

# Information Technology Strategic Plan

*Utah System of  
Higher Education*



*August 28, 2006*



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# 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 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.

### **Unified Communications**

Unified communications describes a converged communications environment where voice, video, e-mail, cellular services come together to facilitate seamless communications between different technology platforms. For example, it should be possible to integrate voicemail with email systems, calendaring and collaboration systems with land based and cellular telephone devices. Video, voice and data transmission should share a common network infrastructure.

### **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 areas that require significant improvement.

### **Systems and Network Infrastructure**

Colleges and Universities rely on the Utah Education Network for a comprehensive array of network services. Network reliability and capacity are critical components of viable security, disaster recovery and business continuity plans.

### **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

### **Don Gardner**

Chief Information Officer, Weber State University

### **Eric Hawley**

Associate Vice President, Utah State University

### **Stephen Hess,**

Associate Senior Academic VP, The University of Utah

### **M.K. Jeppesen**

Vice President, Utah State University

### **Gary Koeven**

Dean, Information Services, Dixie State College

### **Eric Mantz**

Chief Information Officer, College of Eastern Utah

### **Shawn Lindow**

Chief Information Officer, Snow College

### **Glen Pryor**

Assistant Provost, Southern Utah University

### **Mike Peterson**

Executive Director, Utah Education Network

### **Jim Pulliam**

Chief Information Officer, Salt Lake Community College

### **Mark Spencer**

Associate Commissioner, Utah System of Higher Education

### **Jim Stewart**

Director, Technical Services, Utah Education Network

### **Kevin Taylor**

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

### **Ray Walker**

Assistant Vice President, Chief Information Officer, Utah Valley State College

# Trends

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

## Laptops and Student Labs

The use of laptops among students, faculty and staff is increasing.

- There is a definite trend in the growth (coverage and capacity) of wireless networks. Each campus has a wireless direction based on local requirements.
- There is a trend on some campuses indicating a decreased use of general computing labs. This may allow funds currently spent on student computing labs to be redirected to other infrastructure, such as wireless networks to support laptops. This trend does not apply to specialty labs such as those that serve a specific set of applications related to the activities of a specific college or department.
- The use of servers to deliver software applications to lab computers is increasing as opposed to installation of applications on individual machines.

## 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.

## Disaster Recovery and Business Continuity

Every campus expresses an increasing need for disaster recovery options, including

- A remote hot site for banner/oracle/etc. operations.
- Web based services that can continue to operate if the primary physical location is out of service. (Example – universities that survived hurricane Katrina hosted web services remotely.)

## Network Infrastructure

Network bandwidth usage is rapidly increasing to deal with traditional IT plus VoIP, toll reduction, video distribution and on-demand media services, web conferencing, etc.

- “Peer to Peer” P2P traffic is increasing and now includes commercially provided voice over IP (VoIP) services (e.g., Skype).
- Disaster recovery plans are dependent on the availability of reliable, high capacity network connections to a remote disaster recovery site.

## 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 browser testing tools.

## Data Storage

The growth of administrative, academic, and research data is driving the acquisition of data storage systems.

## **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.

## **Regulation**

Increased attention to regulatory issues is required.

- CALEA wire tapping requirements could be interpreted such that additional IT costs are incurred in order to comply.
- FCC Universal Service Fund deliberations could result in increased cost of voice services.

## **End-User Expectations**

End user service expectations are constantly increasing. Users demand that academic and administrative services and systems be available 24 x 7.

## **Service Management**

IT operations are increasingly adopting service management processes and techniques such as ITIL – IT Infrastructure Library best practices for IT service delivery.

## **Escalating Costs**

Escalating software and hardware costs are increasing the need for participation in system-wide software and hardware vendor agreements. Much of the installed base of server and network hardware is at or near the maximum recommended and supported life of the equipment.

## **Retention of Professional IT Staff**

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.

## **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.

# Central Coordination and Local Control

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

## *Locally Managed Functions*

### **Unified Messaging**

Unified messaging refers to a set of services including wired and mobile telephone services, e-mail, voice mail, cell phone/PDA devices, text messaging, and other services and devices that facilitate communication among people and organizations.

While these functions are identified as “locally managed,” the CIOs plan to facilitate discussion forums, create best practices, share policies and other activities that will benefit all institutions.

### **Email Systems**

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.

- Institutions are using various E-mail systems. The consensus is that E-mail is best managed locally at each campus as opposed to an effort coordinated by the Regents office.
- Most institutions are using E-mail as an official means of communication to students. Some require use of a University provided E-mail address. Others allow students to choose a private E-mail address or have not made a final determination regarding what E-mail address will be used for official communications.
- Storage capacity and associated costs are an issue at most institutions. Most limit E-mail storage or the length of time that E-mail is stored, including attachments.
- The handling of attachments contributes to system performance degradation and increased storage requirements. The University of Utah is working with XAPIO to develop a “mail stripping” system. If successful, this will be available to all institutions.
- Weber State asks that attachments larger than 20Mb be sent using [www.yousendit.com](http://www.yousendit.com), a free internet based service.
- Some schools are focusing on moving official communications to Portal sites, where messages can be pushed to the intended audience based on assigned roles.
- To facilitate official communications SLCC is configuring their network such that each network logon presents the campus portal.
- Weber plans to “push” announcements to mobile telephones.
- UVSC is looking into methods to mirror the way students already communicate with each other, via text messaging, pod casting, E-mail, etc.

### **Next Generation Voice Systems**

- Each institution has selected voice systems based on local requirements. Most systems are, at least IP enabled, with some being full IP implementations.

- Eric Hawley, Utah State University, will survey the institutions to determine status of voice, cellular, messaging, unified communications, etc. and to begin to outline best practices for these services.

### **Cellular Services**

- Cellular phones are increasingly multiple use devices that perform cell phone, wired phone replacement, PDA integration, mobile computing, and other functions.
- Several institutions have adopted or are in the process of adopting cell phone policy that brings the schools into compliance with IRS rules. This includes establishing an “allowance” or “stipend” to pay for business use of personally owned cellular phones. The other option is to establish policy that requires complete documentation of personal and business calls per IRS rules.
- Cellular coverage has been an issue on large and highly distributed campuses. At this point, a preferred approach for improving coverage for multiple carriers is to involve a third party to manage negotiations with carriers for cell sites and/or to implement distributed antenna systems with a common carrier base station.

### **Campus IT Governance**

IT at each institution is governed by advisory boards and councils of one type or another. These governance entities are formal at some schools and informal at others. The purpose of campus IT governance is to ensure that decisions regarding IT investment are made under the direction of campus leadership and end-users as opposed to IT staff.

## *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.

### **Different Institutions / Different Needs**

There is significant disparity in resources and specialized expertise among the schools. Some processes lend themselves to central coordination. Others will require planning and resources. Examples of the varied issues among the institutions include:

- Because certain system administrations functions do not occur on a regular basis some schools find it difficult to maintain the level of expertise required to operate, maintain and otherwise administer systems. For example CEU has expressed a need for help with Sun systems administration because administrative functions don't occur often enough to maintain expertise. They would benefit from a shared system administration resource.
- Data base administration is an expensive, high specialized discipline. Dixie State College would benefit from having access to a shared data base administrator resource.
- Some schools have in-house programming expertise that allows creation and customization of administrative reports. Others do not have such expertise and may borrow from those who do or go without.

- Full banner functionality comes through customization. Smaller schools lack the resources to accomplish this.
- SLCC had the experiencing of outsourcing IT functions to a corporate third party. While this resulted in greater access to a broader resource pool, it was costly. “In-sourcing” shared resources is an opportunity to expand resources at a lower overall cost.
- Three campuses use versions of Banner’s Luminus portal system to serve as a vehicle for disseminating information and to provide a web interface to administrative services. Smaller campuses cannot afford the Luminus solution, nor do they have staff to maintain portal services.
- Web content management is a local enterprise that employs various solutions dependent on local needs. Central coordination is not anticipated in this area.
- Version upgrades sometimes require infrastructure upgrades as well. For example, Banner version 7 adds functionality but runs slower than version 6. This problem is remedied with an upgrade to version 8; however version 8 requires an expensive hardware upgrade.
- The legislature has mandated the use of a unique identifier to be used by all students in public education and higher education in Utah. The unique identifier will originate within public education, and be managed by the State Office of Education. Colleges and Universities are ready to input the identifier in administrative systems when available. It is not clear how this will be applied to out-of-state students and private school students.

## **Recommendations**

- A Banner Systems committee has been organized to address various end-user and operational issues related to the Banner system. Don Gardner, Weber State University CIO will supervise the efforts of the working Banner committees.
- Focus committee on addressing specific question, i.e. (1) What amount of resource is necessary to ensure all institutions can operate efficiently and at an acceptable level of service? (2) What would be the gain in adding a few shared resources as opposed to adding resources at each needy school? (3) Is it possible to make the creation of reports more flexible, or to standardize on reporting tools? (4) Have end-user needs been defined so that technical requirements can be established? (5) Would it be possible to tie equipment co-location to the need for disaster recovery sites?
- The Banner committee will test the feasibility some centralized functions, beginning with system administration.
- The Banner committee will investigate and attempt to define what all schools administrative systems should look like 5 years out? For example: Should all schools be using Linux in 5 years, as opposed to more expensive UNIX based systems.
- To ensure the maximum return on investments, the Banner committee will develop possible funding models that tie some centralized administrative computing functions to the need for disaster recovery and business continuity needs (discussed later).

## **Information Technology Security**

IT Security is an area where it makes for high education institutions to join forces and coordinate efforts. Our institutions employ excellent IT security professional who are able to share their expertise to raise the level of IT security though the Utah system of higher education.

## Recommendations

An IT Security (and Disaster Recovery) Committee has been organized, co-chaired by Jason Tracy of Salt Lake Community College and Troy Jessup of the Utah Education Network. The activities of the IT Security Committee will be supervised By Eric Mantz, College of Eastern Utah CIO. The security committee will focus on the following:

- IT Security Plans. Ensure that each campus has a security plan in place.
- IT Security Policy. Establish policy that outlines the roles and responsibilities of data stewards, custodians, managers, and end-users.
- Systems and Network Monitoring. Determine what set of tools should be available to each institution and define best practices for monitoring.
- Audit Team. Establish a team of security professionals to perform IT security audits at each institution. Matt Brace, USHE, will organize USHE level IT security audit groups as directed by the committee.
- IT Security Practices. Develop best practices for preventative and operational security.
- Utah SAINT Team. Participate fully in the Utah SAINT group which is functioning as a part of the statewide UEN security effort to deal with security incident response and mitigation.
- Infrastructure, firewalls, etc. Determine if the appropriate infrastructure is in place to support security best practices.
- Funding. Determine funding gaps that deter IT security best practices.

## Disaster Recovery and Business Continuity

All institutions acknowledge the need for disaster recovery plans, including a state strategy for the development of a hot site for banner/oracle and other critical IT resources. Under the direction of Jim Pulliam, Salt Lake Community College CIO, the disaster recovery committee with representatives from CEU, USU, SLCC, UEN, UHEA, WSU, and UVSC, will address the following recommendations.

## Recommendations

- Develop requirements and service level agreements for a hot site.
- Define requirements for hardware, software, human resources for administrative systems support.
- Define requirements for network connectivity to support disaster recovery and business continuity.
- Establish a lease agreement with the State of Utah ITS department for space in the Richfield data center.
- Engineer and identify costs for a hot site to be located in the Richfield data center.

## 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.
  - During the 2006 legislative session, \$1.8M was requested to cover increasing software costs. \$900K was appropriated. The need continues at the \$1.8M level.
  - Hardware replacement. The aging infrastructure serving critical IT processes and resources places all institutions at risk. Typical server life is 4 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.
  - Each year that passes without the funding necessary to replace and/or upgrade aging hardware increases the cost. Institutions will be surveyed again to include new machines and to update the age.
  - The CIOs will prepare an equipment replacement schedule to be presented to the legislature.
  - The CIOs will prepare a budget to support a Disaster Recovery Plan to ensure business continuity and the ability to respond to a disaster.
  - Funding Requirement for Infrastructure. It is anticipated that as much as \$6M is needed to deal with aging equipment (servers, routers, etc.) and growth. In many cases, these investments are also necessary to ensure the security of critical and sensitive IT resources.
- Funding for currently unfunded central support and disaster recovery for critical services provided through Banner systems is estimated to be approximately \$500K.
  - Database Administration - \$120K ongoing personnel cost.
  - System Administration (computing hardware operations) - \$120K ongoing personnel cost.
  - Computer, storage, and network hardware - \$260K ongoing hardware
- Mark Spencer will discuss IT personnel salary/retention issues with the HR Committee and Council of Presidents.

## *Service Provided in Cooperation with UEN*

### **System and Network Infrastructure**

UEN – All higher education institutions rely on UEN for network connectivity. The CIOs discussed whether or not there is adequate bandwidth between the state data center in Richfield and other locations to support disaster recovery and business continuity requirements.

- UEN plans to migrate lambdas currently used for CVDS (video/data) service to be used for high bandwidth connections to support disaster recovery.
- Higher Education is connected to the Internet using commodity (commercial) connections, Internet 2 (I2, Abilene Network) and National Lambda Rail (NLR). The University of Utah and UEN participate in planning groups that direct I2 and NLR.
  - The University of Utah pays \$1M over 5 years to be a member of NLR.

- I2 and NLR are not merging networks at this point in time.
- At many institutions, network infrastructure, meaning routers, switches, etc., are aging and /or unable to handle growing bandwidth demands.

**Recommendations**

- We need to determine how to pay for SEGP traffic. (SEGP traffic is non-higher education institution’s portion of Internet 2 costs.) UEN budgets were short the amount necessary to pay for SEGP traffic. A temporary measure will be used to pay the difference owed for FY06.
- Subsequent years SEGP should be paid through legislative appropriations as are all other UEN network services.
- Ray Walker, Utah Valley State College CIO, will oversee the activities of a network infrastructure committee.
  - Develop a plan in support of disaster recovery and business continuity efforts.
  - Identify the cost of replacing and/or upgrading aging network infrastructure.
  - Pursue initiatives that will improve network monitoring and management for higher education.
  - Recommend best practices for network operations.

# Leadership

## *CIO Oversight Assignments*

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

Don Gardner CIO, Weber State University	Administrative Computing (Banner) Committee
Jim Pulliam CIO, Salt Lake Community College	Disaster Recovery and Business Continuity Committee
Eric Mantz CIO, College of Eastern Utah	Information Technology Security
Ray Walker CIO, Utah Valley State College	Network & Systems Infrastructure
Eric Hawley Associate Vice President, Utah State University	Unified Messaging
Stephen Hess CIO, Utah System of Higher Education Mark Spencer Associate Commissioner of Higher Education	Legislative Funding Initiatives

APPENDIX A  
PROJECT PLANS

**Unified Messaging**

<p>1. Survey college and universities to determine how schools are addressing</p> <ul style="list-style-type: none"> <li>a. Next generation voice</li> <li>b. Cellular services</li> <li>c. Email</li> <li>d. Text messaging</li> <li>e. PDA integration.</li> </ul> <p>Develop set of best practices.</p>	<p>Responsible: Eric Hawley, USU</p> <p>Timeline: Ongoing</p> <p>Budget: N/A</p> <p>Comments: For information purposes, to facilitate discussion in CIO meetings. Possible best practices.</p>
<p>2. Facilitate discussion forums for topics listed in No. 1.</p>	<p>Responsible: Eric Hawley</p> <p>Timeline: Ongoing</p> <p>Budget: N/A</p> <p>Comments: CIO Forums</p>

**Administrative Systems**

<p>1. Oversee the efforts of Banner committees currently in place. Improve organization as needed.</p> <p>Responsible: Don Gardner</p>	<p>Responsible: Jean Fruth, WSU and Jeanette Ormond, SUU or co-chairs of working committee under direction of Don Gardner, 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. Address these issues:</p> <ul style="list-style-type: none"> <li>a. What resources are necessary for efficient Banner operations at all schools?</li> <li>b. What productivity and functional gains occur as resources are added?</li> <li>c. Determine methods of improving reporting for all institutions.</li> <li>d. Define end-user needs and match to technical requirements.</li> </ul>	<p>Responsible: Don Gardner, WSU</p> <p>Timeline: c &amp; d are ongoing.</p> <p>Budget: N/A</p> <p>Comments: Results of a &amp; b (essentially complete) will contribute to FY07 budget request.</p>

<p>3. Test feasibility of providing some centralized support functions, starting with System Administration.</p>	<p>Responsible: Don Gardner, WSU</p> <p>Timeline: Mar 07</p> <p>Budget: N/A</p> <p>Comments: This will be done in conjunction with disaster recovery planning as explained in that section.</p>
<p>4. Develop a 5 year projection for Banner systems, including what hardware platform is envisioned.</p>	<p>Responsible: Don Gardner, WSU</p> <p>Timeline: May 07</p> <p>Budget: N/A</p> <p>Comments: Effort will compare operations using Sun and Intel based machines.</p>
<p>5. Develop funding models for centralized services. Integrate cost estimates with disaster recovery plans.</p>	<p>Responsible: CIO Team</p> <p>Timeline: to be presented to legislature in 2007</p> <p>Budget: see below</p> <p>Comments:</p>

### Information Technology Security

<p>1. Ensure that each campus has a security plan in place.</p>	<p>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: January 07</p> <p>Budget: N/A</p> <p>Comments:</p>
<p>2. For each campus establish policy that outlines the roles and responsibilities of data stewards, custodians, managers, and end-users.</p>	<p>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: January 07</p> <p>Budget: N/A</p> <p>Comments:</p>
<p>3. 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>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: March 07</p> <p>Budget: TBD</p> <p>Comments:</p>

<p>4. Establish a team of IT security specialists to perform IT security/vulnerability audits at each institution.</p>	<p>Responsible: Matt Brace, SBR, Security Committee</p> <p>Timeline: January 07</p> <p>Budget: TBD</p> <p>Comments:</p>
<p>5. Develop best practices for operational and preventative IT security.</p>	<p>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: March 07</p> <p>Budget: N/A</p> <p>Comments:</p> <p>:</p>
<p>6. Ensure that all IT personnel responsible for IT security are participating on the Utah SAINT (incident response) team.</p>	<p>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: ongoing</p> <p>Budget: N/A</p> <p>Comments: Improve participation of all institutions.</p>
<p>7. 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>Responsible: Eric Mantz, CEU, Security Committee</p> <p>Timeline: March 07</p> <p>Budget: TBD</p> <p>Comments: Prepare list of equipment/software</p> <p>:</p>

## Disaster Recovery and Business Continuity

<p>1. Develop technical requirements and service level agreements necessary for the operation of a “hot-site” disaster recovery facility</p>	<p>Responsible: Jim Pulliam</p> <p>Timeline: March 07</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. Define hardware, software, staffing requirements to support administrative systems.</p>	<p>Responsible: Jim Pulliam</p> <p>Timeline: Oct 06</p> <p>Budget: \$300K annual ongoing</p> <p>Comments: Each institution will initially provide their own hardware and software where possible. It has been requested that 2 full-time positions be funded for this project.</p>

<p>3. Define network connectivity requirements to support system backups and restores.</p>	<p>Responsible: Jim Pulliam</p> <p>Timeline: Oct 06</p> <p>Budget: N/A</p> <p>Comments: Each institution will define connectivity requirements to UEN. UEN will provide connectivity to the Richfield facility.</p>
<p>4. Define lease agreement terms for space in the Richfield data center (agreement between higher education and the State of Utah ITS department).</p>	<p>Responsible: Kevin Taylor</p> <p>Timeline: Oct 06</p> <p>Budget: N/A</p> <p>Comments: Kevin Taylor has agreed to assist with the development of the lease agreement.</p>
<p>5. Engineer and identify costs for a hot-site to be located in the Richfield data center.</p>	<p>Responsible: Jim Pulliam</p> <p>Timeline: March 07</p> <p>Budget: \$82K annual ongoing. \$1 Million one time. (see comments)</p> <p>Comments: \$1 million one-time for hardware/software, \$82k on-going for rack space (rental at Richfield) and 2 staff positions (DBA and Administrator). Once funding has been approved, the DR team will finalize plans for equipment and staff.</p>

## System and Network Infrastructure

<p>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).</p>	<p>Responsible: Stephen Hess</p> <p>Timeline: October 06</p> <p>Budget: \$82,000 annual ongoing</p> <p>Comments:</p>
<p>2. Develop network plan to support disaster recovery site located at Richfield, connecting all colleges and universities.</p>	<p>Responsible: Mike Peterson</p> <p>Timeline: October 06</p> <p>Budget: UEN Budget</p> <p>Comments: UEN to convert use of existing facilities to broadband connectivity between Richfield and Institutions.</p>

<p>3. Identify network monitoring and management tools to improve network operations.</p>	<p>Responsible: UEN and Infrastructure Committee</p> <p>Timeline: October 06</p> <p>Budget: TBD</p> <p>Comments: Infrastructure Committee investigating Compuware or other similar software for network systems monitoring.</p>
<p>4. Identify age and condition of system and network infrastructure. ID systems that require replacement.</p>	<p>Responsible: Ray Walker and Infrastructure Committee</p> <p>Timeline: October 06</p> <p>Budget: \$3M one time</p> <p>Status: Updating report developed for 06 legislative session.</p>

### Financial Planning

<p>1. Develop a funding plan to replace old infrastructure and to cover increased software costs.</p> <ul style="list-style-type: none"> <li>a. FY07 funded \$900K for software increases.</li> <li>b. Identify equipment that must be replaced due to age or lack of vendor support.</li> <li>c. Prepare and equipment replacement schedule for all equipment regardless of age.</li> </ul>	<p>Responsible: Stephen Hess, Mark Spencer</p> <p>Timeline: October 06</p> <p>Budget: \$900K software ongoing \$3M aging infrastructure one time</p> <p>Comments: Based on update of analysis prepared for 06 legislative session.</p>
<p>2. Prepare a funding request to be presented to the 2007 legislative session.</p> <ul style="list-style-type: none"> <li>a. Shared database administration</li> <li>b. Systems administration</li> <li>c. Data storage, network and computing hardware for disaster recovery site.</li> </ul>	<p>Responsible: Stephen Hess, Mark Spencer</p> <p>Timeline: October 06</p> <p>Budget: Disaster Recovery hardware, \$1M one time Shared database and systems administration, \$300K ongoing Richfield Center Space, \$82K ongoing</p> <p>Comments:</p>
<p>3. Analyze IT Professional salaries, comparing higher education with industry benchmarks.</p>	<p>Responsible: Mark Spencer</p> <p>Timeline: January 07</p> <p>Budget: TBD</p> <p>Comments: to address competition with industry salaries.</p>

APPENDIX B  
FUNDING REQUEST

Ongoing Annual Costs

1. Software	\$900,000
2. Database and system management staff	\$300,000
3. Richfield Data Center Rack Space Rental	\$82,080
4. Internet 2 SEGP Funding	\$82,000
TOTAL ONGOING	\$1,364,080

One Time Costs

1. Hardware/software for Richfield Disaster Recovery Site	\$1,000,000
2. Replacement of aging systems and network infrastructure	\$3,000,000
TOTAL ONE TIME	\$4,000,000