adequate computer storage for all my course work.				
9.	A University portal would enhance my academic experience.				
10.	The technology for sharing electronic materials among students is adequate.				

Comments:

Indicate your opinion by placing a check (✓) in the appropriate column. If you have no opinion, please leave the item blank.

		<i>Inadequate</i>	<i>Poor</i>	<i>Average</i>	<i>Good</i>	<i>Excellent</i>
11.	Indicate your perception of the quality of the IT infrastructure based on availability and reliability of services that you use.					
12.	Rate the IT staff communication with you when you report problems.					
13.	Rate your overall impression of the Information Technology services at UW Oshkosh.					
14.	Rate the information you have received about planned IT service outages.					
15.	Rate your awareness of IT services at peer institutions.					
16.	How effective is the Student Technology Fee in providing technology to students.					
17.	Rate the effectiveness of the IT efforts in creating better public awareness of what we do.					
18.	Rate the effectiveness of IT efforts to improve wireless service on Campus.					

Comments:

Addendum B-2 (Faculty and Staff Survey)

University of Wisconsin Oshkosh
Information Technology Survey
Spring Semester 2009

Indicate your department affiliation _____ Check one: _____ Faculty
 _____ Instructional Academic Staff _____ Classified Staff _____ Academic Staff

Indicate your opinion by placing a check (✓) in the appropriate column. If you have no opinion, please leave the item blank.

		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1.	I am aware of the IT resources available on campus.				
2.	The software on my computer is adequate for my needs.				
3.	Information Technology resources are used effectively to support the University's mission and goals.				
4.	IT staff are knowledgeable and professional.				
5.	There is a sense of shared interests within Information Technology.				
6.	The Academic Computing Users Group (ACUG) provides an effective forum for communication among faculty, staff, students, and the administration.				
7.	In general, the IT directors provide effective leadership & advocacy.				
8.	I can reach the CIO and IT Directors directly if I have an IT-related problem.				
9.	There is adequate faculty & staff involvement in IT decisions.				
10.	Student Information System (SIS) Implementation Team, the Project Prioritization Working Group, and the Enterprise Executive Committee (EEC) provide effective forums for approving projects and determining priorities.				

Comments:

Indicate your opinion by placing a check (✓) in the appropriate column. If you have no opinion, please leave the item blank.

		<i>Inadequate</i>	<i>Poor</i>	<i>Average</i>	<i>Good</i>	<i>Excellent</i>
11.	Indicate your perception of the quality of the IT infrastructure based on availability and reliability of services that you use.					
12.	Rate the IT staff communication with you when you report problems.					
13.	Rate your overall impression of the Information Technology services at UW Oshkosh.					
14.	Rate the information you have received about planned IT service outages.					
15.	Rate your awareness of IT services at peer institutions.					
16.	Rate the Information Technology support for academic research.					
17.	Rate the effectiveness of the IT efforts in creating better public awareness of what we do.					
18.	Rate the effectiveness of IT efforts to improve wireless service on Campus.					

Comments:

APPENDIX C

Networking Group Risk Assessment

June 25, 2007

This security plan describes the policies and procedures developed by the networking group under Telecommunications, Networking and Administrative Computing to protect critical and sensitive University electronic data.¹

Under the Gramm-Leach-Bliley Act, the Safeguards Rule, enforced by the Federal Trade Commission, financial institutions are required to have a written security plan to protect the confidentiality and integrity of personal consumer information. Universities are determined to be financial institutions in the safeguarding of personal identifying information of its customers, including students, prospective students, alumni, employees, and donors. The NACUBO Advisory Report 2003-01 summarizes the regulations and the responsibilities of colleges and universities. Other federal laws such as HIPAA and FERPA specify regulations to protect the privacy of personal information. In addition to federally mandated protections, the University may determine other data to be critical to its mission. This plan is designed to help protect any critical data stored on University computers or transported across the University Ethernet network. While the networking group works primarily with electronic data, University departments must consider “all the physical facilities and electronic facilities [used] to access, collect, store, use, transmit, protect, or dispose of customer information.”¹

The outline of this plan is based on recommendations in the *Interagency Guidelines Establishing Information Security Standards: Small-Entity Compliance Guide* published in December 2005 by the Federal Reserve Board. Guidelines in the *Small-Entity Compliance Guide* are broadly applicable to any institution to be in compliance with the Safeguards Rule of GLBA.

Risk Assessment - Networking Response

A. Identify threats.

Identify Vulnerabilities to Critical Data Assets

- Unauthorized access to servers or workstations
 - Due to system compromise
 - Due to weak authentication
 - Threats originating from off campus

¹ *Interagency Guidelines Establishing Information Security Standards: Small-Entity Compliance Guide*, Federal Reserve Board, December 2005, page 4.

- Threats originating from student areas
- Threats originating from other areas on campus
- Interception of data during transmission
- Loss of access to data
 - Disaster
 - Electrical outage
 - Network equipment failure
 - Unauthorized access to network physical facilities
 - Unauthorized access to network equipment
 - Network unavailability due to high bandwidth
 - Network unavailability due to denial of service

B. Assess the likelihood and potential damage of identified threats.

The *Educause/Internet2 Security Task Force Risk Assessment Framework* is used as a guide to identify critical assets.

Critical - 1st Level

(Protecting personal identifying information protected by law.

Protect network segments, networks, and network equipment used to hold or transport Critical Level 1 data.)

Note: Network segments and networks must be identified as departments complete their risk assessment analyses.

Known 1st Level Critical network components

- Peoplesoft Student Administration protected network
- Student Health server segment
- Nursing clinic server network segments
- PeopleSoft Shared Financial System network communications
- University Dining cash register network segments
- Dempsey 7 computer room
- Core network equipment
- Network security devices
- Core network resources (e.g., DHCP servers, LDAP servers, DNS servers)
- Telecommunications wiring closets

To be reviewed

- Alumni and donor network segments
- Any network segments with servers processing or holding social security numbers or other personally identifying information
- Any network segments with servers processing or holding credit card information

- Any network segments holding personnel information or faculty contract information
- Any network segments holding legal contracts
- Any network segments holding detailed physical plant details
- Any network segments holding 1st Level Critical information for access to physical or virtual resources
- Any network communications of 1st Level Critical data with vendors

Critical – 2nd Level

(Moderate level of sensitivity – The University has a contractual obligation to protect the data.)

Known 2nd Level Critical network components

- Testing Services private network segment
- Geography Department GIS lab
- Center for Community Partnership

To be reviewed

- Network segments with staff workstations holding small subsets of 1st Level Critical data
- Network segments holding faculty research
- Network segments with servers holding 2nd Level Critical data
- Polk Library resources and contracts
- Network segments holding financial information that does not include personally identifiable information
- Network segments holding contractual information not in the 1st Level Critical category
- Network segments holding software licenses

Critical – 3rd Level

Requiring some protection.

Starting list of known 3rd Level Critical network segments

- E-mail
- Networking equipment (e.g., switches, security devices, wireless access points)

To be reviewed

- Network segments holding personal directory and contact information

- University published public data
- Campus maps

C. Assess sufficiency of policies and procedures.

The *Interagency Guidelines Establishing Information Security Standards: Small-Entity Compliance Guide* provides guidelines for any financial agency to abide by the Safeguards Rule of GLBA. According to the *Compliance Guide*, each of the following numbered items must be considered. Bulleted items are responses from the networking group.

1. Access controls on customer information systems, including controls to authenticate and permit access only to authorized individuals and controls to prevent employees from providing customer information to unauthorized individuals who may seek to obtain this information through fraudulent means.
 - All devices connecting to the university network are registered. Access is granted either by DHCP to known Ethernet addresses or by username and password authentication. This procedure provides tracking and accountability. It does not prevent unauthorized users from connecting devices to the network.
 - Laptop computers, wireless devices, and remote access software will continue on the network. Sensitive segments must be isolated and protected at their perimeter within the larger campus network.
 - Personal workstations are fairly open and permissive. E-mail, insecure web browsing, and unnecessary software should be restricted from workstations on network segments containing 1st Level Critical data.
 - Hardware firewalls, software firewalls, and access control lists help to protect network segments containing sensitive information. Network segments containing 1st Level Critical information should be protected by a firewall. Firewalls are most effective when rules are appropriately secure. The campus must formally assess where firewalls should be installed.
 - The *Position Statement on Connecting Devices to the Campus Network* helps manage which network devices are allowed to connect.
 - The *Position Statement on Connecting Ethernet Wireless Devices to the Campus Network* helps manage which wireless devices can connect to the campus.
 - Network segments are separated to contain traffic within groups. Residence Hall traffic intended for the Internet is separated from the rest of the campus.
 - The Packeteer PacketShaper can control some applications that might be harmful. The PacketShaper identifies applications regardless of the port. The PacketShaper is not the equivalent to an Intrusion Detection System (IDS), however.
 - Access to network devices, such as routers, switches, firewalls, and wireless access points, is permitted only to authorized personnel. Vendor patches

and updates are applied to network equipment on a timely basis. Security practices for configuration and access are followed.

- Network service providers are rarely granted access to network equipment for a short time for troubleshooting or when under contract for consulting. Network service providers have no access to data.
2. Access restrictions at physical locations containing customer information, such as buildings, computer facilities, and records storage facilities to permit access only to authorized individuals.
 - Wiring closets remain locked. Only authorized personnel have access. Some wiring closets located in janitorial rooms may require cages.
 - Critical servers and core networking equipment are housed in a physically secured and environmentally controlled computer room.
 3. Encryption of electronic customer information, including while in transit or in storage on networks or systems to which unauthorized individuals may have access.
 - A Virtual Private Network (VPN) concentrator encrypts traffic from remote offices and home computers. This service should be expanded.
 - Networking staff use Secure Socket Layer (SSL) encryption to access network equipment whenever SSL is available.
 4. Procedures designed to ensure that customer information system modifications are consistent with the institution's information security program.
 - Authorized network staff oversee configuration of security on firewalls, authentication devices, and the PacketShaper.
 5. Dual control procedures, segregation of duties, and employee background checks for employees with responsibilities for or access to customer information.
 - The networking staff does not have access to customer information.
 6. Monitoring systems and procedures to detect actual and attempted attacks on or intrusions into customer information systems.
 - Firewalls logs act as a weak form of IDS. Traffic monitoring tools help identify patterns that might indicate an intrusion. The University is investigating an Intrusion Prevention System (IPS).
 7. Response programs that specify actions to be taken when the institution suspects or detects that unauthorized individuals have gained access to customer

information systems, including appropriate reports to regulatory and law enforcement agencies.

- The *Procedure for Requests for Computer System Activity Information* specifies lines of responsibility in case of suspected cases of unauthorized access.
- Information related to security incidents is considered confidential. Only personnel with a need to know are contacted.
- Any network logs or activity reports will be preserved for the duration of the security incident.

8. Measures to protect against destruction, loss, or damage of customer information due to potential environmental hazards, such as fire and water damage or technological failures.

- Core network equipment is housed in an environmentally controlled room.
- An Uninterruptible Power Supply (UPS) unit provides power to core equipment for a short amount of time until servers can be brought down gracefully to avoid loss of data. A new room-size UPS and building generator will be installed in the Fall of 2007 to protect all network equipment, security equipment, and servers located in the Dempsey computer room.
- Maintenance contracts and an inventory of spare equipment will provide access to data in case of technological failures of network equipment.

9. Procedures for disposal of network equipment.

- Network information such as University IP addresses and configurations are cleared from network equipment before the equipment is disposed of or traded in.
- In cases where the network device cannot be accessed to clear the configuration, the device is intentionally damaged in such a manner as to make it inaccessible.

Notes and References

<http://www.nacubo.org/x2152.xml>

NACUBO GLB Act resource page. Includes sample security policies from several institutions of higher education.

<http://www.nacubo.org/documents/news/2003-01.pdf>

NACUBO Advisory Report summarizing responsibilities of higher education to abide by FTC rules in safeguarding customer information.

<http://www.nacubo.org/x325.xml>

Describes legal requirements for higher education to comply with GLBA and FTC.

<http://www.ftc.gov/privacy/privacyinitiatives/safeguards.html>

The Gramm-Leach-Bliley Act: The Safeguards Rule

Under the Gramm-Leach-Bliley Act, The Safeguards Rule, enforced by the Federal Trade Commission, financial institutions are required to have a security plan to protect the confidentiality and integrity of personal consumer information.

Click on “Laws and Rules.” In the following page under “Safeguards Rule” click on “Final Rule” to read or save the PDF file “Standards for Insuring the Security, Confidentiality, Integrity and Protection of Customer Records and Information, 16 C.F.R., Part 314”

<http://www.federalreserve.gov/boarddocs/press/bcreg/2005/20051214/default.htm>

Click on “Attachment.pdf” to read or save the “Interagency Guidelines Establishing Information Security Standards: Small-Entity Compliance Guide”

New easier to read guide published in December 2005 includes examples of how to protect customer information.

<http://www.educause.edu/LibraryDetailPage/666?ID=CSD4380>

Educause/Internet2 Security Task Force
Risk Assessment Framework

http://www.oit.gatech.edu/inside_oit/policies_and_plans/overview.cfm

http://www.oit.gatech.edu/inside_oit/policies_and_plans/policies/GLBA_Information_Security_Program.cfm

Georgia Tech GLBA Information Security Program

<http://www.acs.uwosh.edu/documentation/acceptable-use.html>

University of Wisconsin Oshkosh *Statement of Acceptable Use of Computing Resources*

<http://www.uwosh.edu/it/devices.html>

University of Wisconsin Oshkosh *Position Statement on Connecting Devices to the Campus Network*

<http://www.uwosh.edu/it/wireless.html>

University of Wisconsin Oshkosh *Position Statement on Connecting Ethernet Wireless Devices to the Campus Network*

<http://www.uwosh.edu/it/activity.html>

University of Wisconsin Oshkosh *Procedure for Request for Computer System Activity Information*

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Educause/Internet2 Security Task Force
Risk Assessment Framework

http://www.oit.gatech.edu/inside_oit/policies_and_plans/overview.cfm

http://www.oit.gatech.edu/inside_oit/policies_and_plans/policies/GLBA_Information_Security_Program.cfm

Georgia Tech GLBA Information Security Program

<http://www.acs.uwosh.edu/documentation/acceptable-use.html>

University of Wisconsin Oshkosh *Statement of Acceptable Use of Computing Resources*

<http://www.uwosh.edu/it/devices.html>

University of Wisconsin Oshkosh *Position Statement on Connecting Devices to the Campus Network*

<http://www.uwosh.edu/it/wireless.html>

University of Wisconsin Oshkosh *Position Statement on Connecting Ethernet Wireless Devices to the Campus Network*

<http://www.uwosh.edu/it/activity.html>

University of Wisconsin Oshkosh *Procedure for Request for Computer System Activity Information*