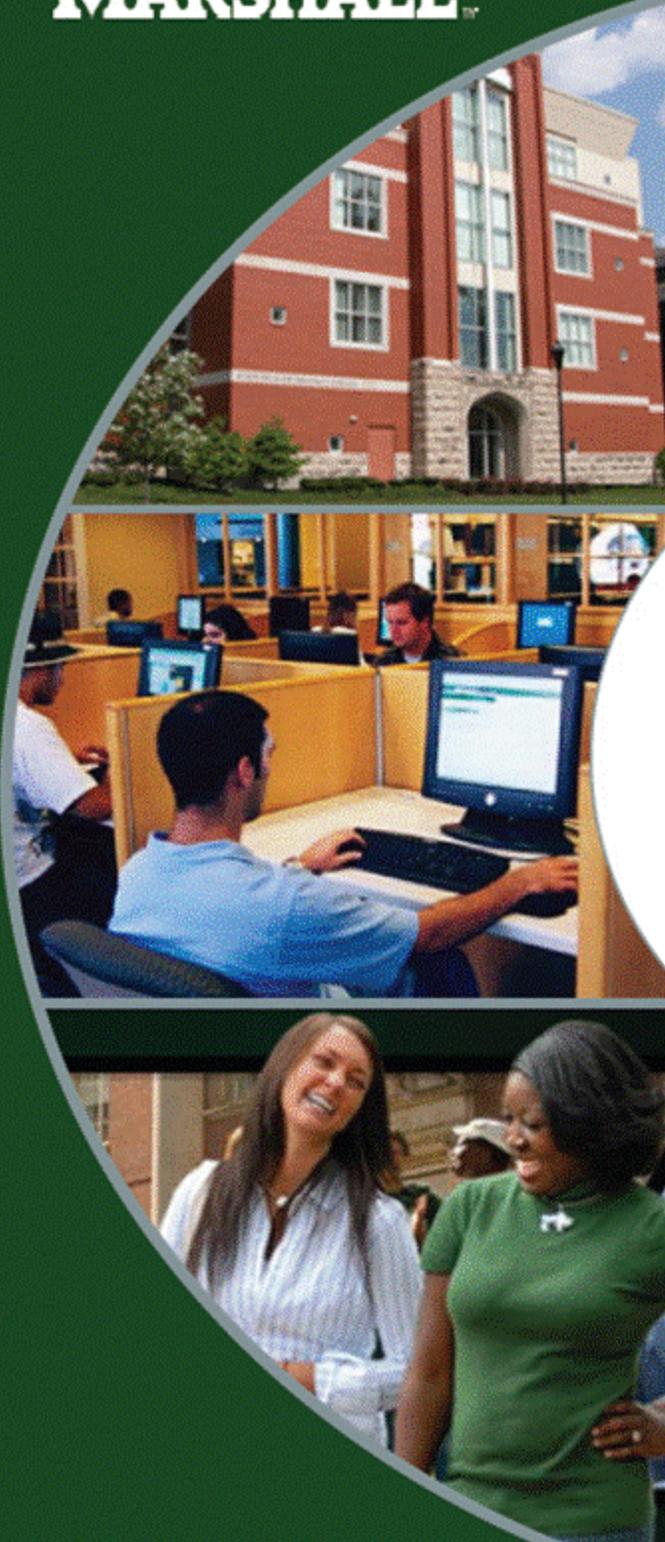We Are...
MARSHALL

YEAR 2012

Marshall University

Board of Governors

Presentation

Division of
Information Technology

INFORMATION TECHNOLOGY OVERVIEW

Mission & Vision

The Information Technology Organization at Marshall University provides and creates an evolving, innovative and integrated information technology environment that empowers, enhances and engages the academic, support and research activities of the University by delivering effective IT products and services that help students, faculty, and staff to achieve Marshall University goals.

All of the Marshall University campuses have technology embedded into all aspects of planning and infrastructure. Technological innovation provides all of our patrons with collaborative, interactive and productivity tools enabling them to take a proactive role in their education, research and jobs. Marshall University has developed an IT strategy to aggressively pursue financial efficiencies in teaching and learning, advanced teaching and research tools, administrative systems, student services, e-learning, intra-campus and intercampus network infrastructure while also improving quality and access.

Our vision is to serve all campuses in a unified cost effective manner. The transformation is a result of a comprehensive approach built on careful analysis of internal and external factors, development of an appropriate administrative/funding model, building top-to-bottom buy in, expansion of instructional technology, a solid technology infrastructure and effective promotion.

As our work and lives become increasingly digital, Marshall University continues to be at the forefront of leading developments in information technology. In continuing to take the steps that keep MU solidly in a position of leadership in applying information technology to teaching, research, and lifelong learning, we accomplish many other goals. We equip our faculty with the resources to compete in a worldwide arena for the most competitive grant opportunities. We provide our staff with the tools to make their work efficient and effective. We equip our graduates to compete with the best of their peers in their chosen professions. We lead in shaping the future landscape of information technology. In so doing, we augment the profile of Marshall University and contribute to the economic wellbeing of those we serve. You will find a 90-second IT video at this link (http://www.youtube.com/watch?v=qWd-30uzrT4).

Organization

Over the last few years, Information Technology instituted a major reorganization plan that focused on two principles that emphasize quality service and improved security. The vision is to reorganize around the provision of information resources and services and to provide a sustainable core of resources and services at the highest level of quality. Increasing the flexibility and mobility of staff among delivery teams will allow streamlined operations. Overall, our new structure and client-oriented approach enabled us to respond with more flexibility to needs and innovations, provide

better service to the campus, and increase the benefits derived from each investment. The new structure is designed to maximize our investment in these areas by delivering each aspect of the resources and technology as a service. Focusing on the provision of services will allow the merger of similar, sometimes redundant operations allowing for the movement of individuals and skills to gain efficiencies (common service desks, etc.). Expected cost efficiencies will be reinvested to support budget shortfall.

Information Technology Organizational Plan

- Retain Existing Staff
- Reorganize to Better Serve
- New Learning Spaces
- Optimize Existing IT Dollars
- Increase Security and Capacity

The Chief Information Officer (CIO) serves as the strategic leader for information technology at the University. One of the main CIO roles is the development and maintenance of a strategic plan that supports the institutional mission and university strategic plan. Key to the role is providing the leadership, vision and support for constituents in their use of technology. By assessing both the current and future technology resources and directions, the CIO charts a sustainable course that supports the goals and needs of faculty, staff, students and other members of the University community.
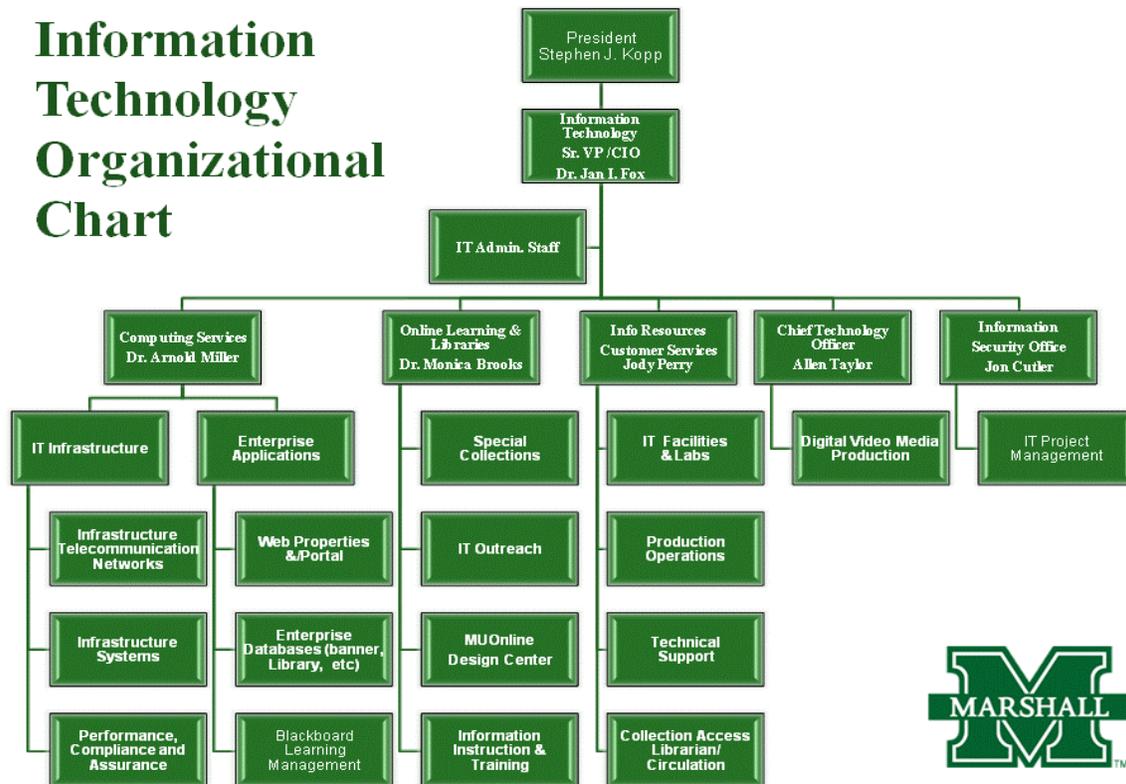
Institutions of higher education increasingly face serious security threats to the integrity of their information systems and sensitive data. Our ability to proactively address these threats is often constrained by limited resources. Justifying and allocating security resources to implement best practices in this area has resulted in significantly greater effectiveness and efficiency in combating security threats in a sustainable manner. The most important step that Marshall University has taken to strengthen our security efforts was the appointment of a certified chief information security officer (CISO). The designation of a CISO with a strong mandate has resulted in a one-stop-shop for copyright infringement, online release of confidential information, cyber-threats and campus cyber security training. Institutions like Ohio University states that it has had to invest more than $8 million in new institution dollars due to the potential release of confidential information.

Since 1996, the Division of Information Technology has included University Libraries. Three years ago, we consolidated the Dean of Libraries position with the Online Learning and Teaching area. This area now provides academic and training support including embedded Librarians in university courses, the Faculty Development Center for Online Teaching and Learning and the Technology Training. We also have moved the traditional library support staff to the Information Resources and Customer Support area. This move unified all of our Information Service Desk access entry points. This group also provides support to all the centrally supported public labs and Technology Enhanced Classrooms (TECI) across our campuses.

Last year we created a customer satisfaction, feedback, and trouble reporting site called "Be Herd" (http://www.marshall.edu/it/beherd). Anyone can voice compliments, concerns, questions, and

suggestions or report a technology problem or issue. Each message received is reviewed by IT administration, and each incident is logged and assigned to a technician for resolution. We believe that the net result of these changes will be the development of an organizational information resources and services culture that as, a core value, can create an information environment that is safe, protected, robust, sustainable and responsive for the entire University community.

Information Technology Organizational Chart

President
Stephen J. Kopp

Information Technology
Sr. VP / CIO
Dr. Jan I. Fox

IT Admin. Staff

Computing Services
Dr. Arnold Miller

Online Learning & Libraries
Dr. Monica Brooks

Info Resources Customer Services
Jody Perry

Chief Technology Officer
Allen Taylor

Information Security Office
Jon Cutler

IT Infrastructure

Enterprise Applications

Special Collections

IT Facilities & Labs

Digital Video Media Production

IT Project Management

Infrastructure Telecommunication Networks

Web Properties &/Portal

IT Outreach

Production Operations

Infrastructure Systems

Enterprise Databases (banner, Library, etc)

MUOnline Design Center

Technical Support

Performance, Compliance and Assurance

Blackboard Learning Management

Information Instruction & Training

Collection Access Librarian/ Circulation

MARSHALL

STAFFING

Information Technology has 125 full-time positions distributed in the following units: IT Administration (Senior Vice President for Information Technology/Chief Information Officer – CIO, Chief Technology Officer – CTO, Chief Information Security Officer CISO, and Shared Support Staff), University Computing Services, Online Learning & Libraries, Customer Services and Digital Media Services. These are inclusive of all campus locations and centers. The Senior Vice President for IT/CIO reports directly to the University president. Many

Information Technology Faculty and Staff

- IT Administration
- Enterprise Infrastructure
- IT Services
- Online Learning & Libraries
- Digital Media

Personnel Total = 125
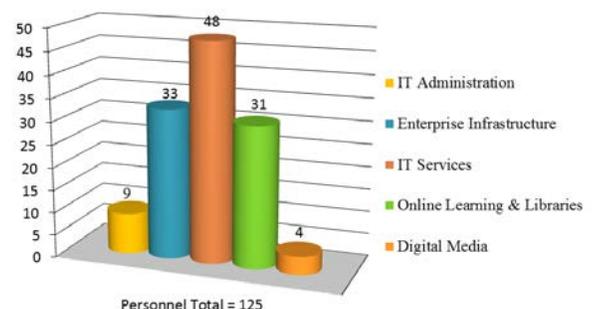
student assistants, extra help and work study students are hired to supplement the staffing needs of the institution.

Budget

The campus environment at Marshall University is increasingly driven by technology. Technological innovation gives students more than interaction with computers – it provides more time for meaningful contact with peers, professors, and community professionals, enabling them to take a proactive role in their education. Marshall University has developed an information technology strategy to aggressively address financial efficiencies in teaching and learning with technology, administrative systems, services for students, e-learning, intra-campus and intercampus network infrastructure, while improving quality and access. Our vision is designed to synergistically capitalize on economies of scale and serve all campuses in a unified cost effective manner. The transformation is a result of a comprehensive approach built on careful analysis of internal and external factors, development of an appropriate administrative/funding model, building top-to-bottom buy in, expansion of instructional technology support services, a solid technology infrastructure and effective promotion.

For FY 11-12, the university received $105,996,557 in source funds and provided $8,717,111 to Information Technology as a combination of allocations for operations and salaries. This equated to 8.2% ($8,717,111) of the University funding, separated as operating dollars ($3,063,360 FY 11-12) and state salaries and benefits ($5,653,752 FY 11-12) for personnel.

University, $105,996,557 — $8,717,111 — IT 8.2% — Operational, $3,063,360 — Personnel, $5,653,752
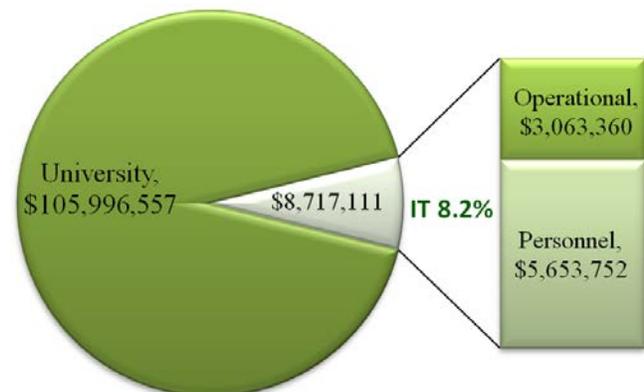
Revenue

The Division of Information Technology bills back services such as telephone and network resources. This allows for a robust network that is automatically upgraded. We have been able to invest in many strategic communications technologies. The university is nearly finished with a comprehensive Unified Communications project that moves the entire technology communications infrastructure to Voice over IP telephone service that integrates with the institutional Outlook email system.

The largest revenue component is MUOnLine. It was designed as a fully self-sustaining program to promote the development of online courses and degrees and support the infrastructure, technical and human, to deliver those courses and degrees. In order to accomplish this, the structure of MUOnLine is an entrepreneurial model in which students are charged a single per-credit fee for online classes that is placed into a revenue fund. These funds are used to pay for instruction,

development of courses, hardware and software, infrastructure, bandwidth, technical support, library services and personnel. In addition, a substantial portion of the revenue (over 43%) is transferred back to the institution in the form of indirect and special purpose funding; and 15% is transferred to academic units or major institutional projects. The revenue account is a rolling account that is allowed to carry funding over from year to year; this is an essential element in any entrepreneurial endeavor in order to provide upfront capital for replacement or improvement of technical systems or for building capacity to support growth. Revenue is generated through fees charged and collected. Since the program is self-sustaining, a drop in revenue has a direct impact on operations and staffing levels. Estimates are based on past enrollments of existing classes and the number of new classes anticipated for the year. Operational expenses will vary with factors such as the price of equipment, the number of new courses developed, increasing capacity to meet demand, and unfilled staff positions.

STUDENT TECHNOLOGY SERVICES

Learning is moving beyond the college classroom walls and boundaries due to technology allowing students and faculty to participate in worldwide intellectual collaborations. Higher education uses technology to prepare students for the increasingly technology-enabled workforce and provide them with the skills for lifelong learning. Marshall University is a 21st century campus with advanced telecommunications infrastructure, polices, 24x7 student services, online library resources, assessments, collaborative agreements and institutional vision which creates a campus that has no boundaries. This learning revolution presents challenges and incredible opportunities to our University. Online courses are developed with a special consideration for educational decisions based on a deepening understanding of the ways in which face-to-face communications, telecommunications, and independent work can fit together for the best learning and teaching environment. For last year's Week of Welcome, a 30-minute YouTube video was created which outlined the major IT services that would be of benefit to students (http://www.youtube.com/herdvideo#p/u/35/dJRTMCpactU).

Student Collaboration Services

Marshall University has initiated a major advancement in student communications via a partnership with Microsoft Corporation which provides Microsoft Office Outlook Live email accounts as an option to students. During the summer of 2009, the University began offering current students a new email service on Microsoft Outlook Live. Students have a full Microsoft Exchange environment with email, calendaring, contact management, shared folders and other tools. Students have a 20-Gigabyte quota for email in contrast to the 200 Megabytes in the traditional student email system. Since this is a full Exchange environment, students are able to access their Exchange service using Outlook, Outlook Web Access, Smart Phones and even iPhones. In addition to the Exchange environment, students are given a 25-Gigabyte SkyDrive. SkyDrive is a virtual drive that allows

storing of files in private, public, or shared (by invitation) folders. Students also have access to a 1-Gigabyte team collaboration space to work on team projects.

myMU Portal

The web portal, myMU, lets Marshall students look at their university records and financial information, stay connected with others and make new connections. Using the many tools available on the portal, students can view and update their personal information, register for classes, check grades, get transcripts, pay bills and even apply for financial aid. Course tools allow students to communicate with their instructors and classmates. Students can send and receive e-mail, create their own personal address books and access and manage their personal and course calendars. They can even create special calendars and task reminders using the portal. Another function of myMU is group communities, similar to Facebook. Students are able to create, manage and join electronic communities for clubs and groups. The Announcement Channel on the myMU homepage lets students stay up-to-date with campus announcements, news and messages from their college. During the Spring of 2012, the portal software will be changed. The new version will allow for more direct and personalized access to information. It will provide informational, academic and financial alerts to individuals. Additionally, it will allow them to track their degree progress, their Blackboard course assignments and will warn them of any type of hold on their records.
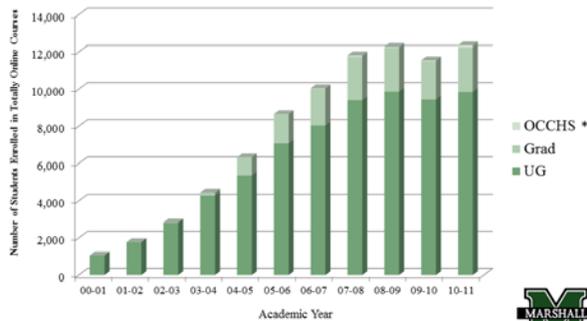
Online Learning

This unit of Information Technology includes MUOnLine which houses several full-time staff, faculty and student employees. Each person aids in facilitating the technical support for hardware, software and instructional staff to aid faculty with E-course development and design. MUOnLine also works closely with the systems integration staff and the web portal administrators. In 2008, a new faculty unit comprised of professional librarians, called the Digital Learning Team, was added. The Digital Learning Team is conducting a campus-wide embedded information literacy program. Recent developments are based on national research that has radically changed the way many libraries in the country approach library instruction with students and faculty. The University administration has provided support for new technologies and software to ensure that students and faculty enjoy a quality experience creating and delivering online courses. The embedded librarians are actively participating in the core curricular changes and First Year Seminar development. Additionally, the libraries have cultivated a wide array of online resources and services to provide access to millions of books, articles, research reports, images, sound clips and more as students seek 24/7 online support for E-course projects and assignments. Marshall consistently contributes to local, regional and national conferences related to online learning that allows our faculty and staff to share successes, forge new relationships and enhance skills.

Online Courses

Marshall University has a strong commitment to providing the students with quality technologies that support online and hybrid courses, and the faculty with the tools needed to produce and conduct quality online educational content. Resources and staff are allocated by the Information Technology unit to ensure that the online learning platform and all its peripherals are well supported during and beyond typical business hours.

The online learning platform at Marshall is referred to as MUOnLine. The MUOnLine program continues to utilize the Blackboard Enterprise Learning System® as the course management delivery platform for online courses and course supplements. Fall 2011 is the last term that Blackboard Vista will be used. A system-wide upgrade to Blackboard Learn 9.1 will take place January 2012. All MU courses will receive an online course section in Learn and all hybrid and online courses will be delivered via the new MUOnLine learning management system. Approximately 69% of our faculty use this resource for totally online courses, hybrid courses, or as a class enhancement. The MUOnLine program has continued to see an increase in enrollments that is attributed to an increase in online course offerings and the establishment of several new online degree programs, minors, and certificates.
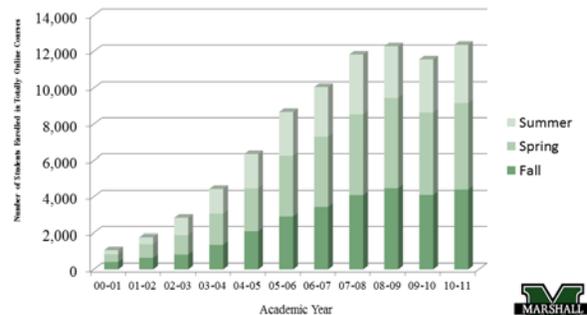

Online Departments

MUOnLine Design Center

The center provides training and support for Marshall University's faculty and staff. This unit works with Marshall University faculty and staff to provide the hardware, software, networking and technological assistance and support needed. The center assists faculty and staff using the 59 video, audio and integrated instructional media applications. These services are necessary to support, further and accomplish the goals set forth in the Marshall University Mission Statement and Vision. The Design Center is also responsible for facilitating online course development. A faculty committee, coordinated by a member of the faculty, provides guidance, support and training. Additionally, this committee conducts regular E-course reviews to ensure that the development

faculty meet best practices, technical requirements and standards for delivery— standards such as the Ohio Learning Network's *CourseCheck!* program based on Chickering and Gamsons' *Seven Principles of Good Practice* (1987). Content reviews are conducted by the department and must be provided prior to MUOnLine approval.

Faculty Development Committee for Multimedia Instruction (FDCOMI):

Faculty interested in developing an online course or in using an online course section as a supplement to a bricks and mortar class, can contact the Faculty Coordinator for Online Instruction to obtain the checklist and paperwork to initiate the development and review process. Complete information about teaching online and using technology in general for instruction is provided along with a user group seminar series to allow faculty to present and share their online courses materials, lesson plans, and projects. FDCOMI was formed in 2002 to oversee academic issues for all forms of online courses. Its primary ongoing responsibility is to evaluate newly developed online courses according to a set of standard requirements formulated by the committee. Membership on the Faculty Development Committee for Online and Multimedia Instruction (FDCOMI) is open to all full-time faculty who have an interest in online education. It is currently chaired and coordinated by a faculty member who receives a stipend and course release to direct the faculty development program. Faculty are paid a development stipend of $4,000 for each new three-credit-hour course upon FDCOMI and department approval. There are other levels of compensation when faculty choose to use e-packs and textbook supplements that provide more than 60% of the E-course content and/or update an existing course. The FDCOMI committee also recognizes faculty in a fall "Online Faculty Member of the Game" promotion that honors an online professor at each home football game. The faculty member also is given an attractive trophy and certificate. Honorees are selected by their peers and voted upon electronically.

Digital Learning Team (DLT)

Comprised of professional librarians and an instructional technologist, this new group creates and coordinates faculty and staff training, both in person and online. Team members use various online means and software programs to enhance the learning experience for online and face-to-face students. The DLT also contributes to faculty and staff development by offering face-to-face and digital training opportunities. The DLT consistently contributes to local, regional, and national conferences related to online learning and libraries that allow our faculty and staff to share successes, forge new relationships, and enhance skills.

Marshall Technology Outreach Center (MTOC)

The center allows Marshall University to enhance the lives of community members through integrating the University externally and dissolving barriers to traditional technology education. Programs include Online College Courses in the High Schools (OCCHS) and ongoing K-12 technology partnerships including teacher-training initiatives. The OCCHS Program offers qualified high school students the opportunity to take Marshall University courses online--100% via the

Internet--for college credit while they are still enrolled in high school. Each three-hour course offered through OCCHS is offered at a reduced cost.

Information Technology Assessment

Another component of MUOnLine is the integration of information literacy, computer literacy and over-all critical thinking competency within the information technology realm. By using the Educational Testing Service iSkills™ assessment program, this unit can provide national benchmarks to aid faculty in addressing information literacy needs and improving the teaching and learning process.

Library Resources

The Marshall University Libraries support the teaching, research and public service commitments of the University. To fulfill this responsibility, the Libraries acquire, organize, maintain and preserve materials in all appropriate formats. They also provide access and delivery of information, resources and services. Using the library as a gateway, students have access to the tools to search multiple resources and obtain materials from a variety of sources. A dynamic interlibrary loan and document delivery program provides materials from other libraries in electronic or print form, often in a matter of days. Courier services also enhance turnaround time and overcome geographical limitations.

Marshall University Library System

The following libraries are part of the Marshall University Library System. Each library operates as part of the university system and provides unique services to the clientele and program(s) with which it is associated. Together, the University Libraries' holdings support graduate-level research needs with more than 470,000 volumes of which close to 25,000 are e-books, and access to more than 25,000 periodical titles of which 22,000 are completely online. Students may use monographs, periodicals, documents, CD-ROMs, videocassettes, sound recordings, electronic journals, online reference materials and microforms. We also provide access links to the public to statewide databases. Access to electronic resources and "Ask A Librarian" chat reference services are available via the University Libraries' web page. The libraries play an essential role in the educational and research activities of the individual university programs.

John Deaver Drinko Library houses close to 200,000 volumes, current journal subscriptions, a 24-hour computer lab, information commons, multimedia presentation facilities, an assistive technology center for the visually impaired, faculty and student instructional technology rooms and a fully wired auditorium. Circulation, Reference and Media are located in the Drinko Library, with extensive collections and teams of qualified personnel. Opened in 1998, this state-of-the-art facility also houses the Information Technology Administration and several other IT units such as IT Resources and Customer Services, IT Enterprise Applications and the IT Infrastructure Communications and Systems teams.

Online library services are provided by librarians and staff using real-time reference services through the webpage, email and Wimba Pronto chat services. In addition to chat reference, Marshall subscribes to nearly 100 full-text and multi-subject databases, over 20,000 online journals, and close to 20,000 e-books. The libraries provide online access to Information Delivery Services (IDS). IDS is a web service that allows Marshall students, faculty and staff to get articles/book chapters delivered electronically. We subscribe to a consortium that allows us to borrow books from over 60 libraries in the WV, PA, NY, and NJ region. With a quick turn-around time, students and faculty have close to 30 million items at their fingertips!

James E. Morrow Library, the oldest library on campus, it is situated between Smith Hall and the Science Building. It houses Special Collections, Government Documents, and shelving for approximately 275,000 volumes. Special Collections features the University Archives, West Virginia Collection of state and regional materials, and the unique Hoffman and Blake collections. Government Documents, a federal depository collection, contains close to 1.2 million items and provides materials in electronic, microform, and paper formats.

South Charleston Library is located in South Charleston in the Robert C. Byrd Academic and Technology Center. The library contains 7,400 books and 220 current journal subscriptions, with online access to more than 20,000 periodical titles. There are 12 public computer terminals through which users can access the integrated Marshall Library catalog, bibliographic and full-text-journal databases, and the wide range of other resources available over the Internet. Because of the Marshall University Graduate College's commitment to support students in distant locations, some non-traditional services are offered. These services include mailing books and journal articles if they are not available electronically.

ADMINISTRATIVE SERVICES

Information is among the University's most valuable assets. A coordinated environment for processing, storing, and delivering this information enables the business of the University to proceed unhindered. Leveraging consolidation, standardization, virtualization, and automation, Marshall University has created a foundation for delivering key infrastructure services and ensuring recovery from disaster.

Administrative Enterprise resource planning (ERP) systems have become a way of life in higher education. Marshall University was a very early ERP implementer. The Banner Student Information Systems module was implemented in 1987, with the HR, Alumni and Finance being implemented by 1998. Marshall University was one the first schools in the world to implement Banner SIS. Banner Workflow was purchased but not implemented due to the sheer time and effort it took to deploy the systems. The University portal first was implemented in 2001 and is called myMU. It provides the web conduit for accessing and integrating the vast majority of online student resources via a secure authentication methodology. The combination of these resources forms the Marshall University Unified Digital Campus.

MU Information Technology also supports via service contracts both MURC and the University Foundations Banner systems. The Marshall University ERP was deployed at a fraction of today's costs. All West Virginia public high education institutions use Banner Student Information Systems and utilize a state contract. MU has its own contract and can also utilize the state-level contracts.

Broadband Infrastructure

The network planning and expansion program has been designed to enable members of the University community to utilize technology productively and effectively from anywhere on or off campus. The network, designated as Marshall University's Campus Network (MUnet), is designed and implemented as a multi-campus network that will support the voice, data, and video requirements of the campuses of Marshall University. This was created upon a centralized/distributed concept of technology, whereby the whole campus from a centralized location will share the distributed systems, based upon functionality. The network is capable of supporting the Internet Protocol (IP) requirements of the various sub-networks in each building, and the integration of department, college, and campus resources into a campus-wide network for instructional and research support. It is Marshall University's intention to become a major University of the mid-Appalachian region. This requires a state-of-the-art communication infrastructure for voice, data, and video.

This state-of-the-art 10 Gb Ethernet backbone-based network links all buildings on the Huntington Campus, with WAN links to our regional campus, centers, and medical clinics. MUnet supports over 11,000 switched gigabit Ethernet ports and over 400 WiFi wireless access points. The Huntington Campus is connected to all of our other campus locations (i.e. South Charleston Campus, Mid-Ohio Valley Center campus in Point Pleasant, the Medical Education Building/VA Hospital in Spring Valley and the Marshall University Research Corporation in downtown Huntington) via very high-speed connections. Various smaller learning centers like the Larry Joe Harless Center in Gilbert and clinical facilities also are connected to the university.

The Huntington Campus network is linked by a University-owned metro fiber point-to-point service to the Robert C. Byrd Center for Flexible Manufacturing and the Marshall University Joan C. Edwards School of Medicine (JCESOM) Campus adjacent to Cabell Huntington Hospital. The School of Medical metro fiber also extends to the JCESOM Fairfield Campus, linking the Erma Ora Byrd Clinical Center and the Forensic Science Center to the MUnet.

The MUnet campus networks are connected to 600 Mbs of commodity Internet Service provided by dual diverse path Internet Service Providers (ISP). Marshall University is also a member of Internet2 and is connected to Internet2 with 1 Gb of service via the Ohio Academic and Research Network (OARnet). Marshall University has established an agreement with Internet2 to offer Internet2 services to other West Virginia higher education institutions, K-12, State government agencies, libraries, hospitals, and other eligible not-for-profit research and education entities in West Virginia. This is being funded in FY2012 in part by an NSF grant that was begun in FY2011.

MUnet central video conferencing services support full High Definition (HD) conferencing at 720p or 1080p. Support for video calls with more than four concurrent endpoints is provided by a 20 port Multi Point Control unit supporting full HD. Web Conferencing for virtual classrooms is provided by the Wimba Collaboration Suite, now Blackboard Collaborate. This service provides full virtual classroom experiences with student breakout rooms, lecture recording/archiving and poll/question/quizzing during on-demand archived sessions. Rooms also are available for campus meetings and other event functions.

RESEARCH SERVICES

Cyberinfrastructure has become the critical infrastructure of 21st century science. Contemporary scientific, clinical and engineering research is moving to the need for research teams to collect, store, move and process vast amounts of data. Accomplishing this requires a high bandwidth campus cyberinfrastructure with Internet connectivity, which Marshall provides. Likewise, many times researchers must be able to access and transport scientific data to and from visualization and high performance computing facilities within their respective campuses in order to translate data into meaningful knowledge. Research is no longer bound geographically or institutionally. Research must and, indeed often does, cross departmental, institutional and even international borders. From a cyberinfrastructure perspective, this means that the bandwidth and connectivity requirements of scientists at our research universities extend beyond our campus boundaries. Scientists and educators at our university must be able to collect data from remote facilities and instruments, share data with colleagues and collaborators at other institutions and in other parts of the world, and access, store and process data at facilities potentially anywhere without being hindered by their geographic locations.

In response to these changes in research methodologies, Marshall University has benefited from a combination of grant awards and campus strategic planning that have resulted in a robust and scalable network infrastructure and high performance computing cluster environment to serve the needs of our research community. Marshall University has made a significant commitment to developing an advanced networking infrastructure for all of our campuses.

In January 2010, Marshall University joined the MERIT/OARnet consortium with an initial 1Gb Internet2 connection to their point of presence in Huntington, WV. This has allowed our campus community new transparent resources and connectivity to other institutions and has opened new grant avenues. We now have new opportunities and competitive resources to fully participate in the vast opportunity for creating new research environments based upon cyberinfrastructure, an infrastructure that integrates and extends the global knowledge of the digital revolution.

Completion of an FCC grant with the West Virginia TeleHealth Alliance extends the current Huntington metro fiber network to St. Mary's Medical Center, St. Mary's Medical Center Education Center, Cabell Huntington Hospital, the JCESOM, the JCESOM Fairfield campus, and the Marshall University Robert C. Byrd Biotechnology Science Center; and MUnet, with two redundant 10 Gb Ethernet rings, was completed in 2011. These metro Ethernet rings will provide the bandwidth and redundancy needed to enable the next generation medical and collaboration technologies.
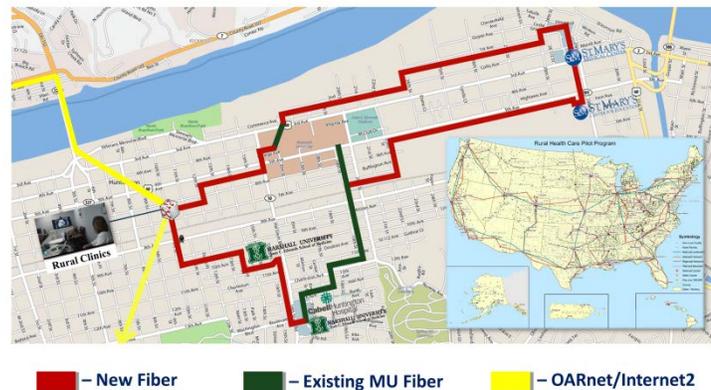
Dr. Tony Szwiliski and team received a NSF Cyberinfrastructure for Transformational Scientific Discovery in Arkansas and West Virginia (CI-TRAIN) award. Eight research institutions in Arkansas and West Virginia are partnering to build advanced cyberinfrastructure that will advance the frontiers of knowledge in several scientific domains; this advancement also will serve to transform the practice of information technology services for enabling scientific discovery. This provided a new High Performance Computing Cluster that can be used to advance all of campus research.

The new cyberinfrastructure includes grids such as the NSF TeraGrid and Science Gateways that provide computing power previously available only to the most prestigious research institutions. This network integrates comprehensive libraries of digital objects including programs and literature; multidisciplinary, well-curated federated collections of scientific data; thousands of online instruments and vast sensor arrays; convenient software toolkits for resource discovery, modeling, and interactive visualization; and the ability to collaborate with physically distributed teams of people using all of these capabilities. This infrastructure allows institutions with highly competent professionals, like Marshall University, to access robust software, leading-edge hardware, specialized instruments, knowledge management facilities, and appropriate training.

Internet2 provides transformative tools for learning and research in networked environments. Among the most significant emerging technologies are visualization, advanced collaboration tools, bioinformatics, virtual reality, telemedicine, and tele-immersion. New possible research and collaboration partners, such as University of Kentucky, Indiana University and Purdue, could provide molecular visualization, design, and analysis of chemical agents thought to be involved in anticancer activity, facilitated through this enhanced Internet2 connection.

Currently, notable research progress is being made in areas of biotechnology, cancer therapy, and gene mapping in rural populations at risk for cardiovascular disease. Marshall University's School of

Medicine's West Virginia Biomedical Research Infrastructure Network (WV-BRIN) grant provided 10Gb connections to all of MU's research facilities including the Collage of Science and the Robert C. Byrd Biotechnology Science Center and the Marshall University School of Medicine facilities adjacent to Cabell Huntington Hospital. This project also supports the stated objectives of the Appalachian Cardiovascular Research Network (ACoRN); those objectives include establishing a research network which identifies cardiovascular disease genes using bioinformatics approaches (gene mapping and functional genomics), training network faculty, and fostering the development of undergraduate faculty and student training in bioinformatics. These projects require collaboration within and outside our state borders.

GOVERNACE

The Information Technology Council (ITC) is the official university committee governing University-wide policy for computer, library, distributed education and network usage at Marshall University. Policies promulgated by this council are subject for review and comment by the President's Office, the Dean's Council, the Faculty Senate, the Classified Staff Council, and the Student Government Association before final adoption. Final policies are then sent to the President and the Board of Governors for approval.

STRATEGIC DIRECTIONS

The Information Technology Strategic Plan outlines our current and future direction and is found at http://www.marshall.edu/it/publications/MarshallITPlan2011-16.pdf. Information Technology annually provides detailed reports to external agencies on the resources Marshall provides to the communities we serve.   Many of these details can be found in the associated MUBOG SharePoint page. These include the Educause Core Data Services 2010 Annual Report, the 2010 Campus Computing Survey and the IT Project Portfolio Catalogue.