
2015
enhancing
LEARNING

keeping UP
staying
SAFE

TECH
PLAN
going
GREEN

Prepared by the 2009/2010 Technology Council

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Tech Plan 2015

University of Wisconsin-Green Bay Technology Plan 2015

Table of Contents

Executive Summary.....	3
Vision, Purpose, Process, Principles.....	4
Technology Planning Cycles.....	5
Tech Plan 2010 Outcomes.....	6
Future Technology Needs Assessment.....	7
Technology Objectives through 2015.....	12
Snapshot of UWGB Technology Environment in 2010.....	17

Tech Plan 2015

Executive Summary

Vision. Technology is used by faculty, staff and students to enhance learning, support the preservation, creation and transmission of knowledge, and, support institutional management functions.

Purpose The purpose of the technology plan is to guide the ongoing development and evolution of technology in support of the university's mission and strategic directions. Technology planning is a collaborative effort to ensure that resources are used wisely to achieve equitable access to information technology for the good of the whole university community. Beyond equitable access, the technology plan should be aligned with university strategic directions.

Process The Technology Council is responsible for developing the plan with input from all constituencies and for monitoring annual progress. A five year planning horizon has been effective for setting strategic directions and managing change to minimize disruption. The five year IT strategic plan is complemented by annual IT action plans prepared by the IS Division.

Guiding Principles: UW-Green Bay is committed to adopting common tools that ensure resources are used wisely to achieve equitable access to information technology for all students, faculty and staff. The University is committed to safeguarding all personally identifiable information we obtain about individuals. Whether computer applications are hosted on campus or hosted externally, the data must be secure from unauthorized access. A central core database managed by data custodians ensures data integrity, data security and protection of privacy. When considering acquisition or implementation of a new technology the university evaluates the benefits in relation to the total cost of ownership. Technology should be used to reduce costs and improve services wherever possible. When considering acquisition or implementation of new technology it is also important to evaluate the carbon impact on the campus. Technologies that reduce energy consumption and conserve resources should be deployed whenever possible.

Tech Plan 2015: The objectives for Tech Plan 2015 were developed using information gathered from the faculty, staff and students, and researching technology trends in higher education. The objectives have been organized under four broad themes:

- Enhancing learning - supporting the core educational mission of the university through the use of technology
- Keeping up - maintaining the UWGB technology environment and keeping up with advancing technology in higher education to remain competitive.
- Staying Safe - maintaining a safe and secure technology environment for students, faculty and staff to engage in their studies and work.
- Going Green - follows the lead of the university in its efforts to be more environmentally respectful and energy efficient and to use resources wisely.

Tech Plan 2015

Vision, Purpose, Process, Principles

Vision:

Technology is used by faculty, staff and students to enhance learning, support the preservation, creation and transmission of knowledge, and, support institutional management functions.

Purpose and Process:

The purpose of the technology plan is to guide the ongoing development and evolution of technology in support of the university's mission and strategic directions. Technology planning is a collaborative effort to ensure that resources are used wisely to achieve equitable access to information technology for the good of the whole university community. Beyond equitable access, the technology plan should be aligned with university strategic directions. The Technology Council is responsible for developing the plan with input from all constituencies and for monitoring progress. A five year planning horizon has been effective for setting strategic directions and managing change to minimize disruption. The five year IT strategic plan is complemented by annual IT action plans prepared and implemented by the IS Division.

Principles:

Adherence to standards. UW-Green Bay is committed to adopting common tools that ensure resources are used wisely to achieve equitable access to information technology for all students, faculty and staff. Adherence to these standards benefits the university community in the following ways:

- Reduces the complexity of support and improves service to users;
- Enables a shared institutional knowledge base that facilitates collaboration;
- Allows users to access their content and applications from anywhere at anytime
- Reduces overhead costs and minimizes down-time for repair;
- Improves the overall reliability, security and availability of software and data;
- Reduces the total cost of ownership

Security of data, applications and systems. The University is committed to safeguarding all personally identifiable information we obtain about individuals. Whether computer applications are hosted on campus or hosted externally, the data must be secure from unauthorized access.

Use of a central core database. A central core database managed by data custodians ensures data integrity, data security and protection of privacy. The core database shares data appropriately and securely with other systems to ensure efficiency and reliability, improve services, reduce staff workload and enhance communication within the university community.

Lifecycle planning and cost savings. When considering acquisition or implementation of a new technology the university evaluates the benefits in relation to the total cost of ownership. Technology should be used to reduce costs and improve services wherever possible. Start-up costs associated with a particular information technology as well as continuing costs, including upgrades and technology replacement costs, should be incorporated into the planning and budgeting for technology projects. Retiring IT systems that no longer produce value for the university is as important as adding new technologies.

Green IT. When considering acquisition or implementation of new technology it is important to evaluate the carbon impact on the campus. Technologies that reduce energy consumption and conserve resources should be deployed whenever possible.

Tech Plan 2015

Technology Planning Cycles

The first comprehensive technology plan, *Technology for the 21st Century: a Framework for Planning* was developed by the Technology Council with input from faculty, staff and students through surveys and open forums. The comprehensive plan was approved by the Chancellor's Resource and Planning Council in April 1998. Subsequently, the Information Services Division developed the *IT 2000 Action Plan* with specific objectives for the period 1998 through 2000 focusing on four strategic directions:

- Replacing and reconfiguring the campus network system
- Replacing the library management system
- Upgrading the database management system for student information
- Automating critical business functions

All the objectives of *IT 2000* were completed by fall 2000 and a new plan, *IT 2005 Action Plan* was developed for 2001-2005 with the following strategic directions:

- Supporting the use of technology in teaching
- Keeping current on server and desktop hardware, software and operating systems
- Implementing PeopleSoft Student Information and Shared Financial Systems
- Planning for web services, distance education, networking and document imaging

As the 2005 IT plan was nearing completion the Technology Council began to focus on creating the next comprehensive IT plan to guide future technology development. The Council gathered input on current and future technology needs from all constituent groups through web surveys, focus groups, governance groups and university-wide forums. This process produced the *UWGB Technology Plan 2010*, which included 40 objectives organized under three broad themes:

- Faculty/Staff Investment: helping people make better use of technology
- Technology Investment: maintaining and enhancing usability of current systems
- Technology Investment: new initiatives

During the 2008/2009 academic year the Technology Council recognized that many of the objectives of the 2010 plan had been accomplished (see page 6) and began to prepare for developing the next comprehensive technology plan. The Council gathered input through web surveys of the students, faculty, and staff; and, the CIO visited with faculty units, student governance groups and administrative units to gather additional information. The meetings with departments proved to be extremely valuable in understanding the current and future technology needs. The ideas gathered during this process are included in the Future Technology Needs Assessment section of this plan on pages 7-11. Tech Plan 2015 includes 56 objectives organized under four broad themes: **Enhancing Learning, Keeping Up, Staying Safe, and Going Green.**

Tech Plan 2015

Tech Plan 2010 Outcomes: Technology Development 2005-2010

The following list represents IT projects completed in the past five years in support of Tech Plan 2010 and in response to opportunities and changes in university priorities.

In Support of Learning & Effective Use of Technology

- Provided support to faculty and students for D2L course management system.
- Upgraded and expanded hi-tech classrooms (projectors, DVDs, doc cameras)
- Implemented electronic course reserves, MetaLib and SFX in the Library.
- Upgraded Voyager library management system.
- Implemented OCLC WorldCat to improve access to scholarly resources.
- Implemented remote access to computer labs and employee desk top computers.
- Expanded training opportunities for faculty, staff and students.
- Revised CIT web site for ease of use and increased content.
- Implemented wiki and blogging software.
- Designed and created multi-media labs and project rooms with dual-boot iMacs.
- Implemented video streaming for athletic events.

Maintaining, Protecting and Enhancing Usability of Current Systems

- Managed university-wide desktop/laptop inventory and upgrades.
- Maintained and expanded server infrastructure.
- Redesigned the university web site and implemented emergency web site.
- Upgraded Peoplesoft/Oracle Student information system including self-service, electronic billing with parent options, and electronic payments.
- Upgraded email and calendar to Exchange 2007.
- Upgraded MS Office to 2007 and MAC OS to 10.5 (postponed Vista upgrade)
- Upgraded university browser to IE version 7
- Upgraded campus and residential life network backbone
- Implemented server host intrusion protection system
- Implemented OSX server for MAC and new imaging software for Windows PCs

New Initiatives

- Implemented electronic imaging (ImageNow)
- Implemented document management system (GB Share)
- Implemented classroom interactive response systems (clickers)
- Coordinated voice, data and audio/visual technologies for renovation/expansion of Kress Events Center, Lab Sciences Building, Residence Life, Cofrin Library, Instructional Services building, Student Services building, and Student Union
- Deployed wireless networking in student commons areas across campus
- Provided technical support for door access system in classrooms, residence halls
- Implemented secondary domain accounts /DNS/DHCP server and data backup center in alternate campus location.
- Installed security camera system for Union and Public Safety
- Implemented common ticketing system for the university
- Implemented WebDAV for remote access to network shares
- Implemented university-wide web survey tool (Qualtrics)

Tech Plan 2015

Future Technology Needs Assessment

In preparing for Tech Plan 2015 the Technology Council gathered information from faculty, staff and students on their degree of satisfaction with current technology services and their technology needs for the future. Survey data and focus group meetings showed a high degree of satisfaction with the current technology environment and services and thus a major theme of the 2015 plan is “Keeping Up.” This means that the IS Division will strive to maintain operational excellence, technology tools, reliability and accessibility of our network and applications. Survey data and focus groups also revealed needs and interests that should be addressed in the next five year plan. This section of the plan includes a bulleted list of the ideas gathered during the needs assessment process and is followed by a narrative which organizes these ideas under the broad categories of Academic Support, Information and Transaction Systems, and Infrastructure.

Ideas generated from web surveys and focus groups

- Business Process Efficiencies
 - E-payments
 - Electronic self-scheduling (i.e. advising, campus visits)
 - PeopleSoft/Oracle HCM system
 - Workflow tools, e-forms and digital signatures
 - Web content management system
- Classrooms & Teaching
 - Increase the number of classrooms with technology
 - Keep teaching styles in mind when designing classroom, i.e., adjustable height desks
 - Add technology MAC 303
 - Add technology to studios and rehearsal rooms
 - Dual boot Macs in high-tech classrooms
 - Laptop and Tablet PC hookups in high tech classrooms
 - Lecture capture and podcasting
 - Online course evaluations
 - Scanning of ID cards when turning in tests (including D2L courses) – to prove identity
 - TurnItIn.com subscription (*checks for plagiarism*)
 - Smart boards for language teaching
 - Clicker set to use on a one-time basis
 - E-textbooks
 - Email notification to faculty when a grade changes in SIS
 - Student photos added to class rosters in SIS
 - D2L support for “after” hours (*Learn@UW help desk offers after hours help, but it may not always meet the need*)
 - White board in chat room environment in D2L (*piloting Elluminate spring 2010*)

Tech Plan 2015

Electronic File storage

- Digital archiving of course materials and other documents
- Digital asset management (images and video)
- Electronic filing systems for faculty
- Electronic records management
- ePortfolios for faculty files and student work
- Expand use of GBShare
- Expand use of ImageNow
- Storage space for music and art image files
- Web-based image library
- Computers
 - Bar-coding for computer inventory
 - Laptop checkout for use within the library
 - Wireless printing for laptop users (*completed fall 2009*)
- Green IT
 - Reduce printing and paper consumption
 - Turn off computers when not in use
 - Electronic forms and workflow
- Labs & studios
 - Put in an additional GAC Mac lab in Studio Arts
 - Journalism lab needed
 - Subnet design for science labs
 - Keycard system access for studio rooms
- Library
 - Google-like search interface for library resources
 - More e-journals for the library
 - More project rooms in the library (Mac and PC)
 - E-books
- Research support
 - Assistance with research statistical needs (SPSS support)
 - Geospatial database (ARC GIS) – more central support
 - Human subject pool software (SONA)
 - More storage space for research data needs
- Training & Support
 - Faculty web page design and support
 - Instant messenger support
 - Instructional design support for online and traditional classes
 - IT security best practices
 - Share best practices for use of GB Share
 - Support Services available during non-traditional hours for adult learners
 - Social media and video
- Wireless expansion to
 - Classrooms
 - Faculty/staff offices
 - Housing

Tech Plan 2015

Academic Support Needs

e-learning/Distributed Teaching and Learning: Student and faculty interest in online learning opportunities has continued to grow over the past five years. Across the UW System usage of online learning systems has grown from 16,000 enrollments in 1999 to over 750,000 enrollments in 2009. At UW-Green Bay about 60% of faculty and 90% of students are using online learning tools. The university is well positioned to support the expansion of online learning through the Learning Technology Center staff using the Desire2Learn course management system. A number of published research studies indicate that fully online learning is as good as traditional classroom learning, and, blended learning (a combination of face-to-face and online) is superior to either just online or just traditional face-to-face instruction. Instructional design support and technical support for faculty are critical to the expansion of online learning.

Instructional Technology: Technologies that support learning inside and outside the classroom continue to evolve. Interactive response systems (clickers) enhance student engagement and are being used in one-third of UWGB's classes. Electronic portfolios are integral to the teacher education program and are also used in other disciplines as well as Career Services.

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

- keeping up with the literature
- 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

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

- expanding the wireless network
- increasing the laptop connections
- exploring a "laptop" initiative
- continuing technology training
- supporting mobile applications
- exploring e-textbooks

Information & Transaction System Needs

Information & Administrative Systems: The University has more than a dozen enterprise 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 UWGB community of users. Ideally, information about an individual should be stored in the central university database (Person Registry) with other applications using the data and updating it as appropriate. The central university database will be updated with personnel information from the HRS system managed by UW System. Local address

Tech Plan 2015

information and system privileges will be maintained in the central university database. New information/administrative systems that could be considered are:

- library systems: resource discovery
- electronic records management
- digital collections & assets
- archiving digital content

Web Services/Web-based systems: The university 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. The Technology Plan should address:

- Web content management systems
- E-commerce
- video
- workflow notification

Infrastructure Needs

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 university web site and its various information systems, where appropriate. Issues that must be addressed over the next five years include:

- Campus Fiber Plant: The current multimode fiber optic cable (installed in 1988) cannot carry data at speeds above one gigabit at distances greater than 250 meters. The fiber plant needs to be upgraded with single mode fiber optic cable that can transmit higher data rates at greater distances. The higher capacity will be required to provide network speeds needed to support current and new applications across the campus network.
- Wireless data network services throughout campus, including Residence Life areas.

Two-Way Radios: The Federal Communications Commission has passed a rule which requires all commercial radios to operate within a narrowband channel (12.5 kilohertz (KHz)) beginning January 1st, 2013. The purpose of this measure is to provide additional channels for Public Safety and private land mobile radio communications use. Reducing the channel bandwidth by half (from 25KHz to 12.5 KHz) will open up more channels in these already congested radio spectrum areas. This change affects a majority of the ninety eight (98) radios currently in use by the UW-Green Bay campus. Some of the radios presently in use are capable of reprogramming to operate in a narrowband channel. Fifty four (54) of our campus radios are not compliant with the new rules and will need to be replaced. In addition, the University also owns three (3) repeaters, 1 each for Public Safety, Operations, and Residence Life, and a paging system. A repeater receives a small signal from a handheld or mobile radio and amplifies and retransmits that signal so that it can be heard over a larger area such as the entire campus complex. The Residence Life repeater is the only one capable of reprogramming to become compliant with the new narrowband rules. A needs assessment is currently underway to determine campus options and estimate costs for the project. The “2-Way Radio Working Group” is chaired by Bill Hubbard and Randy Christopherson and includes representatives from the affected areas: Athletics/Kress Event Center, Facilities Management, Public Safety, Residence Life, T.E.A.M.,

Tech Plan 2015

University Theater, University Union and the Weidner Center. Funding needs to be identified to support the infrastructure (repeaters and pagers) as well as mobile/handheld radios used by the various departments in order to keep up with this required technical mandate. Radio communication provides a vital link in our campus day to day activities and is indispensable for multipoint communication throughout the campus.

Redundant Data Center: All servers are currently housed in a single data center in the Instructional Services building. If this area were damaged due to some disaster, there is currently no alternative area on campus that could be used as a backup data center. A redundant data center with adequate space, power, air conditioning, physical security, and network connectivity should be developed. Without such an area readily available, recovery from a disaster could take at least a month during which time the university would be without key systems including the student information system, electronic mail, network file storage, and network access to services located beyond campus.

Security and Identity Management: Making information available over the network increases access and efficiency, but also adds the risk of unauthorized access to or inappropriate use of information. The Technology Plan should address the following issues:

- Authentication/authorization policies and architecture (identity management)
- Privacy protection: personal identifiable information
- Regulatory issues: FERPA, HIPAA, GLB, Patriot Act, DMCA, PCI DSS (Payment Card Industry Data Security Standards).
- Illegal file sharing and downloading

Tech Plan 2015

Technology Objectives through 2015

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 institutional management functions. The objectives for Tech Plan 2015 were developed using information gathered from the faculty, staff and students, and researching technology trends in higher education. The objectives have been organized under four broad themes:

- Enhancing learning
- Keeping up
- Staying Safe
- Going Green

The first theme focuses on supporting the core educational mission of the university through the use of technology. The second theme focuses on maintaining the UWGB technology environment and keeping up with advancing technology in higher education to remain competitive. The third theme focuses on maintaining a safe and secure technology environment for students, faculty and staff to engage in their studies and work. The fourth theme follows the lead of the university in its efforts to be more environmentally respectful and energy efficient and to use resources wisely.

1. **Enhancing learning**. This theme focuses on supporting the core educational mission of the university through the use of technology.
 - 1.1 Provide faculty development opportunities for implementing technology in the classroom/curriculum that is adaptive to student learning styles (e.g. video, online discussion, group collaboration, text messaging, simulations and games, social networking, etc.)
 - 1.2 Convert additional classrooms to full technology installations to support the growing use of technology for teaching.
 - 1.3 Improve the reliability and usability of classroom technology by standardizing instructional technology installations/interfaces to improve ease of use and support.
 - 1.4 Assist faculty in using technology tools to detect plagiarism.
 - 1.5 Provide education on ethics of copyright and fair use.
 - 1.6 Provide support for the use of electronic portfolios in the curriculum.
 - 1.7 Support faculty experimentation with instructional technology inside and outside the classroom environment, including delivering instruction to mobile devices.

Tech Plan 2015

- 1.8 Provide opportunities for keeping up with technology practices in the field, including conducting research in the digital environment.
- 1.9 Provide opportunities for communicating and collaborating with colleagues across distance and time through file sharing, critiques, discussion groups, etc.
- 1.10 Expand lecture capture technology to support teaching and program delivery.
- 1.11 Explore quality control, standards and best practices for online courses using Quality Matters as a rubric.
- 1.12 Increase the quantity, quality and scope of digital video and audio equipment available to faculty and students and provide assistance in digitizing content (text, music, video, images) for curricular purposes.
- 1.13 Develop a model for a Learning Commons on campus.
- 1.14 Increase technology assistance to students, including the creation of a Student Technology Assistance Center.
- 1.15 Use web based conferencing to facilitate online meetings, student/faculty/staff interactions and collaboration among work groups.
- 1.16 Explore a laptop initiative.

Tech Plan 2015

2. **Keeping up. Maintaining and enhancing usability of current systems.** Keeping our technology up-to-date is a high priority of the university. These objectives focus on technical upgrades and enhancements that either save people time, improve access or improve usability. This section also includes objectives that align our technology development with trends in higher education to remain competitive.
 - 2.1 Maintain 2-3 year upgrade cycle for desktop software.
 - 2.2 Maintain 3-4 year replacement cycle for desktop hardware.
 - 2.3 Maintain classroom equipment, including repair or replacement of failing and outdated equipment, as well as evaluating new classroom technology.
 - 2.4 Build infrastructure to integrate commonly used, centrally hosted applications on the core software image.
 - 2.5 Expand and upgrade wireless data networking technology
 - 2.6 Expand e-commerce applications to improve service to constituents and to increase opportunities for revenue growth.
 - 2.7 Expand the virtual student center to include customer relations management software (Talisma.)
 - 2.8 Participate in UW wide research discovery pilots and assist in recommending a solution for an integrated search interface with google-like ease.
 - 2.9 Replace fifty four campus radios to comply with Federal Communications Commission rules, which go into effect January 1, 2013.
 - 2.10 Develop best practices for electronic records management including email, documents and transaction systems and provide training for university personnel.
 - 2.11 Develop an online transaction-based computer inventory management system.
 - 2.12 Develop an online computer and peripheral ordering system.
 - 2.13 Implement Microsoft's SCCM as a Windows desktop management and reporting tool for imaging, updates, inventory, and application virtualization.
 - 2.14 Evaluate VOIP contract for potential cost savings and telephone service improvement.

Tech Plan 2015

3. **Staying Safe.** The third theme focuses on maintaining a safe and secure technology environment for students, faculty and staff to engage in their studies and work.
 - 3.1 Maintain currency on all university core and administrative software applications.
 - 3.2 Maintain university network server hardware and software.
 - 3.3 Implement security protocols and policies.
 - 3.4 Implement Person Registry and Identity Management systems
 - 3.5 Discourage illegal file sharing and downloading of copyrighted material.
 - 3.6 Upgrade fiber optic cable plan with single mode fiber optic cabling that is capable of carrying higher bandwidth network services.
 - 3.7 Upgrade backbone and ResNet on a 5 year cycle.
 - 3.8 Engage in pandemic planning to ensure continuity of instruction in the event normal access to campus facilities are disrupted.
 - 3.9 Secure space and facility to serve as a redundant data center in the event that the primary data center is damaged or destroyed.
 - 3.10 Implement and use the Identity Finder software package to scan, identify, and reduce the locations for storage of personal identifiable information (PII.)
 - 3.11 Implement a user awareness program for PII data security.
 - 3.12 Continue to review compliance with the Payment Card Industry Data Security Standards (PCI DSS)
 - 3.13 Investigate and consider implementation of laptop and/or desktop hard drive encryption for workstations that process PII data.
 - 3.14 Investigate and consider implementation of multi-factor authentication systems for workstations and users that process PII data.
 - 3.15 Review all implementations of off-site, cloud based applications for proper data security and control practices.
 - 3.16 Investigate and consider implementation of IP V6 protocols on the network including switches, servers, workstations, and for Internet access.

Tech Plan 2015

4. **Going Green.** The university has identified “Going Green” as a high priority and has engaged in efforts to be more environmentally respectful and energy efficient. The IS Division has already made strides in implementing Green IT. Throughout the university workstations are automatically powered down at night and on weekends; CRT monitors have been replaced with LCD monitors; computers are purchased with high efficiency power supplies; software installations are done during off peak hours at lower rates. In the data center a successful virtualization project has reduced the number of physical servers from 80 to 55 and the data center temperature has been increased from 68 to 71 degrees. These and other efforts have already reduced power consumption by 20 percent. There is more than can be done. The following objectives will help support the university’s goal of Going Green.
 - 4.1 Continue virtualization of servers and data storage systems to reduce energy consumption in data center
 - 4.2 Continue development of desktop virtualization
 - 4.3 Develop best practices for reducing printing and toner consumption
 - 4.4 Implement Web content management system to support electronic forms and workflow.
 - 4.5 Determine digital asset management solution for photo archives
 - 4.6 Explore migration to e-textbook environment.
 - 4.7 Increase the number of hi-tech conference/meeting rooms to encourage paperless meetings.
 - 4.8 Promote and support the increased use of compressed video systems such as video and web conferencing to save time, travel, and reduce energy consumption
 - 4.9 Increase use of network enabled control of instructional technology systems to improve efficiency of support and reduce energy consumption by monitoring usage.
 - 4.10 Continue exploration of online course evaluations to reduce the amount of paper and supplies consumed by the current system.

Tech Plan 2015

Snapshot of Technology Environment in 2010

An environmental scan of university technology reveals a complex array of systems and services that fall into three broad categories: infrastructure, instructional technology, and, information /transaction systems.

Infrastructure: UWGB's philosophy of end-to-end networking 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 time trying to get the technology to work. Computing and Information Technology (CIT) staff manage the network topology, operating systems, and desktop applications. Before deploying any new technology CIT staff conduct extensive market research, technical evaluation, development and testing of software to ensure that all systems integrate and function in a highly reliable manner.

Technology Infrastructure includes:

- Switched and Routed Network Backbone including:
 - ◆ Multi-mode fiber connections from a central location to all campus buildings
 - ◆ Single mode fiber connections to three campus buildings
 - ◆ Multiple, resilient gigabit ethernet service to all campus buildings
 - ◆ Gigabit switched ethernet service to the desktop
 - ◆ Core network data switches with advanced layer 2, 3, and 4 capabilities
 - ◆ Multiple, resilient gigabit ethernet service to all servers
 - ◆ Multiple virtual local area networks (VLAN's) to optimize network traffic and maintain network security.
 - ◆ 3300 active network data jacks in the campus network
 - ◆ 2200 active network data jacks in the residence life network
 - ◆ Network service for approximately 600 miscellaneous devices including video surveillance cameras, environmental monitoring equipment, door access equipment, point of sale devices, classroom automation systems, and uninterruptable power supply monitoring.
 - ◆ Monitoring software for network and server monitoring
- Approximately 50 wireless access points providing wireless coverage to most student congregation areas and large lecture halls. Overall building coverage is about 40%.
- Virtualized and non-virtualized server infrastructure including the following instances:
 - ◆ 8 File, print, and web servers
 - ◆ 12 Electronic mail servers
 - ◆ 5 File system backup servers
 - ◆ 3 Core desktop software support servers
 - ◆ 3 Directory servers
 - ◆ 8 Network support servers
 - ◆ 10 Peoplesoft Student Information Servers servers
 - ◆ 21 Departmental application servers
 - ◆ 3 Firewall servers
 - ◆ 14 miscellaneous test and development servers
 - ◆ 6 VMWare servers

Tech Plan 2015

- ◆ 1 VMWare management server
- Approximately fifty percent of server instances are virtualized on six physical servers running VMWare V4.0.
- Approximately 45 physical servers are comprised of Hewlett Packard DL380 G5 (35 units) and Gateway 9520T servers (10 units)
- Most servers are running either Windows 2003 or Windows 2008 operating system.
- I-SCSI Storage area network (SAN) for use with virtualized environments with a usable capacity of approximately 11 terabytes that provides replicated storage between the primary data center and backup data room.
- Primary data center of approximately 2000 square feet
- Backup data room of approximately 100 square feet
- Checkpoint Firewall providing:
 - ◆ Advanced stateful packet filtering
 - ◆ Bandwidth management
 - ◆ Virtual Private Network (VPN) services
 - ◆ Intrusion detection/prevention capabilities
- Network printing services for approximately 250 printers
- Security infrastructure including:
 - ◆ Desktop, server, and electronic mail anti-virus, anti-spam, anti-malware products
 - ◆ Server and desktop intrusion prevention products
 - ◆ Automatic rollout of anti-virus/anti-malware software updates to desktop PC's and servers
 - ◆ Vulnerability scanning capabilities
 - ◆ Personal identifiable information (PII) search tool

Desktop Support includes:

- Windows or Macintosh computers replaced every three to four years
- Standard image for core software*
- Anti-virus, intrusion prevention, and basic malware detection/removal
- Automated software update and patching
- Help Desk services
- Training on operating systems and applications

*Core software: **Windows PCs** -- Office 2007 (Word, Excel, PowerPoint, Access), Outlook 2007 email and calendar, Internet Explorer (V7.0) McAfee Virus Scan (V8.7) MS Picture Manager, MS Publisher, MS Expression Web, MS Visual Studio 2005 .NET, MS Visio 2007, MS Project 2007, SAS, SPSS, Maple, MS MediaPlayer, QuickTime, Powerterm, Winzip. **Macintosh** – Office 2008 (Word, Excel, PowerPoint), Entourage 2008, Firefox, Safari, MacLink-Plus.

Tech Plan 2015

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

Classroom technology - UW-Green Bay has 89 computer/video projection systems across campus. Of these, 66 are installed in hi-tech classrooms and labs. Most of these classrooms also have room control systems (AMX/EXTRON), video and sound systems for VHS, CD and DVD media; slide projectors; and, high resolution document cameras for displaying three dimensional objects, book/journal pages, or transparencies. Every effort is made to assign hi-tech classrooms to faculty who use instructional technology in their teaching and to make the room operations as consistent and simple as possible. Because of high demand, The Media Services department delivers instructional technology to classrooms as needed to mitigate the shortage of hi-tech classrooms and provides technical support to all users. Equipment is maintained by Media Services and Telecom/Engineering. Three distance education classrooms provide facilities for connectivity with remote sites to share content and instruction and facilitate meetings and seminars via compressed video over internet protocol and web conferences. Budget constraints make meeting via distance education technology a viable and cost effective solution to travel. Demand for these services is increasing.

Student Computer Labs - In the mid 1990's UW System established a goal for campuses to provide one computer for every 25 students in a general access computing lab that would be open to all students a minimum of 80 hours per week. UWGB has exceeded this goal and currently provides one computer for every 17 students through two general access computing labs. There are 292 student workstations in the IS computer lab, which is open 100 hours per week, and 62 workstations in the Library, which is open 87.5 hours per week. The IS general access computing lab also has four student project rooms each equipped with one PC and one dual-boot iMac, a scanner, and video editing equipment and software. The Library has ten student project rooms equipped with a standard student lab PC. The university also maintains 15 specialized instructional computer labs that are tied to academic disciplines and open to students enrolled in those disciplines 20 to 40 hours per week. The Computer Science program has its own lab with key card access for students majoring in Computer Science. The Technology Council provides oversight on the creation and decommissioning of specialized labs. Workstations in these labs are funded by the Lab/Classroom Modernization Fund.

Library technology - The Library provides extensive instructional technology support with more than 170 electronic databases, 68,500 e-journals, 8600 e-books and 43,300 cataloged web pages. The library delivers this content to the desktop along with services such as e-reserves, e-reference, desktop document delivery and digitized archive collections. Through consortiums with UW libraries, private academic libraries and public libraries, UWGB students, faculty and staff have access to the collective resources of Wisconsin and beyond. Librarians organize digital resources on the web to assist students, faculty and staff with their research and also provide individual research assistance in person, over the phone, through e-mail, and online chat sessions.

Tech Plan 2015

Faculty support - The Learning Technology Center (LTC) exists to help faculty and staff integrate technology in the teaching and learning process. To this end, it acts as a clearing house for instructional technology information and training opportunities, showcases new technologies, and assists faculty and staff in developing technology expertise. LTC staff provide pedagogical and technical advice on technologies such as digital imaging, web page development, presentation software, electronic discussions, scanning, courseware and multimedia software. The LTC offers primary support for the Desire2Learn course management system, which is used by more than 50% of the faculty and students. The Media Services department provides faculty and staff with classroom technology orientation, instruction and ongoing support as well as digital and analog audio/video equipment to meet instructor's needs. Collaboration between Media Services and the LTC makes video and audio integration effective and easy for our faculty.

Information and transaction systems: The university has implemented numerous information and transaction systems since 1998 transforming the way the faculty, staff and students engage in educational and business processes. Listed below are the major systems implemented along with a brief explanation of their purpose and use.

- Website development & redesign 1998, 2002, 2004, 2008
- Blackboard transaction system 1998, 2009
- Shared Financial System 1999, 2005
- Library Voyager System 1999, 2000, 2009
- Library E-Reserves 2001
- Library Universal Borrowing 2002
- Library SFX 2004, 2005
- Library MetaLib 2004, 2007
- Library ILLiad 2003, 2005
- Library Universal Borrower 2002
- TMA – Facilities Maintenance 2002, 2009
- SimplexGrinnel – Fire & Security 2002
- Student Information System 2002, 2003, 2009
- Residential Management System 2003, 2008
- Event Management Systems 2003, 2009
- Kronos TimeKeeping 2003
- QuickBooks – Receivable & Billing 2003
- ImageNow document imaging 2003, 2008
- Desire2Learn course management 2004
- On-Line Campus Keys Program 2004
- FleetAnywhere – Fleet Management 2005
- Persona Door Access system 2006
- GBShare – document mgmt system 2007
- Remote Lab & Remote Desktop 2007
- Audience view campus ticketing 2007
- OnSSI Video surveillance system 2009

Tech Plan 2015

- Netsupport Notify system 2009
- E2Campus Emergency Notification 2009
- Maxient Judicial Affairs system 2009
- Person Registry Implementation underway
- PeopleSoft – Human Resources Implementation underway

The university website is a key information and transaction system serving prospective students, current students, faculty, staff, alumni, parents, and the community. University segments represented on the website include academics, admissions, advancement, athletics, business, centers, events, governance, human resources, institutes, library, news, outreach, research, student affairs, and student organizations. The site is part of UW-Green Bay's emergency communication system and is the backbone of many information and transaction systems. Managed by Web Services, the site is also supported and maintained by Infrastructure & Networking Systems and Management Information Systems, along with Business & Finance, Marketing & University Communications, Outreach & Adult Access, and Student Affairs.

The Blackboard transaction system serves the university community as the Passport ID system. Managed by the University Union, the Blackboard system provides financial capabilities for Union point of sale equipment and vending machines as well as university identification cards. The Passport ID card is used throughout the university to purchase meals, merchandise in the Phoenix Bookstore, produce copies in the Library, print from any campus computer lab and interfaces with Peoplesoft SIS and Persona door access for Residence Life and selected campus buildings. Blackboard had a major upgrade in 2009 moving to Windows / Oracle system from Unix / Informix.

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 UWGB workstations. Access to the transaction system and the WISDM data mart allows UWGB staff to directly monitor their budgets.

The Library Voyager System is a web-based system administered by Cofrin library staff on a shared platform located in Madison. This system provides an online catalog, check-out services, acquisitions, Universal Borrowing and a media services module. The Voyager system facilitates discovery of print collections as well as online full text resources, electronic reserves and external databases. Universal Borrowing allows students and faculty to request materials from other UW libraries and have them delivered here for their use. A significant upgrade to the user interface was completed in 2009, which improved the usability of the system and there will be a patch upgrade summer 2010.

The Library SFX System is another web-based system administered by Cofrin library staff on a shared platform located in Madison. It provides a way for researchers to see the options for obtaining materials, either full-text online, or in print at the library or by making a request to obtain it from another library.

Tech Plan 2015

The Library MetaLib System is also a web-based system administered by Cofrin library staff on a shared platform located in Madison. It is a federated or cross-search tool that groups databases together so they can be searched simultaneously. It also provides a way to list all the licensed library resources alphabetically and by subject for ease of use.

The Library ILLiad System is a client-server system administered by Cofrin library staff on a shared server located in Virginia. The structure follows a SaaS model in that the data is housed and all backups and upgrades are handled by the vendor, Atlas. This system is used for interlibrary loan, an efficient way to obtain books, videos, journals articles and other items from libraries throughout the country.

TMA – Facilities Maintenance is a full featured software product used by Facilities Management personnel. The TMA system provides inventory tracking for the operations staff, scheduling of equipment, preventive maintenance for physical plant staff, and management of work orders for Maintenance, Operations, the University Union and Residence Life. TMA also provides cost and billing analysis for all Facilities Management areas.

SimplexGrinnel Security and Fire system is installed throughout campus. The Simplex security software is managed by the Public Safety staff. Simplex software and hardware provide secure access into buildings, classrooms and elevators with card access and automatic door locking.

The Student Information System (PeopleSoft SIS) represents the central core database for our students, faculty and staff. This web-based system is housed in the campus data center and includes the following modules: Admissions, Advising, Financial Aid, Records/Registration and Student Financials. Faculty use this system for viewing class rosters, advising students, managing grades, and submitting final grades. Students have access to their class schedule, transcript, degree progress, financial aid awards and their integrated student financial account. UW-Green Bay is one of 13 UW institutions using PeopleSoft SIS.

The Residential Management System (RMS) is a client-based system for managing housing applications and room assignments for the residence halls. Student housing charges are produced and managed in the RMS system and then exported to the PeopleSoft SIS integrated student financial account. The RMS system is jointly managed by Residence Life staff and the Information Services Division. RMS interfaces with many other university applications such as Peoplesoft SIS, Blackboard and Persona door access.

The Event Management System (EMS) manages university facilities usage, room reservations and presents a web-based Campus Calendar of Events. Managed by central reservations in the University Union, the EMS system includes both client and web based systems. The web-based system functions as the Campus Calendar of Events and provides self-service to selected users for reserving campus space. In addition, the EMS system tracks room usage, rental charges and provides a reporting system to track current facility usage and project future space needs.

Kronos TimeKeeping system is a web-based application managed by the UW Processing Center in Madison. The application is used by all UW insitutions as a means of electronically managing student employees' time. In 2003, the web version of Kronos became available. UW-Green Bay

Tech Plan 2015

was an early adopter of the Kronos system as we had been using the client version in the University Union since 2000. We have successfully implemented the web version of Kronos, with approximately 90% of the student employees using this automated time keeping system.

QuickBooks Accounts Receivable and Billing application is used to administer and process all invoices. The Controller's Office functionally manages the QuickBooks system, produces and mails all invoices. University departments and student organizations use QuickBooks to enter the charges and billing information.

ImageNow is the standard for document imaging systems and is used for storage of student records, vendor forms and numerous personnel documents. In conjunction with ImageNow, WebNow is used for accounts payable invoice review/payment approval.

Desire2Learn (D2L) course management system supports fully web-based courses as well as providing an opportunity for faculty to enhance their face-to-face classes with interactive online learning opportunities. 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.

On-Line Key Request application was an initiative focused on streamlining and building efficiencies into the key request process. The overall design of the system provides a web-based request form that is supported by an intricate database. The campus community gains access to the Key Request form through the Public Safety website and all necessary key request approvals are automatically routed via Outlook email messages. The database is managed by the Public Safety staff and key production and chargebacks are handled by the Facilities Management staff.

FleetAnywhere is a fleet management database maintained by the Wisconsin Department of Administration. One component of this system—FleetWeb—is used by the campus Safety & Risk Management to confirm and regularly monitor minimum driving criteria for individuals authorized to operate motorized vehicles for University business purposes.

Persona Door Access system is used to control elevator and door electronic access. This system utilizes the university ID card to provide centralized control for on-line and off-line locks throughout campus, including Residence Life.

GBShare (Xyθος) is a web-based document management system that serves as a file sharing and collaboration environment for UW-Green Bay students, faculty, and staff. GBShare is especially valuable for committees, departments, courses, and group projects that require sharing documents among individuals including those at other institutions.

Remote Lab offers students access to a campus lab computer from any location on or off campus via an Internet connection. A pool of PCs can be logged into from either Windows or Macintosh clients any time of the day or night, giving students access to core General Access lab software, their personal network drive (drive M), and course shares. In addition, PCs in select specialty labs are available from 5 p.m. to 7 a.m.

Tech Plan 2015

Remote Desktop is a web-based system that allows faculty and staff to wake up and log into their campus Windows PC from any location via an Internet connection. Faculty and staff can access their university software, their personal network shares (drive M), department shares, and office printers from home or on the road as if they were in their office.

AudienceView Ticketing System provides electronic ticketing services for all university events, excluding men's basketball.

OnSSI Video surveillance system was deployed for centralized surveillance camera control and video storage. The system is currently used in the Union, Phoenix Bookstore, Weidner Center, and Bursar's office.

Netsupport Notify system was deployed by CIT staff to allow PC and Macintosh workstation notification for infrastructure outages and problems.

GB Alert Emergency Text Messaging was deployed by Public Safety to enable text, voice, and email emergency notifications for campus emergencies and outages.

MBS Student Financial Aid module will allow Phoenix Bookstore to charge textbook purchases directly to a student's SIS account. This will allow payments for books to be withheld directly from incoming financial aid or be paid for when tuition payments are due. The go-live date is tentatively set for June 2010 summer session.

Maxient Judicial Affairs system was implemented to provide tracking of student conduct cases by the Dean of Students and Residence Life areas.

PeopleSoft Human Resources System (HRS) planning began in 2008, implementation began in fall 2009, with anticipated roll out in 2011/12.

The Person Registry is a repository of student, faculty and staff data for UWGB. The Person Registry will store data that needs to be available on campus for a variety of information systems, including: Student Information System (SIS), Residential Management System (RMS) housing application, network account management, the printed and online university directory, Voyager library system, Raiser's Edge Advancement Office system, Blackboard ID card system, Outlook distribution lists, and other systems. An automated process will load the Person Registry with data from the HR IADS system (HRS in 2011) for employees and Peoplesoft SIS for students. When completed the Person Registry will improve Identity Management, data accuracy and data integrity and position us well for the PeopleSoft Human Resources System (HRS) implementation. The Person Registry will be completed in 2010.