The University of Arizona
Information Technology Strategic Plan and Metrics
2010-2014

Report to
The Arizona Board of Regents Technology Oversight Committee

September 23, 2009
Executive Summary

Key Accomplishments for 2008-2009

• Gained ABOR approval for the Mosaic Project Plan in April, 2008
• Launched the Mosaic project in May, 2008
• Established 10 Information Security policies, procedures and standards
• Completed the final phase of the UA Supercomputer Replacement Project including two major high performance computing systems – the June 2008 rankings by TOP500 and Green500 set the University of Arizona's Research Computing as the 237th most powerful computer in the world and the 50th greenest in the world in electrical usage
• Stabilized the communications infrastructure budget by transitioning to an FTE-based funding model starting July 2008
• Upgraded network core to 10-gigabyte
• Continued to expand wireless internet service – increasing campus coverage to 75%
• Continued growth and investment in scalable, centralized server hosting and administration
• Microsoft Campus Agreement implemented for faculty and staff providing for standardization and state of the art productivity tools
• Committed to Google for email and collaboration applications for students
• Established 24 x 7 IT support for students, faculty and staff – providing extended levels of service for desktop support, network connections and general technology issues
• Established the Mobile Help Desk to provide on-site technology support for UA Residence Halls
• Collaborated with the University libraries to eliminate the eReserves system – integrating electronic academic reserve materials into Desire2Learn (D2L)

Key Plans for 2009-2010

• Information Security Initiatives will continue to be a priority
• Mosaic Implementations:
  o Research Administration will pilot in Summer 2009
  o Human Resources will go live in October 2009 with Phase One
  o Student Administration phased go lives:
    ▪ September 2009 – Course Catalog and Schedule of Classes
    ▪ January 2010 – Campus Community bio/demo conversion
    ▪ February/March 2010 – Financial Aid and Student Financials part 1
    ▪ March 2010 – Student Records
    ▪ May 2010 – Admissions, for Spring 2011
  o Financial System will go live in January 2010
  o Business Intelligence development of dashboards, integration with Mosaic modules and collaboration with senior leadership
• Conduct upgrades to the core network, the internal building networks and the quality of service components, which include redundancy and stability
• IT Governance framework will be established
• Implement new collaboration environments including email, calendaring and messaging for faculty and staff
• Continue growth and investment in scalable, centralized server hosting and administration, storage and network management
Executive Summary (Continued)

Key Centralization Metrics for Planning Period

- % of campus with centrally provided wireless connectivity
- # calls into the central IT support center
- % university departments using centrally provided telephone and network services (measure represents # of departments not using central equipment)
- implementation of a centralized, common email and calendaring system for faculty and staff
- # centrally hosted virtual machines
- # centrally administered servers
- # centrally hosted and administered databases
- # centrally located disk arrays# centrally provided storage and computing cycles available to HPC
- implement centrally funded Microsoft Campus Desktop Enterprise Agreement for faculty and staff
- # centrally hosted enterprise level applications
1. **Introduction**

The University of Arizona, a public, land-grant, research institution, is dedicated to preparing students for an increasingly diverse and technological world, and to improving the quality of life for the people of Arizona and the nation. The University provides distinguished undergraduate, graduate and professional education; excels in basic and applied research and creative achievement; and integrates these activities and achievements of regional, national and international significance into everyday life.

The University of Arizona’s four major strategic priorities are as follows:

- Expanding access and enhancing educational excellence
- Increasing achievements in research, scholarship, and creative expression
- Expanding community engagement and workforce impact
- Improving productivity and increasing efficiency

**Positioning Information Technology within the UA Mission**

The University of Arizona is complex in both its organization and its technology, requiring that competing information technology needs be carefully evaluated and deployed to ensure the optimal investment of limited resources. The UA Information Technology (IT) Strategic Plan supports the University of Arizona’s Five Year Strategic Plan, but also stands alone to represent a comprehensive and dynamic blueprint that will serve as a foundation for future plans.

The purpose of The University of Arizona IT Strategic Plan is to:

- Present the guiding principles for developing and managing information technology at the University of Arizona.
- Identify the most important IT Strategic Initiatives that UA must address in the next five years in order to survive and thrive.
- Provide a prioritized list of initiatives and operational improvements to address the IT opportunities and challenges.
- Provide the pathway for faculty, staff, and students to have the latest technology tools for leadership in teaching, research, and career development.
- Position UA to equal or surpass our peer institutions in the use of technology for teaching, learning, research and overall effectiveness.

The UA possesses a first-class technology infrastructure and staff. There are many examples of excellent IT service delivery and expert project management approaches to IT throughout the university. The challenge is to weave these best practices into a transparent and comprehensive process for reaching university-level IT funding decisions while ensuring a set of common minimal service standards for all units and departments.
2. **IT Strategic Planning Climate**

The downturn of the state and national economy has created unprecedented funding challenges in FY09. These challenges had, and continue to have, both positive and negative impact. On one hand, there was considerable discussion about how to leverage technology in ways that would make up for shrinking resources, such as growing online courses. On the other hand, as demand for technology grew, state funding was diminishing for IT units as well.

These competing pressures have only served to increase the urgency to enhance the current information technology environment with seamless simplicity, robust and secure technology. The ability to provide advanced information technology remains a critical factor for the UA in achieving its teaching, research, and public service mission - to discover, educate, serve, and inspire. Expanded IT capability will provide the avenue to strengthen the University’s academic excellence, intellectual creativity, and spirit of community, even in these difficult economic times. To that end, it is even more important that, as a university, we adhere to the following basic objectives which directly impact the mission of the University of Arizona:

- Eliminate as much redundancy as is possible and sensible
- Look for solutions, programs and partnerships that are cost effective
- Find ways of utilizing all university IT resources, including Arizona University System (AUS) resources, more efficiently and collaboratively
- Recognize security as a common element within everything we do

With these objectives in mind, the following critical strategic statements are still applicable:

**Leadership, Funding and Governance**

University priorities must drive information technology strategies and investments. Measuring progress and performance, while evaluating the quality of information technology, is essential and must be continuously pursued. The UA must establish an improved information technology governance model to provide a clear framework for ongoing dialogue, collaboration, and coordinated decision-making within the university, and within the larger system. At the heart of the governance and leadership model must be just the right proportionality of centralized and distributed IT. Decision making must be driven by vital mission objectives.

**Security and Access**

The University’s information technology infrastructure and information environment must be stable, safe and secure. The institution must focus on making the environment more secure while maintaining the kind of access required of a public research-oriented university. Balancing security and access poses one of the greatest challenges to our ability to achieve our IT strategic vision.

**Services and Infrastructure**

The UA is an engine of discovery and advancement for society. Our IT services and infrastructure must support this vital role in all ways possible. University wide applications, systems, communications, devices and learning environment technologies must be integrated, accessible, and as easy to use as possible. Essential connectivity for the entire University, with basic standards of support, must be ensured so that all University constituents are able to communicate, collaborate, learn and disseminate, within and across disciplines and campus borders. Our Administrative Systems are fundamentally important to the business processes that facilitate all aspects of our institution and must be replaced as expeditiously as possible. This will allow us to become a more responsive and efficient organization that focuses on its core mission.
### Strategic Information Technology Goals

#### Within the context of the UA Strategic Priorities

<table>
<thead>
<tr>
<th>UA Strategic Information Technology Goals</th>
<th>UA Strategic Priorities</th>
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<tbody>
<tr>
<td></td>
<td>Expanding Access and Enhancing Educational Excellence</td>
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<tr>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>1. Improve student learning and success through technology related initiatives.</td>
<td>X</td>
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<tr>
<td>2. The communications infrastructure must be robust, reliable, standardized, consistent, state-of-the-art, and operating with continuous improvement and stable funding.</td>
<td>X</td>
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<tr>
<td>3. The university-wide information technology infrastructure must become more accessible, dependable, secure, flexible and scalable with services and tools that are integrated and state-of-the-art to meet the teaching, learning, research, and organizational needs of the University of Arizona and the surrounding community.</td>
<td>X</td>
</tr>
<tr>
<td>4. Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.</td>
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<tr>
<td>5. The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.</td>
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<tr>
<td>6. Members of the university community must become increasingly aware of their responsibilities, and accept accountability for minimizing the university’s exposure to the ongoing threats.</td>
<td>X</td>
</tr>
<tr>
<td>7. Provide an environment that encourages the use of technology to facilitate and enhance learning.</td>
<td>X</td>
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<tr>
<td>8. In support of research, the UA should provide broad support for basic collaboration technologies, continue its commitment to high performance computing and computation, and begin implementing more advanced technologies.</td>
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<tr>
<td>9. Ensure that appropriate information technology collaborations are being utilized in the support of the mission of The University of Arizona; to improve life for the people of Arizona and beyond through education, research, creative expression and community engagement.</td>
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<tr>
<td>IT STRATEGIC AREA</td>
<td>STRATEGIC GOAL</td>
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<tr>
<td>-------------------</td>
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<tr>
<td>STRATEGIC AREA #1: STUDENT LEARNING AND SUCCESS</td>
<td>1. Improve student learning and success through technology related initiatives.</td>
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Indicates Centralization Focused Metric
# THE UNIVERSITY OF ARIZONA INFORMATION TECHNOLOGY STRATEGIC PLAN 2010-2014

## Strategic Information Technology Goals with Metrics

<table>
<thead>
<tr>
<th>IT STRATEGIC AREA</th>
<th>STRATEGIC GOAL</th>
<th>METRIC</th>
<th>METRIC GOAL</th>
<th>CURRENT METRIC MEASURE (2009)</th>
<th>FUTURE METRIC MEASURE (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRATEGIC AREA #2: IT INFRASTRUCTURE</strong></td>
<td>2. The communications infrastructure must be robust, reliable, standardized, consistent, state-of-the-art, and operating with continuous improvement and stable funding.</td>
<td>% university departments using centrally provided telephone and network services (measure represents # of departments not using central equipment)</td>
<td>100% by 2014</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>implementation of FTE-Based funding model for centrally provided services</td>
<td>Complete by 2009</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% of campus with centrally provided wireless connectivity</td>
<td>10% growth per year</td>
<td>75%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$$ Invested in centrally provided network maintenance, upgrades and converged communications infrastructure</td>
<td>Static or increased ongoing funding</td>
<td>$14M</td>
<td>$14M</td>
<td></td>
</tr>
<tr>
<td></td>
<td># buildings with centrally provided converged communications infrastructure</td>
<td>5% growth per year</td>
<td>23</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. The university-wide IT infrastructure must become more accessible, dependable, secure, flexible and scalable with services and tools that are integrated and state-of-the-art to meet the teaching, learning, research, and organizational needs of the University and the surrounding community.</td>
<td>implementation of a centralized, common email and calendaring system for faculty and staff</td>
<td>Complete by January, 2011</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td># centrally hosted virtual machines</td>
<td>10% growth per year</td>
<td>28</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td># centrally administered servers</td>
<td>10% growth per year</td>
<td>363</td>
<td>585</td>
<td></td>
</tr>
<tr>
<td></td>
<td># centrally hosted and administered databases</td>
<td>10% growth per year</td>
<td>59</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td></td>
<td># centrally located disk arrays</td>
<td>10% growth per year</td>
<td>27</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td></td>
<td># centrally provided storage and computing cycles available to HPC</td>
<td>5x with technology refresh</td>
<td>16</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td># calls into the central IT support center</td>
<td>10% growth per year</td>
<td>26,000</td>
<td>41,873</td>
<td></td>
</tr>
<tr>
<td></td>
<td>implement centrally funded Microsoft Campus Desktop Enterprise Agreement for faculty and staff</td>
<td>Complete in 2009</td>
<td>100%</td>
<td>100%</td>
<td></td>
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<th>FUTURE METRIC MEASURE (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS</td>
<td>4. Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.</td>
<td>deliver Mosaic On time, On Budget and within Scope</td>
<td>By January, 2012</td>
<td>On Target</td>
<td>100%</td>
</tr>
<tr>
<td># centrally hosted enterprise level applications</td>
<td>1 additional application per year</td>
<td>29</td>
<td>34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Strategic Information Technology Goals with Metrics

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<tbody>
<tr>
<td><strong>STRATEGIC AREA #4: IT SECURITY</strong></td>
<td>5. The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.</td>
<td>establishment of a University Information Security Officer and a management framework</td>
<td>Complete by June 2009</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of a centrally defined risk assessment program</td>
<td>Complete baseline assessment in 2009 and reassess in 2012</td>
<td>50% of baseline assessment</td>
<td>100% of both baseline and reassessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of an incident management procedure</td>
<td>Complete by June 2009</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of a centrally defined vulnerability assessment program for systems and web applications</td>
<td>Complete by end of 2010</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of a centrally defined business continuity planning program</td>
<td>Complete by end of 2010, contingent of availability of resources</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of a University standard for antivirus/antispyware protection</td>
<td>Complete by June 2009</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>6. Members of the university community must become increasingly aware of their responsibilities, and accept accountability for minimizing the university’s exposure to the ongoing threats</td>
<td># recipients of monthly user awareness newsletter</td>
<td>10% growth per year</td>
<td>55%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td># presentations and seminars delivered internally (online and in person)</td>
<td>Variable depending on opportunities and initiatives</td>
<td>87 sessions</td>
<td>Variable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>website redesign to emphasize availability of resources by roles</td>
<td>Completed by 2010</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>holding an annual awareness event</td>
<td>1 event per year</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implementation of centrally-offered initial and refresher employee training</td>
<td>Completed by 2010</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
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<th>FUTURE METRIC MEASURE (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATEGIC AREA #5: ACADEMIC TECHNOLOGY</td>
<td>7. Provide an environment that encourages the use of technology to facilitate and enhance learning.</td>
<td># courses hosted on central learning management system</td>
<td>10% growth per year</td>
<td>82,092</td>
<td>132,210</td>
</tr>
<tr>
<td></td>
<td></td>
<td># attendees in centrally hosted forums for exploration and showcasing of technology usage in the learning environment</td>
<td>10% growth per year</td>
<td>1,200</td>
<td>1,933</td>
</tr>
<tr>
<td></td>
<td></td>
<td># Calls into the central IT support center</td>
<td>10% growth per year</td>
<td>26,000</td>
<td>41,873</td>
</tr>
</tbody>
</table>

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<tr>
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<th>METRIC GOAL</th>
<th>CURRENT METRIC MEASURE (2009)</th>
<th>FUTURE METRIC MEASURE (2014)</th>
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<tbody>
<tr>
<td>STRATEGIC AREA #6: RESEARCH COMPUTING</td>
<td>8. In support of research, the UA should provide broad support for basic collaboration technologies, continue its commitment to high performance computing and computation, and begin implementing more advanced technologies.</td>
<td># research groups hosted on the central High Performance Computing system</td>
<td>10 % growth per year</td>
<td>123</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deliver Kuali Coeus on time, on budget and in scope</td>
<td>Complete by January 2011</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td># centrally provided storage and computing cycles available to HPC</td>
<td>Sx with technology refresh</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$$$ value of external grants supported by the research groups on the HPC</td>
<td>5 % growth per year</td>
<td>$23M</td>
<td>$29M</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework and plan for ATIF - implement Shibboleth and join In-Common</td>
<td>By July, 2009</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td># institutions with ability to permit access based on partner institution credentials (In-Common)</td>
<td>10 % growth per year</td>
<td>116</td>
<td>187</td>
</tr>
</tbody>
</table>

Indicates Centralization Focused Metric
Strategic Area #1 – Student Learning and Success

Student learning and success are at the heart of the University of Arizona mission. Today's students have grown up with technology and bring very different expectations to their educational experience. Teaching emphasis has moved away from memorizing facts towards finding, evaluating, and using information. UA faculty and staff have a great opportunity to explore new modes of learning and to contribute to the development of how IT technologies can augment the learning experiences of our students. The UA must better understand the needs of students who are considering a UA education, as well as engage current students in various stages of their educational career.
STRATEGIC AREA #1: STUDENT LEARNING AND SUCCESS

Goal #1: Improve student learning and success through technology related initiatives.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Define minimum levels of service and connectivity for faculty and students across all fields of study.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:

- No progress has been made on a formal definition of minimum levels of service or connectivity; however, several notable accomplishments have been made in the delivery and sustainability of basic levels of IT services to all faculty and students:
  - Established 24 x 7 IT support for students, faculty and staff – providing extended levels of service for desktop support, network connections and general technology issues
  - Continued to expand wireless internet service – increasing campus coverage to 75%
  - Committed to Google for email and collaboration applications for students
  - Expanded Gear-To-Go equipment offerings for students and faculty classroom and course support
  - Established the Mobile Help Desk to provide on-site technology support for UA Residence Halls
  - Completed the Classroom Technology Proposal to define standards for classroom technology
  - Initiated a study to determine the factors necessary to grow and support successful online programs and to gather report information on current online learning activities
  - Continued site license enhancements that allow students and faculty to download software onto their own machines
  - Supported D2L growth to 82,092 student seats and automated the course creation process using enterprise data
  - See Strategic Area #2, Goal #2 for further enhancements in connectivity

2009-2010 Plans:

- Assuming stable funding we intend to continue and support the same or similar activities
- Work with campus constituents to define minimum levels of service and connectivity for faculty, staff and students across all fields of study

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Support a mobile computing environment that allows students to manage more effectively with a single device.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:

- Continued to expand wireless internet service – increasing campus coverage to 75%
- Committed to Google for email and collaboration applications for students – accessible via mobile devices
- Established 24 x 7 IT support for students, faculty and staff – providing extended levels of service for desktop support, network connections and general technology issues, resulting in more effective management by the student, faculty or staff member
- Continued site license enhancements that allow students and faculty to download software onto their own equipment
- Expanded loaner laptop program in many colleges, University Information Technology Services (UITS) and the Library
- Expanded Gear-To-Go equipment offerings for students and faculty classroom and course support

2009-2010 Plans:

- Implement a portal to facilitate service for faculty and students
**STRATEGIC AREA #1: STUDENT LEARNING AND SUCCESS**

Goal #1: Improve student learning and success through technology related initiatives.

### Action Item 2  continued
- Provide enhanced student and faculty services for administrative functions through Mosaic
- Explore integration of central applications to mobility devices such as iPhone and Blackberry

### Action Item 3  Augment IT orientations for incoming students.

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<thead>
<tr>
<th><strong>Percent Complete:</strong></th>
<th>100% and Ongoing</th>
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</table>

**2008-2009 Accomplishments:**
- Provided a mandatory 40 minute session during incoming student orientation, 7000 students
- Created Getting Started video (online self-help for new students)
- Produced and distributed “Bringing Your Computer to Campus” guides
- Hosted opening of school tent on the mall to orient new students to technology resources
- Provided integration of ALEKS, from McGraw Hill, for online math placement testing and automated results loading to Student Information System

**2009-2010 Plans:**
- Assuming stable funding we intend to continue and support all activities above

### Action Item 4  Offer ongoing university-wide materials, references, tutorials and other training resources for faculty and students in the common technologies they will need to be successful in their curricular pursuits.

<table>
<thead>
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<th><strong>Percent Complete:</strong></th>
<th>Ongoing</th>
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**2008-2009 Accomplishments:**
- Produced and distributed “Bringing Your Computer to Campus” guides
- Continued support of University of Arizona Computer Based Training (UACBT) where all UA faculty, students, and staff have access to over 700 free software and tech courses that can be taken online
- Expanded the student technology preceptor program (STP) allowing students to obtain critical technology skills while enhancing online course offerings
- Created the Skillful Researcher, a series of one-credit courses to support campus instruction and student research
- Implemented the Course Resource Organizer Service, which will provide course-level portal pages to library resources and services
- Conducted over 300 academic workshops for students and faculty in technology topics such as SPSS, Drupal and Microsoft Office
- Developed a plan for the expansion of online resources, tutorials, workshops and training components for instructor use
- Provided regular open lab sessions for instructors for obtaining enhanced skills in the D2L environment

**2009-2010 Plans:**
- Implement Right Answers
- Assuming stable funding we intend to continue and support all activities above

### Action Item 5  Hold periodic informal sessions with students to discuss technology issues and solicit feedback.

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<thead>
<tr>
<th><strong>Percent Complete:</strong></th>
<th>Ongoing</th>
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**2008-2009 Accomplishments:**
- Sponsored the Information Technology Student Advisory Board (ITSAB)
STRATEGIC AREA #1: STUDENT LEARNING AND SUCCESS

Goal #1: Improve student learning and success through technology related initiatives.

Action Item 5  continued

- Assisted ITSAB with polling the student body on priorities and technology issues
- Hosted open forums for specific items such as Google for students, as needed
- Conducted frequent and specific interactions with Associated Students of the University of Arizona

2009-2010 Plans:
- Assuming stable funding we intend to continue and support all activities above

Action Item 6  Increase the opportunities for faculty and students to experience and evaluate new technologies.  Percent Complete: Ongoing

2008-2009 Accomplishments:
- Hosted Project Bamboo/iPlant Workshops
- Upgraded equipment in the Virtual Reality Annex
- Provided a pilot for Illume, a web-based survey tool
- Provided Second Life for academic exploration
- Hosted open lab sessions for instructors to obtain enhanced skills in the D2L environment
- Expanded Gear-To-Go equipment offerings for students and faculty classroom and course support
- Continued support and growth of AZLive – 3-D environment for graphics, stereoscopic projection technology, acoustical tracking devices and four-channel audio to create the illusion of being present in a virtual world
- Continued growth and support of the Multimedia Learning Laboratory
- Collaborated with Microsoft to provide DreamSpark application development to students
- Hosted the Learning Technologies Showcase for faculty to share best practices of the use of learning technologies
- Hosted the Online Technologies Speed-Learning Event for faculty to experience online teaching tools
- Presented a hands-on workshop for a parallel computing course for student experimentation

2009-2010 Plans:
- Assuming stable funding we intend to continue and support the same or similar activities
Area #2 – Information Technology Infrastructure

The UA is an engine of discovery and advancement for society. Our IT infrastructure must support this vital role. We need to enhance the university-wide information technology infrastructure and make it more accessible, dependable, secure, flexible and scalable to meet the teaching, learning, research, and organizational needs of the University of Arizona and the community.

The UA network must minimally keep up with and preferably exceed the speed demands of the university and community. In 2003, the UA set in place a 10-year Network Master Plan which serves as a strategic direction for infrastructure improvements for the University. The UA has transitioned to an FTE-based funding model (July, 2008) with the core of this business model focused on upgrading the campus network, the internal building networks and the quality of service components, which includes redundancy and stability.

The University’s computing and storage infrastructure must also keep pace with the demands for reliable, interoperable and scalable capacity. The UA community increasingly relies on systems for administration, collaboration, communication, computation, learning and reporting. Computing facilities, data storage systems, middleware and systems integration services are crucial components on which application systems and IT services are built.
STRATEGIC AREA #2: IT INFRASTRUCTURE

Goal #2: The communications infrastructure must be robust, reliable, standardized, consistent, state-of-the-art, and operating with continuous improvement and stable funding.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Stabilize the current budget by transitioning to an FTE-based funding model starting July 2008.</th>
<th>Percent Complete: 100%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Complete

2009-2010 Plans:
- This action item will be removed from 2009-2013 action plan

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Conduct upgrades to the core network, the internal building networks and the quality of service components, which include redundancy and stability.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Upgraded network core to 10-gigabyte
- Implemented IPv6 on network core
- Implemented routing-at-the-edge in approximately 13 buildings
- Performed wiring and telecommunications room upgrades in 8 buildings
- Implemented new monitoring tool (Science Logic EM7) for network and server devices
- Provided CatNet domain and UA wireless services to the Phoenix BioMedical Campus (PBC) – eliminating the need to rely on Tucson for its networking, wireless and domain services

2009-2010 Plans:
- Develop plan to split the network core
- Upgrade buildings and wiring and telecomm rooms as funds become available
- Replace the Uninterrupted Power Supply (UPS) in the Computer Center serving the core data and voice-over-IP (VOIP) network equipment
- Replace the UPS in the Arizona Health Sciences Center (AHSC) hub site
- Upgrade the Gould-Simpson hub site
- Relocate appropriate core network equipment to Gould-Simpson

<table>
<thead>
<tr>
<th>Action Item 3</th>
<th>Complete the installation of wireless.</th>
<th>Percent Complete: 75%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Installed wireless capability in 7 buildings

2009-2010 Plans:
- Upgrade Wireless core to support 802.11n
- Continue installation as funding becomes available

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Continue the deployment of converged communication infrastructures.</th>
<th>Percent Complete: 10%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Implemented VOIP in 8 facilities
- Upgraded Unified Contact Center Express (UCCX)

2009-2010 Plans:
- Continue implementation of VOIP as funding becomes available
- Continue evaluating other convergent technologies
STRATEGIC AREA #2: IT INFRASTRUCTURE

Goal #3: The university-wide IT infrastructure must become more accessible, dependable, secure, flexible and scalable with services and tools that are integrated and state-of-the-art to meet the teaching, learning, research, and organizational needs of the University and the surrounding community.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Develop infrastructure and processes for collaborative development of common solutions and governance across units. This includes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Collaboration in IT governance, standards and processes</td>
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<tr>
<td></td>
<td>- Evaluation of localized management</td>
</tr>
<tr>
<td></td>
<td>- Optimizing server and systems administration investments where appropriate</td>
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<tr>
<td></td>
<td>- Optimize computing and storage investments by consolidating services where appropriate</td>
</tr>
<tr>
<td></td>
<td>- Optimizing and consolidating network management where appropriate</td>
</tr>
<tr>
<td></td>
<td>- Optimizing and consolidating other IT support functions where appropriate</td>
</tr>
</tbody>
</table>

Percent Complete: Ongoing

2008-2009 Accomplishments:

- Enhanced the IT governance, standards and processes collaboration
  - Formed the IT Transformation Committee to develop a portfolio of campus IT services and evaluate those service areas that could benefit from shared governance and provisioning
  - Established the Dean’s Information Technology Council (DITC) Executive Steering Committee to begin working with the CIO Office on defining UA IT Governance
  - Established AZFuse, a UA web developer collaboration forum directed at problem solving, skill development and development of shared resources and services
  - Formed several on campus partnerships to explore and prototype the Information Technology Infrastructure Library (ITIL) service methodology to define, plan, deliver and track IT services on campus.
  - Developed initial templates and standards for instructional website production
  - Collaborated with External Relations in the adoption of standard templates for all UA web pages

- Evaluation of localized management
  - Conducted 5 voluntary college and departmental IT assessments to evaluate areas of improvement in managerial, technical and campus collaboration

- Continued growth and investment in scalable, centralized server hosting and administration
  - Increased centrally hosted virtual machines to 28 for 13 different UA units on the ESX infrastructure
  - Increased centrally administered servers to 363
  - Increased centrally hosted and administered databases to 59 (72 GB) for 10 different UA units on Enterprise SQL infrastructure
  - Increased centrally located disk arrays to 27

- Continued growth and investment in scalable storage for consolidation efforts
  - Consolidated 58 servers from 2 units on campus
  - Developed processes for expanding High-Performance Computing infrastructure and storage as grant funds become available for collaboration
STRATEGIC AREA #2: IT INFRASTRUCTURE

Goal #3: The university-wide IT infrastructure must become more accessible, dependable, secure, flexible and scalable with services and tools that are integrated and state-of-the-art to meet the teaching, learning, research, and organizational needs of the University and the surrounding community.

**Action Item 1 continued**

- Continued consolidation of network management
  - Implemented CatNet and increased usage to 29 units, with over 2000 workstations and servers:
    - Supporting single-sign on with UA NetID
    - Integrating and improving user access to computing resources
    - Simplifying IT management
    - Strengthening campus IT security
    - Lowering campus computing costs by minimizing departmental needs for authentication support and domain controllers
  - Consolidated 3 more colleges’ and departments’ network management functions into central IT
  - Implemented Enterprise Directory Services (EDS) linked to UA WebAuth authentication

- Consolidation of other IT support functions
  - Established 24 x 7 IT support for students, faculty and staff; set up collaborations between UITS and 3 colleges for multi-tiered support structures and processes, resulting in over 26,000 calls to the center that were handled in a tiered approach
  - Reduced central backup charges by 50% to provide incentive for consolidation

2009-2010 Plans:

- Continue to enhance, expand and support all above activities
- Contingent on funding, prepare a plan to continue to reduce backup and storage costs for campus
- Re-engineer campus web hosting environment to provide more cost effective, secure and robust services

**Action Item 2**

<table>
<thead>
<tr>
<th>Provide state-of-the-art tools and infrastructure for real-time collaboration environments accessible from multiple departments, campuses, and private enterprise. This should include new learning tools and learning spaces that support multi-level interactions among students, instructors, and other academic partners.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:

- Committed to Google for email and collaboration applications for students
- Microsoft Campus Agreement implemented for faculty and staff providing for standardization and state of the art productivity tools
- Initiated the evaluation of Google and Microsoft collaboration environments for faculty and staff email, calendaring, messaging and documents
- Implemented a pilot Microsoft SharePoint as collaboration tool (Mosaic and UITS are pilot units)
- Piloted a new survey tool (Illume)
- Moved support for UA’s Second Life environment to UITS
- Expanded use of the UA’s iTunes U site for instruction, recruitment, and promotion
- Expanded use of the UA’s YouTube channel for instruction
STRATEGIC AREA #2: IT INFRASTRUCTURE

Goal #3: The university-wide IT infrastructure must become more accessible, dependable, secure, flexible and scalable with services and tools that are integrated and state-of-the-art to meet the teaching, learning, research, and organizational needs of the University and the surrounding community.

<table>
<thead>
<tr>
<th>Action Item 2 continued</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conducted a comprehensive review of synchronous online classroom software to replace the current outdated platform</td>
</tr>
<tr>
<td>• Eliminated the eReserves system – integrated electronic academic reserve materials into D2L, implemented single sign-on, and created a D2L library widget for ease of use</td>
</tr>
<tr>
<td>• Implemented WebEx for instant messaging, video conferencing and interactive editing</td>
</tr>
<tr>
<td>• Installed classroom capture and video conferencing systems installed in several colleges</td>
</tr>
</tbody>
</table>

2009-2010 Plans:
| • Implement new collaboration environments including email, calendaring and messaging for faculty and staff |
| • Complete pilot and evaluate deployment of Microsoft SharePoint university-wide |
| • Implement campus-wide Illume software |
| • Continue support of UA’s Second life, iTunes U and YouTube for instruction, recruitment and promotion |
| • Implement new synchronous online classroom software |
| • Continue to recruit faculty to participate in the UA’s Second Life environment and showcase best practices in the use of multi-user virtual environments |
| • Continue to enhance, expand and support all above activities |
Area #3 - Administrative Effectiveness
There is an ever-increasing need for accurate, integrated information not limited by existing functional boundaries. Our ability to address this need is restricted by systems that are aged and technologically out of date. Our administrative systems are surrounded by extensions, augmentations, and supplemental distributed systems maintained by individual departments and other operating units. There is no controversy at all over the need to replace our entire suite of administrative systems. With certain administrative systems in need of attention and growing dependencies, the institution has identified a strategy for modernizing the UA's administrative systems.

In February 2008, the UA CIO introduced the "Enterprise Systems Replacement Proposal" which outlines the roadmap for the replacement of the UA's administrative systems. The roadmap includes targeted solutions, resource requirements, high-level implementation timeline and projected budget. Many of the goals and actions listed here are a reflection of the actions to occur in a replacement effort.
STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS

Goal #4: Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Describe the overall blue-print for our ongoing and envisioned administrative systems and how they are and/or will be inter-connected.</th>
<th>Percent Complete: 100% and Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Gained ABOR approval for the Mosaic Project Plan in April, 2008. This project is a partnership of campus stakeholders to replace all major administrative systems creating a modern, interoperable, responsive, flexible business environment poised for future changes. The systems are:
  - Financial Systems (FS) – replaced by Kuali Financial System
  - Human Resources (HR) – replaced by PeopleSoft Human Capital Management
  - Research Administration (RA) – replaced by Kuali Coeus Research Administration
  - Student Administration (SA) – replaced by PeopleSoft Student Administration
  - Business Intelligence (BI) – Oracle Business Intelligence Suite Enterprise Edition (OBI EE) is a comprehensive suite of enterprise BI products that delivers a full range of analysis and reporting capabilities. OBI EE provides intelligence and analytics from data spanning enterprise sources and applications – expanding the availability of business information to managers and executives.

2009-2010 Plans:
- See Action Items below for specific plans regarding Mosaic implementation

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Based on the blue-print architecture, define a comprehensive roadmap for the integration and interoperability of the UA’s administrative systems.</th>
<th>Percent Complete: 75%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Completed (with ABOR approval) the Mosaic Project initiative plans for all modules
- Launched the Common Data Initiative within Mosaic to provide for the integration and interoperability between the Mosaic initiatives on a data definition level
- Continued to evaluate potential future initiatives in areas such as space management and promotion/tenure
- Evaluated portal options including PeopleSoft Portal and CampusEAI On Demand hosted portal solution to enable single sign-on to Mosaic and other auxiliary UA applications as collaboration opportunities are identified

2009-2010 Plans:
- Continue to engage in dialogue regarding future initiatives in areas such as space management and promotion/tenure
- Select and implement a portal solution, in support of Mosaic and other auxiliary UA applications
STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS

Goal #4: Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.

<table>
<thead>
<tr>
<th>Action Item 3</th>
<th>Identify the most cost-effective solutions for improving business operations and systems on the roadmap.</th>
<th>Percent Complete: 50%</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- Focused strongly on “Regent’s Vanilla” implementation of the Financial Systems, Human Resources, Research Administration, Student Administration, and BI
  - Strongly biased toward using the software as provided, with minimal customizations/modifications
  - Re-engineering current business processes when required
- Developed a well-defined process to evaluate and propose Mosaic customizations that are required in order to accommodate business best practices or specific UA requirements that may not be addressed in the software – compared with ERP projects at other universities; we are keeping the number of modifications very low
- Issued an RFP for Student Recruiting module that resulted in a substantial savings for Mosaic
- Delivered BI workshops to over 300 faculty and staff and Kuali Financial Systems workshops to over 100 faculty and staff. Through these workshops business operations faculty and staff are identifying the best ways to improve operations using the new tools.
- Established the Mosaic Community website – a professional networking site to connect end-users of the Mosaic applications to training, workshops and team members to provide forums for discussion and learning
- Supported mandatory enhancements to legacy systems, incorporating sustainability and reengineering into the roadmap:
  - Open benefits enrollment for employees
  - End of year processing (W2’s, 1098T, 403B)
  - Furlough processing
  - Tuition Calculation
  - 21 day reporting
- Incorporated new development projects into roadmap:
  - eCustoms
  - Promotion and Tenure
  - BuyWays for purchasing

**2009-2010 Plans:**
- Continue with “Regent’s Vanilla” implementation of the initiatives
- Continue to explore opportunities to improve business processes in the Student Administration implementation
- Evaluate various administrative systems, such as space management and promotion/tenure for future integration with the Mosaic Project

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Continually explore opportunities for collaboration on a Tri-University basis on administrative systems.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- Provided a PeopleSoft 9.0 demonstration environment for use by NAU
- Participated in a forum with NAU and ASU to discuss outsourcing the hosting function
STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS

Goal #4: Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.

### Action Item 4 continued
- Engaged key ASU personnel as consultants on Mosaic
- Shared information on a regular basis with ASU
- Shared information on PeopleSoft system modifications with NAU and ASU
- Hosted visit for ASU to see the Kuali Coeus system
- Visited ASU to review ASU’s security authorization

#### 2009-2010 Plans:
- Continue the collaboration and sharing of information with NAU and ASU

### Action Item 5

| Describe data warehouse architecture, capability, and usability as a support for administrative system operations as well as its current role in reporting and analysis. | Percent Complete: 15% |

#### 2008-2009 Accomplishments:
- Gained ABOR approval for the BI implementation plan in March 2009
- Integrated the BI initiative with each of the administrative system initiatives
- Introduced new tools for BI:
  - Oracle Enterprise Performance Management (EPM)
  - OBI EE
  - Hyperion
- Continued to evaluate additional subject areas beyond the original scope of the Mosaic Project that may benefit from the new BI tools
- Worked with senior leadership to map future evolution of BI

#### 2009-2010 Plans:
- Continuation of integration with the Mosaic initiatives, development of dashboards, and collaboration with senior leadership

### Action Item 6

| Implement significant human-resources-related improvement projects on payroll, time capture, and, subsequently, other elements of the related roadmap by adopting PeopleSoft Human Capital Management. | Percent Complete: 35% |

#### 2008-2009 Accomplishments:
- Gained ABOR approval for the HR implementation plan in August 2008

#### 2009-2010 Plans:
- The HR initiative will go live in October 2009 with the following modules in Phase One:
  - Time and Labor
  - Payroll
  - Workforce Administration
  - Benefits
  - Employee Self Service
- The HR initiative will go live in June 2010 with the following modules in Phase Two:
  - Talent Acquisition
  - Manager Self Service
STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS

Goal #4: Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.

<table>
<thead>
<tr>
<th>Action Item 7</th>
<th>Implement significant student information system related improvement projects for calendaring, course enrollment and management, and process automation, e.g., prerequisites, and then other elements of the related roadmap by adopting PeopleSoft Campus Solutions.</th>
<th>Percent Complete: 15%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
• Gained ABOR approval for the SA implementation plan in December 2008
• Implemented the Student Recruiting module, a hosted solution from Hobson’s EMT Connect on May 4, 2009

2009-2010 Plans:
• Continue the SA modules go live schedule:
  o September 2009 – Course Catalog and Schedule of Classes
  o January 2010 – Campus Community bio/demo conversion
  o February/March 2010 – Financial Aid and Student Financials part 1, for the Fall 2010 aid year
  o March 2010 – Student Records
  o May 2010 – Admissions, for Spring 2011
  o June 2010 – Initial Academic Advising roll out for the most populated degree programs
  o July 2010 – Student Financials part 2, Billing
  o December 2010 – Academic Advising roll out complete

<table>
<thead>
<tr>
<th>Action Item 8</th>
<th>Replace the Financial Records System with the Kuali Financial System.</th>
<th>Percent Complete: 50%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
• Gained ABOR approval for the Financial Systems implementation plan in August 2008

2009-2010 Plans:
• Continue the January 2010 Kuali Financial System go live schedule:
  o Chart, General Ledger, and Financial Processing
  o Purchasing/AP
  o Capital Assets
  o Labor
  o Accounts Receivables
  o Effort Certification

<table>
<thead>
<tr>
<th>Action Item 9</th>
<th>Replace the Sponsored Projects Information System (SPINS) with Kuali Coeus Research Administration.</th>
<th>Percent Complete: 10%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
• Gained ABOR approval for the RA implementation plan in August 2008

2009-2010 Plans:
• Rollout pilots for Chemistry and Respiratory Sciences in Summer 2009
• Full rollout of the RA Pre-award module is estimated to go live January 2010
STRATEGIC AREA #3: ADMINISTRATIVE EFFECTIVENESS

Goal #4: Business operations must be supported with tools and applications that are flexible, responsive, permit real-time web access, facilitate self-help, and ensure information integrity. The applications must be interoperable, modern and poised for future changes.

| Action Item 10 | Develop standards and templates for common “look-and-feel” and other functionality for presentation and application, maintenance, and development. | Percent Complete: 25% |

2008-2009 Accomplishments:
- Branded applications in Mosaic with the UA look and feel
- Evaluated portal options including PeopleSoft Portal and CampusEAI On Demand hosted portal solution to enable single sign-on to Mosaic, and other auxiliary UA applications as collaboration opportunities are identified
- Initiated development of templates for instructional website production
- Collaborated with External Relations in the adoption of standard templates for all UA web pages

2009-2010 Plans:
- Select and implement a portal solution, in support of Mosaic and other auxiliary UA applications
Area #4 – Information Technology Security

The University of Arizona is engaged in designing and implementing a comprehensive security program to protect sensitive information, reduce risk, and define roles and responsibilities. This vision will require sustained, broad-based effort for a number of years. Communication and collaboration among the Information Security Office, University IT Services and the university community will serve as its foundation. The conversation will establish the values and principles, set the risk tolerances and help define the environment that the security program supports and protects. Evolution and integration of security services and policies into University services and information architecture will serve to reduce the likelihood of security incidents and to increase the university community’s participation in securely managing and disseminating information.
Goal #5: The University's information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Security Organization and Management – A management framework led by an Information Security Officer or Director should be established to initiate and control the implementation of information security within the university. University leadership should approve the information security policy, assign security roles and co-ordinate and review the implementation of security across the university.</th>
<th>Percent Complete: 100% and Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Obtained final approval of the Information Security Policy and several supporting standards, published them and notified UA employees
- Established a network of Information Security Liaisons to serve as points of communication in academic and business units
- Established the UA Information Security Advisory Committee (UA-ISAC) mandated by ABOR Policy Manual Section 9-202(F) to review and recommend information security policies and standards, and to provide Program guidance and support
- Held initial meeting of UA-ISAC to:
  - Review and approve the Program plan and goals for 2009-2010
  - Review and recommend information security policies and standards drafted during the 2008-2009 academic year
  - Review the progress of the Personal Information Sweep, a university-wide process for inventory and remediation of Social Security, credit card and driver license numbers stored on networked computers
  - Obtain guidance and support for a proposed university-wide risk assessment
- Regularly reported to and obtained advice from governance organizations

2009-2010 Plans:
- Continue to report regularly to and obtain advice from governance organizations
- Establish and maintain reporting mechanisms for information security metrics

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Risk Management – Information security programs should be based on risk assessment and developed in consideration of university priorities, staffing, and budget. Risk assessments should identify, quantify, and prioritize risks against criteria for risk acceptance and objectives relevant to the university. The results should guide and determine the appropriate management action and priorities for managing information security risks and for implementing controls selected to protect against these risks.</th>
<th>Percent Complete: 10%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Conducted an informal risk assessment of auditable systems
- Eliminated the use of SSNs as primary student identifiers for currently enrolled students
- Implemented the Personal Information Sweep
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

Action Item 2 continued

- Implemented university-wide risk assessment procedures
- Implemented a program for compliance with the Payment Card Industry Data Security Standard
- Created a website describing risk assessment practices and providing basic and advanced tools
- Distributed drafts of Data Classification and Risk Assessment Standards for review and comment and obtained review by UA-ISAC
- Initiated a three-pronged security review of Mosaic enterprise systems replacement project, consisting of risk assessment, compliance check and automated scanning
- Posted compliance checklists for each of the information security standards on the UA Information Security website

2009-2010 Plans:
- Continue Mosaic security review
- Eliminate the use of SSNs as primary student identifiers for inactive students during the conversion of data for PeopleSoft and the replacement data warehouse
- Conduct a periodic, university-wide, formal inventory, risk assessment and compliance check, and develop a mitigation plan based on the results
- Implement due diligence and contracting requirements for third party service providers that have access to confidential UA data or that develop software applications for UA
- Seek review by UA-ISAC of the Data Classification and Risk Assessment Standards, and publish and implement them
- Seek to reduce the points of exposure on the university network

Action Item 3 Incident Management – Each university should implement clear procedures for reporting and handling of information security incidents. These procedures should include reporting of incidents to the ABOR Central Office as required by Board policy and other reporting as required by law.

<table>
<thead>
<tr>
<th>Percent Complete:</th>
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<tr>
<td>100%</td>
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</table>

2008-2009 Accomplishments:
- Obtained final approval for incident handling standards and procedures
- Established a virtual Security Incident Response Team (VSIRT) for emergency response for all escalated IT security events
- Revised incident handling standard and procedures to ensure consistency, identify roles and responsibilities, and to incorporate additional detail on how to investigate, contain and recover from or follow up on incidents, distributed them for review and comment and sought review by UA-ISAC
- Coordinated escalated incident response for the university
- Published revised incident handling standard and procedures and notify UA employees

2009-2010 Plans:
- Distribute brochure on incident response and handling
- Continue to coordinate escalated incident response for the University
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Applications Systems and Development Security – Each university should establish internal procedures for the secure handling and storage of its electronically-stored information to prevent unauthorized access or misuse.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Identified critical UA systems that store sensitive data by means of a risk assessment of critical systems
- Initiated a critical system registration program in conjunction with the Personal Information Sweep and registered 115 systems
- Acquired a web application security scanning tool, as part of a tri-university effort, and developed web pages and a Web Application Security Assessment Procedure
- Implemented a web application security scanning program, and obtained vendor training
- Distributed drafts of a Application Security Standard, Web Application Security Assessment Procedure and Critical Device Scanning Procedure for review and comment
- Initiated a security review of Mosaic project components, including application and system scans
- Obtained review by UA-ISAC of the Application Security Standard, Web Application Security Assessment Procedure and Critical Device Scanning Procedure, published and implemented them

2009-2010 Plans:
- Increase critical system registration through the IT inventory conducted with the university-wide risk assessment
- Continue scans of Mosaic project systems and applications
- Conduct a review of identified high risk systems following the risk assessment
- Implement university-wide procedures for development life-cycle, change management and configuration management

<table>
<thead>
<tr>
<th>Action Item 5</th>
<th>Telecommunications and Network Security – Each university should establish controls for changes to information processing facilities, systems, software, and procedures.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Implemented a university-wide network vulnerability scanning program
- Obtained external scans of network segments involved in payment card processing
- Obtained final approval of a Wireless Deployment and Management standard, published it and notified UA employees
- Increased departmental participation in protecting department subnets on the border firewall and to deploy additional virtual firewalls for departmental VLANs
  - Held two live firewall implementation training sessions for distributed IT staff, and made recordings available on the UA Information Security website
  - Improved website documentation and the web request mechanism
Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

### Action Item 5 continued
- Increased participation to approximately 296 virtual firewall contexts and 37 physical devices
- Offered a new web-based Secure Socket Layer (SSL) Virtual Private Network (VPN) service in addition to the existing IPSec version, with improved and more granular authentication mechanisms
- Deployed and tested Cisco Secure Desktop, a means of assessing system security posture, but encountered reliability and scalability issues
- Initiated two projects to improve intrusion detection capabilities for specific subnets
- Routed private addresses throughout the main campus network and made them available on request, with a border firewall change to allow access to off-campus networks
- Redeployed intrusion detection system to improve detection capabilities in the main UITS data center
- Increased the types of network traffic blocked by the border firewall to improve overall security and allow for improved proactive intrusion detection
- Instituted a remote access policy, requiring the use of the VPN to access the university network when connecting remotely, and blocking other insecure protocols
- Acquired a penetration testing tool

#### 2009-2010 Plans:
- Improve methods for analyzing general network traffic across the network border
- Continue network firewalling at the university network perimeter and on departmental subnets

### Action Item 6

**Security Architecture and Models –**

Information systems include operating systems, infrastructure, business applications, off-the-shelf products, services, and user-developed applications. The design and implementation of the information system supporting the business process can be crucial for security. Security requirements should be identified and agreed prior to the development or implementation of information systems.  

<table>
<thead>
<tr>
<th>Percent Complete:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
</tr>
</tbody>
</table>

#### 2008-2009 Accomplishments:
- Obtained final approval of the University Network Operational Security standard, published it and notified UA employees

#### 2009-2010 Plans:
- Review by the University Information Security Officer and UITS staff of Section 7 of the Tri-University IT Architecture (ITA) regarding security
- Report compliance with the ITA to the ABOR technology oversight committee
- Create and implement a remediation plan based on the compliance report
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University's information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

<table>
<thead>
<tr>
<th>Action Item 7</th>
<th>Access Control Systems and Methodology – Business requirements for access control should be documented and users should be made aware of their responsibilities.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:

- Received final approval for standards for access control, minimum security for networked devices, and server security, and related guidelines, published them and notified UA employees
- Implemented the Enterprise Applications Account Access Procedure to establish procedures for access to accounts for the major enterprise applications
- Established and enforced complexity and periodic change requirements for the UANetID password
- Made progress toward moving all UITS systems under the UANetID common authentication system, with more systems being promoted and included onto CatNet, the UA Microsoft Windows domain that uses UA UANetID authentication, and more applications authenticating using WebAuth, the central web authentication service
- Following the recommendations of the Burton Group report, the three Arizona Universities agreed to implement Shibboleth Identity Managers (middleware provided by Internet2) for their respective institutions as the Arizona Tri-University Identity Federation (ATIF), and to join the Internet2-sponsored “InCommon” identity federation (using their policies and practices as a foundation for ATIF’s)
- As part of the ATIF implementation team, adopted a project plan, and made progress as follows:
  - Officially joined InCommon
  - Implemented the Shibboleth Identity Provider (IdP)
  - Identified cross-institution applications, requiring federated identity management, including the IDEAL (Integrated Data to Enhance Arizona’s Learning) initiative’s TPREP application
- Announced availability of Shibboleth and Enterprise Directory Service, solutions for authenticating and authorizing access to online systems

2009-2010 Plans:

- Move all University IT Services systems under the UANetID common authentication system
- Continue participation in the ATIF project to study methods of allowing secure access among the three Arizona Universities
- Facilitate collaboration by data stewards and Mosaic project teams to ensure implementation of FERPA rules governing access to student information and other legal and regulatory requirements
- By means of the Application Security Standard, require all university applications handling sensitive personal information to enforce password complexity and require a periodic password change, to the extent possible
- Disseminate information on centrally available authentication and authorization solutions to assist with implementation of the Application Security Standard
- Revise the Enterprise Applications Account Access Procedure prior to implementation of Mosaic Project components
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

<table>
<thead>
<tr>
<th>Action Item 8</th>
<th>Enterprise Antivirus/Anti-Spyware Protection – Precautions are required to prevent and detect the introduction of malicious code and unauthorized mobile code. Users should be made aware of the dangers of malicious code. Managers should, where appropriate, introduce controls to prevent, detect, and remove malicious code and control mobile code.</th>
<th>Percent Complete: 100%</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Received final approval of standards requiring antivirus protection on all networked devices, published them and notified UA employees
- Incorporated continuing education about antivirus and anti-spyware resources, and recent trends in virus and spyware behaviors and characteristics, into the Education and Awareness program
  - Addressed in presentations made during Security Awareness Week 2008 and to students
  - Distributed an advisory on malicious software known as “Downadup” or “Conficker” to all students and employees

2009-2010 Plans:
- Conduct a review of the enterprise antivirus software for completeness in coverage, effectiveness, and approaching licensing deadlines (current license expires in 2010)
- Incorporate continuing education about antivirus and anti-spyware resources, and recent trends in virus and spyware behaviors and characteristics into the mandatory employee training under development

<table>
<thead>
<tr>
<th>Action Item 9</th>
<th>Operations Security – The university should establish controls over hardware, media and operators with access privileges over resources</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Obtained final approval of the Wireless Deployment and Management Standard and the University Network Operation Security Standard, published them and notified UA employees
- Implemented guidelines for secure file deletion as part of the Personal Information Sweep
- Made server and desktop security benchmarks and scoring tools available to system administrators, along with a presentation made during Security Awareness Week 2008 on how to use the benchmarks and scoring tools to comply with security standards
- Acquired a network vulnerability scanning tool and obtained staff training
- Initiated scanning of systems used in the Mosaic project
- Sought review by UA-ISAC of a Risk Assessment Standard, published and implemented it
- Distributed a draft Critical Device Scanning Procedure for review, comment, published and implemented it

2009-2010 Plans:
- Review the current security controls in place at the UITS data center, to include documentation of current resource protection, privileged entity controls, change controls, media controls, administrative controls and trusted recovery
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

Action Item 9 continued
- Conduct a review of operations controls and procedures and make appropriate recommendations for improvements or remediation of risks identified
- Use the periodic risk assessment as a preliminary tool for identifying critical risks for mitigation
- Scan systems used in the Mosaic project

Action Item 10
| Physical Security – The university should implement procedures and physical security measures to prevent and detect unauthorized access or damage to facilities that contain information systems. | Percent Complete: 100% |

2008-2009 Accomplishments:
- Published and implemented the access control standards, data facility security standards and the procedures for physical access to University IT Services’ data centers
- Implemented recommendations of Internal Audit staff in connection with an audit of physical access to the UITS data centers

2009-2010 Plans:
- Review the results of the periodic risk assessment for areas in which physical security of information assets can be improved
- Develop a mitigation plan for physical security risks following the completion of the periodic risk assessment

Action Item 11
| Business Continuity Planning – Each university should establish procedures for developing and maintaining disaster recovery and business continuity plans to ensure essential services and communications remain available in the event of damage, loss or disruption of information systems due to an emergency or disaster. | Percent Complete: Ongoing |

2008-2009 Accomplishments:
- Obtained final approval of a business continuity and disaster recovery planning standard

2009-2010 Plans:
- Contingent on Funding – Modify and rebrand for university-wide use UC Ready, a free, open-source application, to replace the university’s currently licensed business impact analysis and disaster recovery software, which has not been widely adopted
- Contingent on previous item – Publish and implement the business continuity and disaster recovery planning standard and associated guidelines with a university-wide effort to complete departmental plans
STRATEGIC AREA #4: IT SECURITY

Goal #5: The University’s information assets and technology environment must be increasingly and effectively secured in a consistent standardized manner without limiting our academic and research freedoms.

Action Item 12
Cryptography – Guidelines should be developed on the use of cryptographic controls to protect the confidentiality, authenticity or integrity of information by cryptographic means. Key management should be in place to support the use of cryptographic techniques.

Percent Complete: 100%

2008-2009 Accomplishments:
• Mandated the use of Secure Socket Layer (SSL) transport of users’ UANetID passwords for the central e-mail service
• Terminated all remaining dial-up modem service, which allowed unencrypted communications
• Established a working group to study whether there is a need for large scale support of encryption
• Completed the initial study and established guidelines for encryption
• Implemented encryption for sensitive personal information stored on devices attached to the UA network via the Personal Information Sweep

2009-2010 Plans:
• Facilitate efforts of the Export Control Officer relating to encryption
• Implement encrypted authentication requirements established by the Minimum Security for Networked Devices and Application Security Standards
• Contingent on Funding–Implement a centrally managed encryption solution
STRATEGIC AREA #4: IT SECURITY

Goal #6: Members of the university community must become increasingly aware of their responsibilities, and accept accountability for minimizing the university’s exposure to the ongoing threats.

2008-2009 Accomplishments:

- Distributed pamphlets during new employee and student orientations
- Contributed information security topics to the monthly new employee electronic newsletter and handbook, UA South employee newsletter, and UA advisors’ newsletter
- Delivered awareness presentations to UA freshmen
- Delivered awareness education to 7,042 incoming freshmen in student orientations
- Distributed monthly information security newsletters to employees
- During Security Awareness Week 2008, offered:
  - Information security advice to passersby on the UA Mall over three days
  - Six live presentations for general audiences, in two campus locations
  - Six live presentations for technical audiences
- Posted videos from Security Awareness Week 2008 online
- Augmented the UA Information Security website
- Offered IT staff training on implementation and management of internal firewalls
- Provided training for web developers on secure web-based development practices, including:
  - Awareness session on web application security during Security Awareness Week 2008
  - Application Security Tutorials web page with webcasts on application security essentials, best practices for writing secure code, and threat defense
  - AzIT Security Training web page with programming language-agnostic security training modules
- Conducted two annual training sessions required by the Payment Card Industry Data Security Standard university merchants that process credit card transactions
- Trained Information Security Liaisons on their responsibilities
- Distributed periodic directives, information and advice university-wide to move UA to a more proactive security posture

2009-2010 Plans:

- Distribute pamphlets during new employee and student orientations
- Incorporate information in electronic newsletters and other publications for employees and organizations
- Distribute monthly newsletters on information security topics monthly to employees
- Deliver awareness education to incoming freshmen in new student orientations and other venues
- Offer information security advice to passersby on the UA Mall
- Hold an Information Security Awareness Day
- Redesign the UA Information Security website to organize material by user role and to improve user convenience
- Contingent on Funding—Deliver computer-based new employee and refresher training meeting the annual training mandate of the Standard on Management Responsibilities for Information Security, and integrating standards and procedures
Area #5 - Academic Technology

The University of Arizona must continue to refine and develop instructional technologies and resources to provide instructors and students with a first class infrastructure for teaching and learning. As advancing technologies provide new opportunities for scholarship, the university must proactively and strategically pursue and develop these instructional tools with active input from students, faculty and staff to meet their evolving needs.
## STRATEGIC AREA #5: ACADEMIC TECHNOLOGY

Goal #7: Provide an environment that encourages the use of technology to facilitate and enhance learning.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Offer ongoing university-wide materials, references, tutorials and other training resources for faculty and students in the common technologies they will need to be successful in their curricular pursuits.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td>• See Strategic Area #1, Goal #1, Action Item #4</td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td>• See Strategic Area #1, Goal #1, Action Item #4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Identify an ongoing technology education, training, and literacy program to constantly update and improve the skills of faculty and instructional support staff in the use of instructional tools, software, databases, and other technologies.</th>
<th>Percent Complete: 0%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td>• No progress in developing a specific program</td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td>• No specific plans to develop a program 2009-2010</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Item 3</th>
<th>Provide opportunities for faculty to explore and pilot new technology initiatives.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td>• See Strategic Area #1, Goal #1, Action Item #6</td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td>• See Strategic Area #1, Goal #1, Action Item #6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Provide the faculty with instructional examples to stimulate imagination and creativity in teaching.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td>• Coordinated and presented the annual Technology Showcase in May, 2009</td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td>• Continue to hold the annual Technology Showcase in May (reading day) of each year</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Item 5</th>
<th>Offer annual forums for faculty to showcase technology usage in their courses.</th>
<th>Percent Complete: 100% and Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td>• Coordinated and presented the annual Technology Showcase in May, 2009</td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td>• Continue to hold the annual Technology Showcase in May (reading day) of each year</td>
<td></td>
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</tbody>
</table>
Area #6 - Research Computing

As a Research University, it is critical to the mission of the UA that we maintain a competitive position among our peers. Research serves to interconnect the UA campus with our community and university partners. Research today has an increased emphasis on interdisciplinary research and on research collaborations with industry. Our reliance on high performance computing and the need for sophisticated visualization, simulation and modeling software has far surpassed our expectations. Research computing is strategically important for the UA, is critical to the success of faculty research programs, and is an important factor in faculty recruitment and retention.

An important component of any research institution is the reliance and interaction with external entities. Funding agencies, foundations, and corporate sponsors provide a major fraction of the support for the University of Arizona. These entities, through reporting and auditing requirements, evaluate some parts of information technology use at the UA. To respond effectively, we need to streamline financial reporting systems to allow principal investigators to track expenditures and usage as efficiently as possible. Additionally, grant funding agencies are scrutinizing the availability of a robust networking and computing infrastructure as criterion in funding decisions. In all, our challenge remains to define where to make the investment of additional resources to support our researchers' needs.
STRATEGIC AREA #6: RESEARCH COMPUTING

Goal #8: In support of research, the UA should provide broad support for basic collaboration technologies, continue its commitment to high performance computing and computation, and begin implementing more advanced technologies.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Provide sufficient networking and computing resources to enable access to remote high-performance computing environments.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Completed the final phase of the UA Supercomputer Replacement Project including two major high performance computing systems – the June, 2008 rankings by TOP500 and Green500 set the University of Arizona's Research Computing as the 237th most powerful computer in the world and the 50th greenest in the world in electrical usage
- Developed a shared high performance computing system model for the research community that allocates a higher priority to the partner research groups in proportion to the funding that they provide and provides funding for continued upgrades to the computing resources
- Continued support and usage of TeraGrid
- Continued investments in CENIC, Internet2 and National LambdaRail
- Continued support and growth of AZLive
- See Strategic Area #2 for IT Infrastructure accomplishments that support Research Computing

2009-2010 Plans:
- Assuming stable funding we intend to continue and support the same or similar activities
- Evaluate participation and appropriateness in the Condor Grid project

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Provide and enhance user support to ensure the university community is able to access the university network and research computing resources.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Continued a dedicated Research Computing Services Support group for advanced technical and scientific support
- Provided training for several hundred research faculty and students in the use of Unix, C, Fortran, OpenMP, Parallel Programming, MPI and SPSS
- Presented a hands-on workshop for a parallel computing course for student experimentation

2009-2010 Plans:
- Assuming stable funding we intend to continue and support the same or similar activities

<table>
<thead>
<tr>
<th>Action Item 3</th>
<th>Provide options for storing very large data sets that can be actively accessed by multiple research groups.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
- Continued support and usage of TeraGrid
- Provided 50 terabytes of centrally available storage for participating high performance computing users

2009-2010 Plans:
- Assuming stable funding we intend to continue and support the same or similar activities
**STRATEGIC AREA #6: RESEARCH COMPUTING**

**Goal #8:** In support of research, the UA should provide broad support for basic collaboration technologies, continue its commitment to high performance computing and computation, and begin implementing more advanced technologies.

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Replace the Sponsored Projects Information System (SPINS) with Kuali Coeus Research Administration.</th>
<th>Percent Complete: 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• See Strategic Area #3, Goal #4, Action Item #9</td>
<td></td>
<td></td>
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<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• See Strategic Area #3, Goal #4, Action Item #9</td>
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</table>

<table>
<thead>
<tr>
<th>Action Item 5</th>
<th>Continuously upgrade and replace the high-performance computing systems to ensure a level of performance that satisfies the increasing demand for computational power.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Formed the Research Computing Governance Structure charged with:</td>
<td></td>
<td></td>
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<tr>
<td>o Advising on upgrade and replacements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Advising on use, policies and allocation of resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Continue to upgrade resources as funding becomes available</td>
<td></td>
<td></td>
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<tr>
<td>• Prepare for next upgrade cycle (2011)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Item 6</th>
<th>UITS should continue to participate with faculty on major research initiatives involving information technology, where it is appropriate and of institutional advantage. Further, UITS should provide proactive encouragement and supportive services that create opportunities where faculty from diverse disciplines might come together on collaborative projects involving information technology.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Participated in iPlant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Participation in workshops and information technology resource discussions</td>
<td></td>
<td></td>
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<tr>
<td>o Provided the first iPlant programmer access to the high performance systems for initial development of iPlant applications.</td>
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<tr>
<td>o Hosted joint iPlant and Project Bamboo conference at The University of Arizona</td>
<td></td>
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</tr>
<tr>
<td>o Proposed VM server(s) for iPlant administrative purposes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Advanced Project Bamboo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Participating in workshops and information technology resource discussions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Supported the Phoenix Lander (Mars) Project through network and storage projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Continue support and participation of these projects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STRATEGIC AREA #6: RESEARCH COMPUTING

Goal #8: In support of research, the UA should provide broad support for basic collaboration technologies, continue its commitment to high performance computing and computation, and begin implementing more advanced technologies.

| Action Item 7 | Continue the development of the Arizona Tri-University Identity Federation (ATIF) management project and produce a roadmap for each university to make research and academic collaboration easier and provide the ability to enter into other university and governmental identity management federations, nationally and internationally. | Percent Complete: Ongoing |

2008-2009 Accomplishments:
- See Strategic Area #4, Goal #5, Action Item #7

2009-2010 Plans:
- See Strategic Area #4, Goal #5, Action Item #7
Area #7 – Information Technology Strategic Alliances

The University of Arizona can nurture a collaborative environment by improving and formalizing communications between central and distributed information technology areas. The UA and ASU share expertise in supercomputing and have agreed to share the physical resources needed to provide for researcher needs.

One of the more intriguing collaborative efforts ongoing nationally among universities is the Open Source movement to write administrative software specifically for higher education. UA has established itself as a partner in the Kuali project, which is developing an open source university financial system (Kuali Financials System) and a related open source research administration system (Kuali Research Administration). Both ASU and UA have joined the Sakai open source initiative to write a course management system.

A tri-university initiative was launched to develop an Arizona Tri-University Identity Management Federation (ATIF). The goal is to establish a plan for forming the federation and produce a roadmap for each university to meet the goals of ATIF. Such a federation will make research and academic collaboration easier among the universities and will give them the ability to enter into other university and governmental identity management federations, nationally and internationally.

Our ongoing commitment to the joint establishment, design and maintenance of the Phoenix Biomedical campus between the UA and ASU, and now NAU has reinforced the need for partnering with our sister institutions to provide information technology services to our community and the state.

The information security leaders of the three universities regularly share information to leverage their collective knowledge and experience, and collaborate in developing policies and initiatives. In this manner, they have assisted in drafting an information security policy and supporting guidelines for the Arizona Board of Regents. Another initiative involves the selection of network and application vulnerability scanning solutions.
### STRATEGIC AREA #7: STRATEGIC ALLIANCES

**Goal #9:** Ensure that appropriate information technology collaborations are being utilized in the support of the mission of The University of Arizona: to improve life for the people of Arizona and beyond through education, research, creative expression and community engagement.

<table>
<thead>
<tr>
<th>Action Item 1</th>
<th>Improve technological collaborations with ASU and NAU as well as Arizona’s community colleges to facilitate interactions and build synergies that strengthen each University and the system as a whole.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- Supported Tri-University course development through D2L
- Collaborated with ASU on high performance computing workshops
- Collaborated on the annual Tri-University Information Technology Retreat
- Established monthly Tri-University network operations meetings
- Participated in regular CITO meetings
- See Strategic Area #4 for IT Security collaborations
- See Strategic Area #3, Goal #4, Action Item #4 for Mosaic collaborations
- See Strategic Area #4, Goal #5, Action Item #7 for ATIF collaborations

**2009-2010 Plans:**
- Continue to support these activities and others as opportunities arise

<table>
<thead>
<tr>
<th>Action Item 2</th>
<th>Collaborate on the selection, provisioning and operation of network and application vulnerability scanning solutions.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- See Strategic Area #4

**2009-2010 Plans:**
- See Strategic Area #4

<table>
<thead>
<tr>
<th>Action Item 3</th>
<th>Collaborate on information security awareness and training initiatives.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- See Strategic Area #4

**2009-2010 Plans:**
- See Strategic Area #4

<table>
<thead>
<tr>
<th>Action Item 4</th>
<th>Continually explore opportunities for collaboration on a Tri-University basis on administrative systems.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

**2008-2009 Accomplishments:**
- See Strategic Area #3, Goal #4, Action Item #4

**2009-2010 Plans:**
- See Strategic Area #3, Goal #4, Action Item #4
### STRATEGIC AREA #7: STRATEGIC ALLIANCES

Goal #9: Ensure that appropriate information technology collaborations are being utilized in the support of the mission of The University of Arizona: to improve life for the people of Arizona and beyond through education, research, creative expression and community engagement.

<table>
<thead>
<tr>
<th>Action Item 5</th>
<th>Continue the UA/ASU joint membership in CENIC (Corporation for Education Network Initiative in California) and National Lambda Rail.</th>
<th>Percent Complete: 100% and Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Completed</td>
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<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Continue to fund</td>
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<thead>
<tr>
<th>Action Item 6</th>
<th>Continue the development of the Arizona Tri-University Identity Federation (ATIF) management project and produce a roadmap for each university to make research and academic collaboration easier and provide the ability to enter into other university and governmental identity management federations, nationally and internationally.</th>
<th>Percent Complete: Ongoing</th>
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</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• See Strategic Area #4, Goal #5, Action Item #7</td>
<td></td>
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<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
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<tr>
<td>• See Strategic Area #4, Goal #5, Action Item #7</td>
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<thead>
<tr>
<th>Action Item 7</th>
<th>Continue to strengthen the interface between the Arizona Universities Network (AZUN).</th>
<th>Percent Complete: Ongoing</th>
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</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Continued to support the courses currently offered online through the UA and AZUN</td>
<td></td>
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<tr>
<td>• Continued to inform the students about the expanded options offered through AZUN</td>
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<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Continue to support online courses and inform students</td>
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<tr>
<th>Action Item 8</th>
<th>Continue the joint design and management of the Phoenix Biomedical Campus (PBC) between the UA, ASU and NAU.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2009 Accomplishments:</strong></td>
<td></td>
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<tr>
<td>• Participated in joint management of the PBC network between UA and ASU</td>
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<tr>
<td>• Provided CatNet domain and UA wireless services to the PBC – eliminating the need to rely on Tucson for its networking, wireless and domain services</td>
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<tr>
<td>• Renewed of service level agreement between UA and ASU</td>
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<tr>
<td><strong>2009-2010 Plans:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Collaborate with ASU and NAU on design of new Health Sciences Building and ABC-2 Building</td>
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<td></td>
</tr>
<tr>
<td>• Continue joint management of PBC network</td>
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</table>
STRATEGIC AREA #7: STRATEGIC ALLIANCES

Goal #9: Ensure that appropriate information technology collaborations are being utilized in the support of the mission of The University of Arizona: to improve life for the people of Arizona and beyond through education, research, creative expression and community engagement.

<table>
<thead>
<tr>
<th>Action Item 9</th>
<th>Create an inventory of open-source collaborations and potential open source solutions</th>
<th>Percent Complete: 0%</th>
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</thead>
</table>

2008-2009 Accomplishments:
• No progress on creating a campus-wide inventory

2009-2010 Plans:
• No plans for action in 2009-2010

<table>
<thead>
<tr>
<th>Action Item 10</th>
<th>Expand partnerships and programs throughout the state such as telemedicine and statewide networking.</th>
<th>Percent Complete: Ongoing</th>
</tr>
</thead>
</table>

2008-2009 Accomplishments:
• Held stakeholder meetings with College of Medicine, College of Agriculture, and Telemedicine
• Participated in Arizona Telecommunications & Information Council (ATIC) Strategy Committee
• Supported and provided information technology perspective to stimulus grant proposals state-wide
• Held meetings and/or obtained information from vendors such as Qwest and PAETEC regarding their capabilities to provide connectivity to remote locations

2009-2010 Plans:
• Continue to support these activities
• Explore opportunities to obtain federal stimulus grant funding for connectivity improvements