

Information Technology Strategic Plan

*Utah System of
Higher Education*



July 7, 2008



Table of Contents

Executive Summary	Page 3
Information Officers	Page 5
Trends	Page 6
Top Issues	Page 7
Central Coordination & Local Control Centrally Coordinated Efforts	Page 9
CIO Oversight Assignments	Page 13
Appendix A – Project Plans	Page 14
Appendix B – Distribution of HETI Funds.	Page 17
Appendix C – FY2008 Plan Results	Page 18

Executive Summary

Information Technology Strategic Planning Process

This plan is the result of discussions involving higher education Chief Information Officers (CIOs) representing all college and university campuses, the State Board of Regents, and the Utah Education Network. Consensus was reached regarding the values, vision, goals and action items that will support this plan. As a result of collaboration among the participants, this document will

- Identify information technology trends and top IT issues in Utah higher education.
- Determine which IT areas are best managed locally, on a specific college or university campus, and which initiatives would benefit from shared efforts and/or central coordination. Determine what role the UEN should play. Establish discussion forum for IT issues that will be managed locally.
- Develop a plan to advance and sustain critical IT functions within higher education in Utah, including legislative funding requests as appropriate.

Guiding Values

The IT planning process is guided by shared values and principles which include

- Central coordination and local control.
- Institutional collaboration.
- Common standards as a goal.
- Fiscal responsibility / efficiency.
- Openness / full disclosure among institutions and with governance and policy bodies.
- Reliable services.
- Some limited centrally provided services.

The Vision – Client Focused

The Information Technology plan envisions an environment wherein

- A full range of information services are available on demand, independent of time and place.
- Communications, media and information services are unified, integrated and delivered on converged networks and systems to improve functionality for the end user and cost effectiveness for the institutions.
- Information technologies and services are delivered with the end-user as the focus. End user expectations are met. Services are as easy to use as E-Bay and as comprehensive as Google, with every item of information free and searchable.
- Faculty and students enjoy the best possible academic experience on campus and on-line.

Core Enablers

Higher Education Chief Information Officer's planning, coordination, and collaboration efforts will focus on critical information technology components that serve as foundations which enable administrative and academic services.

Plans and Policies

CIOs will embrace best practices in the performance of their responsibilities. Plans and policies will be shared among institutions to advance the adoption of best practices. The Initial focus will be on IT security policy. Plans and policies will support legislative and regulatory requirements.

Administrative Systems

Most of Utah's colleges and universities have implemented the Sungard Banner system to perform administrative computing functions. The availability of administrative computing staff and level of operational expertise varies among institutions. Institutions are now collaborating on improving operations and service delivery. Such collaboration activities can range from knowledge sharing to system co-locations and shared staff specialists.

Information Technology Security

IT security continues to be a top priority for all higher education institutions. The ability to provide a high level of IT security varies among institutions. A coordinated effort can serve to raise the level the expertise that now varies significantly among colleges and universities.

Disaster Recovery and Business Continuity

Information technology has changed the face of education. Colleges and universities rely on IT resources for virtually every operational aspect of higher education. For students, faculty, researchers, health care providers, and staff, IT resources are not optional. All colleges and universities identify disaster recovery and business continuity as an area of continued importance.

Systems and Network Infrastructure

Colleges and Universities rely on campus network and server infrastructure for a comprehensive array of critical information services. Network reliability and capacity are critical components of viable security, disaster recovery and business continuity plans, and unified communications.

Efficient Use of Taxpayer Funds

Financial resources are limited. Software costs escalate each year, while critical infrastructure components are aging, in some cases, beyond their useful lives. The ability to retain key IT personnel is affected by changes in the economy and competition with the private sector. The provision of essential IT services is dependent on our ability to stretch funding resources. Coordinated purchasing, collaboration, and knowledge and resource sharing will help guarantee that our constituents receive the highest possible value from their tuition and tax dollars.

Chief Information Officers

Chair

Stephen Hess

Chief Information Officer, State Board of Regents

Members

Jean Fruth

Interim Chief Information Officer, Weber State University

Eric Hawley

Associate Vice President, Utah State University

Stephen Hess,

Chief Information Officer, The University of Utah
State Board of Regents

M.K. Jeppesen

Vice President, Utah State University

Gary Koeven

Dean, Information Services, Dixie State College

Shawn Lindow

Chief Information Officer, Snow College

Eric Mantz

Chief Information Officer, College of Eastern Utah

Mike Peterson

Executive Director, Utah Education Network

Glen Pryor

Associate Vice President for Technology, Southern Utah University

Jim Pulliam

Chief Information Officer, Salt Lake Community College

Mark Spencer

Associate Commissioner, Utah System of Higher Education

Kevin Taylor

Director, Planning and Policy, The University of Utah
State Board of Regents

Ray Walker

Assistant Vice President, Chief Information Officer, Utah Valley University

Trends

The identification of IT Trends within the Utah System of Higher Education reveals significant risks and opportunities

Network and Systems Monitoring

IT security, disaster recovery and business continuity requirements cause an increased need for network management tools, service monitoring, application monitoring, load testing software, and ITIL operational best practices.

Data Storage

The growth of administrative, academic, and research data is driving the acquisition of data storage systems. Successful business continuity plans require remote backup of data storage systems. Technology is emerging that allows schools to maintain separate “virtual” storage on shared storage systems.

Data Center Space

The growth of administrative, academic, and research data is consuming properly equipped data center space. Increased demands of the research community require high density computing clusters which in turn consume demand on electrical power, air conditioning resources, physical space, etc.

Regulation

There is interest at Utah State Legislature in addressing the potential availability of pornography through open campus wireless networks. While some schools have already addressed this issue using content filtering, others will work with UEN to implement filtering solutions.

Service Management

IT operations are increasingly adopting service management processes and techniques such as ITIL – IT Infrastructure Library best practices for IT service delivery. These processes require more formal process definitions, system testing, and monitoring tools. Not all schools have an adequate testing environment in which applications can be proven before placed into production.

Content Management

Content management is the ability to organize and present web-based information in a way that is most useful to the end users. Content management and portal services are becoming more important as the amount of web based information services increases. Some institutions have initiated branding initiatives that will require content management systems.

Portfolio and Project Management

IT departments are faced with an increasing demand to support new software and systems. Budgets have not allowed for increased staff to deal with the increased demand. Schools must do a better job prioritizing projects and managing them to successful completion. Portfolio management is a disciplined approach to facilitate the prioritization and resourcing projects.

Green IT

There is an industry-wide push toward environmentally responsible and sustainable IT practices.

Top Issues

Funding

New campus building construction occurs without consideration for the required increases in IT infrastructure. In spite of increased legislative appropriations, a large percentage of the installed base of server and network hardware is at or near the maximum recommended and supported life of the equipment.

The job market for IT professionals has improved, making salaries a major staff retention issue. HR position/pay analysis compares staff pay among institutions of higher education. Higher education is competing with the private sector salaries making institutional comparisons less meaningful. Campus HR organizations use CUPA as a standard for benchmarking IT salaries. The CUPA job titles do not match today's reality. The HEITS survey is a good alternative to CUPA. The HEITS job descriptions and salary information are more accurate and better reflect today's competitive environment.

IT Governance and Leadership

Membership in IT governance groups is shifting away from technical experts toward increased participation by end users. At some schools, technical participants on advisory boards and steering committees don't have voting rights. Instead, the end users drive the IT agenda. Governance groups need to be empowered to make their decisions and recommendations binding on the campus.

The reporting structure of the CIOs varies through the system of higher education. Some CIOs report to academic leadership, some report to administrative leadership, and others report to the President of the institution. CIOs that report to administrative VPs tend to address IT issues from a financial, administrative, and operational perspective. CIOs that report to Academic VPs tend to see IT through academic filters and focus on core infrastructure. Those CIOs that report directly to the President report the greatest success in addressing strategic, enterprise-wide IT requirements.

IT Security

IT security continues as a top priority on all campuses. In spite of its extreme importance, IT security has not been adequately funded. The FY2007 plan called for the organization of IT security audit teams to work with each institution to identify IT security issues and provide expertise to improve security capabilities on each campus. This effort has been successful and will continue, including follow-up on early audits.

Disaster Recovery and Business Continuity

Every campus expresses an increasing need for disaster recovery options.

- Most schools have entered into lease agreements for rack space at the Richfield data center.
- An RFI was issued to larger institutions to seek disaster recovery and banner operations support for smaller schools. The RFI was awarded to Weber State University to provide support to Snow College, Dixie State College, and College of Eastern Utah.
- Technologies have emerged that allow sharing of storage systems while allowing resource management for each participating institution.

Network Infrastructure and Management

- Disaster recovery plans are dependent on the availability of reliable, high capacity network connections to a remote disaster recovery site.

- Increased, or dedicated bandwidth capacity is required to keep up with the demands of researchers. This bandwidth may need to be dedicated for research purposes only.
- Network infrastructure plans must include the ability to support emerging applications and services such as Voice over IP, video, wireless connectivity, etc.

Systems Infrastructure

In spite of increased funding from the legislature, computing systems/servers are continuing to age beyond their serviceable life. Server virtualization and increasing capacity of new systems will help reduce the costs somewhat, but the demand for increased computing capability and the aging of existing systems exceeds efficiencies that can be gained through virtualization and computing capacity efficiencies.

Identity Management

Management of user identities for the purpose of authenticated access to systems and authorization to user services is an increasingly complex problem. The number and granularity of roles required to deliver specialized IT services is increasing. The ability to provision and de-provision services is increasingly important to guarantee data security and integrity and to meet end-user expectations for customized and personalized e-services.

Data Centers

Information technology resources must be located in controlled environments. Environmentally appropriate data center space, including sufficient and reliable electrical power, air conditioning, security, etc., is at a premium. Demand for such space is growing faster than the ability to construct it. Most campuses report that data center space is at or near capacity. Spending to maintain short term data center requirements is increasing, underscoring the need for long term data center solutions.

Course Management Systems – Faculty Development and Support

Campuses rely more heavily on course management systems to support and enhance classroom and on-line academic experiences. Reliance on a single course management system vendor has been a problem. Some campuses do not have sufficient support staff to assist faculty and students in the creation and use of on-line course tools. The demand for faculty support has grown, but the staff has not grown to match the increased demand.

Quality of Data Residing in Administrative Systems

Reliance on banner and oracle administrative systems highlights the need for up-to-date, accurate data. Reliance on the quality of data for administrative, academic, and emergency communications focuses a spotlight on the need for improved processes and workflows that feed data into administrative systems.

End-User Expectations – 24x7 Support

End user service expectations are constantly increasing. Users demand that academic and administrative services and systems be available 24 x 7. End user tolerance for system down time or lack of system availability outside of regular business hours is declining rapidly as the criticality of academic and administrative applications increases.

Keeping Abreast of Technology Changes

Technology is evolving at an increasing pace, making it more difficult for CIOs to be aware of new technology solutions and emerging technology trends. The need for specialized expertise in new technology is becoming more apparent along with the ability to architect solutions that can take advantage of changing technology. Architectural work can be shared among institutions.

Central Coordination and Local Control

This plan gives specific attention to which IT functions would benefit from some level of central coordination and collaboration, and which functions rely on the efforts of the Utah Education Network

Centrally Coordinated Efforts

The following are areas where every institution may benefit from centrally coordinated and collaborative efforts.

Administrative Systems

The Board of Regents has reported that important administrative data received from the colleges and universities is not always consistent and sometimes is not received on a timely basis.

Recommendations

- The Banner Systems Committee was organized two years ago to address various end-user and operational issues related to the Banner system. Jean Fruth, Weber State University, and Jeanette Ormond, South Utah University, will continue to supervise the efforts of the working Banner committees. The functional committees dealing with financial, HR, student services, etc., will meet regularly, as discussion/agenda items become apparent. Standing weekly meetings are not required. Annual user's conferences will continue to be an effective tool for sharing information regarding banner functionality and operational issues.
- This is the second year that Weber State University is supporting College of Eastern Utah, Dixie State College and Snow College. Depending on the needs at each school Weber is offering data base support, assistance in upgrading and maintaining Banner software versions and the implementation of portal services. Weber State University is also providing support for system monitoring and disaster recovery services with back-up systems located at the Richfield data center.

Disaster Recovery and Business Continuity

The Disaster Recovery Committee has actively pursued the creation of a back-up and hot site at the Richfield data center. At this time, most institutions have entered into lease agreements for rack space in the Richfield center. Each school is establishing a disaster recovery presence at the center. Weber State University is in the process of gathering requirements and planning for disaster recovery capabilities for themselves and for CEU, DSC, and Snow. UEN is currently able to support disaster recovery data backup but does not have enough capacity to support full business continuity (hot site) capabilities. Even with recently added capacity, the network cannot handle all of the data transport requirements.

Recommendations

- Define requirements for network connectivity to support disaster recovery and business continuity. Work with UEN to establish a business case for increased network capacity.
- Implement a disaster recovery site to be located in the Richfield data center that will be shared by Snow College, College of Eastern Utah, and Dixie State College and serviced by Weber State University. Establish Service Level Agreements for supported schools.
- Weber State University and Utah Valley University will co-chair an effort to determine the feasibility of establishing a shared, virtualized storage facility that may be shared by all institutions in the state.

System Wide Data Center Requirements

Every institution reports significant data center capacity issues. In the past year, institutions spent millions to extend the life of existing data center facilities. Only one school reported that their computing systems reside in a facility that was specifically planned to be a data center. Most others are doing their best to condition existing space. This situation does not align with end-user expectations for 24x7 reliability and availability. Each school made a determination of their space requirements for the near term. Institutions reporting that their near-term space availability is adequate include Utah Valley State University, Southern Utah University, Utah State University. All schools report limitations on UPS, power, and air conditioning capacity.

Recommendations

- The CIOs will position their institutions to take advantage of centralized data center resources as their needs develop. The University of Utah has acquired the data center located at 900 South West Temple which may be used by all institutions.
- Because space is scarce on all campuses, consideration should be given to the future possibility of co-locating all campus computing facilities in a single hosted data center in the future.

Project and Portfolio Management

IT projects continue to grow in quantity and complexity, making it difficult to successfully manage projects to deliver anticipated services. In the USA between 1/3 and 2/3 of all IT projects exceed budget and anticipated time of completion, in part because of poor project prioritization and management. Of the most expensive IT projects, approximately one half are never completed.

Some schools have set a priority to establish or improve data project portfolio management.

Recommendations

- Assess portfolio management functions that exist at each campus. Survey processes that are in place at peer institutions across the country.
- The University of Utah will formalize portfolio management and will share information with other institutions about processes, tools, lessons learned, etc.

Performance/ Operations Metrics

Collaboration between institutions has highlighted a need to set common standards for system and network performance and methods to measure performance against standards. End users expect 24x7 access to information and services. Project and portfolio management focuses on a schools ability to manage its resources to complete IT projects. Performance and operations management is intended to ensure a high level of end user satisfaction.

Recommendations

- Organize systems and network assessment teams to work with and advise each institution. These teams will be modeled after the security audit teams and will be charged to audit network and systems performance, assess architectures and configurations, make recommendations for improved operations, etc.
- Conduct Compuware training on an annual recurring basis.
- Define baseline information for current operations and develop standards for operational performance.

- Determine what training, best practices, and tools are required to measure operational performance.
- Set up collaboration tools (i.e., a WIKI) to serve as an on-line forum to share information regarding system performance, monitoring, troubleshooting and other operational information.
- Use ITIL operational best practices where appropriate. Engage an ITIL consultant or in-house experts to review ITIL principles with the CIO group.

Information Technology Security

IT Security is an area where it makes sense for higher education institutions to join forces and coordinate efforts. Our institutions employ excellent IT security professionals who are able to share their expertise to raise the level of IT security through the Utah system of higher education. In the past year, the IT Security and Disaster Recovery Committee has organized audit teams that are visiting each school to determine IT security strengths and weaknesses, to make recommendations, and offer assistance in implementing changes.

Recommendations

The IT Security and Disaster Recovery Committee audit teams will continue to assess the capabilities of each school and will perform an annual follow-up on schools that have already been assessed. The team will continue to focus on

- Continue with annual IT security audits. To facilitate the transfer of audit skills to the campuses, rotate the audit staff to include different IT professionals from each campus.
- Annual audits will include a review of campus IT Security Plans.
- IT Security Practices. Develop best practices for preventative and operational security.

Financial Planning

Higher Education CIOs together with the State Board of Regents office will work together to organize budgets and possible funding requests to address plans that emerge from the committee efforts that have been organized.

Recommendations

- Funding for infrastructure, software and disaster recovery.
 - Focus on developing a sustainable funding plan for Hardware infrastructure replacement. The aging infrastructure serving critical IT processes and resources places all institutions at risk. Typical server life is 5+ yrs. Much of the existing server infrastructure is either rapidly approaching, has met, or currently exceeds the useful life of these important machines. These aging machines will be identified for replacement. Last year approximately \$8 million was identified as the requirement to replace equipment that was beyond its projected life. \$4 million in one-time costs was requested. The 2008 legislature appropriated \$815,000 in one-time funds. Last year's appropriation targeted the replacement of critical equipment over 5 years old (6+ years). The data showed that equipment 5 years old, was roughly equal to all equipment in the 6+ category.
 - In preparation for the 2009 legislative session the CIOs will prepare a report describing how legislative appropriations were used to upgrade the existing infrastructure. The reporting process will be repeated each year to ensure that funds are spent in accordance with the legislature's intent.

- The CIOs will formulate a plan to decrease reliance on one time funding for IT equipment replacement. The total cost of network and server infrastructure will be identified by each school. Because the anticipated life of this equipment is 5 years, the CIOs will propose an ongoing funding plan that resembles building O&M funding models and anticipates refreshing the infrastructure over a 5 year cycle. The CIOs will request a mix of one-time and ongoing funds to begin replacing aging infrastructure.

Leadership

CIO Oversight Assignments

Committees that are currently operating or planned will function under the oversight of assigned CIOs.

Jean Fruth Weber State University Jeannette Ormond Southern Utah University	Administrative Computing (Banner) Committee System Support for Snow, CEU, DSC
Steve Cobb Weber State University Roark Fisher Utah Valley University	IT Security, Disaster Recovery and Business Continuity Committee
Ray Walker CIO, Utah Valley State College Eric Hawley Associate Vice President, Utah State University	Network & Systems Infrastructure and Unified Communications
Stephen Hess CIO, Utah System of Higher Education Mark Spencer Associate Commissioner of Higher Education	Legislative Funding Initiatives

APPENDIX A
PROJECT PLANS
FY 2009

Administrative Systems

<p>1. Oversee the efforts of Banner committees currently in place. Improve organization as needed.</p> <p>a. What resources are necessary for efficient Banner operations at all schools?</p> <p>b. What productivity and functional gains occur as resources are added?</p> <p>c. Determine methods of improving reporting for all institutions.</p> <p>d. Define end-user needs and match to technical requirements.</p>	<p>Responsible: Jean Fruth, WSU and Jeanette Ormond, SUU or co-chairs of working committee under direction of the CIO, WSU.</p> <p>Timeline: Ongoing</p> <p>Budget: N/A</p> <p>Comments: Committee meeting is held weekly via UEN. Weeks are dedicated to specific disciplines (hr, payroll, student services, etc.) Entire committee meets quarterly.</p>
<p>2. Continue definition of specific support requirements for Snow, CEU, and DSC. Develop and implement service level agreements for administrative system support and disaster recovery plans for Snow, CEU, DSC based on requirements defined by each of the served institutions.</p>	<p>Responsible: CIO, WSU</p> <p>Timeline: September 08</p> <p>Budget: N/A</p> <p>Comments:</p>

Information Technology Security

<p>1. Continue IT security audits and follow up on schools already audited. Set up schedule for annual audits.</p>	<p>Responsible: Security Committee</p> <p>Timeline: January 09</p> <p>Budget: N/A</p> <p>Comments:</p>
<p>2. Ensure that each campus has a security plan in place.</p>	<p>Responsible: Security Committee</p> <p>Timeline: January 09</p> <p>Budget: N/A</p> <p>Comments:</p>
<p>3. Refine best practices for operational and preventative IT security.</p>	<p>Responsible: Security Committee</p> <p>Timeline: March 09</p> <p>Budget: N/A</p> <p>Comments: :</p>

Disaster Recovery and Business Continuity

<p>1. Continue development of technical requirements and service level agreements necessary for the operation of a “hot-site” disaster recovery facility. Focus on services for small schools, with capability to expand to include all institutions.</p>	<p>Responsible: Disaster Recovery Team</p> <p>Timeline: January 09</p> <p>Budget: N/A</p> <p>Comments: Each institution will identify and document critical business processes and conduct a business impact analysis. Service level agreements will be aligned with each institution’s requirements.</p>
<p>2. Seek equipment infrastructure funding for storage infrastructure with capability to provision virtualized, locally managed storage on a shared platform.</p>	<p>Responsible: Disaster Recovery Team</p> <p>Timeline: January 09</p> <p>Budget: Existing funds.</p>

System and Network Infrastructure

<p>1. Define network connectivity requirements to support disaster recovery and business continuity.</p>	<p>Responsible: CIOs, Mike Peterson</p> <p>Timeline: October 08</p> <p>Budget: UEN Budget</p>
<p>2. Working with a state cyber-infrastructure committee, determine the need for dedicated bandwidth to support research initiatives throughout the state.</p>	<p>Responsible: Julio Facelli, UofU and Thomas Hauser, USU</p> <p>Timeline: January 09</p> <p>Budget: NA</p>
<p>3. Maintain complete inventory of network and server infrastructure. Organize inventory by factors such as cost, age, application served, production, development, and test. ID systems that require replacement. Replace oldest production systems with new equipment.</p> <p>Note: Over time the trend should show older equipment moving out of production into development and test environments.</p>	<p>Responsible: Ray Walker and Infrastructure Committee</p> <p>Timeline: August 08</p> <p>Budget: See Financial Planning Section</p> <p>Status:</p>
<p>4. Share Unified Communications Architectures as they are developed.</p>	<p>Responsible: Eric Hawley and Infrastructure Committee</p> <p>Timeline: Ongoing</p> <p>Budget:</p> <p>Status:</p>

Financial Planning

<ol style="list-style-type: none">1. Develop a funding plan to replace old infrastructure.<ol style="list-style-type: none">a. Identify equipment that must be replaced due to age or lack of vendor support.b. Prepare an equipment replacement schedule based on the total inventory of network and server infrastructure. Replace aging equipment as a part of planned operations and maintenance.	<p>Responsible: Stephen Hess, Mark Spencer</p> <p>Timeline: October 08</p> <p>Budget: (a) \$ 1M aging infrastructure one time (b) \$1M aging infrastructure ongoing</p>
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APPENDIX B
FUNDING REQUEST

Increase in Ongoing Annual Costs

1. Hardware	\$1 Million
TOTAL ONGOING	\$1 Million

One Time Costs

1. Hardware replacement of aging infrastructure	\$1 Million
TOTAL ONE TIME	\$ 1 Million

APPENDIX C
FY2008 Plan Accomplishments

Unified Messaging

1. Share Unified Communications Architectures as they are developed	We have shared existing architectures and will continue to share emerging architectures that are being considered by each institution.
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Campus IT Governance

1. Survey governance processes (committees, councils, advisory bodies, etc) and determine their impact on decision making and compliance with policy and procedures	All campuses have advisory councils that are representative of campus population. Some schools have had problems including faculty in the process – perceived as technical committee. Committees should involve strategic thinkers. Leaders often send operational staff which weakens the process.
2. Survey CIO reporting lines and assess impact of different reporting lines on ability to provide enterprise wide services.	CIOs report to President at UofU, USU, WSU, Snow, and CEU. Others report to administrative or financial officers.

Administrative Systems

1. Oversee the efforts of Banner committees currently in place. Improve organization as needed.	The committee functions as needed. Schools need less help as capabilities have matured. Various conference sessions are organized to address banner and other specialized software tools. Schools are upgrading to Banner 8 or 8.1.
2. Define specific support requirements for Snow, CEU, and DSC. Develop and implement service level agreements for administrative system support and disaster recovery plans for Snow, CEU, DSC based on requirements defined by each of the served institutions.	Snow, CEU, and DSC are all receiving technical support from WSU.
3. Compare cost of operations based on use of different computing and operating system platforms. (e.g. Unix vs. Linux, Sun vs. Intel)	<p>Cost effectiveness is varies at each school. Availability of support, clustering software, etc. Linux: DSC, SUU, USU (Red Hat) Sun: All others. Combination: WSU</p> <p>COBOL compilers are needed for Banner financials.</p>

Information Technology Security

<p>1. Continue IT security audits and follow up on schools already audited. Set up schedule for annual audits.</p>	<p>Responsible: Security Committee</p> <p>Timeline: January 08</p> <p>Budget: N/A</p> <p>Comments:</p>
<p>2. Ensure that each campus has a security plan in place.</p>	<p>Security Plan: UofU, WSU, UVU, USU. Others in process and will be ready by next audit. Information Security Officer: UofU, USU, UVU, CEU, DSC (open position), SUU, SLCC. (some are part time with other responsibilities) PCI compliance requires external audit if quantity of transactions threshold is met.</p>
<p>3. For each campus establish policy that outlines the roles and responsibilities of data stewards, custodians, managers, and end-users.</p>	<p>Security Policy: Schools have adopted the Board of Regents model and/or adapting it to institutional needs.</p>
<p>4. Determine an appropriate set of tools to be available to each institution for monitoring and define best practices for network and systems monitoring.</p>	<p>Not complete</p>
<p>5. Ensure that all IT personnel responsible for IT security are participating on the Utah SAINT (incident response) team.</p>	<p>All institutions participate</p>
<p>6. Determine if appropriate infrastructure is in place to support IT security best practices. Compare current practices with best practices and identify funding issues that prevent closure of the gap between current and best practices.</p>	<p>Not complete.</p>

Disaster Recovery and Business Continuity

<p>1. Continue development of technical requirements and service level agreements necessary for the operation of a “hot-site” disaster recovery facility.</p>	<p>Committee recommended individual efforts at each school.</p>
<p>2. Seek equipment infrastructure funding for a hot-site to be located in the Richfield data center including storage infrastructure with capability to provision virtualized, locally managed storage on a shared platform.</p>	<p>UofU, SUU are in Richfield. USU is using innovation campus with intent to expand operation to Richfield.</p> <p>UVU Wasatch campus can be used for a northern site to serve schools in south.</p> <p>Weber will have backup for WSU, DSC, Snow, CEU (soon).</p>

System and Network Infrastructure

1. Establish permanent funding source for SEGP Internet 2 traffic. Sponsored Education Group Participants (SEGP) are institutions affiliated with 12 participating schools (UofU and USU).	Funded
2. Define network connectivity requirements to support disaster recovery and business continuity. Upgrade the network backbone network to 10 Gig to support disaster recovery AND business continuity operations at the Richfield data center.	Done. Some schools do not require 1Gig capacity yet, but capacity can be increased in 1 Gig increments. High traffic areas are being relieved to increase capacity of 1Gig links.
3. Working with a state cyber-infrastructure committee, determine the need for dedicated bandwidth to support research initiatives throughout the state.	Were not successful in getting legislative appropriation.
4. Identify network monitoring and management tools to improve network operations. Determine viability of Oracle monitoring software. Determine if coalition exists to support purchase of other monitoring software.	UEN Weather Map
5. Maintain complete inventory of network and server infrastructure. Organize inventory by factors such as cost, age, application served, production, development, and test. ID systems that require replacement. Replace oldest production systems with new equipment.	Accomplished. Is being repeated and refined this year.

Financial Planning

1. Develop a funding plan to replace old infrastructure and to cover increased software costs. c. FY07 funded \$900K for software increases. d. Identify equipment that must be replaced due to age or lack of vendor support. e. Prepare an equipment replacement schedule based on the total inventory of network and server infrastructure. Replace aging equipment as a part of planned operations and maintenance.	Software costs are covered Hardware was not funded. The FY09 plan will address hardware funding.
2. Establish planning process for permanent Data Center Facility. Prepare a request for planning funds to be presented to the 2007 legislative session.	UofU has purchased data center in SLC (old Coca Cola bottling plant). Space will support Cyberinfrastructure computing.
3. Seek funding for disaster recovery and business continuity infrastructure – Richfield Data Center.	Not funded.
4. Seek \$1,000,000 for upgrading and improving the computational capabilities of the University of Utah, Utah State University, Southern Utah	Not funded.

<p>University, Weber State University and Utah Valley University. SUU, UVU and SUU will use the funds from this request to increase the number of processors and add a high-speed interconnect to their cluster supercomputers.</p>	
<p>5. Analyze IT Professional salaries, comparing higher education with industry benchmarks.</p>	<p>DSC, UofU, Snow, CEU, UVU, SUU, Those institutions who have performed surveys will share results. CUPA is not current – has outdated job titles. HEITS survey is good alternative to CUPA. More current results, better job descriptions.</p>

**RESULTS OF
FUNDING REQUEST**

Increase in Ongoing Annual Costs

1. Software	\$900,000 (Funded)
2. 10 Gig Backbone**	\$200,000 (Not Funded)
3. Internet 2 SEGP Funding	\$ 82,000 (Not Funded)
TOTAL ONGOING	\$1,182,000 (Funded \$900,000)

One Time Costs

1. Hardware replacement of aging infrastructure	\$4,000,000 (\$815,000 funding received)
2. Joint high performance computing proposal.*	\$1,000,000 (Not funded)
3. Systems equipment for shared disaster recovery operations in the Richfield data center.	\$500,000 (Not funded)
4. Planning grant for statewide data center.	\$100,000 (Not funded)
5. 10 Gigabit Backbone**	\$200,000 (Not Funded)
TOTAL ONE TIME	\$5.8 Million (Funded \$815,000)