Believe in SUCCESS

Marshall University is a dynamic higher educational organization in West Virginia that prepares students to compete and excel in a world characterized by constant change, high levels of technology, and increased internationalization. The University will serve the needs of the region by developing and supporting the individual’s ability to access, assimilate, apply, and create knowledge; to acquire and incorporate rational problem-solving strategies; to appreciate and value artistic expressions; to examine and evaluate beliefs, ideas, and actions; to develop skills that contribute to continuous personal, economic, and social well-being; and to encourage a commitment to enhancing the welfare of the community that Marshall University serves.

There is no service or activity conducted in higher education that will not be increasingly affected by advances in technology.
Mission

The Information Technology Division at Marshall University provides and creates an evolving, innovative and integrated stable information technology environment that enables students, faculty, and staff to achieve the Marshall University goals.

Vision

Information Technology’s (IT) vision is to provide ubiquitous, secure, and seamless access to information resources in all forms through a reliable and robust infrastructure. IT engages in collaborative relationships within the University and with the community, acting as a trusted partner who anticipates needs and responds with innovative solutions in support of the University’s mission of teaching, research, and service.
Values

We support flexible learning programs available to address all students’ needs.
We are socially inclusive and actively pursue opportunities to ensure that all our members are part of our learning communities.

We view information technologies, including Internet accessible interactive multimedia technologies, as tools for enriching learning by tailoring instruction and research to societal, organizational, and individual needs.

We value regional and global interconnections and cultural links for expanding access and opportunity to educational resources regardless of format and/or location.

We support flexible learning programs available to address all students’ needs.

We will continue to actively implement a technical, social and intellectual infrastructure that ensures equity of access to learning, information, and information technologies while recognizing that investments in learning contribute to overall competitiveness and the economic and social well-being of the nation.

We will continue to support the educational demands of our knowledge workers. This includes restructuring library resources, administrative systems, networks, policies, etc. to meet the needs of our current and future populations.

Maximize transparency across the campus.

Select the most appropriate IT service delivery strategy for each need (enterprise, federated and local).

Continue developing increasingly effective leadership, governance and advisory strategies.

Develop sustainable funding strategies for all IT services.

Foster technical and leadership growth for IT service staff members.

Work toward green computing strategies.
TRENDS

Higher Education IT

• Information resources will continue to be tailored to users’ needs based on their roles and academic acumen. Information will need to be delivered in a just-in-time model. Teaching methods and pedagogies, institutional resources and commitment, and the traditional ways of engaging students must be reexamined to meet the contemporary needs of students. The demand for more experiential, outside learning opportunities will require faculty to respond thoughtfully and proactively. The adoption of new technologies must support the experiential model while engaging the student with Marshall University.

• Academic Analytics will need to have a very prominent and powerful role. The myMU portal will need to be more detailed on pushing information to the individual based on his or her needs. New course combinations and their outcomes will have a new importance.

• We will need to be much more proactive in regard to global education possibilities. This includes meeting the needs of both students coming to campus as well as providing targeted marketing of our online education courses and specialty online certificates. At the same time, advancements in technology will allow other countries to further develop their own university systems.

• We will see an increased number of students who attend totally online as well as those who need hybrid courses. We will also see an increase in the ratio of part-time/full-time students who will choose to take courses from multiple institutions. It will take longer for them to complete a degree, unless we see a large surge of AP-type courses or of high school students taking college courses prior to their high school graduation. Collaborative classroom design will need to happen now to support new teaching strategies.

• Learning Spaces will need to support multiple pedagogical approaches, functionality and flexibility, access to technology, and the human needs of the room.

• Digital textbooks will be common and viewable in a multitude of devices.

• Students will be wearing or carrying their mobile network devices. The demand on wireless and mobile resources will be logarithmic. Students and faculty will have a new level of interactivity with the institution.

• Cyberinfrastructure will be a major player in both academic and research grants. This will open new possibilities for collaborative research that will be much more focused on regional needs. Federal research dollars will have a much closer match with national need, i.e. alternative energy, preventative health, an increased
focus on all research and devices that support an aging population, intelligent transportation, environmental analysis, crime prevention, etc. This all will be driven by the need for predictive analytics and will be very outcomes centric. Research track records will become more important. Research will be the one campus event that will attract and keep key students and faculty in a campus environment. Entrepreneurial behavior will need to increase dramatically as students create their own future jobs.

- Green and efficient operations will become even more important and will need to be marketed. Students and parents will see this as a civic responsibility, and it will become a factor in their institution selection process. Administrative processes will need to be streamlined both from a cost effective and customer service perspective. The actual cost for the development and instruction of the course will include Total Cost of Ownership (TCO). Cost-effective institutions will be able to compete.

- Transparent Learning Pathways from K12-Graduate education will increase.

- Cyber-security will continue to be elevated and scrutinized.

- Alumni and donors will be more willing to give if they can feel their financial impact is based on what they perceive as “making a difference.” That will not be always in the form of bricks and mortar naming opportunities, but more in line with changing the lives of students or of the community. This will influence Learning Management Systems and have a greater impact on distributing video. Part of their giveback will be via mentoring. They will need to be part of the course, and IP video will continue to expand (Blackboard Collaborate ®). They will be part of our student growth as they also will decide to take courses based on their interests and skills they will need for their jobs.

- Student and faculty interaction will increase in virtual worlds. Gaming strategies will continue to creep into the academic environment.

- Quality Customer Service will play an even more important role in our interactions with all members of the university community.

- Traditional times and dates for instruction will change. This will take the pressure off the campus-based classrooms, but will increase the need for more flexible operating hours for all campus facilities.
IT SWOT Analysis

Strengths

1. Recognized externally for a scalable, robust, standardized, cost optimized, and contemporary information technology architecture for institution-wide services.

2. Contemporary organizational structure that makes optimal utilization of staffing to meet university priorities supporting administrative, instructional, and research requirements in all information technology and resource areas.

3. Fiscal responsibility to manage deployed systems and services, as well as planning for new systems and services, within funding models and available funding constraints.

Weaknesses

1. Non-competitive salaries in many areas along with inadequate staffing levels.

2. Inadequate skill set development in the use of information technologies and resources by faculty and staff within IT.

3. Lack of an information life cycle policy for the categorization and retention for university data.

4. Inadequate funding for information resource holdings or access compared to peers.

5. Financial models for several key areas need review and updating as they have moved from early adoption to pervasive utilization (WiFi, ECourse, mobile devices).
1. Difficulty in enforcement of Service Level Agreements and rates for chargeable services to internal or associated units.

2. Legislation that negatively impacts Marshall’s ability to optimize emerging technologies and to administer resources for the best services and total cost of ownership.

3. Inadequate funding for physical facility maintenance and repair life cycles.

4. Some key systems remain redundant without full implementation of our disaster recovery plan due to funding.

5. Lack of process optimization in all areas of the university.

6. Information Security vulnerabilities due to inadequate training and/or incomplete threat assessment on a regular basis.

7. Inadequate skill set competency in the use of information technologies by the university user community.

Opportunities

1. Reduce reliance on legacy systems and resources by aggressively implementing new and emerging technologies.

2. Leverage new cloud based and hosted services when there are cost or service advantages.

3. Utilization of consortia of open source products and for procurement of information technologies, resources, and services.

4. Leverage virtual classroom technologies and our existing instructional architecture to extend the synchronous teaching and learning environment beyond the campus, and grow enrollment without increasing facilities.
IT Planning Goals and Objectives

1. **Improved Student Learning and Success Outcomes**
   a. **TECI – Technology Enhances Classrooms.**
      Expand TECI deployments to meet room needs not just for Lecture styles but also to support Problem Based Learning PBL or Active Learning.
   b. **Blackboard LMS/Blackboard Collaborate®.**
      Migrate to the latest version of Blackboard® and integrate the new version of Collaborate providing a better user interface and improved vendor support.

2. **Improved Infrastructure and Access**
   a. Expand redundant and High Speed Commodity Internet and Internet2 connectivity.
   b. Pervasive Campus WiFi with performance monitoring.
   c. Implement new version of myMU with CampusEAI.
   d. Improved portal and mobile applications.
3. Improved Efficiency in Business Processes
   a. Banner Workflow.
   b. SharePoint Collaboration and Document Management.
   d. Implementation of Unified Communications.

4. Improved Efficiencies and Administrative Effectiveness
   a. Server Optimization through Virtualization.
   c. Eliminate redundant services.
   d. Optimize client power setting with KACE.

5. Security Improvements
   b. Improved Client Administration & Patch Management.
   c. Event Log SIEM in real time.
   d. User Education.
   e. Mobile Device Security and Management.
IT Planning Goals and Objectives

6. Identity Management and Access Roles
   c. Implement new version of myMU with CampusEAI.

7. Enterprise Business Intelligence
   a. Banner Operational Data Store and Data Warehouse full implementation.
   b. Academic Analytics with Blackboard 9®.

8. IT Professional Retention
   a. Improve Salaries to national averages.
   b. Improve training and professional development.
9. **Mobile Device Support and Integration**
   
a. Continue evolution of MUMobile Applications for mobile devices.

b. Focus on the growing variety of Mobile Internet Devices in the Post-PC era.

10. **Expand support for Research Computing efforts**
    
a. Expand data storage and management consulting for on-campus and hosted services.

b. Expand base support for central on-campus and hosted HPC Clusters.

c. Continue coordinating development of faculty skills in the use of TeraGrid and other NSF and hosted services.
KEY PERFORMANCE Indicators

Information Technology BeHerd Customer Feedback May 2010- Present (N=209)

- Compliments: 63%
- Suggestions: 14%
- Questions: 15%
- *Complaints: 9%

*Additional IT Key Performance Indicators can be found at:
http://www.marshall.edu/it/kpi/
Satisfaction Level of Interactions with IT Service Desk 2010-11

Customer Service Category

Excellent

5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00

Courteous
Technical Skills
Timeliness
Quality
Overall

Average

Poor

0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
KEY PERFORMANCE Indicators

Availability of Major Systems

Data includes downtimes for weekly maintenance window for system upgrades and maintenance

- Two data points removed due to monitoring software issues on two services (Nov. 2009 & Sept. 2010)
- *6 Hour Outage for a major power upgrade to the machine room.
## Marshall University IT Planning Goals and Strategies

<table>
<thead>
<tr>
<th>Goal</th>
<th>Strategies</th>
<th>Key Metric</th>
<th>Key Unit/s</th>
<th>Fiscal Impact</th>
<th>Time Frame</th>
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</table>
| 1) TECI – Technology Enhanced Classrooms | a) Expand TECI deployments to meet room needs not just for Lecture styles but also to support Problem Based Learning PBL or Active Learning.  
   b) Use the Presidents’ Learning Spaces Plan to roll-out new TECI rooms over the next three-four years.  
   c) Work with Academic Affairs to provide the academic guidance and faculty development.  
   d) Work with the Provost, Senior VP of Administration to provide the updated technology & collaboration classroom furniture and accessories.  
   e) Review emerging technologies that will enhance and expand the teaching and learning experience (i.e. Apple TV, Multi-touch Table-top Displays, etc.). | Student TECI Satisfaction Survey | IT OT&L  
   IT CS  
   Academic Affairs  
   Univ. Admin | $1 Million annually provided by the President | 2011-14 |
| 2) Blackboard LMS/Blackboard Collaborate ® (MUOnline) | a) Migrate to the latest version of Blackboard® and integrate the new version of Collaborate providing a better user interface and improved vendor support.  
   b) Improvement in the user interface and faculty support and training.  
   c) Provide an Online Certification of Distance Learning Instructors. | SCH’s & the # of Online/Hybrid Courses | IT OT&L  
   IT CS  
   Academic Affairs | $200,000 Annually Centrally Funded | 2011-16 2011-12 |
| 3) Expansion and improvement of MUOnline | a) Complete work with academic units for full on-line degrees in Nursing, Business, Integrated Science, Liberal Arts, and RBA programs.  
   b) Work with Academic Affairs to define and promote new online degree programs that have not yet been developed (i.e. Forensic Science, Health Informatics, Big Data, etc.).  
   c) Expand SREC offerings for SREB online transient students.  
   d) Adhere to federal and state distance learning requirements to assure compliance while expanding hybrid synchronous courses and programs.  
   e) Implement a robust online marketing plan that utilizes social media, analytics. | SCH’s & the # of Online/Hybrid Courses | IT OT&L  
   IT CS  
| 4) Blackboard Outcomes® | a) Review the deployment of Blackboard Outcomes®.  
   b) Align the HLC Degree Qualifications Profile to Blackboard Outcomes®.  
   c) Adhere to federal and state distance learning requirements for compliance. | Pathways KPI & other agency reporting | IT CIO, IT OL&L  
   IT CS  
   Acad Affairs | Negotiating | 2011-14 |
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| 5) | Use tools to assist with the improvement of student retention.  
   a) Continue to review SunGard Banner Student Retention with Academic Affairs to provide a tightly integrated package of scorecards, dashboard, reports, and analytic capabilities designed to help move the needle on student success. | A metric product | IT CIO Academic Affairs | $67,000 by Dec. 2011 sent to AA | 2011 |
| 6) | Online Faculty Certification  
   a) Provide an Online Certification for distance learning instructors.  
   b) Collaborate with the Center for Teaching Excellence to provide certification training.  
   c) Implement *Quality Matters* for online course review and approval | QM rubric & Student Course Evaluations | IT CIO, IT OL&L, and Academic Affairs | $20,000 annually | 2011-16 |
| 7) | Association of College & Research Libraries (ACRL) Standards  
   a) Align with the nine Standards for Libraries in Higher Education revised by ACRL in 2011.  
   b) Utilize nationally normed assessment programs to determine effectiveness in order to make necessary improvements.  
   c) Improve library services and collections to meet growing university research and scholarship needs. | LibQUAL+® Lite or Project SAILS® | IT CIO; IT OL&L & IT CS | $4,000 annually | 2012-16 |
| 8) | Expansion of Digital Library Collections  
   a) Provide digital eBook/eJournal collections when possible  
   b) Promote the adoption of eTextbook and/or eChapter adoption.  
   c) Expand mobile access to intellectual collections and research and instruction support.  
   d) Migration of Innovative Interfaces, Inc ® *Millenium* library catalog software to new generation platform, *Sierra*. | Use & collection stats | IT CIO; IT OL&L & IT CS | Reduction in cost-per-use | 2011-16 |
| 9) | Embedded Librarian Program  
   a) Review assessment data to support program modifications during AY 11-12.  
   b) Expand to include faculty assistance with TECI training and technology use in the classroom.  
   c) Maintain a standardized assessment program while developing a customized problem-based tool that meets MU-specific needs.  
   d) Adopt and facilitate the HLC Degree Qualifications Profile’s *Use of Information Resources* competency requirements within the respective disciplines. | ETS student assess. data & Assess. Day feedback | IT OL&L | $2,000 annually | 2011-15 |
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| 10) Marshall Digital Scholar (MDS) | a) Implement a three-year pilot in which scholarly and intellectual resources generated by Marshall University faculty and staff are archived and showcased electronically.  
   b) Expand the MDS database to include digitized multimedia, ephemera, and realia related to scholarly output or university-owned content.  
   c) Conduct an annual regional conference to inform academic colleagues of the digital scholar project. | MDS Holdings & Use Stats | IT OL&L | $40,000 annually | 2011-15 |
| 11) Special Collections Self-Sufficiency | a) Continue fund-raising efforts to support the operating costs and needs for unique collections housed in the Morrow Library that are maintained by OL&L faculty and staff.  
   b) Increase use of primary source collections for faculty and student research and scholarship.  
   c) Collaborate with regional efforts to connect special collections (i.e. Lyrasis-Huntington Museum of Art Connecting to Collections project). | Use stats & finance reports | OL&L; Library Associates (LA) & University Foundation | SC Faculty & staff time; LA volunteers | 2011-16 |
| 12) Marshall Technology Outreach Center | a) Expand the Online College Courses in the High Schools program at the regional and national levels.  
   b) Expand support for staff training efforts on campus in conjunction with the Digital Learning Team.  
   c) Provide K-12 links for technology-related programming and in-service opportunities.  
   d) Collaborate with Admissions and the Office of Recruitment to disseminate information and promote the program. | # of students; training KPIs; & participants | IT CIO & OL&L & Academic Affairs | Vista eLearning provided by HEPC | $300,000 annually | 2011-15 |
| 13) Statewide Collaboration and Regional | a) Reinstatement of the Higher Education Policy Commission’s statewide Library Forum and academic library directors’ group in WV.  
   i) Development of consortial purchasing for public academic libraries.  
   ii) Collaboration with the WV Library Commission and Higher Education Policy Commission in these efforts.  
   b) Participation in the statewide WV Virtual Learning Network.  
   i) Deployment of QM at the state level.  
   ii) Enhancement of SREC participation. | Statewide participation & buying power | IT CIO; OL&L & IT CS | $20,000 annually | 2012-16 |
| | | | | | |

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</table>
| Improved Infrastructure and Access | 1) Continue to provide a robust and redundant network infrastructure.  
  a) Continue to expand High Speed Commodity Internet and Internet2 in a cost effective manner.  
  b) Implement IPv6 in production and upgrade/replace network core as required. **Internet Protocol version 6 (IPv6)** is a version of the Internet Protocol (IP). It is designed to succeed the Internet Protocol version 4 (IPv4). The Internet operates by transferring data between hosts in small packets that are independently routed across networks as specified by an international communications protocol known as the Internet Protocol. | Network KPIs | IT Infrast. | Telecom Revenue $750,000-$1M | 2011-16 |
| | 2) Pervasive Campus WiFi with performance monitoring.  
  a) Re-evaluate current WiFi funding model.  
  b) Evaluate current usage/coverage – site survey & purchase of CISCO AVC software to monitor and quantitate traffic types and volume.  
  c) Develop WiFi expansion and strategy models.  
  d) Implement new WiFi Model and Assess 4G Services.  
  e) Begin testing of 802.11ac. | Network KPIs | IT Infrast. | $750,000-$1M | 2011-16 |
| | 3) Implement new version of myMU with CampusEAI portal framework  
  a) Self-service pin resets.  
  b) Increase communication/collaboration using myMessages and myCommunities Groups functionality of new portal. Leverage Smart Alerts to notify portal users of significant events.  
  c) Further integrate the social networking areas into the student’s portal experience.  
  d) Deploy mobile version of myMU including grades, registration, account status, etc.  
  e) Student portfolio. | Student/Faculty survey | IT Infrast. and Enterprise Apps. | Save 10K/yr in maintenance costs | 2011-12 |
| | 4) Expansion of Mobile Device Support and Integration  
  a) Continue evolution of MUMobile Applications for mobile devices  
  b) Focus on the growing variety of Mobile Internet Devices in the Post-PC era.  
  c) Movement towards HTML 5 for multimedia and mobile expansion. | Usage statistics for app downloads and campus requests | IT CS / IT Infrastr./IT CTO | Current cost is $24,000 | 2011-16 |
### Improved Infrastructure and Access

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<tr>
<td></td>
<td>1) Planning and implementation of IT for the:</td>
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<tr>
<td></td>
<td>a) New Applied Engineering Complex. Adherence to the Building Program to be determined by the MUBOG and President.</td>
<td>Stability and Usability statistics</td>
<td>CTO, IT Infra., Dir. IT Services, Facility Planning &amp; Man, Sen VP for Admin.&amp; Assoc units</td>
<td>Cost to be covered by capital building costs</td>
<td>2011-14</td>
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<td></td>
<td>b) Planning and Implementation of new Technology Enhanced General Classroom Building. Assessment and programming is expected to begin early in FY13. Adherence to the Building Program to be determined by the MUBOG and President.</td>
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<td>2013-14</td>
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<td></td>
<td>c) Planning and implementation of IT Services for the Physical Therapy Doctorial program at St. Mary’s Education Center.</td>
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<td>2011-13</td>
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<td></td>
<td>d) Planning and implementation consultation with the new School of Pharmacy on facilities and SaaS services.</td>
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<td>2011-13</td>
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<td>6) Windows 8 Testing and Pilots. Microsoft is expected to release the next version of Windows in 2012. This version is expected to be the most significant change to Windows since Windows 95. The product will impact not only desktop and traditional notebook assets but is expected to join iOS and Android in the tablet computing market.</td>
<td>Stability and Usability statistics</td>
<td>CTO, Director IT Services, CISO</td>
<td>Existing Microsoft Campus Agreement</td>
<td>2012-13</td>
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### Improved Efficiency in Business Processes

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<th>Goal</th>
<th>Strategies</th>
<th>KPIs</th>
<th>Time Frame</th>
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<tbody>
<tr>
<td></td>
<td>1) Banner Workflow</td>
<td>WorkFlow KPIs</td>
<td>2011-13</td>
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<tr>
<td></td>
<td>a) Implement Work Study hiring process in Banner Workflow (complete)</td>
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<td></td>
<td>b) Facilitate the re-engineering of the PAR new hire process in Workflow</td>
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<td></td>
<td>2) SharePoint Collaboration and Document Management</td>
<td>SharePoint Statistics</td>
<td>2011-13</td>
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<td></td>
<td>a) Encourage the use of discussion groups instead of using email.</td>
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<td></td>
<td>b) Leverage SharePoint resources to implement a document retention policy.</td>
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<td>c) Encourage the use of document libraries for document collaboration.</td>
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<td></td>
<td>3) Full Deployment of Banner Document Imaging</td>
<td>Reduction paper document storage needs</td>
<td>TBD</td>
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<td>a) Capture electronic image of paper document at entry point into the University.</td>
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<td></td>
<td>b) Convert paper documents currently in storage to electronic format.</td>
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<td></td>
<td>4) Improvement of Faculty and Staff competencies in the use of core software and IT services through both on-line/on-demand services like Lynda.COM and our own on-line courses and workshops.</td>
<td>Attendance and completion rates</td>
<td>IT OT&amp;L Human Resources</td>
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<td>Goal</td>
<td>Strategies</td>
<td>Key Metric</td>
<td>Key Unit/s</td>
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<td></td>
<td>a) Server Optimization and consolidation through Virtualization. This is a continuation of an initiative started in previous planning period.</td>
<td>(power usage effectiveness)</td>
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<td></td>
<td>b) Each refresh of new server equipment will meet the highest Energy Star rating as feasible.</td>
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<td>c) Eliminate redundant services.</td>
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<td>d) Continue to purchase Energy Star rated computing devices in offices.</td>
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<td></td>
<td>e) Continue to optimize client power setting with centralized workstation monitoring tools, e.g. KACE.</td>
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<td>f) Investigate desktop virtualization and its benefits related to energy utilization.</td>
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<td></td>
<td>6) Implementation of Unified Communications. Here we use the term Unified Communications to mean movement towards a unification of the various means of communication, i.e., the integration of real-time communication services such as instant messaging (chat), presence information, telephony (including IP telephony), video conferencing, data sharing (including web connected electronic whiteboards aka IWB's or Interactive White Boards), call control and speech recognition with non-real-time communication services such as unified messaging (integrated voicemail, e-mail, SMS and fax).</td>
<td>Satisfaction Surveys</td>
<td>IT Infrast.</td>
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<tr>
<td></td>
<td>a. Complete training on current AVAYA MM features.</td>
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<td></td>
<td>b. Accelerate the investigation of the entire suite of Microsoft Unified Communications products and their ability to integrate and coexist with other existing products, i.e., Exchange/Outlook, Sharepoint, Lync Server, etc.</td>
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<td>c. Extend Microsoft LYNC Pilot to IT Service Providers on campus.</td>
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<td>d. Integrate other UC features as they develop/mature.</td>
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<td></td>
<td>7) Review of our current model for WiFi cost recovery. The growth and dependence on WiFi networking for mobile devices is increasing exponentially. We will need to examine a variety of models for cost recovery.</td>
<td>WiFi network saturation data and cost</td>
<td>CTO, IT Exec and ITC</td>
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<tr>
<td>Goal</td>
<td>Strategies</td>
<td>Key Metric</td>
<td>Key Unit/s</td>
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<tr>
<td><strong>1)</strong> Improve Emergency Notification Services (ENS) with possible vendor change</td>
<td><strong>a.</strong> Provide reliable, multi-contact-path alerts, reduce annual per-user cost of service, increase campus participation rate, support use of ALL/Campus-wide as well as Targeted Group based on campus location or role with interfaces into the ERP/Portal including non-emergency alerts.</td>
<td>Participation Rate for ENS</td>
<td>IT CIO, IT Info Sec Commun. Public Safety Chief of Staff</td>
</tr>
<tr>
<td><strong>2)</strong> Reduce risk to University Information Technology (IT) assets and data sources:</td>
<td><strong>a.</strong> Improve security of campus network perimeter (edge) through enhanced firewall strategy and real-time monitoring and alerting.</td>
<td>IT Security Incidents</td>
<td>(Shared)</td>
</tr>
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<td></td>
<td><strong>b.</strong> Reduce malware infection of campus computer assets through automating the installation of security patches.</td>
<td>IT Infected/At Risk Events</td>
<td>IT Infrastr. Networks</td>
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<td></td>
<td><strong>c.</strong> Minimize occurrence of network intrusions and improve detection and response time for IT security events.</td>
<td>IT Intrusion Prevention Events</td>
<td></td>
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<td></td>
<td><strong>d.</strong> Increase awareness of security risks and strategies to protect digital resources through end-user education</td>
<td># IT Cyber-Threat Events</td>
<td>IT Infrastr. Systems</td>
</tr>
<tr>
<td></td>
<td><strong>e.</strong> Enable the mobile user access to appropriate digital resources in a secure manner; minimize risk posed by loss of a device which contains protected University resources.</td>
<td>IT Mobile Risk Events</td>
<td></td>
</tr>
<tr>
<td><strong>1)</strong> Reduce support costs, inefficiency and end-user confusion caused by current practice of having multiple user-identity accounts to access different University Information Technology (IT) services:</td>
<td><strong>a.</strong> Standardize on a common University-assigned authentication credential which allows for single-sign-on (SSO) to across campus IT services;</td>
<td>IT Service Desk Request Volume</td>
<td>IT Info Sec Enterprise Appl.</td>
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<td></td>
<td><strong>b.</strong> Extend the range of information available to the campus authentication infrastructure (Active Directory) to recognize current role and determine appropriate access rights.</td>
<td>IT SIEM Failed Auth Events</td>
<td>IT Infra Networks / Systems</td>
</tr>
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<td></td>
<td><strong>c.</strong> Integrate self-service password management and SSO functions into the campus web portal (myMU).</td>
<td>myMU Users Events</td>
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<td></td>
<td><strong>2)</strong> Enable process to establish cross-organization authentication between University users/resources and trusted external research and resource partners (i.e. NSF, TeraGrid, Educause, Blackboard, etc.)</td>
<td># of Partnerships</td>
<td>IT</td>
</tr>
</tbody>
</table>

**Page 24**
<table>
<thead>
<tr>
<th>Goal</th>
<th>Strategies</th>
<th>Key Metric</th>
<th>Key Unit/s</th>
<th>Fiscal Impact</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>3)</td>
<td>Leverage common campus identity/authentication credential to provide secure access to a growing number of externally provided IT services (i.e. identity federation with ‘cloud service’ partners and other institutions)</td>
<td>myMU Portal Ext. Service Redirects Enabled</td>
<td>IT Info Sec IT Enterprise Appl. IT Infra Networks / Systems</td>
<td>Cost Avoidance</td>
<td>2012-13</td>
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<td></td>
<td>a) Execute membership agreement to join InCommon.org service.</td>
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<td></td>
<td>b) Document and publish campus identity provisioning process to allow federation partners to determine trust (level-of-assurance);</td>
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<td>c) Pilot provisioning of digital certificates (x.509/PKI) which will enable digital signatures and message/file encryption.</td>
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<td>1)</td>
<td>Banner ODS (Operational Data Store) and EDW (Enterprise Data Warehouse). The ODS contains an up-to-the-minute snapshot of the Banner Production database that is intended to be the source of reporting data. The ODS implements additional views into data to make data extraction easier to perform. The EDW is the repository of data that has been cleaned, transformed, catalogued, and summarized and made available for use by departments for data mining and analytical processing.</td>
<td>Business unit survey on how RAP impacts their campaign design.</td>
<td>IT Infrast.</td>
<td>Increased student admissions and retention.</td>
<td>2011-12</td>
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<td></td>
<td>a) Implement the ODS and EDW in the production environment to support the RAP (Recruitment and Admissions Performance) reporting piece of BRM (Banner Relationship Management).</td>
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<td>b) Form a data warehouse working group to begin identifying BI opportunities beyond the RAP implementation.</td>
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<td>c) Implement first custom BI dashboard.</td>
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<td>2)</td>
<td>IT will expand its use of Project Portfolio Management with the use of FootPrints, SharePoint, Exchange, and Microsoft Project Server.</td>
<td>All IT Non-operational project activity can be accounted for, tracked and reported on using these three systems.</td>
<td>IT Exec</td>
<td>Future dedicated staff to this function may be desirable</td>
<td>2011-12</td>
</tr>
<tr>
<td></td>
<td>a) All projects involving maintenance and/or remedial correction on problems on existing production systems will be tracked in FootPrints.</td>
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<td>b) All projects involving a single functional group and/or less than one person per week will be tracked with SharePoint.</td>
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<td>c) All projects of greater complexity involving more than one person week and more than two functional areas will be tracked and reported through Microsoft Project Server.</td>
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<tr>
<td>Goal</td>
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| Expand Support for Research Efforts | 1) Provide a robust infrastructure and support for a growing research population.  
a) Expand data storage and management for on-campus and hosted services.  
b) Deploy locally only those services and software that make sense and are cost effective (i.e. BigData Analytics locally, REDCap remotely).  
c) Expand base support for central on-campus and hosted HPC Clusters  
d) Continue coordinating development of faculty skills in the use of TeraGrid and other NSF and hosted services.  
e) Provide skilled technical support for research computing infrastructure, operating systems and basic applications.  
f) Provide scalable, elastic and cost-effective virtual private cloud platform and infrastructure to service research faculty in provisioning new virtual machines in timely manner.  
g) Provide technical and administrative assistance in preparation of grants with computing components including data management plans and hardware specification and coordination with HPC hardware suppliers and vendors.  
h) Offer centralized and secure authentication platform for all research computer services and facilities in addition to support federated identity for visiting researchers (i.e. Shibboleth and InCommon).  
i) Continue to provide assistance in promoting cyber-infrastructure initiatives like TeraGrid/Xsede and NSF funded projects like CI-Train.  
j) Develop closer partnerships with other institutions’ IT research computing teams and coordinate hosting meetings and workshops. | Research KPIs | IT CIO/CTO IT Infrastr. VP Research | TBD           | 2011-16      |