University of Nebraska
Comprehensive Information Technology Plan

2004

Due: August 16, 2004

Submit completed plan as an e-mail attachment to:
info@cio.state.ne.us

For an electronic version of this form; instructions; and
links to agency IT Plans from 2000 and 2002 go to:
http://www.nitc.state.ne.us/forms/
Comprehensive Information Technology Plan
2004

Agency: University of Nebraska

Date of last revision to this plan: 08/13/2004

1. Agency Contact Information

Person responsible for Information Technology in the agency:

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<thead>
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<th>Walter Weir</th>
</tr>
</thead>
<tbody>
<tr>
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<td>402-472-2111</td>
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<tr>
<td>E-mail</td>
<td><a href="mailto:wweir@nebraska.edu">wweir@nebraska.edu</a></td>
</tr>
</tbody>
</table>

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2. Agency Mission, Goals and Objectives

The University of Nebraska is the state's only public university and is comprised of the University of Nebraska at Omaha (UNO), the University of Nebraska at Lincoln (UNL), the University of Nebraska at Kearney (UNK), and the University of Nebraska Medical Center (UNMC) in Omaha. The University also includes many research, extension and service facilities statewide and the Nebraska
College of Technical Agriculture (NCTA) in Curtis. The University is distinguished as a Carnegie I research institution, by the scope and quality of its doctoral programs and by its scholarly and creative productivity.

Along with the variety of academic programs and research emphases comes a great deal of variation in the tasks, tools, and computing technology in use across the University structure. The mission of the University of Nebraska has evolved over time – however, there has consistently been an emphasis on access and affordability as core issues. As we begin the 21st Century, the mission of the University is to meet the educational, economic, social, and cultural needs and aspirations of the citizens of Nebraska through teaching, outreach, research, and the integration and application of knowledge.

2.A. Vision and Goals

Introduction

Higher education continues to change in this new millennium. The most profound evolution is a transformation that is moving society from the industrial age to the information age, the result of which is a growing demand for access to higher education from increasingly diverse groups of students.

Our collective vision of a university is also changing, in part, from instruction delivered exclusively from one physical site to a technologically enhanced, interactive, community of scholars and learners in many locations. This environment is one in which access to powerful learning systems, information and knowledge bases is essential and is as important as maintaining the physical environment of the campus communities.

The four campuses of the University of Nebraska have developed plans to meet these challenges. These plans are consistent with this framework document which articulates University-wide objectives and also serves as a guide for future planning.

University Mission

The University was chartered in 1869 as a land-grant university under the Morrill Act.

“The land-grant university has often been cited as America’s greatest contribution to higher education.... The Morrill Act assumed that higher education should be available to all qualified persons at low cost, throughout a full lifetime. The university was thus seen as a functioning part of a total society, not as an addendum or an ornament, and not the prerogative of the
few or the solace of the leisured.” (Knoll, Prairie University 1995)

The original charter of the University of Nebraska went beyond even the scope of the seven-year-old Morrill Act by specifying that the University was for all inhabitants of the state. This value has been reflected in our framework.

The original mission of the University appears in the laws of the State of Nebraska:

“The object of [the University of Nebraska] shall be to afford to the inhabitants of this state the means of acquiring a thorough knowledge of the various branches of literature, science and arts.”

The University’s mission has evolved over time, but the concepts of access and affordability remain at the core even today. The Role and Mission statements adopted by the Board of Regents for the four campuses reflect the broader contributions and responsibilities of the University to the citizens of Nebraska.

The University’s mission is carried out by its four campuses in fulfillment of their designed unique roles and missions.

Vision

The University’s four campuses shall be among the top 30 public universities in their individual peer groups, in meeting the needs of students and all citizens for a lifetime of continuous learning, research that enhances the health and quality of life, and outreach and service programs that ensure the benefits of new knowledge are shared throughout the state.

Goals

The following University-wide goal and strategy statements outline an over-arching framework for achieving the University’s shared vision. Execution will differ among the campuses. Each strategy has a timetable and a clearly defined measurable outcome that is reviewed periodically. These goal statements are the key steps in the implementation of our vision:

- Promote quality teaching and learning at all levels of University education, especially undergraduate education.
- Enhance research and creativity throughout the University consistent with each campus’s role and mission.
- Strengthen outreach to Nebraskans and their communities, particularly in the application of knowledge for economic development, health, and quality of life.
Expand lifelong educational opportunities for every citizen.

- Develop and maintain excellence in selected, clearly focused fields, collaborative efforts, and programs.
- Enhance the business and administrative goals of the University to support, serve and enhance the learning, research and outreach goals of the University.
- Continue to enhance efforts to recruit and retain Nebraska high school graduates and increase the number of out-of-state students attending the University. Increase commitment to graduate education resulting in increased graduate enrollment.
- Develop and implement a University-wide effort to recruit and retain a diverse faculty, administration and student population and create an environment that welcomes, respects, values and honors diversity.

**Information Technology Mission**

In support of the University’s mission, vision and goals, the University of Nebraska Computing Services Network (UNCSN) is the information technology services division of the University of Nebraska Central Administration. It is the primary administrative computing service and intercampus data communications provider for the University of Nebraska. A primary mission of the University’s Chief Information Officer is to define, develop and oversee strategic information technology in support of the University of Nebraska’s mission, vision and goals.

Each University of Nebraska Information Technology (IT) campus office supports the mission, goals and vision of the University and their respective campuses. Primary campus IT mission objectives include:

- Provide a leadership role in the application of information technology to research, outreach, and teaching and learning;
- Provide expertise in the development and use of information technology for the administration of the institution;
- Engage and support all members of the University community in the use of information technology in support of their daily work;
- Create and maintain partnerships between IT and other organizations for the development of new and enhanced technologies and services;
- Maintain a high-quality, customer-focused information technology organization that provides professional fulfillment and growth for its employees;
- Provide technology leadership by bringing the knowledge assets of the world to the campus via high speed computer networks;
- Provide the resources to help faculty, staff and students fulfill the mission of health professions education, research, health care and outreach to the underserved; and,
- Provide support for voice, video and data systems and services on the campuses and connectivity to offices, research facilities, extension centers and medical clinics throughout the state.

Note: Campus specific plans are attached at the end of this University-wide document.

3. Current Use of Information Technology

3.A. Existing IT Environment

3.A.1. Applications

Off-the-Shelf Applications

<table>
<thead>
<tr>
<th>Off-the-Shelf Applications</th>
<th>Number of Licenses (Best estimate, exact number not necessary)</th>
<th>Versions in Use (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productivity Suites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Office Suite</td>
<td>25447</td>
<td></td>
</tr>
<tr>
<td>Corel WordPerfect Office</td>
<td>2034</td>
<td></td>
</tr>
<tr>
<td>Other (Specify) Lotus Smart Suite</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Browser</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Explorer</td>
<td>23872</td>
<td></td>
</tr>
<tr>
<td>Netscape / Mozilla</td>
<td>9671</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>2902</td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Virus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symantec/Norton</td>
<td>1409</td>
<td></td>
</tr>
<tr>
<td>McAfee</td>
<td>26514</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E-mail and Calendaring</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Database Management (DBMS)

<table>
<thead>
<tr>
<th>Database</th>
<th>Client Licenses</th>
<th>Server Licenses</th>
<th>Mainframe Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM DB2 or UDB</td>
<td>25,000</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Oracle</td>
<td>15</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>2650</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>AS/400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td>Enterprise license</td>
<td>Sybase</td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td>3</td>
<td>Sybase</td>
<td></td>
</tr>
</tbody>
</table>

### Other Off-the-shelf applications

<table>
<thead>
<tr>
<th>Other significant off-the-shelf applications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Macromedia Dreamweaver</td>
<td>665</td>
</tr>
<tr>
<td>Adobe Photoshop</td>
<td>711</td>
</tr>
<tr>
<td>Real Player, Quicktime, MediaPlayer</td>
<td>15,607</td>
</tr>
<tr>
<td>WebFocus (ad-hoc reporting)</td>
<td>450</td>
</tr>
<tr>
<td>SPSS &amp; SAS</td>
<td>930</td>
</tr>
</tbody>
</table>

### Other Applications

**SAP Enterprise Resource Planning System**

A. Purpose: Provide support for financial, procurement, asset management, payroll and human resource business functions of the University. It also includes Employee Self Serve and other advanced business functions.

B. Platform: The SAP system takes advantage of multiple platforms,
including the Z800 Enterprise server, RS/6000 SP2 complex and Intel servers.
C. Tools: Primarily SAP ABAP programming tools

Budget System
A. Purpose: Operational budget system for the University
B. Platform: Z800 Enterprise Server
C. Tools: Primarily CICS, COBOL, and VSAM

SunGard SCT Student Information System (SIS)
A. Purpose: Provide students, faculty, and staff online access to the full array of information needed to recruit and support the student. This application is in use at UNO, UNL and UNK.
B. Platform: Z800 Enterprise server for UNO and UNL. UNK’s SCT SIS system runs on Compaq/HP Platforms. Functionality is augmented with custom applications and additional tools on UNIX and Intel. UNMC SIS is an in house developed system and runs on an Intel platform. Most SIS system access is via web browsers.
C. Tools: UNL and UNO utilize Cobol and CICS programming tools. Custom applications are developed with Java and web-based tools.

University wide Data Warehouse (nulook/mynulook)
A. Purpose: Provide University wide access to integrated management information data and reporting for all University campuses.
B. Platform: Intel servers with Dell/EMC Disk storage
C. Tools: MS SQL Server, Visual Basic, .NET.

Blackboard Course Management
Blackboard 6.0 and 6.1 were implemented for the Fall 2004 semester. This version brought the University a higher level of integration with the SIS system and has allowed for many tasks within Blackboard to be automated. These tasks include:

- Creation of all Blackboard courses taught by faculty;
- Enrollment of faculty and students into courses;
- Automation of the following features: account creation, password reset and enrollment of visitor accounts; merging of courses; and, copying content between courses.

A Linux front-end drives this web interface, with a Windows 2000 Server connection to the main SIS database. Additionally, it uses SSL (Secure Socket Layer) connectivity for the transactions.
Other Applications:

Health Professions Tracking System at UNMC
HPTC-HAN (Health Professions Tracking Center – Health Alert Network) at UNMC
Telephone Billing System at UNMC
Campus Business Applications at UNMC
Center for Continuing Education Course Management System at UNMC
Research Administration Applications at UNMC
Faculty Database at UNMC
Tracking System at UNMC
Cash Receipting at UNK
Financial Aid Document Imaging System at UNK
Parking System (tickets/parking permits) at UNK
CARE (Campus Records) Web Site at UNMC
ESS (Employee Self Service) Web Site at UNMC
RISC (Research Infrastructure Support and Compliance Web Site) at UNMC
Weboffice/myfolder – web based file storage system at UNO
Short Term Loan System (STLS) short term student loans at UNO
E-BRUNO for Students - web-based enrollment services system at UNO
E-BRUNO for Faculty - web-based system for class rosters, submit course grades, etc. at UNO
Smart! - UNL datamart
Talisma - UNL student recruitment system
Darwin - UNL student degree audit system
WAM - UNL web-based student self-service system
NuView - UNL Admissions system

3.A.2. Data

Databases

The University uses several database systems to support the various Off the Shelf and customized applications. These include:

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>SAP, SIS for UNO &amp; UNL, and Identity Management registry</td>
</tr>
<tr>
<td>MS SQL</td>
<td>Data Warehouse, BlackBoard and many campus specific applications</td>
</tr>
<tr>
<td>VSAM</td>
<td>Budget system</td>
</tr>
<tr>
<td>MySQL</td>
<td>Application development at UNO</td>
</tr>
<tr>
<td>Informix</td>
<td>Student accounts applications at UNO</td>
</tr>
</tbody>
</table>
PostgreSQL  Application development at UNO

Application Databases & Purpose

**Student databases:** provide for a full array of data needed to support student Financial Aid, Admissions, Student Records, Student Accounts, Housing and the University-wide Data Warehouse.

**Financial, Procurement, Asset Management, Payroll, Human Resource databases:** provide for all University-wide SAP business functions and processes, and the University-wide Data Warehouse.

**University-Wide Identity Management database:** provides for person registry data used for secured general authentication and authorization purposes for University-wide and campus LDAP directories and reduced sign-on.

**Institutional Research (IR) and Planning database:** provides for University-wide data for IR analysis, reporting and planning.

<table>
<thead>
<tr>
<th>Library</th>
<th>Card Catalog, Patron Data at UNL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Safety</td>
<td>Permits and tickets data at UNL</td>
</tr>
<tr>
<td>ID Card system</td>
<td>Meal plans, printing charges at UNL</td>
</tr>
<tr>
<td>Blackboard</td>
<td>Student Course Enrollments at UNL</td>
</tr>
<tr>
<td>Talisma</td>
<td>Student recruitment at UNL</td>
</tr>
<tr>
<td>DARwin</td>
<td>Student degree audits at UNL</td>
</tr>
</tbody>
</table>

**Innovative Interfaces Information database:** Online library information system and card catalog at UNL.

**Digital Databases to support the research and teaching processes:** There are many digital databases available. Significant examples at UNL include:

- Electronic encyclopedias
- More than 190 articles and full-text indexes of scientific, social sciences and humanities journals.
- Full-text digitized version of more than 5,000 professional journals.
- Unique editions from the University Special Collections customized in full-text for the web.
- Digitized collections of international, federal, and state government documents.
- University of Nebraska Willa Cather Archive.
Health Professions Tracking Database
- In collaboration with the State Department of Health, UNMC provides tracking information regarding physicians, dentists, physician assistants, nurse practitioners, and pharmacists throughout the region.

Telephone Billing Database
- Track work orders, billings, and phone related data for the UNMC and UNO telephone systems.

Campus Business Databases
- Track work orders, billings, and other data for Printing and Duplicating, Mail Services, Physical Plant, ITS, and Cell Phone Billing.

Center for Continuing Education Course Management Database
- Manages courses and related activities for the UNMC Center for Continuing Education.

Research Administration Databases
- Grants Administration Database - tracks pending and active grants and contracts at UNMC.
- IRB - Tracks protocols for the Institution Review Board at UNMC.
- IACUC – Tracks protocols for the Animal Care Committee at UNMC.

Faculty Database
- Provides a data repository and source of evaluation data for faculty within the UNMC College of Medicine.

Tracking Database
- Provides data regarding cashiering stations, parking privileges, and key assignments for UNMC staff, students and the Nebraska Medical Center employees.

Data Exchange
List the significant electronic data exchanges your agency has with other entities:

EDI
- Clearing House
- Transcript Exchange
- Office Depot
- Chemical Supplies
- Gas Supplies
- Computing Supplies
EFT  Financial Aid Loans
EDE  Express Federal Student Aid Application
      ISIR Institutional Student Information Record

Federal Government - or Direct Lending, Financial Aid data transfer, and other federal reporting requirements (such as data exchange with the Clearinghouse).

State of Nebraska - reporting and data exchange requirements

Department of Education, data for various federal and state reporting requirements.

Other universities-student transcripts.

Student directory - data for internal publication.

ACT- test information used for student information needs.

NSSE - student sample data feeds.

State of Nebraska - Exchange of financial data.

AACRAO - Transcript Exchange with other universities (using the EDISmart software).

AMCAS - feeds information regarding Medicine Applicants to UNMC Tracking System.

GRE - feeds information regarding Graduate examinations into UNMC Tracking System.

TOEFL - feeds information regarding test scores into UNMC Tracking System.

Student Loan Clearinghouse - sends information regarding students from the UNMC Tracking System to the Student Loan Clearinghouse.

Outbound Interfaces - from campus Systems to University of Nebraska SAP - feeds financial information from departments including Printing and Duplicating, Mail Services, Physical Plant, Center for Continuing Education, Information Technology Services, Cashiering, Parking, Telephone Billing, and Cell Phone Billing into SAP.
**Inbound Interfaces** - from SAP to campus systems - feeds updates for new cost centers and accounts for account validation, and daily HR information for use by various campus systems. From the Nebraska Medical Center HR system to UNMC Systems with daily HR information for use by various UNMC systems.

### 3.A.3. Hardware, Operating Systems, and Networks

#### Hardware

The University of Nebraska is very diverse in terms of overall hardware and supports many platform levels and a variety of different operating systems on these platforms.

For example, most of the major business applications (SAP, SIS, Budget) run on IBM Enterprise servers. The SAP product is a three-tier application with the data/databases located on the Enterprise Server. SAP applications run on a midrange RS/6000 and the Client software runs on a desktop system.

The following is a list of some of the Enterprise hardware platforms in use:

- **IBM Enterprise Server 2066-002 Z800**

  This processor contains 16Gb of processor memory and a processor speed rating of 350 MIPS (million instructions per second, which is the older processor measurement value) and an MSU (million service units, which is a processor measurement value which was intended to replace MIPS) rating of 60 (2 general purpose engines at 30 MSU per engine). The processor supports a Parallel Sysplex divided into 6 LPARs (logical partitions).

  Several peripheral devices are attached to the Z800 including enterprise printers, disk, tape and communication devices. This enterprise infrastructure provides secure online access for University-Wide systems, and ensures data integrity and backs up all data. Backups are stored both on-site and off-site as required for contingency and business resumption planning.

  This Z800 also includes support for IFL (Integrated Facility for Linux). In addition to University of Nebraska testing of 64 bit zLinux, a partnership was created with the University of Illinois to support a project with the National Center for Supercomputing Applications.

- **IBM Enterprise Server 9672-R36**

  This processor contains 6 Gb of processor memory, with a processor rating of 345 mips and an MSU rating of 59. This system runs VM/zLinux operating systems
in support of Linux testing, Linux applications and UNL system administration classes. This hardware and software is part of an IBM Joint Study agreement that includes 100% discounts on the IBM software and significant discounts on the hardware maintenance.

- **IBM Enterprise Storage System 2105-F20**
  The Enterprise Storage Disk System (ESS SHARK) contains 3.8 Terabytes of data, including production SAP and SIS for the University.

- **IBM RS/6000 SP(Scalable Parallel)**
  The RS/6000 SP complex supports the SAP Application Servers. It consists of eight processing nodes, mounted in a rack, and interconnected with a high-speed internal switch network. The nodes are identically configured and each has the following characteristics: four 375 mhz processors with 8 Gb of memory, 72 Gb of disk space and gigabit Ethernet network connections.

In addition to the enterprise systems, the University also supports hundreds of other applications running Intel and Reduced Instruction Set (RISC), UNIX platforms. Linux is also becoming a more prevalent operating system platform due to its cost and improved stability. A majority of the Intel servers are Dell systems.

These mid-range servers support:
- Email – Lotus Notes;
- Print, fax and file services;
- Security firewalls and virus protection services;
- Course management – BlackBoard services;
- Web and portal services;
- Departmental applications;
- Development, programming and testing services;
- System and network monitoring services.

Nearly all University servers (all platforms) are connected to the University network infrastructure with either 100 mbps fast Ethernet or 1000 mbps gigabit ethernet.
The University has many hardware platforms that do not fit the “normal” business definition. These include such systems as a Cray supercomputer, the “Prairie-Fire” supercomputer, and other enterprise class systems, as well as a variety of other platforms and topologies used for teaching and research.

The University is also diverse in the brands of PC and MAC workstations in use. The majority of workstations are Dell, HP, Gateway and Apple.

### Desktop Operating System(s)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Number of users/licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 95, 98, or ME</td>
<td>3379</td>
</tr>
<tr>
<td>Windows NT</td>
<td>730</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>6683</td>
</tr>
<tr>
<td>Windows XP</td>
<td>9893</td>
</tr>
<tr>
<td>OS/2</td>
<td>0</td>
</tr>
<tr>
<td>Linux</td>
<td>259</td>
</tr>
<tr>
<td>Mac OS</td>
<td>3990</td>
</tr>
<tr>
<td>Other (Specify: )UNIX</td>
<td>550</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>25484</strong></td>
</tr>
</tbody>
</table>

### Networks - LANs and WANs

The University of Nebraska Network is primarily based on Ethernet technology. Each campus has a significant investment in fiber optic cable linking all of the buildings together. The network internal to the buildings includes fiber optics between floors and primarily category 5 or newer copper wiring to the desktops. There are some buildings that have older copper wiring in place, but those are being replaced if/when it is feasible to do so. TCP/IP is the primary network protocol routed across this network. Other protocols may still be in use, but they are generally encapsulated inside TCP/IP.

Just as we are diverse in the use of PC brands, we are also somewhat diverse in the brands of network equipment. Cisco is the primary brand of routers and switches in use, but we also have equipment from several other vendors, including Juniper, Avaya, 3com, etc.

The University’s statewide computing network consists of over 20,000 computers.
connected to a high speed backbone. The vast majority of these computers are connected to the network through dedicated 100 mbps Ethernet connections with some 10 mbps connections. The University communications network is designed to meet the needs of the University staff located on all four campuses and throughout the state of Nebraska. These staff members require access to University-wide systems and data, as well as campus specific systems and data.

The network backbones on each of the campuses are built on 1000 mbps Gigabit Ethernet and 100 mbps fast Ethernet along with a small amount of ATM. All of the campuses are using switching technologies to collapse their respective backbones and to improve the performance and reliability of the networks.

All campuses have deployed some 802.11b/g wireless technology and will continue to expand the use of this technology. Plans include some minimal amount of coverage in just about every building at the University, with increased levels of service where needed (Student Unions, Libraries, etc).

The University purchases approximately 180 mbps of Internet 1 service through Alltel in Lincoln and through the Great Plains Network in Kansas City. In addition to the University of Nebraska usage, the University also provides Internet 1 service for all Network Nebraska customers. This includes approximately, another 100 mbps of Internet 1. The University also has approximately 90 mbps of Internet 2 service through Great Plains Network. The Internet 1 and Internet 2 service from the Great Plains Network is provided over an OC3 155 mbps circuit. The University is currently in the process of negotiating new contracts for Internet 1 services which will likely reduce costs (including Network Nebraska Customers) and provide access to additional providers and increase the amount of bandwidth available for Internet 2.

The University-wide area network supporting campus to campus interconnections consists of the following:

- UNK to UNCSN – 45 mbps MPLS circuit.
- UNK to UNCSN (via Grand Island) – 100 mbps fast Ethernet circuit
- UNO to UNCSN – 45 mbps ATM DS3 circuit
- UNO to UNCSN – 100 mbps fast Ethernet circuit
- UNO to UNL – 100 mbps fast Ethernet circuit
- UNMC to UNCSN – 50 mbps MPLS circuit
- UNL to UNCSN - 1000 mbps gigabit direct fiber.
- UNO to UNMC – 1000 mbps gigabit direct fiber
- UNO to UNMC – 155 mbps OC3 on direct fiber
The University has installed a high speed backbone across the state that includes a significant increase in bandwidth to each of the primary University Research Centers in Nebraska. This backbone is part of our Wide Area Network (WAN). This backbone network also serves as the primary backbone for the Network Nebraska education network. This backbone consists of the following connections:

- Grand Island to Lincoln – 100 mbps fast Ethernet circuit
- North Platte to Grand Island – 45 mbps Ethernet lite circuit
- Scottsbluff to Grand Island – 12 mbps multi-T1 circuits
- Norfolk to Omaha – 45 mbps Ethernet lite circuit
- Kearney to Grand Island – 100 mbps fast Ethernet circuit
- Clay Center to Lincoln – 45 mbps ATM DS3 circuit

The University also has 25+ low speed (1.5Mb or less) connections going to sites throughout the state. These connections are used to support our County Extension Offices, other Education and Research Centers, and Distance Learning sites. Most of these connections are T1 frame relay connections.
In addition to the University sites, several connections to hospitals throughout the state are provided. This is in support of partnerships applications between UNMC and those respective hospitals.

The University of Nebraska’s Education and Research Network has been a work in progress for many years, but in the last two years major strides have been made to improve connection speeds and larger bandwidth configurations across the state, helped in particular by an expanded partnership with the State of Nebraska and the formation of Network Nebraska, the core digital backbone. This valuable partnership resulted from statutory authorization creating the Nebraska Information Technology Commission (NITC) with a mission of collaboration and avoidance of duplication of IT infrastructure development.

The University is a primary partner in the development of Network Nebraska. The University CIO is a member of the Collaborative Aggregation Partnership (CAP) that determines the direction for Network Nebraska. The University has the prime responsibility of working to build the “educational” portion of Network Nebraska. This includes working with all K-20 education entities throughout the state to help build the network. UNCSN is currently running the Network Operations Center for the educational part of Network Nebraska.
Network Nebraska now extends through Omaha, Norfolk, Lincoln, Grand Island, Kearney, North Platte, and Scottsbluff. These sites are called 'Points Of Presence' or POPs. All secondary (second tier) clients or locations contract with local network providers from their sites to one of these POPs and ride the core network back to Lincoln. The core network also is a contracted line (NU doesn't own the fiber), with two major carriers - QWEST in central and western Nebraska; and Alltel in eastern NE and other providers as needed for redundancy. The second tier offices generally ride on one of the 42 Nebraska phone company or Cable Company lines to the Network Nebraska POPs. The following is the current Network Nebraska map, as of August 2004.

UNCA/UNCSN

The UNCA LAN is made up of a 1000 mbps backbone. This includes a 1000 mbps connection between Nebraska Hall and Varner Hall. All servers are connected with 100 mbps or 1000 mbps switched Ethernet connections. Many of the core routers, switches and servers are configured with redundancy to minimize any single point of failure. All desktops are supported with 100 mbps switched Ethernet connections. All of the UNCA office space is also covered by a 802.11b wireless network for mobile applications.
UNK

UNK’s campus network is based on 10 and 100 mbps Ethernet technology. Since its inception, the campus network was based on a star arrangement implementing a router-centric collapsed backbone topology. Every building on campus, including residence halls, is connected to Information Technology Services in the Otto Olsen building via multi-mode and single-mode fiber. Most academic and administrative buildings are wired with enhanced Level 5 100+ Mbps High-5 Systimax Premises Distribution System. The residence halls, the College of Education Building, and renovated areas of West Center and the Student Union have Systimax GigaSPEED copper cabling offering over 1000 Mbps of bandwidth. The central core of the network places each building in its own routed VLAN(s) attached to a central switch fabric. The core is capable of layer 3, layer 4, multicast and Quality of Service (QOS) decisions, and hence, is well-suited to supporting future multimedia and distance learning applications.

Internet access is provided via a dedicated 45Mbps DS3 circuit to Lincoln providing access to the general Internet, Internet-2, and the Great Plains Network. A backup 100 Mbps fiber circuit from Kearney to Lincoln via Grand Island has been installed.

UNK’s central servers and major labs have moved from shared segment equipment to switched network technologies, substantially increasing throughput to the servers and labs. The Museum of Nebraska Art is connected to the UNK campus network via a point-to-point 54 Mbps wireless link, which has been a very solid connectivity mechanism. Point-to-point wireless links are hosted for the Buffalo County Extension Office and Good Samaritan Hospital, also. ISDN access is supported by an ASCEND MAX 4000 WAN access unit with 24 ports. ISDN is used by the Safety Center, the Airway Science program at the Kearney Municipal Airport, and various faculty and staff.

Nineteen wireless access points are located in eight buildings and campus users are required to authenticate to use the wireless network. A major expansion of the wireless network is planned for the 2004-2005 academic year.

UNL

UNL’s statewide computing network consists of over 16,000 computers connected to a high-speed backbone. The vast majority of computers are connected to this network through either dedicated (i.e., network capacity given to each computer is not shared by other computers) 10Mb or 100Mb Ethernet connections.
UNMC

UNMC manages the combined physical network for UNMC and the Nebraska Medical Center. The combined network consists of 8,000 plus devices.

Most of UNMC’s workstations are Intel-based systems running Microsoft Windows XP or Microsoft Windows/2000 Workstation, with some Apple Macintosh computers running Mac OS. In addition, UNMC supports approximately 85 Intel based file servers, most of which are running WIN2K operating system.

The University of Nebraska Medical Center data communications network is designed to meet the needs of the UNMC staff that require access to UNMC as well as University-wide systems and data. The primary networking protocol used throughout the UNMC network is TCP/IP.

The data network at UNMC is based on local area network (LAN) and wide area network (WAN) technologies. The campus backbone is Gig Ethernet with a mix of 10 mbps or 100 mbps Ethernet support to the desktops as well as servers.

Remote access is accomplished by using VPN client with secured dial-in access available with a SecurID card.

UNO

UNO has a state of the art backbone network consisting of core routers with gigabit (one billion bits per second) connections to all major buildings on campus and 100 megabit (one hundred million bits per second) connections to smaller buildings on campus. UNO is the only campus network in Nebraska that has implemented multicast services throughout the primary network cores. These services provide a base for building IP-based video and audio streaming media services.
Networks – Operating System
Indicate the server based network operating system(s) utilized (indicate the estimated number servers for each, if known):

<table>
<thead>
<tr>
<th>Network Operating System</th>
<th>Number of users/licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novell Netware</td>
<td>113</td>
</tr>
<tr>
<td>Windows NT</td>
<td>251</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>1400</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>486</td>
</tr>
<tr>
<td>Unix</td>
<td>95</td>
</tr>
<tr>
<td>Linux</td>
<td>480</td>
</tr>
<tr>
<td>AS/400</td>
<td>0</td>
</tr>
<tr>
<td>OS/2 LAN Server</td>
<td>0</td>
</tr>
<tr>
<td>Other (Specify: ) TCP/IP</td>
<td>40</td>
</tr>
</tbody>
</table>

3.A.4. Staffing

There are 323.8 (FTE) University Information Technology staff who support the computing activities on all four campuses and Central Administration. The responsibilities of the permanent staff include network services; application development; client services, including helpdesk and training; hardware and software purchasing; Web design and support services; systems management and desktop support; and multimedia services. Part-time student workers assist with networking, purchasing, helpdesk and lab support. Technical Assistants provide technical support to students living in the residence halls who wish to connect a personally-owned computer to the campus network. Lab monitors are employed in the general-purposed computer labs throughout the campuses.

There are Technology Coordinators who provide hardware and software support for faculty and staff desktops as well as for student labs and who supervise part-time student workers who serve as lab monitors.

The Center for Distance Learning has a director and two technicians to provide support for distance education classes.

Within Academic Affairs, a Coordinator for Assessment provides web page support for the division. Many divisions, departments, and offices hire part-time student workers to assist with hardware and software support and to create and maintain Web pages.
3.A.5. Other

**Instructional Technologies**
Multimedia Technology Services (MTS) provides support of classroom instruction using multimedia technology to assist teaching and learning. Currently, MTS provides a variety of equipment and services to enhance the educational mission at the University including:

- Over 100 Hi-Tech Classrooms with a networked computer system (either MAC or Windows), connected to a high-lumen overhead projection and sound system. Along with an in-room ‘document camera’, these rooms are capable of displaying web pages, video, and computer applications for use in teaching.
- Fourteen mobile ‘teaching carts’ called Smart Carts, provide networked computing services; display of computer applications and video; and, web access for classrooms that do not currently have Hi-Tech equipment.
- Operation of six on-campus distance learning rooms that provide online class instruction via NEB*SAT Satellite, Fiber, and Polycom.
- Digital Media support that includes video editing and digitization for Windows and Macintosh, DVD and CD authoring, streaming video production, and creation of slide presentations.
- Sound system support for University Events.
- Delivery and maintenance of Traditional ‘AV’ equipment used for classrooms instruction and presentations: Audio Recorders, Opaque and Transparency Projectors, TV/VCR units, video cameras, and so forth.

**Distance Education**

The goal of Distance Education at University of Nebraska is furthering the academic missions of the colleges and metropolitan mission of the campus. As stated in the December 2003 Distance Education Coordinating Council report, “a distance education strategy must relate to the profound impact that information technology and computer connectivity today have on the entire American higher education enterprise.” The future of distance education is characterized by three compelling imperatives:

**Imperative 1:** information technology methods used in distance education also can enhance traditional, residential courses.
**Imperative 2:** continual investment in new technology is essential to support quality distance education.

**Imperative 3:** increased access to higher education and quality of instruction must serve as principal justification for distance education expansion rather than cost savings.

**Healthcare**

In July 1998, the Board of Regents of the University of Nebraska entered into a Master Services Agreement with Nebraska Health System, now known as the Nebraska Medical Center, whereby UNMC’s Information Technology Services provides a number of IT services to the Nebraska Medical Center. These services include: computer data center operations; network infrastructure planning, management and monitoring; telecommunications services; Help Desk support; web infrastructure support; and video services. By providing these IT services in a consolidated manner, both UNMC and the Nebraska Medical Center can realize a cost savings through economies of scale.

Providing IT services to the Nebraska Medical Center is a major part of UNMC’s IT operation and it is important to note the size of their organization. As an example, the Nebraska Medical Center is a 735-bed licensed medical/surgical facility with over 130,000 patient days in 2003, employing over 5,900 people.

As the University System reviews the IT activities, plans and future directions of each of the campuses, it must keep at the forefront this partnership that UNMC has with the Nebraska Medical Center and recognize the economies of scale that are afforded through this operational agreement.

For purposes of this report, only campus computing support numbers were included. The following ITS services were excluded: ITS Video Services, ITS Telecommunications and IT services provided to the Nebraska Medical Center.

**3.B. Value**

The following is a representative list of recent major cost saving/avoidance technology initiatives. The savings associated with these initiatives contributed to the overall budget reduction processes and funded improvements listed in the next section. The majority are initiatives that produced direct savings or cost avoidance within the IT shops themselves:
<table>
<thead>
<tr>
<th>Cost Savings Initiative</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanded/maintained instructional media support with fewer personnel by adding/increasing high tech classrooms.</td>
<td>$91,000</td>
</tr>
<tr>
<td>Streamlined system administrative and labor costs by consolidating account management through the integration of SIS, Lotus Notes and Blackboard and HR.</td>
<td>$31,000</td>
</tr>
<tr>
<td>Eliminated server hardware and software by developing SAP integrated processes that support Electronic Data Interchange (EDI) relationships with multiple prime vendors.</td>
<td>$65,000</td>
</tr>
<tr>
<td>Eliminated phone course registration and line charges replacing them with web based services.</td>
<td>$113,310</td>
</tr>
<tr>
<td>Eliminated proprietary hardware and software to reduce maintenance costs.</td>
<td>$272,826/yr.</td>
</tr>
<tr>
<td>Standardized and aggregated purchasing and maintenance agreements for PC’s, telecom &amp; networking equipment and contracts, paper, Microsoft products, and the Blackboard contract.</td>
<td>$900,260/yr.</td>
</tr>
<tr>
<td>Developed paperless systems to replace printed and/or mailed class rosters, grade rosters, Registrar letters, applications, financial aid notifications, personnel action forms, benefit forms and processes.</td>
<td>$164,500</td>
</tr>
<tr>
<td>Reduced printing hardware, maintenance and supply costs by replacing data center printers.</td>
<td>$224,000</td>
</tr>
<tr>
<td>Consolidated &amp; streamlined data center operations at UNMC by remote management of former Clarkson Hospital and UNO (off-hours) data centers.</td>
<td>$318,400</td>
</tr>
<tr>
<td>Reduced megabit costs for Internet 1 access through re-negotiated contracts and Internet 2 partnerships. (QUILT.) Savings were also provided to the State, K-12 and state colleges.</td>
<td>$79,000/yr.</td>
</tr>
<tr>
<td>Reduced cost of telecommunication services including directory assistance, local service, long distance, and voice mail service.</td>
<td>$291,000/yr.</td>
</tr>
<tr>
<td>Implemented bandwidth management for campuses including student housing to better manage overall Internet 1 costs.</td>
<td>$60,000/yr.</td>
</tr>
<tr>
<td>Lowered system administration and software costs via migration from Novell to Microsoft Active Directory.</td>
<td>$63,650</td>
</tr>
<tr>
<td>Lowered network maintenance costs by maintaining critical spare parts inventory and reducing vendor required response time resulting in lower contract cost.</td>
<td>$124,000</td>
</tr>
</tbody>
</table>
Developed server management process to consolidate and/or size server requirement to support mission critical systems/services.  

| Implemented new reporting system for UNL and UNO SISs. | $150,000 |
| Consolidated locations of IT services thus reducing personnel while retaining level of service. | $40,000 |

New or Improved IT Services

The following is a representative list of new or improved technology services that campuses and central administration IT offices have implemented. As campus and system priorities and technology change, IT departments continually adapt by re-inventing themselves and taking steps to re-direct resources so that improved technologies are provided. This approach leverages effective implementation of technology University-wide, improving the capability and productivity of nearly every faculty, staff and student.

In addition to investing in new areas, IT campus departments have responded to numerous significant unfunded mandates such as the Student and Exchange Visitor Program (SEVS) with initial costs totaling $96,000 and the Health Insurance Portability Accountability Act (HIPAA.) Complying with federal regulations such as HIPAA requires a significant amount of organization-wide involvement to develop and implement policies and procedures, conduct work force training, and create application and network security enhancements. These activities result in significant hard and soft dollar expenditures (more than $2M for UNMC) and represent ongoing and/or increasing costs as these projects are deployed across the system.

Administrative

Implementation of employee self service in a variety of areas such as payroll administration and health benefits enrollment, travel management, vacation and sick leave usage, and personal data view and update capabilities.

Continuous development and refinement of the U-Wide data warehouse environment in the areas of finance, human resources and student information. The data warehouse is the long term repository of University electronic data.

Expansion of wireless networking on each of the campuses to provide more flexible access to both administrative and academic users. This also facilitates
student, faculty and staff interaction with administrative and academic learning systems via campus web enabled services.

**Enhancement of networking stability** by using only “industrial strength” networking equipment, improving staffing, and using management policies and tools to insure network redundancy as well as a high level of access. This is one of the more critical campus level tasks because of end users’ reliance on the network for teaching, research, patient care and administration.

**Improvement of network connectivity and availability** by continuing to upgrade and increase both campus network locations and bandwidth.

**Expansion of data connections across campuses** including 11 new buildings and numerous renovations.

**Expansion of customer support and training** to meet the explosion of campus network and computing uses.

**Improvements in campus web site design and functionality** to provide easier access to campus information. Examples include access to Board of Regents meeting minutes, publicity events and student access.

**Provision of support for hand-held devices** such as the Palm Pilot and the Blackberry devices for faculty and administrators.

**Installation of a Voice Recognition System** to allow students to call each other without having to look up numbers in a phone directory, or contacting an operator.

**Hiring of an Information Security Officer** to develop University-wide security policies and procedures, ensure compliance with all federal, state and local information security and privacy legislation, lead systems vulnerability testing efforts, address security audit shortcomings, and raise security awareness.

**Implementation of security components and systems** that reduce threats to information and data in critical transaction systems including the installation of expensive new hardware components such as Firewall servers and Virtual Private Network (VPN) technology, SPAM blockers and virus protection software.

**Development of a logically separate digital network for campus security** cameras, electronic locks, and building control systems. This network allows
security officers to immediately relocate monitoring capabilities if an event were to disrupt normal campus communications.

**Enhancement of physical security and user authentication** to critical communication centers, data centers, and network wiring closets to protect the University’s digital assets.

**Enhancement of academic, research and business continuity-disaster recovery**, a function that is becoming ever more important on the campuses.

**Electronic distribution of reports** replacing printed output.

**Improvement in security of campus systems** to comply with federal mandates. Computer incident response teams have been established at UNMC and other campuses.

**Improvement in project management and portfolio management tools** such as Prosight to insure that work is being performed on high-priority tasks and requirements.

**Implementation and augmentation of on-line training for all University-wide administrative systems** including SAP (HR and Finance), data warehouse.

**New technical skills in J2EE** are being provided to UNL technical staff in order to build and support new application services and solutions.

**Academic**

**Network Nebraska – a collaboration with the State of Nebraska in the development of a statewide P-20 educational network** resulting in cost efficiencies and improved bandwidth. Continue to enhance the State of Nebraska’s educational functionality and capability. Dramatic improvements in places like Scottsbluff, for example, have allowed the University to offer more courses more often.

**Application of state of the art information technology to support learning as** campus information services manage the exponential increased use of the courseware learning system known as Blackboard. This highly successful collaborative effort for a large and complex University-wide system is touted as an example for other universities to follow.
Improvement in classroom environments by installing advanced networking, security and smart classroom technology.

<table>
<thead>
<tr>
<th>Campus</th>
<th>2000 hi-tech classrooms</th>
<th>2003 hi-tech classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNK</td>
<td>25</td>
<td>68</td>
</tr>
<tr>
<td>UNL</td>
<td>56</td>
<td>162</td>
</tr>
<tr>
<td>UNMC</td>
<td>44</td>
<td>89</td>
</tr>
<tr>
<td>UNO</td>
<td>12</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td><strong>137</strong></td>
<td><strong>409</strong></td>
</tr>
</tbody>
</table>

Significant enhancement/expansion of the Internet Protocol (IP) video network for delivery of distance e-learning, telemedicine and teleconferencing.

Expansion of student educational access by participation in collaborative programs of study among NU campuses, with other higher education institutions, use of guest lecturers via IT, and synchronous video presentations from national conferences.

Enhancement of student services functionality to improve student, faculty and staff interaction with administrative and academic learning systems via campus web enabled services. Major enhancements have been made in the area of student registration, billing, financial aid, and student recruitment. Campuses are working together to share concepts and programming efforts.

Healthcare

Design and implementation of network and security infrastructure for mission critical patient care applications such as digital radiology, digital cardiology and electronic medical records systems for UNMC’s healthcare partners, the Nebraska Medical Center and the University of Nebraska Medical Associates Clinics.

Creation of the Health Professions Tracking System in collaboration with the Nebraska Department of Health and Human Services, recognized to be the comprehensive data repository for health professional contact information.

Nebraska Health Alert Network is data extracted from UNMC’s Health Professions Tracking System which feeds a Blast Fax system to rapidly fax, email or voice mail health care professionals within the State.
Provision of technical services, hosting services, remote access and network security expertise for the Nebraska Public Health Lab and the CDC’s National Electronic Disease Surveillance System (NEDSS), in partnership with the Nebraska Department of Health and Human Services.

Development of online workforce training and mandatory compliance tracking for HIPAA and Blood-Borne Pathogen via expanded use of Blackboard and web based employee self service.

Development and implementation of network and security policies and procedures to ensure compliance with HIPAA regulations.

Implementation of wireless technology in the healthcare environment including the Emergency Room, Wound Clinic, Eagle Run, Brentwood and Plattsmouth Clinics.

Research

Delivery of state of the art IT service to support substantial growth in research with UNL, UNMC and UNO participating in using the Internet 2 research network.

The UNL Research Computing Facility (RCF), is a facility available to researchers who require high performance computing resources (rcf.unl.edu). The RCF originated in 1998 as the result of a successful NSF/EPSCOR proposal submitted by UNL's Information Services and Computer Science & Engineering. It facilitates computationally intensive research by developing ongoing collaborative partnerships with research groups, providing user training and support to use parallel and other high performance resources.

RCF is achieving these goals by providing a diverse group of supercomputing and clustering resources for University researchers, including the Prairie Fire supercomputer, currently ranked 200th of the top 500 supercomputers in the world. Other resources include an SGI Origin 300 and PrairieView, a tiled wall display for high-resolution visualization. Access to these resources is free to all UN faculty, staff, and students.

Development of a clinical trials adverse events database and an institutional bio-safety committee module for tracking protocols for potentially hazardous materials.
Today’s academic health science centers are undergoing major and inevitable transformations. Factors such as governmental influence to make institutions accountable and responsive, an increasing demand by consumers to receive quality care, research and education at lower costs, and stable or declining resources are driving this transformation. One of these factors alone would require change. However, the simultaneous convergence of these forces is requiring academic health science centers to transform at a rate much faster than many thought possible.

UNMC believes information technology is a strategic tool that when properly applied can improve the overall efficiency and effectiveness of an organization, as well as assist UNMC’s move through the ongoing transformation processes of an academic health science center.

UNMC’s Information Technology Services combines the delivery of voice, data, image and video under one management structure. This is important because many advances in technology require combining all of these modes to provide an end product. While advances in technology will continue at a rate far exceeding the current ability to adapt and use all of them, UNMC has directed efforts towards setting strategies and priorities to use information technology to help UNMC meet its mission.

The primary value contributed by UNMC-ITS is that it enables information to be received when, where, and how it is needed to improve efficiency, effectiveness and productivity for educators, researchers, students and staff.

**Student recruitment.** The Talisma system has enhanced the student recruitment process by enabling the UNL Admissions Office to produce flexible marketing campaigns, track interactions with students, and make students feel they are receiving personal attention during the recruitment process. Also, all colleges within UNL have access to Talisma through a college-specific logon. The colleges that are using Talisma are better able to track their recruitment by (a) recording their communication with prospective students, (b) tracking college-specific events, and (c) running reports to retrieve college- and major-specific information.

**Integrated Student Information System (SIS+).** This integrated system includes modules that support Records, Registration, Student Accounts, and Financial Aid. This integration provides students, faculty, and staff online access to the full array of information needed to support the student while at UNL. Systems developed to take advantage of SIS data include: (a) short-term loan application and tracking; (b) admission (graduate and undergraduate) application, status
check, and tracking; (c) line schedule of classes and registration through ENroll; (d) college advising system; (e) scholarship application, tracking, and selection process; and (f) degree audits and “what-if” analysis through DARwin. Students can also use the Web to check their grades and review their personal information and course schedules.

**Consolidated Billing for Students.** The UNL Student Information System (SIS+) provides more efficient bill generation and revenue collection. In 1996, students at UNL were receiving bills from a variety of departments including: Student Accounts, the University Housing Department, University Health Center, Telecommunications, the University Bookstore, and Parking Services. Now students receive a consolidated bill from all of these entities. SIS+ is used to (a) initiate and control the consolidated account processing, (b) record payments from students, (c) distribute revenue to the participating units, and (d) initiate Holds on student records when accounts become delinquent.

**Integrated Learning Environment (ILE).** In partnership with the academic community, UNL IS is working to improve the student learning environment through the use of instructional technology that fosters seamless access to, and enhanced interaction with, a rich array of information resources (e.g., college specific information, Academic Resources, Greek Affairs, and others). Currently based on Blackboard, a course management system and portal environment.

**Service and Support for Extended Education and Outreach.** From the inception of the Office of Extended Education and Outreach (EE&O), Information Services has partnered with EE&O staff to provide technical support to UNL distance education students. This ongoing partnership manifests itself in numerous ways, from co-sponsorship of faculty development activities to collaboration on the provision of Help Desk services to IS representation on the EE&O Academic Advisory Council.

**High-performance Computing Resources Provided Free-of-Charge to Users.** The high-performance computing resources of the Research Computing Facility (RCF) are provided, without charge, to all UNL faculty, staff, and student researchers. Access to these resources is also provided free-of-charge for other NU faculty, staff, and students. RCF aims to facilitate computationally-intensive research by (a) developing ongoing collaborative partnerships with research groups, (b) providing user training and support to use parallel and other high-performance resources, and (c) providing local high-performance computing resources. The Research Computing Facility is a collaboration of Information Services and the Computer Science & Engineering department in the College of Engineering & Technology.
**Installation of Packetshaper into the UNL residence hall network.** Since 2001, this has allowed UNL Housing to determine how much Internet capacity to assign to various tasks on behalf of their students, allowing Housing to provide the service the students want as inexpensively as possible.

**Economical Internet 2 Participation for Multiple Entities.** UNL is a full member of UCAID and a participant in the Internet 2 project, an initiative to foster research and collaborative educational opportunities to member institutions. UNL will sponsor any other institution in Nebraska wishing to participate in the Internet 2 project; thereby, allowing an institution to have full access to all Internet 2 resources without the need to pay for full Internet 2 membership. UNL invests approximately $500,000 per year in this project. UNL currently sponsors UNO, UNMC, and Creighton University. The Office and staff of the President (NU) also use UNL’s connection for access to Internet 2. An application is being submitted to UCAID that, if approved, will allow Nebraska K-12 schools to connect to Internet 2 for the first time.

**Computer Security efforts in anti-hacking and anti-virus.** Assist departments in scanning their units for vulnerabilities, educate users on how to protect servers and services, and pro-actively notify the campus of threats to help reduce the impact of such threats. Provide and support network firewalls to departments to protect critical servers. IS has also deployed anti-virus and anti-spam tools to UNL’s e-mail servers.

**Computing mobility.** Through the expansion and upgrade of networking services like DHCP and wireless, faculty, staff, and students now enjoy the ability to take their notebooks into any building on campus and effortlessly reconnect to the computer network. As of early 2004, students, faculty and staff have access to approximately 150 different wireless access points (APs) on UNL City and East Campus locations (the expansion of UNL’s wireless computer network throughout the campus is one of Information Services key initiatives for the next few years). This mobility will greatly foster the teaching and learning opportunities for faculty and students at UNL.

**Improve IT Risk Management.** The University has begun to implement an identity management system, in part by using LDAP. This will be a new foundation that will allow people to have a single sign-on for all their IT systems and services; automatically get passwords reset; change their addresses, phone numbers, and other such data once and have it propagate through most systems that store this information; and allow us to quickly shut down access to services if needed (such as when terminating an employee). At the same time this allows
us to replace Social Security numbers with a new identifier (these are already being used on UNL’s new N-Card, a student/faculty/staff card). We have also been increasing personnel dealing with security and forming groups to educate and make decisions about security issues.

On the UNK campus, Information Technology Services supports both the administrative and academic functions of the campus. It is no longer possible to separate administrative from academic functions; administrative capabilities are critical resources for academic users and academic capabilities are needed by administrative users. The institutional databases record the enrollment, progress, transcripts, and graduation of students, and the financial databases record financial transactions. Student enrollment in courses generates billing statements and student payments update both student accounts in the Student Information System and ledger accounts in the SAP financial system. This integration greatly reduces the amount of work necessary for administrative processes.

Since every classroom is wired for network access, the academic services and resources can be used to directly support instruction. Multimedia classrooms are available and provide high-quality display from a variety of video and audio sources. Blackboard is available for the development of Web-based courses and Web-based components for traditional courses. Software applications used by students and faculty and communication with the network are critical components of a high quality learning environment. Library and information access capabilities on the network are equally important. Video over IP is used for academic classes and for meetings among campuses.

Web services and Web applications have impacted the way we do business. Students apply, register for classes, pay their bills, and get grades, along with other student service functionalities, via WebEASI, a Web-based component of our Student Information System. Faculty use WebSMART, another Web-based component, for advising students and course information. The upgrading of student computer labs on a three-year cycle and the standardization of software in the labs allow us to maintain a consistently high level of service for students. Network access within the residence halls allows widespread use of network resources by students living on campus. The deployment of wireless technology in buildings on campus, including the library, allows mobile access for students, faculty, and staff. Employees use a Web-based application for Employee Self Service. Administrative functions in many offices are automated, including a document-imaging system that streamlines access to student files in the Office of Financial Aid and a parking permit/ticket tracking system that automates parking ticket notifications.
At UNO, the value of investment in information technology is substantial and must be considered critical to the daily operations of the organization. Technology is thoroughly integrated into every function of the University and it is critically important to accomplish the University mission.

Physical assets at UNO include an 8,000+ port campus network with wide area network connections to the other university campuses and central administration, as well as the Peter Kiewit Conference Center, Offutt Air Force Base, Metro Community College, Wayne State College, the Southeast Distance Learning Consortium, Omaha Public Schools, Network Nebraska, and both Internet 1 and Internet 2. The University connects more than 4,500 desktop computers, mid-range systems, servers, and main frames to the network, in addition to associated printers and other peripherals. Software and hardware combine for a value in excess of $25,000,000. However, the most valuable assets are the knowledge and social capital that are developed in our information technology professionals and users of information technology that allow the University to work together to perform our mission.

Although the goal at UNO is innovation, work is done simultaneously at all three levels to build the necessary infrastructure as a foundation. As the discovery process continues, today’s innovation becomes tomorrow’s integration.

### 3.C. Security

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has your agency implemented the NITC’s Security Policies?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If your answer to the previous question is NO, is your agency in the process of implementing the NITC’s Security Policies?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If your answers to the previous two questions are NO, has your agency implemented other security policies?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Please provide contact information for the person responsible for IT security:

<table>
<thead>
<tr>
<th>Name</th>
<th>UNCA: Michael Carr</th>
<th>UNL: Kent Hendrickson</th>
<th>UNMC: Sharon Welna</th>
<th>UNK: Debbie Schroeder</th>
<th>UNO: Steve Lendt</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mails</td>
<td><a href="mailto:mcarr@nebraska.edu">mcarr@nebraska.edu</a></td>
<td><a href="mailto:khendric@unlnotes.unl.edu">khendric@unlnotes.unl.edu</a></td>
<td><a href="mailto:swelna@unmc.edu">swelna@unmc.edu</a></td>
<td><a href="mailto:Schroederd@unk.edu">Schroederd@unk.edu</a></td>
<td><a href="mailto:slendt@mail.unomaha.edu">slendt@mail.unomaha.edu</a></td>
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The University of Nebraska is designing and implementing a combination of security policies based on NITC specifications: http://www.nitc.state.ne.us/standards/, executive memorandum 16 and other guidelines from Internet based security agencies such as CERT. These security features are a combination of hardware, software and network configurations designed to meet the following standards:

- Divide and identify systems and their resources into distinct security levels;
- Use of proactive detection and prevention of security incidents;
- Positive identification for authorized users;
- Transparent as reasonably possible to authorized users;
- Provide a clear course for response and reporting for security incidents;
- Provide users with tools and information to protect their systems and data.


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<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>Does your agency have a disaster/emergency recovery plan?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency perform regular back-ups of important agency data?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency maintain off-site storage of back-up data?</td>
<td>X</td>
<td></td>
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</table>
The University of Nebraska recognizes the importance of disaster recovery and business continuity planning and is committed to the periodic audit and continuous improvement of its preparedness planning process.

Given the current and planned use of information technology throughout the University’s research, teaching and service initiatives, efforts are underway and will continue to ensure that these preparedness planning processes are reviewed and tested as thoroughly as possible. To this end, disaster/emergency recovery planning has been expanded/renewed and initiatives are underway to work more closely with the state and federal government.

There are new disaster recovery guidelines and standards available from the U.S. Department of Homeland Security, the Federal Emergency Management Agency, Nebraska Emergency Management Agency and the Nebraska Information Technology Commission which will be reviewed and incorporated into the University’s contingency plans for disaster recovery as appropriate. And in order to provide for a more suitable recovery site in case of a physical disaster, an umbrella agreement has been reached with the State of Nebraska that will allow for further work in pursuit of a recovery site. Discussions are in progress now with the State to determine the best way to pursue recovery site availability. It is likely that the State of Nebraska IMServices and the University of Nebraska will implement many disaster recovery solutions including shared rapid access real time storage and shared processor capabilities.

UNCA has invested significant resources in the ongoing development of a disaster recovery plan. This includes continual updating and review to maintain applicability of the plan. Significant review is taking place now to insure all facets of the plan are in place to protect the primary business and support applications at UNCA. Work is also taking place to share support infrastructures with UNMC in Omaha and the State’s IM services division.

Due to recent events in the United States and abroad, everyone must be more diligent in addressing security. At the top of our list of security priorities is assuring that our “house is in order.” Patches for flaws in network software and in operating systems and the elimination of default settings for hardware and software installations have been basic first steps. Securing physical access to machine room servers and network equipment in campus buildings requires cooperation between Facilities and IT. University-wide collaboration and campus cooperation are helping UNK to address additional issues. Training will soon be offered to faculty and staff on security issues, focusing on the University
of Nebraska Information Security Plan (Executive Memorandum No. 26) in response to the Gramm-Leach-Bliley Act. A UNK Task Force is studying ID card systems and access control for secure areas and residence halls. Software to manage the download and installation of antivirus software and operating systems patches and service packs for both residence hall computers and University-owned machines is in progress. Tools for bandwidth management and intrusion detection are used.

For computer systems managed by UNL Information Services, a small pool of servers, storage devices, and associated accessories are maintained at an off site location in the event of a disaster that disables the primary server(s). If a large enough event were to occur which impacted numerous servers, a prioritization process would have to be used to determine which services were most critical at the time in question, and less critical services would remain inactive until additional resources could be found.

Many of the services managed by UNL Information Services are done so based upon the needs of a focused group of users, which is overseen by an individual or team. For these servers, it is the responsibility of the owner to determine how critical the service is to the institution, how fast the service should be returned to at least a minimal level of service, and what resources should be allocated.

**3.E. Accessibility (Technology Access for Individuals with Disabilities)**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases? [See Neb. Rev. Stat. § 73-205. The Technology Access Clause is available at <a href="http://www.nitc.state.ne.us/standards/">http://www.nitc.state.ne.us/standards/</a>]</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency have procedures in place to identify the information technology related requirements of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

38
Has your agency evaluated its website(s) to ensure accessibility to all persons with disabilities?  

<p>| | |</p>
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<tbody>
<tr>
<td>X</td>
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</table>

If yes, what tools were used to evaluate accessibility?

- [X] http://www.w3.org/WAI/ER/existingtools.html
- [___] http://www.henterjoyce.com/fs_downloads/jaws_form.asp
- [X] Other (please specify: Manual Audits)

[For more information on accessibility, contact Dr. Christy Horn at chorn1@unl.edu.]
4.A. Future Uses of Information Technology

In general:

In looking out over the horizon and trying to determine where the technology is heading causes us to look at several very important areas and determine where the road leads in several major areas:

University of Nebraska Technology Futures

Today’s IT environment is rapidly changing on many different levels. Whether looking at current or new and emerging technologies that can influence the progression of IT, we must be aware of all influential technologies that can affect or bring about innovation. These IT influences can occur across any or all technology sectors and may have either a positive or negative impact on the direction of our future IT investments.

University of Nebraska Information Technology departments have developed successful partnerships and processes which effectively address the e-revolution. Computing Services Network and campus IT departments plan to build on the success of these partnerships and past efficiencies by continuing to find and implement new ways to improve service and reduce costs. Our goal continues to be alignment of technology initiatives and services with the missions and strategic direction of the University. Small qualified teams will be tasked with leading a focused effort on core initiatives.

These initiatives are listed below:

University-Wide Initiatives

The President’s council, made up of the President, campus Chancellors, and system Vice Presidents, undertook an effort to determine the information technology priorities for the campuses of the University of Nebraska. These priorities were both strategic and operational in nature.

University-wide priorities that were identified are:

- Improved statewide and campus networking
- Enhancement of the Student Information Systems
- SAP financial and human resource system improvements
- Management of data
- Security and middleware development
• Staffing
• Web services and the creation of a Virtually Integrated University of Nebraska
• Training

The campus technology plans, included at the end of this report, spell out in more detail the various campus priorities.

• Improved Statewide and Campus Networking

The following identifies needs and areas that will benefit from the development of the Statewide High Speed Network, Network Nebraska:

**Network Nebraska State Network**

The University will continue to play a leadership role in the implementation of the Network Nebraska state education and research network. This includes developing additional services, adding additional educational entities, and improving bandwidth efficiency and technology. The following is a list of general goals associated with Network Nebraska:

1) Develop and offer Internet 1 services to eligible network participants;
2) Identify Tier II communities that offer opportunities for aggregating services onto the network;
3) Create a Service Level Agreement for use by CAP and the eligible network participants;
4) Create a Network Nebraska Level 1 Helpdesk;
5) Create a Network Nebraska Website.

**Enhancing Access and Opportunities for Learning**

The University of Nebraska needs to continue to build on its National Leadership in Distance Education. Past resources have enabled the University to establish an infrastructure of technology and networks for distance education delivery that is exemplary in the nation. Unfortunately, technology has evolved to such a degree that we have fallen behind in recent years. The network of the 1980’s and 90’s is just not sufficient anymore. Dial up speeds of 28KBS and 56KBS are entirely too slow and unreliable for students in today’s world. The University needs to place increased emphasis on higher bandwidth, improved program development, updated support
systems, reliable network structure, and continued faculty development if the University is to successfully continue to capitalize on its existing investments.

Enhanced Video Technology to Support State-of-the-Art Classrooms, Conference Rooms and Video Conferencing and Multi-point Video Conferencing System

The State of Nebraska has adopted H.263 as one of its primary video standards for distance education and conferencing. The second standard is MPEG 2. The University system has widely adopted H.323 (use of H.263 video over IP networks), but until now it has been limited to point to point connections. The multi-point video project will analyze multi-point access control units for optimal configuration within the University system. This will allow multiple simultaneous video connections to any points of the University network, interconnected networks, and via Internet 2.

Enhanced Data Network for Research

Growth in research computing, both on-campus and in collaboration with researchers at UNO, UNL and other premier world-wide institutions, has placed additional requirements on the campus computer network. As funding permits, implementing network enhancements and upgrading desktop connectivity to meet the increasing needs of the Universities world-class researchers is a priority. The network bandwidth needed to support some of these research applications includes the need for gigabit or 10 gigabit speeds between the campuses. This will require advanced network services provisioned across a fiber backbone.

Out-Reach Networking Initiative

The University of Nebraska’s vision for the future is that it will be a leader among public universities in meeting the needs of students and all citizens for lifelong learning, health care, and the advancement and sharing of new knowledge. In order to meet both this vision and the supporting objectives in the University’s Strategic Framework document, the University must reach out beyond our traditional campus borders. We must expand and build our University network, so that all the citizens of Nebraska can have the same learning experience regardless of location.

The ability to collaborate effectively across institutional boundaries is specifically and critically important to researchers in higher education. The
National communication networks that are being developed today can provide researchers and students with a fast and effective means of communicating with each other, with industry, and government.

This network now reaches hundreds of sites across Nebraska, but many of the most remote, rural University offices have yet to be connected. This plan calls for the connecting of the remaining fifty University extension offices over the next three years. Estimated annual connection costs per office will average $6,000.00 for frame relay T-1 line service, or a total new annual commitment of $300,000.00 when completed.

As a prominent research university, the University of Nebraska must take advantage of the opportunities offered by national and statewide networking.

**The Internet 2 Initiative**

In addition to constructing a statewide network to satisfy the requirements of the University in general, the University of Nebraska is a member of and fully intends to support the design goals of the Internet 2 project. The University currently partners with six states, (North Dakota, South Dakota, Kansas, Oklahoma, Arkansas and Missouri) to connect to and build an Internet 2 Gigapop in Kansas City. This project, known as the Great Plains Network (GPN), allows all seven states to have supporting connections to the Internet 2 Abilene (i.e. UCAID) network and the commodity Internet.

In July 2004, the University of Nebraska and Network Nebraska applied for and was accepted as a member in the Internet 2 “Sponsored Education Group Participant” (SEGP). This SEGP membership grants access to the Internet 2 network for any educational entities that are connected to Network Nebraska. The next step is to start developing this usage by moving forward with various K-20 applications that are enhanced by access to Internet 2.

**National LambdaRail Network**

Another advanced generation of high speed networking is becoming a reality across the United States. The National LambdaRail (NLR) is a major initiative of U.S. research universities and private sector technology companies that are working on the next level of networking above Internet 2 and is centered on providing the connections to support research in networking technologies and applications. The intent is to put the usage and control of the network into the hands of our nation’s scientists and researchers. The University of
Nebraska will eventually need to join this network in order to stay competitive with other research institutions.

- **Enhancement of the Student Information Systems**

  The Board of Regents unanimously passed a resolution which calls for the standardization of all administrative computing systems, especially including but not limited to student information systems (SIS), across all campuses of the University of Nebraska.

  The software vendor, SCT, has now announced that it will no longer enhance the SIS+ system but will focus its effort on its Banner program. If Banner is shown to work at the University of Illinois for large campus installations we may be able to migrate to the Banner platform. But planning to deal with this issue on a system-wide basis is now urgent and underway.

  In the summer of 2003, an initial SIS University-wide team was formed to begin the review of determining options for the current student information systems at the University. Currently three of the four campuses use a legacy vendor system from SCT Corporation. The fourth campus uses an in-house developed system.

  The Sungard SCT SIS, while supported by the vendor, is not current technology and the company is not actively providing new functions and features. Newer systems offer easily maintainable and configurable features and web based services that will allow for significantly reduced support costs over time. It is anticipated that SCT at some point in the near future will no longer provide support for the current SIS system.

  The 2003 Review team recommended to the Board of Regents in January 2004 to create a University-wide executive level team to review SIS system replacement solutions for the University. This team has defined the following mission and objective:

  - Make recommendations to the Student Information System (SIS) Task Force on what components make up an efficient and robust foundation to support a University-wide Student Information System;

  - Recommend requirements, guidelines, and best practices to address issues associated with each area of investigation;

  - Review current business processes in assigned areas;
• Research advantages and disadvantages of various technological approaches in assigned areas and make recommendations to the SIS Task Force as necessary;
• Explore emerging technologies and conduct informative working sessions to recommend the best technical and operational approach to assure that key features noted above are met;
• Identify "best practices" and recommend "standards and guidelines";
• Prepare a checklist of key foundational prerequisites for implementing a University-wide Student Information System. They should be listed as either “Mandatory or Desired”.

The team is to provide a report to the Board of Regents with their recommendations in the fall of 2004.

• **SAP - Financial and Human Resource System improvements**

The University adopted a charter, signed by the President, which lays out the support organization for SAP, the leadership and the mission. The Chief Information Officer (CIO) and the Assistant Vice President and Director of Finance (AVP-DF) are charged with directing this effort; however the strategic business vision must come from the “University”. Therefore, the Council of Business Officers (CBO) together with the Council of Academic Officers (CAO) shall provide the Administrative Systems Group (ASG) with a prioritized list of objectives (upgrades, new modules, increased functionality, etc.) once a year and update the prioritization each succeeding twelve months.

The University will continue to enhance and add features and functions to SAP over the coming two years. These include a system upgrade planned in January 2005, followed by the full implementation of Travel Management. This feature will significantly reduce the processing costs and time for both pre and post processing. Additional workflow processes will be added to streamline the complete hiring process. Output management will be implemented in 2004-2005 to further reduce the use of paper reports, with the goal of all production reporting available via the web. After the upgrade is completed, additional modules will be reviewed with several planned for implementation including Accounts Receivable, Budgeting, Business Warehouse, Enterprise Portal, Executive Desktop, Plant Management and e-Procurement.
• Management of Data

The answers to complex questions facing the University often require analysis of data collected within many of our administrative systems. The University of Nebraska Data Warehouse, named nulook, integrates diverse data into a holistic view of the institution. The University-wide data warehouse, a project that began in 1992, contains over 3.5 terabytes of University-wide and campus data used by over 2000+ faculty and staff for management and business process reporting and data analysis.

Key data warehouse benefits include:
• Reduced need for locally held databases and spreadsheets of questionable accuracy;
• Quick, easy-to-use, timely access using familiar desktop applications and website;
• Improved analysis, planning, decision-making and sharing of information.

Some sample, major projects include:

• University-wide Institutional Research IPEDS Faculty Database;
• Student Tuition 1098-T IRS Statements;
• Centralized generation of printed and electronic phone directories;
• Annual budget reporting and analysis;
• Academic Management Information System (AMIS):

AMIS is an information system that will provide campus staff with web access to validated data that has been integrated from multiple non-compatible source systems. AMIS is a logical expansion of the existing University data warehouse and therefore will be able to take advantage of, and build on, designs that have already been developed and proven. AMIS is being developed using a phased approach, as the full vision of AMIS has not yet been fully defined. The first major phase of AMIS is the Academic Unit Profile, which will provide integrated reporting for student information, financial and human resource information.

Future key projects include:

• University-wide Institutional Research IPEDS Student Database;
• AMIS enhancements;
• Institutional Research management analysis and reporting;
• Data dictionary and customer support enhancements;
  • Improved web interface.

• Security and Middleware Development

  Homeland Security and Bio-terrorism.

  Recent terrorist incidents have made it clear that information delivered in an effective manner, and in the appropriate venue, can serve to: 1) provide health and safety professionals with guidelines for proper treatment; 2) provide public officials with guidance for policy formation; and 3) facilitate responsible public reactions and actions. Much established clinical and basic science knowledge, as well as practical advice, is available regarding most of the agents. Clearly, the people of Nebraska, and indeed the nation, are concerned about preparedness for bioterrorism events. They are searching for high quality information and the assurances associated with knowing that responsible institutions, such as the University of Nebraska, are working to confirm or establish the highest possible levels of preparedness for bioterrorism in any form.

  The University will therefore use its information technology expertise to help establish the state as a leader in electronic communications and bioterrorism surveillance. Capability provided by the University education and research network, rural medicine outreach program, Peter Kiewit Institute, and academic information sciences programs should be leveraged to accomplish this goal. The University should work closely with State government in this initiative to pursue projects supported by new Homeland Security programs, particularly in the area of information technology. In support of this, the University has applied for several Emergency Management grants including projects to improve data backup for disaster recovery, improvements in Internet 1 access via secondary connections, and improved networking capabilities between Lincoln and Omaha.

  The University will continue to evaluate and implement new security related technologies. This includes additional implementation of firewalls, intrusion detection/prevention systems, encryption technologies, virus protection etc. Significant resources will be needed to keep our networks and Information Technology systems safe and secure.
Identity Management

The University Council of Chief Information Officers (CCIO) has appointed a task force to address the issues of Identity Management. This project involves the creation of a registry where all people will be assigned a unique number. The registry will be populated from known “expert sources” such as the Student Information System or Human Resource System. Data will then be distributed out to an “enterprise” directory and “campus” directories.

The result of this project will improve infrastructure and security in several areas. This includes authentication, authorization, and reduced sign-on, as well as other improvements in efficiency. This project will also provide the ability to move away from the use of Social Security numbers as the primary method of identification.

- IT Staffing Retention

The University of Nebraska must respond rapidly and appropriately to changing Information Technology market conditions and this requires tools to most efficiently manage human assets. To address competitive demands, the University invests in knowledge development and has implemented a system-wide compensation program (NU Values) that is intended to create more flexibility at the department level for job design, pay decisions and employee career development.

The NU Values program facilitates the achievement of the University’s compensation objectives by providing market relevant salary ranges to set pay levels which attract and retain exceptional employees. This program is also used to monitor internal and external equity, manage staff performance, raise awareness in cost effectiveness, and promote administrative consistency.

Staff retention is reinforced at the University through our ability to provide opportunities for employees to learn and further enhance their knowledge and skills which promote the achievement of personal and professional development goals. Employees accomplish this by attending training seminars in their areas of expertise and by using the University’s employee scholarship program.
Over the past several years, campus and statewide network infrastructure has grown dramatically and a number of new, major applications have been deployed. In some cases, the size of our campus networks has doubled, thus impacting wiring residence halls, adding multiple and needed web services, and doubling the number of servers. While some permanent and temporary positions have been added to support this, we have reached a point where the decision to proceed with additional major projects must include a serious discussion of personnel support for the project.

The UNO Information Technology Services staff retention philosophy begins with hiring principles that include assessing a job candidate’s work history and educational achievement to demonstrate:

- Working well with others in a project team setting. This includes good communication skills for working with our constituencies and understanding the value of shared accomplishments.
- Self-initiative by accomplishing creative groundbreaking ability in past positions.
- Aptitude in the area for which they are being considered (current skills are important, but the ability and personal desire to learn new skills is more important).
- The desire for association with higher education due to its operating culture, a desire to teach, or a desire to further their formal education.

These hiring principles are rigorously applied when evaluating job candidates. Such employee attributes are the most difficult and time consuming to accomplish through staff development efforts. Employees who possess these characteristics, given an appropriate organizational environment, tend to develop a positive and enthusiastic work culture that is both synergistically effective and enjoyable; in other words, one in which they find value, gratification, and fulfillment.

Efforts are made within the constraints of public human resource practices to keep salaries within reasonable margins of the open market job equivalents, with stipends judiciously used in circumstances where significant responsibilities are added for a finite period of time. A reward program provides additional personal development opportunities for those who demonstrate the following accomplishments:

- Over the top efforts in creating client successes where they clearly would not have occurred otherwise.
- Extraordinary groundbreaking initiatives in projects.
• Achieving a degree, certification, or educational award through their own initiative, which demonstrates their understanding of the necessary role of lifelong learning in the profession.

The UNO ITS organization is intentionally flat and fosters a culture whereby any staff member can comfortably discuss any issue or concern with any other member of the staff at any level without fear of reprisal. Matrix project teams are assigned in such a fashion that employee roles may differ on particular projects. An employee may be a member of several project teams with specific role assignments, yet also be assigned as project manager of other projects where those somewhat higher in the organization are assigned as team members. Project assignments are based on skill sets, developmental opportunities, and wherever possible, personal objectives and areas of interest are matched with departmental objectives.

Finally, the mission, vision, and values expressed in this plan guide the implementation of specific business practices with the express purpose of developing a collaborative team-oriented working culture. While current technologies are important, those who effectively implement these technologies are even more important.

Other Key Initiatives:

Telecommunications and Networking

• Over the next 5 to 7 years, Internet Protocol version 6 (IPv6) will replace IPv4 across the Internet. The larger address space and enhanced features of IPv6 will enable millions of devices to roam freely across intranets, transfer data of all forms, and provide quality of service and security. IPv6 will be a key issue as we build out our infrastructure.

• With the continued proliferation of wireless connections in a few years, public wireless access will become a commodity. Multipurpose mobile devices will connect to either a high-speed cellular network or the nearest Wi-Fi network. Connections will be established to the Internet through whichever network provides the best option for the circumstances. Devices will be multimode as software radios mature, enabling delivery of voice calls, unified messaging data, web access and display all on one device.

• The preferred wired access method will be fiber. It will probably take at least 10 years however for fiber installations to reach really adequate
penetration levels. Most growth in this area will come in new build out situations. In the mean time, the industry is continuing to expand the bandwidth capabilities of the copper wiring infrastructure that is already in place.

- Over the next 5 years, messaging and presence awareness will quietly change University communications. The working role of a person will become part of their presence profile. Presence awareness will continue beyond person-to-person text messaging to include linking people to applications and applications to applications. Both machines and people will be able to find, in real time, the appropriate person, application or data for what they are currently working on. This will include text and video messaging.

- We will continue to explore the functionality and feasibility of Voice Over IP (VOIP) technology for our University campuses and remote sites. There has been a significant amount of growth in this area on a worldwide basis. Technologies include the ability to use wireless VOIP when inside and to automatically move calls to Cellular when you leave the building, which will save on cellular minutes, while still providing a high degree of mobility. The University has several pilot projects testing this technology.

- The University will see increased network bandwidth requirements between the Lincoln and Omaha campuses. This will be in support of high bandwidth research applications in bio-technology research as well as other areas. The bandwidth will also be needed for applications in support of disaster recovery, including high speed back and restore of data. These network bandwidth requirements will drive the need for direct fiber optic networking and advanced technologies such as “dense wave division multiplexing” (DWDM). The speeds will need to support enterprise server channel speeds and 10 gigabit Ethernet.

- There will be several University Network (and Network Nebraska) equipment components that will be reaching their respective end-of-support-life in the near future. These will need to be replaced with new equipment models that can support the bandwidth needs of the future.

Computers and Related Devices

- Handheld devices are any machine or component that can be connected to a computer and carried by hand. Handheld devices started out as digital organizers, but now are becoming much more versatile. Consumers can
choose from handheld devices that perform simple tasks, like a daily organizer, to a wireless Internet appliance with high resolution, color LCD. As this trend progresses, there will be a convergence of many technologies into one handheld device to include multimedia on broadband carriers and cellular phone capabilities. These devices will handle calendar, contacts, email, voice and data. Wireless connectivity to the Internet, LAN/WAN, and other devices will become possible with the developments of 802.11 and Bluetooth technologies.

- Grid Computing Architectures are changing the view of the desktop PC from a single user resource to an enterprise resource. In the future, the excess processor cycles from each individual desktop PC will be distributed over the grid to those computers running high level programs, which maximizes the resources of current IT investments. In the coming years, the supercomputer market will feel intense competition from grid computing architectures that offer a scalable and cost efficient solution with speeds that are comparable to supercomputers. Universities may be able to leverage their excess processor cycles and sell or share the excess processing power, eliminating the potential high cost of a super computer solution.

- Nanotechnology has just begun to take storage capacity, processing power, and memory to levels far beyond the limitations of current technology. Nanotechnology has validated its existence through technology such as IBM’s Millipede and is seen as a catalyst for future manufacturing processes of storage, processor, and memory products.

- Desktop PC’s have been following the trend of becoming faster and having larger storage space for decades now. The PC of the future will act as the media server/gateway of the office or dorm network, controlling the appliances and communicating with all networked appliances attached.

- In addition to the need for a significant upgrade in processor speed for the Enterprise server in 2005, the amount of disk space will also be increased, and thus the need for improved the fiber channel support. One of the primary objectives will be the move to the Virtual Tape System to support all platforms and their use of tape media.

- Video networking, including support for the latest NITC video and audio standards
Software

- Software development will include a new focus on connectivity - not just between campuses or between users, but also between the machines themselves. This new level of connectivity will have far-reaching effects on how we communicate with our students, faculty, staff and the administrative systems that support them.

- Vendors like Microsoft are already starting to incorporate XML and XML-like elements into their applications. We should expect this trend to continue.

- As XML based standards mature and web services become more commonplace, computers will be better able to interpret implied meaning of data from various sources. This ability will allow computers to react to data with less human interaction than is currently required. For instance, a computer could automatically recognize a student that has fallen below a certain grade point average and notify a counselor or advisor of the event.

- University portals will likely continue to grow in popularity and importance. Their evolution into more mature systems that can more actively interact with other systems will depend on the development of more mature XML like standards. The amount of work that can be automated by these systems will also depend on the extent of web service deployment.

- The University will continue to explore alternative software options. This includes the continual evaluation of “open source” technologies such as Linux and other development tools that may prove reliable, supportable and cost efficient. This includes the potential for migrating business systems on to the zLinux platform.

Hardware Replacement

The University of Nebraska has differing levels of hardware replacement.

For desktop PCs, we have a couple of methods of replacement. In some instances, equipment is leased on a three year cycle and is replaced at the end of the lease agreement. However, in most cases, the equipment is purchased and is usually replaced on a 3-5 year cycle with some equipment kept for
longer periods depending on the needs and budget of the individual departments.

For Network and server equipment, it is usually purchased and is kept as long as it serves a useful purpose. The equipment will usually be replaced under these circumstances:

- It is no longer supported by the vendor and we can not get maintenance or product upgrades.
- It no longer provides the resources (processor, speed etc) needed for the application.
- The maintenance is more expensive than purchasing a newer unit.
- The application or network requirements have changed and different equipment is needed to continue with the service.
- The Operating System has changed and requires a newer hardware.

In some cases, this older equipment may be reassigned to other applications and used for a longer period of time.

Most hardware replacement costs are paid for from normal budgetary allocations. Extremely expensive or specialized purchases may mandate additional funding requirements. This could include campus/University reallocations or additional budget requests to the state.

Promotion of Collaboration

Campus Information Technology departments and the Council of Chief Information Officers have established strategic partnerships that result in improved services and major cost savings. Additional partnerships have been established with state and federal agencies, external business partners, other higher education institutions and K-12 school systems. Through these collaborations the University and its partners have significantly reduced administrative costs related to purchasing and maintenance of IT systems, increased volume discounts on contracts, and integrated networking and software thus eliminating programming previously required to mesh services. This high degree of collaboration is expected to continue into the future.

Factors/Risks Affecting IT Strategy

There are a number of factors that may negatively impact the University’s ability to execute its IT strategy which, in turn, may affect the University’s ability to meet its overall strategic goals and objectives. And while the
University will continue to mitigate these risks and develop contingencies, it is important to acknowledge that these factors and risks exist.

- **Executive-Level Support**
  Without the clear and unequivocal support of the campuses executive-level leaders for the University’s IT goals and objectives, the primary campus IT mission objectives will be at risk. However, if IT is truly embraced as the University’s primary technology leader and is duly empowered to provide the resources to help all faculty, staff and students fulfill the mission of instruction, research and service, then this risk will be minimal and success more ensured.

- **Reduction in Resources**
  If IT resources are reduced, it is likely that some of the primary campus IT mission objectives will not be met. Despite the productivity gains that will eventually be realized when many of the IT objectives are completed, the initial development and implementation of these objectives are resource-heavy and some even require increases in fixed costs. However, if project management practices are used, the impact of any resource reductions should be able to be easily understood and accordingly communicated to the affected departments.

- **Ability to Attract & Retain High Quality Human Resources**
  The University must be able to attract and retain high quality personnel if it hopes to successfully meet its IT objectives. With a glut of inexperienced help desk analysts and a dearth of experienced database administrators and web developers across the country, the University may be forced to retool its labor-intensive computer applications and rethink its new IT initiatives if attrition increases. Accordingly, the University must work to remain an employer of choice for qualified, trained IT professionals and minimize the likelihood of a major ‘brain drain.’

- **Unfunded Mandates**
  If additional federal and state legislation is enacted that requires specific information technologies be implemented and is not accompanied with the funding needed to ensure compliance, critical University IT objectives could be jeopardized. Budgets are developed and project plans are developed based on the University’s requirements and, any time requirements are added without a corresponding increase in resources, there is a risk of going over budget, going beyond the schedule, or having the scope and effectiveness of the IT objective reduced.
4.B. Information Technology Training

Information Technology Training

The growth of technology innovation and usage on our campuses during the past 10 years has had huge implications for information technology training staff. Computers are firmly established as the keys to today’s educational environment. However, levels of computer competency vary considerably from school to school, department to department, and individual to individual. Common information technology training challenges facing our campuses include:

- Developing and offering a variety of training programs that meet the diverse technology needs of students, staff, and faculty.
- Providing on demand and just-in-time training to increase productivity levels, understanding of software applications, knowledge of the Internet, and web design skills.
- Keeping current and up-to-date with the multitude of new courseware.
- Aligning training programs to the needs and work of departments, campus communities and end users.
- Overcoming hardware/software differences across campuses.
- Providing high quality, cost-effective information technology training.

UNCSN

Administrative Systems Training

An important objective of UNCSN is to become a more process oriented, customer focused organization. Our plan is to cultivate a service-oriented culture, emphasize customer service, and bridge the communication gap between users and our organization. The Customer Support Team seeks to build relationships with our customers, identify customer categories, capture usage and customer satisfaction data. The team also supports the delivery of training, documentation, communications, and helpdesk services for all University-wide applications and UNCA activities.

Specific training goals are to:
- Build relationships with customers that ensure the provision of information technology solutions.
- Establish shared work approaches to provide increased productivity.
- Deliver and expand the audience for UNCSN products and services.
- Realize value by assisting customers in implementing products and services.
- Assist in identifying and reducing redundancy of our products.
- Advertise and improve efficiency and customer service.
- Promote the effective use of recommended products and services.
- Identify customer categories to serve.
- Identify and categorize our products and relate those components to customers.
- Capture application usage information.
- Determine ways to measure customer satisfaction with products and services.

UNCSN has developed multiple computer-based training modules for University-wide administrative systems (SAP, Employee Self-Service, mynulook and Lotus Notes). A website contains all the computer-based training modules providing easy access to all users along with trouble shooting tips. A second website contains quick clips which are short video versions containing common user systems tips. Recently, client reaction indicated a need for more computer-based training due to cost and time savings for campus staff. Online learning has proved to be an effective means of training employees to do specific tasks correctly because it is an on-demand demonstration of the actual task. Employees learn at their desk and at their own pace instead of waiting on a scheduled class. New system features and enhancements are available for viewing by all users with a click of a button. In the very near future, an employee will be able to access an online training tutorial right from the SAP screen. Employees will have the ability to work in SAP and have the training tutorial open in a separate window as an additional reference tool. The synchronization of an open application and an online training tutorial is an optimal resource for employees who may require additional help to do their jobs efficiently.

SLUGO (SAP Learning and User Guide Online) was developed by the University of Nebraska and is a tool to support training with our SAP system. SLUGO is a personnel support system dedicated to providing University employees the information they need on a just in time basis. Information can be anything that assists a user with completing his or her job, including business forms, transaction scripts, news articles, and computer based training.

Nulook Help is the online help system for nulook and mynulook. Nulook and mynulook are Data Warehouse Management Information Systems providing views of financial, student and budget information. Nulook Help is the central
repository for documentation, data dictionary, security administrator lookup, news, training registration, FAQ's, downloads, and other information related to nulook and mynulook.

IT Staff Training at UNCSN includes a variety of methods used to increase our knowledge base and expertise level. In addition to staying active in national product “user groups” (Educause, SAP, etc.), staff attend specific product classes on an as needed basis (Enterprise server work load management, Windows 2003 Active Directory, etc). Employees also have the opportunity to become vendor certified for improved expertise. This is particularly true for the Microsoft, Cisco and Lotus Notes environments.

In the interest of cost efficiency, UNCSN has brought vendor experts in to teach classes on a University-wide basis. This provides a greater number of staff getting trained in areas that are common across the University.

UNCSN continually needs to provide training for our staff. Most notable areas are:
  • Advanced Networking
  • Security
  • Advanced Microsoft
  • ABAP language for SAP
  • JAVA and MS .NET technologies

UNL

Training for users of information technology: Training is available to UNL faculty, staff and students who use information technology. Non-credit workshops open to all UNL faculty and staff are provided each semester through Information Services and other entities on campus for free or for a nominal fee. Information Services also provides free short courses to students to get them started using information technology. In addition, most UNL colleges require students to take Library 110, a one-credit course designed to familiarize them with how to use online library resources.

Training for IT staff who develop and support the information technology systems: Information Services allocates funding each year from its budget for appropriate staff training. Departments that contract with IS through the Custom Support program also commit to paying for training needed by staff assigned to provide technical support to their units. UNL technical staff are being trained in J2EE development skills in order to build and support new functionalities and application solutions.
List areas/topics for which a training need has been identified by the agency. JAVA training for programmers working on SIS+ and related applications.

UNK

Training for users of Information Technology is available for faculty, staff and students.

Student training is offered on a regular basis for technology resources that are available to students and may involve hands-on sessions or demonstrations. Sessions include desktop operating systems, Microsoft applications, Web-based training, and e-mail. IT staff offer sessions throughout the semester as well as training to academic classes as requested by the faculty.

Staff training is mandatory for administrative systems, including the financial system (SAP) and Student Information System (SIS).

Faculty training needs vary greatly and training consists of hands-on sessions, demonstrations, and one-on-one opportunities. Faculty training includes:

- Use and maintenance of electronic communications (e-mail, discussion boards and chat rooms)
- Web-based training (Blackboard, web page design, creation and maintenance - both raw html and page editors and SiteEdit software)
- Microsoft products (Word, PowerPoint, Excel, Publisher, and Access)
- Use of multimedia hardware (projection systems, digital cameras, digital video, laptops)
- Copyright issues
- Basic computer health/care
- Anti-spam and peer-to-peer
- Adobe products (Acrobat, Photoshop, PageMaker)
- Student Information System for advising purposes

The cost of training for IT staff and the small number of staff available to support technology at UNK limit the training that the campus can afford to provide for IT staff. Half of the Information Technology Services staff members receive some training on an annual basis, but budgetary constraints limit training opportunities. Training focuses on each staff member’s area of responsibility, their technical strengths, and the anticipated needs of the institution.
UNMC

During the 2003-2004 fiscal year, UNMC ITS provided a wide variety of desktop applications training to UNMC faculty, staff and students. Classes included Internet web Browser, Intro to PC, Microsoft Suite of Products, Lotus Notes and Adobe Acrobat. A total of 172 courses with 1,272 staff and 385 students in attendance.

Training/education for IT professionals included:

Annual CERT Security Conference
InfoTec 2004
Sybase Training
SANS Training
VoiceCon (voice technologies conference)
Blackboard Users Group Conference
Training 2004 Conference & Expo (End User Training/Help Desk)
AAMC
3rd Annual Nebraska Summit on Distance Education
AMC Conference
RSA Conference
National Communication Association
Educause

UNO

ITS Training offers training to departments on a variety of computer training programs, such as Blackboard, MS Office, Lotus Notes email and calendaring, and FrontPage.

Blackboard Training is offered as a series of ten courses on using the Blackboard system. Blackboard allows instructors to place courses online via the world-wide-web to seamlessly incorporate learning materials derived from word processing, audio, video, spreadsheet and presentation files. It offers extensive assessment tools, database reporting, grade books, student tracking, real-time chat, file exchange, content rendering and a powerful search engine.

Staff and faculty also have the ability to take training off campus. Nebraska Business Development Center (NBDC) offers discounts to UNO personnel. Visit their website for the class offerings. http://nbdc.unomaha.edu/
Students

ITS Training offers training to students through their faculty. Faculty can request training for their students on a variety of software. The training will be completed during normal class time.

IT staff

- Conferences
  - SIS Conference
  - Educause Conference
- University courses
- Internal cross training with ITS staff
- Cisco Router/Server training.
- Windows 2000 Server course tailored to needs of ITS
- Campus Pipeline Training
- Participation in Professional Organizations
  - Great Plains DB2 Forum (Quarterly)
  - FUSE – FOCUS Group (Bi-monthly)
- Partner with Statehouse on training related to Mainframe, DB2, and CICS

4.C. Future IT Projects

List significant information technology projects which are expected to be undertaken by the agency during the next two years.

Categorized by major area:

Administrative Systems:
Student Information Systems Review In Progress
SEVIS System Review In Progress
Business Portal Implementation Fall 2004
Output Management Implementation In Progress
Deployment of UNK Admissions tracking/recruiting Fall 2004
SAP 4.7 upgrade Jan. 2005
Plant Management System Review July 2005
University Enterprise Server Upgrade July 2005
Virtual Tape System Spring 2005
Executive Information Systems (managers desktop)  Fall 2005
SIS+ (student information system) enhancements at UNO & UNL  In Progress
Replacement of Uniface/web applications at UNL  In progress
Php/MySQL services at UNL  In progress
Smartcard implementation at UNO  In progress

**Networking:**
Statewide Educational Networking - Continuation  In Progress
University State Network upgrades  In Progress
Wireless deployment at UNK  Fall 2004
Network upgrades in several UNK locations  Fall 2004
Deployment of Perfigo for UNK residence halls  Fall 2004
Fiber upgrades in several UNK locations  Spring 2005
Network upgrades for Calvin T. Ryan Library at UNK  Spring 2005
Wiring installations for new construction at UNK  Fall 2005
Network Security at UNMC  In Progress
Enhanced Data Network Infrastructure at UNMC  In Progress
Wireless deployment networking at UNL  In Progress
Expanded Outdoor Wireless Network at UNO  In Progress
E-BRUNO at UNO (web-based registration, etc.) Enhancements  In Progress
UNO Campus-wide IP Video Support System  In Progress

**Campus Infrastructure**
Upgrade telecommunications services at UNL  In Progress
Upgrade Application Development Databases at UNO  In Progress
Application Development LDAP at UNO  Fall 2004
Business Intelligence Impl. (Web Focus/Dashboard) at UNO  Fall 2004
Implement UNO Datamart  Fall 2004
Implement UNL Datamart  In Progress
Departmental Web Templates at UNO  Fall 2005
Document Application Development Standards at UNO  In Progress
Expand Web Development SLA’s at UNO  In Progress
J2EE Application Infrastructure at UNO and UNL  In Progress
University Academic Web Portal (uPortal) at UNO  In Progress
Web Analytics at UNO  Jan. 2005
Web Server Upgrade at UNO  Fall 2004
Eppley Administration Building Generator at UNO  Summer 2005
Expanded Production Backup Services at UNO  Spring 2005
Network Architecture Task Force at UNO  In Progress
Server Selection and Assignment Task Force at UNO  In Progress
Help desk software review at UNL  In progress
Installation of backup generator for server room at UNK  Fall 2004
Installation/upgrade Smart Classrooms at UNK \hspace{1cm} Spring2005
Deployment of SMS at UNK \hspace{1cm} Fall 2004
Replacement of workstations in student labs at UNK \hspace{1cm} Spring2005
Installation of new labs for Family Studies at UNK \hspace{1cm} Spring2005
Upgrade for ID cards/door locks at UNK \hspace{1cm} Spring2005
Sound and Media System Support at UNO \hspace{1cm} In Progress

**Security**

Common Sign-on and Authentication \hspace{1cm} In Progress
Physical System Security at UNO \hspace{1cm} Fall 2004
Security Assessment Task Force at UNO \hspace{1cm} In Progress
   Intrusion Prevention/Detection \hspace{1cm} Fall 2004
   Forensics Response Team \hspace{1cm} In Progress
   Demilitarized Zone/Firewall Analysis \hspace{1cm} In Progress
Technology Oriented Policy Review at UNO \hspace{1cm} In Progress
   Document Policy Compliance \hspace{1cm} In Progress
   Reduce SSN Dependency \hspace{1cm} In Progress
   Graham-Rudman \hspace{1cm} In Progress
Wireless Network Security at UNO \hspace{1cm} In Progress

**Academic and eLearning**

Deployment of Content Management System at UNK \hspace{1cm} Fall 2004
Development of an integrated learning environment (ILE) portal \hspace{1cm} In Progress
Nebraska eLearning Initiative \hspace{1cm} In Progress
Web-based Content Management System at UNO \hspace{1cm} In Progress

**Business Continuity and Disaster Recovery Planning**

Review of Disaster Recovery plans \hspace{1cm} In Progress
Tabletop exercise planning and walkthroughs \hspace{1cm} Fall 2004
Failover Services Implementation at UNO \hspace{1cm} In Progress

**Expand Student Technology-based Services**

Broaden Content Delivery Access at UNO \hspace{1cm} In Progress
Course Management Task Force at UNO \hspace{1cm} Fall 2004
Expand Customer-based Help Desk FAQ expansion at UNO \hspace{1cm} Fall 2004
Develop ITS Student Worker Community at UNO \hspace{1cm} In Progress
Evaluate Instant Messaging for UNO \hspace{1cm} In Progress
Evaluate Open Source Desktop at UNO \hspace{1cm} Spring 2005
Expanded Kiosk Services at UNO \hspace{1cm} In Progress
Lab Printing Solution at UNO \hspace{1cm} In Progress
Laptop Loan Update & Expansion at UNO \hspace{1cm} In Progress
MyFolder/MyWeb System at UNO Fall 2004
MyUNO/Blackboard Upgrade at UNO Fall 2004
New UNO Web Home Page at UNO Spring 2005
Technical Support for Multicultural Affairs, UNO Student Orgs In Progress
Technology Support for Student Gathering Spaces at UNO In Progress
Update/Expand Instructional Technology in UNO classrooms In Progress
Student ePorfolio at UNO Jan. 2005

**Instructional Technology and Research**

Academic Quality Improvement Program (AQIP) Support at UNO In Progress
UNO Archive System In Progress
UNO College ePortfolio In Progress
UNO Department ePortfolio In Progress
Digital Media Team Support for Curriculum Development at UNO
  Pedagogical Design Skills Development at UNO Spring 2005
  Mass Storage for Media System at UNO Spring 2005
Evaluate/Implement Streaming Media Support Model at UNO In Progress
UNO Faculty ePortfolio Fall 2004
UNO Institutional ePortfolio Fall 2005
UNO Tech Support Model – UNO College of Com, Media & F. Arts Fall 2005
Web Conferencing Evaluation at UNO Spring 2005
Web Office System & Expanded Departmental Storage at UNO Summer 2005
Web-based Course Evaluation Process at UNO In Progress
Web-based Research Survey Support at UNO In Progress

**Extend Outreach and Community Engagement**

Community-based Technology Labs at UNO In Progress
Nebraska Department of Education Partnership at UNO In Progress
Promotion of K-12 Partnerships at UNO In Progress
Technology in Service and Service Learning at UNO In Progress

**Other:**

Budget Analysis at UNO In Progress
Expand Campus and Off-campus Grant Partnerships at UNO In Progress
Expand UNOTECHS Partnerships at UNO In Progress
Organizational and Resource Analysis at UNO In Progress
Document/Train on System Development Life Cycle at UNO In Progress
Workflow and Output Analysis at UNO Fall 2004
4.D. Projects Relating to the NITC’s Strategic Initiatives

In creating the Nebraska Information Technology Commission (NITC), the Legislature recognized the need for “developing a statewide vision and strategic plan to guide investments in information technology”. Each year, the NITC develops the Statewide Technology Plan that adopts goals and objectives to guide the work of the Commission. The NITC also reviews and prioritizes major information technology projects as part of the biennial budget process. This year, the NITC is proposing several changes to the planning process, in order to give policy makers more information about statewide technology goals. These changes include identifying a list of statewide strategic initiatives, giving agencies an opportunity to address those initiatives in their agency comprehensive information technology plans and biennial budget requests, organizing planning sessions to develop implementation strategies, and preparing a gap analysis for the Governor and Legislature in November.

On March 9, 2004, the NITC adopted a list of eight statewide strategic initiatives. These include (in no order of priority):

1. Statewide Telehealth Network
2. Community IT planning and technology-related economic development
3. Network Nebraska (statewide broadband communications and related services)
4. Statewide Synchronous Video Network
5. E-Learning
6. Enterprise Architecture (for state government agencies)
7. E-Government
8. Security and Business Resumption

A general description of each initiative is available at: http://www.nitc.state.ne.us/forms/.

In this section of the Agency Comprehensive Information Technology Plan, agencies have the option to describe current or proposed activities that would promote one or more of these initiatives.

Although each of these initiatives is important, the NITC does not assume that projects promoting these initiatives are a higher priority than activities supporting agency-specific missions and operations.
The University of Nebraska is directly involved in most of the NITC Initiatives.

NITC Initiative #1 – Statewide Telehealth Network: The University of Nebraska Statewide network is used to support all University campuses. This includes the UNMC and its need to interconnect with several hospitals around the state. The University is also in collaboration with the Central Nebraska – Area Health Education Consortium based in Grand Island. The following hospitals are currently connected to the University Network:

- Scottsbluff – West Regional
- Kearney – Good Samaritan
- Hastings – Mary Lanning
- Grand Island – St Francis
- Norfolk – Faith Regional

The hospitals listed above, also have connections to several other hospitals that can get access to UNMC.

In addition to the hospital connections above, the University also has several people involved in the design and building of the full Statewide Telehealth Network. This includes the co-chairs of the Telehealth Network Technical Subcommittee. Considerable University investment has been made to assist in getting the Telehealth network moving forward.

NITC Initiative #2 – Community IT Planning and technology-related economic development: The University has also been very supportive of this initiative. The University has employees in most of the 93 counties in Nebraska, in particular our County Extension Offices (CEO). Although budget cuts have severely impacted our statewide presence, we continue to improve the network connectivity to many of these CEO locations. In addition to network dollars being invested in these locations, we are also bringing network access and training to citizens in these communities.

In addition to the CEO locations, the University (in particular, Cooperative Extension) is a partner with the NITC in the support of the Technologies Across Nebraska initiative. This initiative was created to help bring technology expertise to the rural communities across the state.

NITC Initiative #3 – Network Nebraska: The University has been an integral part of this project since its inception. Several University staff, including the CIO have been a part of the planning, design and promotion of this initiative. This
includes membership in the Collaborative Aggregation Partnership (CAP) and involvement with all the subgroups that have been a part of this project.

The University is currently the primary support channel for the Educational membership in Network Nebraska. This includes working with just about all of the Educational K-20 (public and private) entities in the State. The University is also the first one to offer services (Internet 1) on Network Nebraska. This initiative and the University’s role is destined to save money for all parts of education in Nebraska. As part of the support for the educational network, the University is providing the Network Operations Center to manage and monitor the backbone network.

**Benefits**

- Bandwidth at greatly reduced price due to collaboration and economies of scale;
- Core Backbone Network provides a secure, private network shared by participants;
- Reduced operating costs over time due to shared responsibilities between partners;
- As the network continues to grow, more and more aggregation opportunities emerge;
- Internet 1 access at reduced cost and access to Internet 2 (SEG-P).

**Recent Accomplishments**

- Core Backbone installed from Omaha, to Lincoln to Grand Island to Kearney and Scottsbluff;
- Core Backbone extended from Grand Island to North Platte and from Omaha to Norfolk;
- Connected and upgraded access to many University Research and Learning Centers and 15 of 25 County Extension Offices;
- Connected ESUs 10, 13, and 17 in Central and Western Nebraska and ESU 18 in Lincoln;
- UNL Tech Park, five hospitals, two Community Colleges; Wayne State and Creighton University are online.

**Leadership**

- University of Nebraska;
- State of Nebraska;
- Nebraska Information Technology Commission (NITC);
- Nebraska Educational Television;
- K-12 community and Educational Service Units (ESU);
- Telehealth community;
- State and local government.

**Future Plans**

- Further extension of the network;
- Interest from all ESUs, Community and State Colleges for I1 access;
- Plans call for providing interactive video, one-way video, distance learning, email, file sharing, Linux, content storage, web servers, research and voice over IP services;
- Develop Network Operations Center.

**NITC Initiative #4 – Statewide Synchronous Video Network:** The University has been a major support mechanism for this project. Several members of the University have served on workgroups that were formed to develop standards and recommendations for synchronous video on the State-wide Network. This group has been involved in evaluating and determining the standards for video and audio connections, and the acquisition of video equipment upgrades, etc.
NITC Initiative #5 – E-Learning: University personnel have been working hand in hand with other members of the educational community to further develop this initiative. The eLearning initiative at the University aims to promote effective and efficient integration of technology for instruction that enables equitable and affordable access to educational opportunities for all students at all levels throughout the state. Course management, content management, and stable underlying infrastructure to support eLearning are major areas of emphasis. Such infrastructure elements include networking, training, instructional design models, and hosting services for course and content management. A key element of this strategy is the establishment of a Nebraska Knowledge Repository to facilitate the development, organization, classification, access, and sharing of all forms of digital instructional materials.

The University of Nebraska is working with other institutions of higher education and the K-12 sector in an effort to foster the development of collaborative relationships between higher education and K-12 educators.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Recent Accomplishments</th>
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<tbody>
<tr>
<td>• Rich, dynamic, engaging learning environment for students anywhere;</td>
<td>• Five Higher Education/K-12 eLearning research initiatives to assess effectiveness to conclude June 2004;</td>
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<tr>
<td>• Enhanced tools for educators;</td>
<td>• Promoted the Statewide eLearning Initiative and the formation of a Nebraska eLearning Commission.</td>
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<td>• Access to content and resultant educational opportunities that would otherwise not be available;</td>
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<td>• Extended communities of learners;</td>
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<td>• Access to instruction on an “any time, any place, any path, at any pace” basis.</td>
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<tr>
<th>Leadership</th>
<th>Future Plans</th>
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<td>• To date, leadership for the Statewide eLearning Initiative has come from within UNCSN and the Nebraska Information Technology Commission’s Education Council;</td>
<td>• Continue to present and promote this initiative and identify sponsors and supporters;</td>
</tr>
<tr>
<td>• Additional support for this initiative must come from upper administration if real progress is to be realized.</td>
<td>• eLearning Initiative Workshop;</td>
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<tr>
<td></td>
<td>• Community-based partnerships between education, state and local government, Telehealth and other community based entities.</td>
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</table>
NITC Initiative #6 – Enterprise Architecture: Although the University system and campuses have worked on their own enterprise architecture, this initiative is really focused on state government agencies and not the University.

NITC Initiative #7 – E-Government: This initiative is also centered on state government offices. However, the concept behind this project is to use technology to provide electronic access to information for customers of the institution. The University is involved in providing this support to many of our students in the form of web based access to grades, registration and other University products.

NITC Initiative #8 – Security and Business Resumption:

In alignment with the NITC Security and Business Resumption Initiative, an umbrella agreement has been reached with the State of Nebraska and the University of Nebraska that will allow for further work in pursuit of a recovery site. The State of Nebraska IMServices and the University of Nebraska have begun planning and working closely together to implement many disaster recovery solutions including shared rapid access real time storage (funded through the Nebraska Emergency Management Agency - NEMA) and potentially shared processor capabilities.

The University of Nebraska recognizes the importance of disaster recovery and business continuity planning and is committed to the periodic audit and continuous improvement of its preparedness planning process.

Given the current and planned use of information technology throughout the University’s research, teaching and service initiatives, efforts are underway and will continue to ensure that these preparedness planning processes are reviewed and tested as thoroughly as possible. To this end, disaster/emergency recovery planning has been expanded/renewed and initiatives are underway to work more closely with the state and federal government.

There are new disaster recovery guidelines and standards available from the U.S. Department of Homeland Security, the Federal Emergency Management Agency, Nebraska Emergency Management Agency and the Nebraska Information Technology Commission which will be reviewed and incorporated into the University’s contingency plans for disaster recovery as appropriate.

The development and implementation of University-wide applied information assurance policies, practices, and procedures are designed to proactively minimize
the risk of loss and the unauthorized use of information technology resources through the use of reasonable and cost-effective safeguards.

Information Security affects all aspects of the University of Nebraska system and involves each and every Academic and Business office, College and Department, Human Resources, Legal, Student Affairs, Institutional Research, the Cooperative Extension offices, the respective Information Technology departments and each student, faculty, and staff member.

<table>
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<tr>
<th>Benefits</th>
<th>Recent Accomplishments</th>
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<tr>
<td>• Protects University of Nebraska assets;</td>
<td>• Raised computer security awareness across all four campuses;</td>
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<td>• Safeguards faculty, staff and student information;</td>
<td>• Have begun reducing U-wide and campus-level reliance on SSN;</td>
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<tr>
<td>• Ensures compliance with federal mandates.</td>
<td>• Obtained federal funding to improve business continuity and disaster/recovery planning;</td>
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<th>Leadership</th>
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<tr>
<td>• Council of Business Officers;</td>
<td>• Continue to raise awareness</td>
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<tr>
<td>• Council of Academic Officers;</td>
<td>• Implement computer security training for all new (and existing) employees;</td>
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<tr>
<td>• Campus-level Gramm-Leach-Bliley committees;</td>
<td>• Update campus and U-wide security policies;</td>
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<tr>
<td>• Campus CIOs;</td>
<td>• Develop standard U-wide security guidelines and procedures;</td>
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<tr>
<td>• Campus-level security analysts.</td>
<td>• Develop and implement standard incident management procedures and security management metrics.</td>
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<th>Keys to Success</th>
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<tr>
<td>• Vocal executive support</td>
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<td>• U-wide awareness</td>
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<td>• Increased headcount and budget</td>
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University of Nebraska
Campus Comprehensive Information
Technology Plans

UNL  page 71
UNMC  page 88
UNK  page 107
UNO  page 125
State of Nebraska
Agency Comprehensive Information
Technology Plan

2004

Due: August 16, 2004

Submit completed plan as an e-mail attachment to:
info@cio.state.ne.us

For an electronic version of this form; instructions; and
links to agency IT Plans from 2000 and 2002 go to:
http://www.nitc.state.ne.us/forms/

<table>
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<tr>
<th>Agency</th>
<th>University of Nebraska-Lincoln</th>
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<tbody>
<tr>
<td>Date</td>
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1. Agency Contact Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone Number</th>
<th>E-mail</th>
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<tbody>
<tr>
<td>Kent Hendrickson</td>
<td>(402) 472-2311</td>
<td><a href="mailto:khendric@unlnotes.unl.edu">khendric@unlnotes.unl.edu</a></td>
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Person to contact for additional information about the agency Comprehensive Information Technology Plan:

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<td><a href="mailto:khendric@unlnotes.unl.edu">khendric@unlnotes.unl.edu</a></td>
</tr>
</tbody>
</table>

If this document is posted on your agency’s Web site, please provide the URL for this document:

http://www.nebraska.edu/news/news_reports.shtm

2. Agency Mission, Goals and Objectives

“The core mission of our AAU/Land Grant University is to discover, create, and disseminate knowledge. Because knowledge has been increasingly represented on computers and across networks, strategies that promote the use of technology to enable the free flow of information directly support the core mission of the University.”

(Strategic Directions for Development of Information Technology, UNL, August 30, 1999)

The mission of Information Services (IS), in accordance with the institutional mission expressed above, is

- to provide a leadership role in the application of information technology to research, outreach, and teaching and learning;
- to provide expertise in the development and use of information technology for the administration of the institution;
- to actively engage and support all members of the UNL community in the use of information technology in support of their daily work;
- to create and maintain partnerships between IS and other organizations for the development of new and enhanced technologies and services; and
- to maintain a high-quality, customer-focused information technology organization that provides professional fulfillment and growth for its employees.

To accomplish this mission, Information Services has established eight strategic goals:
• Provide Technology Leadership by providing guidance in the adoption of new technologies, the productive use of existing technologies, and the phasing out of outmoded technologies.
• Build an Effective and Accountable IT Organization by ensuring that Information Services facilitates communication, shares expertise, and develops partnerships internal and external to the University.
• Provide On-Line Information Systems Accessible Anytime, Anywhere by creating, implementing and improving systems that enable the effective use of the institution’s electronic information resources.
• Deliver a Reliable State-of-the-Art Infrastructure by developing, deploying, & maintaining a dynamic IT infrastructure that meets UNL needs, including IANR’s Research Centers and all University/County extension areas.
• Apply IT to Enhance Teaching & Learning by partnering with faculty to incorporate the use of instructional technologies to enhance teaching and learning on campus and at a distance.
• Apply IT to Advance Research by partnering with the research community to use information technologies to advance the University’s research mission.
• Promote, Recommend, Adopt, Implement and Support Common IT Solutions by providing standard IT solutions that enhance collaboration, communication, and interoperability within the University community and beyond.
• Apply IT to Optimize Individual Work Environments by supporting the day-to-day work of faculty, staff and students by providing services to enhance work performance.

See the Strategic Goals document for more details:
http://www.unl.edu/IS/about/isstratgoals.htm

3. Current Use of Information Technology

3.A. Existing IT Environment

3.A.1. Applications

**Off-the-Shelf Applications**
Provide the estimated number of licenses for each of the following applications:

<table>
<thead>
<tr>
<th>Off-the-Shelf Applications</th>
<th>Number of Licenses (Best estimate, exact number not necessary)</th>
<th>Versions in Use (Optional)</th>
</tr>
</thead>
</table>

Agency Comprehensive Information Technology Plan
Page 74
<table>
<thead>
<tr>
<th>Off-the-Shelf Applications</th>
<th>Number of Licenses</th>
<th>Versions in Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Best estimate, exact number not necessary)</td>
<td>(Optional)</td>
</tr>
<tr>
<td><strong>Productivity Suites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Office Suite</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>Corel WordPerfect Office</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Browser</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Explorer</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>Netscape / Mozilla</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Other: Mac Safari</td>
<td>2,880</td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Virus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symantec/Norton</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>McAfee</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E-mail and Calendaring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Exchange</td>
<td>less than 200</td>
<td></td>
</tr>
<tr>
<td>Lotus Notes</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>Other: POP3 (Eudora, Outlook, etc.)</td>
<td>6,200</td>
<td></td>
</tr>
<tr>
<td><strong>Database Management (DBMS)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM DB2 or UDB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mainframe Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oracle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mainframe Licenses</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Microsoft SQL Server</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Off-the-Shelf Applications</td>
<td>Number of Licenses</td>
<td>Versions in Use</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>(Best estimate, exact number not necessary)</td>
<td>(Optional)</td>
</tr>
<tr>
<td>AS/400</td>
<td>Licenses</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List any other significant off-the-shelf applications utilized by the agency:

<table>
<thead>
<tr>
<th>Other significant off-the-shelf applications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Macromedia Dreamweaver</td>
<td>over 500</td>
</tr>
<tr>
<td>Adobe Photoshop</td>
<td>over 500</td>
</tr>
</tbody>
</table>
Other Applications
List other significant applications, including custom applications developed for the agency. Include information pertaining to (a) the general purpose of the application; (b) the platform on which it is running; and (c) if a custom applications, development tools used:

1. Blackboard
   a. Purpose: Course management system and portal
   b. Platform: Sun Solaris; Web accessible
2. SCT SIS+ and related systems
   a. Purpose: The Student Information System and related systems using SIS data provide students, faculty, and staff online access to the full array of information needed to recruit and support the student while at UNL.
   b. Platform: IBM mainframe, functionality augmented with custom applications on UNIX; Web accessible
   c. Custom applications developed with Java
3. SAP
   a. Purpose: financial and human resource systems
   b. Administered by NU Computing Services Network - see system-wide report for more information.

3.A.2. Data

Databases
List major databases maintained by the agency and the general purpose of each:

- Talisma: all data related to student recruitment effort
- DARwin: all data needed to conduct students’ degree audits
- Student Information System: full array of data needed to support the student while at UNL
- Institutional Research and Planning database
- Innovative Interfaces Information System: Online library information system and card catalog.
- Digital Databases to support the research and teaching processes: There are many digital databases available. Significant examples include:
  - Electronic encyclopedias
  - More than 190 articles and full-text indexes of scientific, social sciences and humanities journals.
  - Full-text digitized version of more than 5,000 professional journals.
  - Unique editions from the University Special Collections customized in full-text for the web.
  - Digitized collections of international, federal, and state government documents.
  - University of Nebraska Willa Cather Archive.
Data Exchange
List the significant electronic data exchanges your agency has with other entities:

- **Federal Government**: for Direct Lending, Financial Aid data transfer, and other federal reporting requirements (such as data exchange with the Clearinghouse).
- **Office Depot Corp**: Used for purchasing office supplies.
- **State of Nebraska**: Exchange of financial data.
- **AACRAO**: Transcript Exchange with other universities (using the EDISmart software).
- **Financial Institutions**: payroll deposits

3.A.3. Hardware, Operating Systems, and Networks

Hardware
Provide a general description of the elements of the computing environment (mainframe, midrange, PC workstations, etc.).

Computing resources are highly distributed throughout the University of Nebraska-Lincoln. Most departments have a mix of Windows and Mac based personal computers, with a lesser number of UNIX based servers and workstations scattered around the campus. Centrally, general purpose research computing servers are provided by Information Services for anyone within UNL, while the Research Computing Facility provides access to state-of-the-art parallel processing servers for specialized research applications.

### Desktop Operating System(s)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Approximate number of users/licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 95, 98, or ME</td>
<td>5%</td>
</tr>
<tr>
<td>Windows NT</td>
<td>3%</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>27%</td>
</tr>
<tr>
<td>Windows XP</td>
<td>40%</td>
</tr>
<tr>
<td>OS/2</td>
<td>0%</td>
</tr>
<tr>
<td>Linux</td>
<td>4%</td>
</tr>
<tr>
<td>Mac OS</td>
<td>18%</td>
</tr>
<tr>
<td>Other: various UNIX</td>
<td>3%</td>
</tr>
</tbody>
</table>

NOTE: percentages based on approximately 16,000 computers within UNL.

Networks - LANs and WANs
Provide a general description of the agency's network environment:
UNL’s statewide computing network consists of over 16,000 computers connected to a high-speed backbone. The vast majority of computers are connected to this network through either dedicated 10Mb or 100Mb ethernet connections (dedicated means that the network capacity given to each computer is not shared by other computers).

**Networks – Server Operating System**

Indicate the network operating system(s) utilized:

<table>
<thead>
<tr>
<th>Network Server Operating System</th>
<th>Number of server licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novell Netware</td>
<td>1%</td>
</tr>
<tr>
<td>Windows NT</td>
<td>5%</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>30%</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>29%</td>
</tr>
<tr>
<td>Unix</td>
<td>10%</td>
</tr>
<tr>
<td>Linux</td>
<td>20%</td>
</tr>
<tr>
<td>AS/400</td>
<td>0%</td>
</tr>
<tr>
<td>OS/2 LAN Server</td>
<td>0%</td>
</tr>
<tr>
<td>Other: various TCP/IP Services</td>
<td>5%</td>
</tr>
</tbody>
</table>

NOTE: percentages based on approximately 800 servers within UNL.

3.A.4. Staffing

**General Information**

Identify, in general terms, the agency personnel resources currently devoted to supporting the items listed in this section (3.A). This should include both personnel whose job titles and description are clearly related to technology, other personnel whose responsibilities relate significantly to technology support regardless of job title, and contract staffing provided to the agency. Please provide an organizational chart, if available, or describe the organizational structure for managing IT related staff.

- Administrative Support 7 FTE
- User Support 45 FTE (25 FTE are state-funded)
- Administrative Computing 15 FTE
- Communications and Operations 55 FTE

**NIS Tracking**

The Nebraska Information System (NIS) includes the capability of tracking personnel service expenditures for staff who are devoted to information technology activities. Have you designated any business units in NIS that are focused on providing information technology services by using Category Code 7 (UDC 00/07)? Or have you used the Time Card Category Code 4
(UDC 06/04) for employees who may need to have their time recorded as I/T related expense?

3.A.5. Other

Please list any other issues relating to your current IT environment:
This section is optional. Purposely left blank.

3.B. Value

Describe and document the tangible and intangible benefits of the agency's investment in information technology.

**Student recruitment.** The Talisma system has enhanced the student recruitment process by enabling the UNL Admissions Office to produce flexible marketing campaigns, track interactions with students, and make students feel they are receiving personal attention during the recruitment process. Also, all colleges within UNL have access to Talisma through a college-specific logon. The colleges that are using Talisma are better able to track their recruitment by (a) recording their communication with prospective students, (b) tracking college-specific events, and (c) running reports to retrieve college- and major-specific information.

**Integrated Student Information System (SIS+).** This integrated system includes modules that support Records, Registration, Student Accounts, and Financial Aid. This integration provides students, faculty, and staff online access to the full array of information needed to support the student while at UNL. Systems developed to take advantage of the SIS data include: (a) short-term loan application and tracking; (b) admission (graduate and undergraduate) application, status check, and tracking; (c) line schedule of classes and registration through ENroll; (d) college advising system; (e) scholarship application, tracking, and selection process; and (f) degree audits and “what-if” analysis through DARwin. Students can also use the Web to check their grades and review their personal information and course schedules.

**Consolidated Billing for Students.** The UNL Student Information System (SIS+) provides more efficient bill generation and revenue collection. In 1996, students at UNL were receiving bills from a variety of departments including: Student Accounts for tuition and fees, the University Housing Department, University Health Center, Telecommunications, the University Bookstore, and Parking Services. Now students
receive a consolidated bill from all of these entities. SIS+ is used to (a) initiate and control the consolidated account processing, (b) record payments from students, (c) distribute revenue to the participating units, and (d) initiate Holds on student records when accounts become delinquent.

**Integrated Learning Environment (ILE).** In partnership with the academic community, IS is working to improve the student learning environment through the use of instructional technology that fosters seamless access to, and enhanced interaction with, a rich array of information resources (e.g., college specific information, Academic Resources, Greek Affairs, and others). Currently based on Blackboard, a course management system and portal environment.

**Service and Support forExtended Education and Outreach.** From the inception of the Office of Extended Education and Outreach (EE&O), Information Services has partnered with EE&O staff to provide technical support to UNL distance education students. This ongoing partnership manifests itself in numerous ways, from co-sponsorship of faculty development activities to collaboration on the provision of Help Desk services to IS representation on the EE&O Academic Advisory Council.

**High-performance Computing Resources Provided Free-of-Charge to Users.** The high-performance computing resources of the Research Computing Facility (RCF) are provided, without charge, to all UNL faculty, staff, and student researchers. Access to these resources is also provided free-of-charge for other NU faculty, staff, and students. RCF aims to facilitate computationally-intensive research by (a) developing ongoing collaborative partnerships with research groups, (b) providing user training and support to utilize parallel and other high-performance resources, and (c) providing local high-performance computing resources. The Research Computing Facility is a collaboration of Information Services and the Computer Science & Engineering department in the College of Engineering & Technology.

**Installation of Packetshaper into the UNL residence hall network.** Since 2001, this has allowed UNL Housing to determine how much Internet capacity to assign to various tasks on behalf of their students, allowing Housing to provide the service the students want as inexpensively as possible.

**Economical Internet2 Participation for Multiple Entities.** UNL is a full member of UCAID and a participant in the Internet2 project, an initiative to foster research and collaborative educational opportunities to member institutions. UNL will sponsor any other institution in Nebraska wishing to participate in the Internet2 project; thereby, allowing an institution to have full access to all Internet2 resources without the need to pay for full Internet2 membership. UNL invests approximately $500,000 per year in this project. The Institutions we currently sponsor are UNO, UNMC, and Creighton University. The Office and staff of the President (NU) also use UNL’s connection for
access to Internet2. An application is being submitted to UCAID that, if approved, will allow Nebraska K-12 schools to connect to Internet 2 for the first time.

**Computer Security efforts in anti-hacking and anti-virus.** Assist departments in scanning their units for vulnerabilities, educating users on how to protect servers and services, pro-actively notifying the campus of threats to help reduce the impact of such threats. Provide and support network Firewalls to departments to protect critical servers. IS has also deployed anti-virus and anti-spam tools to UNL’s e-mail servers.

**Computing mobility.** Through the expansion and upgrade of networking services like DHCP and wireless, faculty, staff, and students now enjoy the ability to take their notebooks into any building on campus and effortlessly reconnect to the computer network. As of early 2004, students, faculty and staff have access to approximately 150 different wireless access points (APs) on UNL City and East Campus locations (the expansion of UNL’s wireless computer network throughout the campus is one of Information Services key initiatives for the next few years). This mobility will greatly foster the teaching and learning opportunities for faculty and students at UNL.

**Improve IT Risk Management.** UNL, in concert with the other campuses and Central Administration, has begun to implement an identity management system, in part by using LDAP. This will be a new foundation that will allow people to have a single sign-on for all their IT systems and services; automatically get passwords reset; change their addresses, phone numbers, and other such data once and have it propagate through most systems that store this information; allow us to quickly shut down access to services if needed (such as when terminating an employee). At the same time this allows us to replace Social Security numbers with a new identifier (these are already being used on UNL’s new N-Card, a student/faculty/staff card). We have also been increasing personnel dealing with security and forming groups to educate and make decisions about security issues.
3.C. Security

Security Policies
Please answer the following questions regarding your agency’s efforts to maintain a secure information technology environment. [The questions refer to the Nebraska Information Technology Commission’s Security Policies. These policies are available at http://www.nitc.state.ne.us/standards/]

<table>
<thead>
<tr>
<th>Has your agency implemented the NITC's Security Policies?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If your answers to the previous question is NO, has your agency implemented other security policies?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

Agency Contact Information
Please provide contact information for the person responsible for IT security:

<table>
<thead>
<tr>
<th>Name</th>
<th>Kent Hendrickson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>(402) 472-2311</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:khendric@unnotes.unl.edu">khendric@unnotes.unl.edu</a></td>
</tr>
</tbody>
</table>

NOTE: contact information is for UNL portion of plan

Narrative
Provide a general description of the agency’s efforts to develop and implement a security program:

(NOTE: Agency IT Plans are posted on a state Web server, accessible only from computers on the state network. Agencies have the option of providing security information here, or in the alternative, can submit the information directly to the state CIO and it will not be posted. Contact Steve Schafer at slschafe@notes.state.ne.us or 402-471-4385 to submit your security information in an alternative format.)

Please see system-wide security information provided by NU Computing Services Network.


Definitions. For purposes of this document the term, "Disaster Recovery Plan" refers to preparations for restoring information technology systems following a major disruption. The term, "Business Continuity Plan" refers to preparations for restoring the operational functions of the agency. As used here, disaster
recovery is a subset of business continuity, because information technology supports the business functions of the agency.

**Questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency have a disaster/emergency recovery plan?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X (critical systems)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency perform regular back-ups of important agency data?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency maintain off-site storage of back-up data?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X (for targeted data from centrally-managed systems)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Narrative**

Provide a general description of the agency’s efforts regarding disaster recovery and business continuity planning:

For computer systems managed by Information Services, a small pool of servers, storage devices, and associated accessories are maintained at an off site location in the event of an event that disables the primary server(s). If a large enough event were to occur which impacted numerous servers, a prioritization process would have to be used to determine which services were most critical at the time in question, and less critical services would remain inactive until additional resources could be found.

Many of the services managed by Information Services are done so based upon the needs of a focused group of users, which is overseen by an individual or team. For these servers, it is the responsibility of the owner to determine how critical the service is to the institution, how fast the service should be returned to at least a minimal level of service, and what resources should be allocated a head of time for this effort. Appropriate backup procedures fall into this same category.

Additional work needs to be done to better prepare the institution for a disaster. Owners responsible for their application should perform at least an annual test to see they could rebuild their applications, and how long such events would take. Plans for disaster recovery should be made at the time funding and support for the project is initially discussed.
### 3.E. Accessibility (Technology Access for Individuals with Disabilities)

[For more information on accessibility, contact Christy Horn at chorn@nebraska.edu]

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases? [See Neb. Rev. Stat. § 73-205. The Technology Access Clause is available at <a href="http://www.nitc.state.ne.us/standards/">http://www.nitc.state.ne.us/standards/</a>]</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency have procedures in place to identify the information technology related requirements of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Has your agency evaluated its website(s) to ensure accessibility to all persons with disabilities?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

If yes, what tools were used to evaluate accessibility?

- [X] [http://www.w3.org/WAI/ER/existingtools.html](http://www.w3.org/WAI/ER/existingtools.html)
- [X] [http://www.vischeck.com/](http://www.vischeck.com/)
- [ ] [http://www.henterjoyce.com/fs_downloads/jaws_form.asp](http://www.henterjoyce.com/fs_downloads/jaws_form.asp)
- [ ] Other (please specify ________)
4. Future Uses of Information Technology

4.A. Strategies and Future Direction

This section should summarize the agency's strategies and future direction for information technology within the agency. Topics should include:

- A summary of future changes in uses of technology, which the agency plans to implement.
- A description of the agency’s hardware replacement program or strategy.
- An overview of the agency’s activities that promote collaboration.
- A discussion of factors and risks that will impact the success of the agency's information technology strategy.
- An overview of plans to implement e-government services.
- Your agency’s efforts to retain IT staff, if applicable.

Please see system-wide description provided by NU Computing Services Network.

4.B. Information Technology Training

Summarize the agency's efforts to address training needs relating to information technology. This should include:

- Training for users of information technology
- Training for IT staff who develop and support the information technology systems
- List areas/topics for which a training need has been identified by the agency.

**Training for users of information technology:** Training is available to UNL faculty, staff and students who use information technology. Non-credit workshops open to all UNL faculty and staff are provided each semester through Information Services and other entities on campus for free or for a nominal fee. Information Services also provides free short courses to students to get them started using information technology. In addition, most UNL colleges require students to take Library 110, a one-credit course designed to familiarize them with how to use online library resources.

**Training for IT staff who develop and support the information technology systems:** Information Services allocates funding each year from its budget for appropriate staff training. Departments that contract with IS through the Custom Support program also commit to paying for training needed by staff assigned to provide technical support to their units.
List areas/topics for which a training need has been identified by the agency. JAVA training for programmers working on SIS+ and related applications.

4.C. Future IT Projects

List significant information technology projects which are expected to be undertaken by the agency during the next two years.

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>STATUS (start date, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploying wireless networking capabilities throughout most of UNL's buildings, started 7/2003 and should be mostly completed by the end of 2006.</td>
<td>started 7/2003</td>
</tr>
<tr>
<td>Preparing for a new telephone system for UNL. Started developing plans 1/2004, architecture for a new system should be in place by July of 2005.</td>
<td>started 1/2004</td>
</tr>
<tr>
<td>Development of an integrated learning environment (ILE) portal (this is a long-term project but significant effort is being dedicated to it in 2004)</td>
<td>started in 2002</td>
</tr>
</tbody>
</table>

4.D. Projects Relating to the NITC’s Strategic Initiatives

In creating the Nebraska Information Technology Commission (NITC), the Legislature recognized the need for “developing a statewide vision and strategic plan to guide investments in information technology”. Each year, the NITC develops the Statewide Technology Plan that adopts goals and objectives to guide the work of the Commission. The NITC also reviews and prioritizes major information technology projects as part of the biennial budget process. This year, the NITC is proposing several changes to the planning process, in order to give policy makers more information about statewide technology goals. These changes include identifying a list of statewide strategic initiatives, giving agencies an opportunity to address those initiatives in their agency comprehensive information technology plans and biennial budget requests, organizing planning sessions to develop implementation strategies, and preparing a gap analysis for the Governor and Legislature in November.

On March 9, 2004, the NITC adopted a list of eight statewide strategic initiatives. These include (in no order of priority):

1. Statewide Telehealth Network
2. Community IT planning and technology-related economic development
3. Network Nebraska (statewide broadband communications and related services)
4. Statewide Synchronous Video Network
5. E-Learning
6. Enterprise Architecture (for state government agencies)
7. E-Government
8. Security and Business Resumption

A general description of each initiative is available at:
http://www.nitc.state.ne.us/forms/.

In this section of the Agency Comprehensive Information Technology Plan, agencies have the option to describe current or proposed activities that would promote one or more of these initiatives. Agencies should also notify Steve Schafer by May 1, 2004, of their interest in these initiatives, in order to be included in any planning sessions this summer.

Although each of these initiatives is important, the NITC does not assume that projects promoting these initiatives are a higher priority than activities supporting agency-specific missions and operations.

Please see system-wide information provided by NU Computing Services Network.
State of Nebraska
Agency Comprehensive Information Technology Plan

2004

Due: August 16, 2004

Submit completed plan as an e-mail attachment to:
info@cio.state.ne.us

For an electronic version of this form; instructions; and links to agency IT Plans from 2000 and 2002 go to:
http://www.nitc.state.ne.us/forms/

<table>
<thead>
<tr>
<th>Agency</th>
<th>University of Nebraska Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Nov. 29, 04 -- 9:51 AM</td>
</tr>
</tbody>
</table>
### Education... enhance and expand the educational environment.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>.</td>
<td>Participate in technology planning for the Center for Health Science Education. (Moser/Thacker)</td>
</tr>
<tr>
<td><strong>B</strong>.</td>
<td>Partner with UNMC colleges and faculty on strategic planning, faculty development and educational development initiatives. (Moser)</td>
</tr>
<tr>
<td><strong>C</strong>.</td>
<td>Assist faculty in expanding the use of educational technologies. (Moser)</td>
</tr>
<tr>
<td><strong>D</strong>.</td>
<td>Expand/upgrade classroom technologies. (Moser/Thacker)</td>
</tr>
</tbody>
</table>

### Research... increase prominence as a research health sciences center.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>.</td>
<td>Participate in grant development to ensure the inclusion of appropriate technology components. (Moser)</td>
</tr>
<tr>
<td><strong>B</strong>.</td>
<td>Enhance and develop research support systems. (Trant)</td>
</tr>
</tbody>
</table>

### Partnership... advance community/campus partnerships for health.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>.</td>
<td>Provide network connectivity and support for campus/community partnerships for health. (Lugert/O’Callaghan)</td>
</tr>
<tr>
<td><strong>B</strong>.</td>
<td>Participate in local, regional and national organizations. (All)</td>
</tr>
</tbody>
</table>

### New Technologies... develop selected new technologies to advance health education, science and clinical programs.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>.</td>
<td>Raise awareness of the statewide network’s role in advancing potential health education, public awareness and telehealth initiatives. (Thacker)</td>
</tr>
<tr>
<td><strong>B</strong>.</td>
<td>Assist colleges and faculty in developing new technologies in health education. (Moser/Thacker)</td>
</tr>
</tbody>
</table>

### Employees... create a culture that builds employee loyalty and satisfaction.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>.</td>
<td>Review ITS focus group results and identify one employee satisfaction area to enhance upon. (Strohbehn)</td>
</tr>
<tr>
<td><strong>B</strong>.</td>
<td>Conduct biannual manager/supervisor development forums to focus on recruitment and employee skill development. (Strohbehn)</td>
</tr>
</tbody>
</table>

### Infrastructure... develop facilities, technology and administrative systems to support UNMC’s vision.
Applications
A. Design, develop and implement enhancements to administrative systems. (Trant)
B. Enhance and expand web-based applications/systems. (Trant/Moser)

Infrastructure
A. Enhance Internet connectivity for UNMC and the hospital. (Wines)
B. Continue to expand and evaluate wireless technologies, mobile devices and related security measures. (Wines)
C. Implement a new backup solution for enterprise-wide systems and servers. (Wines)
D. Finalize design planning and construction of the new data center and begin relocating data center equipment. (Lugert)
E. Develop and maintain the written ITS disaster recovery plan. (Welna)
F. Actively participate in new construction and renovation projects through consultation, design and implementation of voice, video and data technologies. (All)
G. Continue to evaluate video infrastructure and production technologies. (Thacker)
H. Evaluate, plan and implement emerging voice network technologies for UNMC and the hospital. (O’Callaghan)
I. Participate in University-Wide information technology projects. (Holly)

Security
A. Evaluate, plan for and implement emerging network security technologies. (Wines)
B. Continue working with the UNMC Safety and Security Committee. (Welna/Moser/Thacker)
C. Continue analysis and implementation of the final HIPAA security regulations for UNMC and the hospital. (Welna)

Hospital Partner
A. Continue providing comprehensive information technology support services to The Nebraska Medical Center. (All)
Person responsible for Information Technology in the agency:

<table>
<thead>
<tr>
<th>Name</th>
<th>Yvette Holly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>402-559-5683</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:yholly@unmc.edu">yholly@unmc.edu</a></td>
</tr>
</tbody>
</table>

Person to contact for additional information about the agency Comprehensive Information Technology Plan:

<table>
<thead>
<tr>
<th>Name</th>
<th>Yvette Holly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>402-559-5683</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:yholly@unmc.edu">yholly@unmc.edu</a></td>
</tr>
</tbody>
</table>

If this document is posted on your agency's Web site, please provide the URL for this document:

http://
www.nebraska.edu/news/news_reports.shtml

2. Agency Mission, Goals and Objectives

Describe the mission of the agency. This is a statement of why the agency exists and its fundamental purpose. Describe the primary business goals and objectives for the next five years (or for that timeframe for which they are formally established).

Explain the primary programs or service areas of the agency and whom they impact. This should include primary beneficiaries, partners, and other organizations that have an interest in the agency's activities. Please identify how the organization interacts with these other agencies, local governments, the public, businesses, and other entities. How does the agency promote a customer focus and collaboration with these groups?

Please include the URL, if a fuller explanation of this topic is available on the agency's web site.

The mission of the University of Nebraska Medical Center (UNMC) is to improve the health of Nebraska through premier educational programs, innovative research, the highest quality patient care, and outreach to underserved populations. UNMC’s vision is that the partnership of UNMC/The Nebraska Medical Center will be a world-renowned health sciences center that:

- Delivers state-of-the-art health care through academic and private
• Prepares the best-educated health professionals and scientists.
• Ranks among the leading research centers.
• Advances our historic commitment to community health.
• Embraces the richness of diversity.

UNMC’s Critical Success Factors for 2004-2007 are to:

A. Enhance and expand the educational environment.
B. Increase prominence as a research health sciences center.
C. Advance community/campus partnerships for health.
D. Create a culturally competent organization.
E. Develop selected new technologies to advance health education, science and clinical programs promoting economic growth in Nebraska.
F. Create a culture that builds employee loyalty and satisfaction.

http://www.unmc.edu

UNMC Information Technology Services Mission

Information Technology Services (ITS) is responsible for voice, video and data systems and services throughout UNMC, The Nebraska Medical Center, Clinics and for links of those systems with institutions and agencies beyond the Medical Center. The primary focus of ITS is to provide the resources to help faculty, staff and students fulfill UNMC's mission of health professions education, research, health care and outreach to the underserved.
3. Current Use of Information Technology

3.A. Existing IT Environment

3.A.1. Applications

Off-the-Shelf Applications
Provide the estimated number of licenses for each of the following applications:

<table>
<thead>
<tr>
<th>Off-the-Shelf Applications</th>
<th>Number of Licenses (Best estimate, exact number not necessary)</th>
<th>Versions in Use (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productivity Suites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Office Suite</td>
<td>3040</td>
<td></td>
</tr>
<tr>
<td>Corel WordPerfect Office</td>
<td>1189</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Browser</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Explorer</td>
<td>3212</td>
<td></td>
</tr>
<tr>
<td>Netscape / Mozilla</td>
<td>464</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Virus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symantec/Norton</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>McAfee</td>
<td>3514</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E-mail and Calendaring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Exchange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lotus Notes</td>
<td>7,143</td>
<td>4097 Staff &amp; 3,046 Students</td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Database Management (DBMS)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM DB2 or UDB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mainframe Licenses</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Licenses</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Server Licenses</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mainframe Licenses</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
List any other significant off-the-shelf applications utilized by the agency:

**Other Applications**

List other significant applications, including custom applications developed for the agency. Include information pertaining to (a) the general purpose of the application; (b) the platform on which it is running; and (c) if a custom applications, development tools used:

The following client server applications are using a Sybase database running on IBM hardware using AIX. The client software was developed using PowerBuilder and runs on intel PCs with various versions of Windows.

- UNMC Health Professions Tracking System
- UNMC HPTC-HAN (Health Professions Tracking Center – Health Alert Network)
- UNMC/UNO Telephone Billing System
- UNMC Campus Business Applications
- UNMC Center for Continuing Education Course Management System
- UNMC Research Administration Applications
- UNMC Faculty Database
- UNMC Tracking System

These following web applications are using a Sybase database running on IBM hardware using AIX. The web component is iis and runs on intel based servers with various versions of Windows server software.

- UNMC CARE (Campus Records) Web Site
- UNMC ESS (Employee Self Service) Web Site
- UNMC RISC (Research Infrastructure Support and Compliance Web Site)

The following application runs on a Windows 2000 platform and is not a custom application.
3.2. Data

**Databases**
List major databases maintained by the agency and the general purpose of each:

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNMC Health Professions Tracking System</strong></td>
<td>In collaboration with the State Department of Health, UNMC provides tracking information regarding physicians, dentists, physician assistants, nurse practitioners, and pharmacists throughout the region.</td>
</tr>
<tr>
<td><strong>UNMC/UNO Telephone Billing Database</strong></td>
<td>Tracks work orders, billings, and phone related data for the UNMC and UNO telephone systems.</td>
</tr>
<tr>
<td><strong>UNMC Campus Business Databases</strong></td>
<td>Tracks work orders, billings, and other data for Printing and Duplicating, Mail Services, Physical Plant, ITS, and Cell Phone Billing.</td>
</tr>
<tr>
<td><strong>UNMC Center for Continuing Education Course Management System</strong></td>
<td>Manages courses and related activities for the UNMC Center for Continuing Education.</td>
</tr>
<tr>
<td><strong>UNMC Research Administration Databases</strong></td>
<td>Grants Administration Database - tracks pending / active grants and contracts. IRB - Tracks protocols for the Institution Review Board. IACUC – Tracks protocols for the Animal Care Committee.</td>
</tr>
<tr>
<td><strong>UNMC Faculty Database</strong></td>
<td>Provides a data repository and source of evaluation data for faculty within the College of Medicine.</td>
</tr>
<tr>
<td><strong>UNMC Tracking System</strong></td>
<td>Provides data regarding cashiering stations, parking privileges, and key assignments for staff, students, and NMC employees.</td>
</tr>
</tbody>
</table>

**Data Exchange**
List the significant electronic data exchanges your agency has with other entities:
• AMCAS - feeds information regarding Medicine Applicants to UNMC Tracking System.
• GRE - feeds information regarding Graduate examinations into UNMC Tracking System.
• TOEFL - feeds information regarding test scores into UNMC Tracking System.
• Student Loan Clearinghouse - sends information regarding students from the UNMC Tracking System to the Student Loan Clearinghouse.
• Outbound Financial Interfaces from UNMC Systems to University of Nebraska SAP - feeds financial information from departments including Printing and Duplicating, Mail Services, Physical Plant, Center for Continuing Education, Information Technology Services, Cashiering, Parking, Telephone Billing, and Cell Phone Billing into SAP.
• Inbound Interfaces from SAP to UNMC Systems - feeds updates for new cost centers and accounts for account validation, and daily HR information for use by various UNMC Systems.
• Inbound Interface from the Nebraska Medical Center HR system to UNMC Systems with daily HR information for use by various UNMC systems.

3.A.3. Hardware, Operating Systems, and Networks

Hardware
Provide a general description of the elements of the computing environment (mainframe, midrange, PC workstations, etc.).

- Dell 6450 (WIN2K): Lotus Notes (Faculty, Staff) UNMC
- Dell 6450 (WIN2K): Lotus Notes (Students) UNMC
- Dell 6250 (WIN2K): Lotus Notes Database Server
- Dell 750 (WIN2K): Lotus Notes LDAP Server
- Dell 6450 (4 servers): Consolidated File & Print Server IV
- HP Netserver (Novell): Consolidated File & Print Server I
- HP Netserver (Novell): Consolidated File & Print Server II
- Dell 650 (Linux): Qmaster (Xerox printing), Sendmail (E-mail gateway), log repository, Primary and Secondary DNS servers
- Dell 650: Firewall, SecureID, DHCP Server, Netserv, Backup proxy server
- Dec Alpha (Unix) Innovative Systems (library information system)
- 3 Dell PE 350(RH Linux AS 3.0): Primary Internet Servers
- 2 Dell Optiplex GX110(RH Linux AS 3.0): Primary Intranet Proxy Servers
- 3 Dell PE 350(RH Linux AS 3.0): Primary Intranet Content Servers
- 2 Dell PE 1550 (WIN2K): Primary Development Servers
- 1 Dell PE 2550 (WIN2K): Web Media Server
- 2 Dell PE 6650 (WIN2K): BlackBoard Servers
Desktop Operating System(s)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Approximate number of users/licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 95, 98, or ME</td>
<td>111</td>
</tr>
<tr>
<td>Windows NT</td>
<td>46</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>811</td>
</tr>
<tr>
<td>Windows XP</td>
<td>2235</td>
</tr>
<tr>
<td>OS/2</td>
<td>0</td>
</tr>
<tr>
<td>Linux</td>
<td>20</td>
</tr>
<tr>
<td>Mac OS</td>
<td>305</td>
</tr>
<tr>
<td>Other (Specify:)</td>
<td>5</td>
</tr>
</tbody>
</table>

Networks - LANs and WANs

Provide a general description of the agency's network environment:

UNMC manages the combined physical network for UNMC and The Nebraska Medical Center. The combined network consists of 8,000 plus devices.

Most of UNMC’s workstations are Intel-based systems running Microsoft Windows XP or Microsoft Windows/2000 Workstation, with some Apple Macintosh computers running MacOS. In addition, UNMC supports approximately 85 Intel based file servers, most of which are running WIN2K operating system.

The University of Nebraska Medical Center data communications network is designed to meet the needs of the UNMC staff that require access to UNMC as well as University-wide systems and data. The primary networking protocol used throughout the UNMC network is.

The data network at the UNMC is based on local area network (LAN) and wide area network (WAN) technologies. The campus backbone is Gig Ethernet with a mix of 10 MB or 100 MB Ethernet support to the desktops as well as
servers.

Remote access is accomplished by using VPN client with secured dial-in access available with a SecurID card.

**Networks – Server Operating System**

Indicate the network operating system(s) utilized:

<table>
<thead>
<tr>
<th>Network Server Operating System</th>
<th>Number of server licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novell Netware</td>
<td>5</td>
</tr>
<tr>
<td>Windows NT</td>
<td>3</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>60</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>2</td>
</tr>
<tr>
<td>Unix</td>
<td>5</td>
</tr>
<tr>
<td>Linux</td>
<td>10</td>
</tr>
<tr>
<td>AS/400</td>
<td>0</td>
</tr>
<tr>
<td>OS/2 LAN Server</td>
<td>0</td>
</tr>
<tr>
<td>Other (Specify: )</td>
<td>-</td>
</tr>
</tbody>
</table>

3.A.4. Staffing

**General Information**

Identify, in general terms, the agency personnel resources currently devoted to supporting the items listed in this section (3.A). This should include both personnel whose job titles and description are clearly related to technology, other personnel whose responsibilities relate significantly to technology support regardless of job title, and contract staffing provided to the agency. Please provide an organizational chart, if available, or describe the organizational structure for managing IT related staff.

UNMC ITS has 46.3 centralized IT staff who support the UNMC campus computing activities. This does not include Video Services or Telecommunications, both of which are also a part of UNMC’s Information Technology Services.

Please note that UNMC also provides a number of these services to The Nebraska Medical Center. The FTE required to support The Nebraska Medical Center are not included in these numbers.
The Nebraska Information System (NIS) includes the capability of tracking personnel service expenditures for staff who are devoted to information technology activities. Have you designated any business units in NIS that are focused on providing information technology services by using Category Code 7 (UDC 00/07)? Or have you used the Time Card Category Code 4 (UDC 06/04) for employees who may need to have their time recorded as I/T related expense?

Not applicable.

3.A.5. Other

Please list any other issues relating to your current IT environment:

Information Technology Services (ITS) is responsible for voice, video and data systems and services throughout UNMC, The Nebraska Medical Center, Clinics and for links of those systems with institutions and agencies beyond the Medical Center. The primary focus of ITS is to provide the resources to help faculty, staff and students fulfill UNMC's mission of health professions education, research, health care and outreach to the underserved.

In July 1998, the Board of Regents of the University of Nebraska entered into a Master Services Agreement with Nebraska Health System, now known as The Nebraska Medical Center, whereby UNMC’s Information Technology Services provides a number of IT services to The Nebraska Medical Center. These include computer data center operations; network infrastructure planning, management and monitoring; telecommunications services; Help Desk; web infrastructure support; and Video Services. By providing these IT services in a consolidated manner, both UNMC and The Nebraska Medical Center can realize a cost savings through economies of scale.

Providing IT services to The Nebraska Medical Center is a major part of UNMC’s IT operation and it is important to note the size of their organization. As an example, they are a 735-bed licensed medical/surgical facility with over 130,000 patient days in 2003, employing over 5,900 people.

As the University System reviews the IT activities, plans and future directions of each of the campuses, it must keep at the forefront this partnership that UNMC has with The Nebraska Medical Center and recognize the economies of scale that are afforded through this operational
agreement.

For purposes of this report, only campus computing support numbers were included. The following ITS services were excluded: ITS Video Services, ITS Telecommunications and IT services provided to The Nebraska Medical Center.

3.B. Value

Describe and document the tangible and intangible benefits of the agency's investment in information technology.

Today’s academic health science centers are undergoing major and inevitable transformations. Factors such as governmental influence to make institutions accountable and responsive, an increasing demand by consumers to receive quality care, research and education at lower costs, and stable or declining resources are driving this transformation. One of these factors alone would require change. However, the simultaneous convergence of these forces is requiring academic health science centers to transform at a rate much faster than many thought possible.

UNMC believes information technology is a strategic tool that when properly applied can improve the overall efficiency and effectiveness of an organization, as well as assist UNMC move through the ongoing transformation processes of an academic health science center.

UNMC’s Information Technology Services combines the delivery of voice, data, image and video under one management structure. This is important because many advances in technology require combining all of these modes to provide an end product. While advances in technology will continue at a rate far exceeding the current ability to adapt and utilize all of them, UNMC has directed efforts towards setting strategies and priorities to utilize information technology to help UNMC meet its mission.

The primary value contributed by UNMC-ITS is that it enables information to be received when, where, and how it is needed to improve efficiency, effectiveness and productivity for educators, researchers, students and staff.
3.C. Security

Security Policies
Please answer the following questions regarding your agency’s efforts to maintain a secure information technology environment. [The questions refer to the Nebraska Information Technology Commission’s Security Policies. These policies are available at http://www.nitc.state.ne.us/standards/]

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has your agency implemented the NITC’s Security Policies?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If your answers to the previous question is NO, has your agency implemented other security policies?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Agency Contact Information
Please provide contact information for the person responsible for IT security:

<table>
<thead>
<tr>
<th>Name</th>
<th>Sharon Welna</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>402-559-2545</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:swelna@unmc.edu">swelna@unmc.edu</a></td>
</tr>
</tbody>
</table>

Narrative
Provide a general description of the agency’s efforts to develop and implement a security program:

(Note: Agency IT Plans are posted on a state Web server, accessible only from computers on the state network. Agencies have the option of providing security information here, or in the alternative, can submit the information directly to the state CIO and it will not be posted. Contact Steve Schafer at slschafe@notes.state.ne.us or 402-471-4385 to submit your security information in an alternative format.)

UNMC ITS has implemented a number of security technologies and programs to include:

- tightened firewall restrictions
- secured servers
- physically secured network equipment
- eliminating shared media networks as funding allows
- authentication and encryption
- secured remote access
- DMZ
ITS Security Team meets regularly to address network and server security issues.

- Security Officer addresses HIPAA compliance, security incident reporting and follow-up.
- Internal and external network assessments.
- Anti-virus software for both workstations and servers.
- Security policies and procedures to ensure compliance with HIPAA and GLBA. Nebraska NITC policies have been reviewed and incorporated as appropriate.

In addition ITS is continually reviewing and implementing appropriate technologies to further tighten the security of UNMC’s information systems.

### 3.D. Disaster Recovery and Business Continuity Planning

**Definitions.** For purposes of this document the term, "Disaster Recovery Plan" refers to preparations for restoring information technology systems following a major disruption. The term, "Business Continuity Plan" refers to preparations for restoring the operational functions of the agency. As used here, disaster recovery is a subset of business continuity, because information technology supports the business functions of the agency.

#### Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency have a disaster/emergency recovery plan?</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency perform regular back-ups of important agency data?</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency maintain off-site storage of back-up data?</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Narrative

Provide a general description of the agency’s efforts regarding disaster recovery and business continuity planning:

- ITS operations procedures outline backup and recovery procedures.
3.E. Accessibility (Technology Access for Individuals with Disabilities)

[For more information on accessibility, contact Christy Horn at chorn@nebraska.edu]

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases? [See Neb. Rev. Stat. § 73-205. The Technology Access Clause is available at <a href="http://www.nitc.state.ne.us/standards/">http://www.nitc.state.ne.us/standards/</a>]</td>
<td>X</td>
</tr>
<tr>
<td>Does your agency have procedures in place to identify the information technology related requirements of users with disabilities?</td>
<td>X</td>
</tr>
<tr>
<td>Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities?</td>
<td>X</td>
</tr>
<tr>
<td>Has your agency evaluated its website(s) to ensure accessibility to all persons with disabilities?</td>
<td>X</td>
</tr>
<tr>
<td>If yes, what tools were used to evaluate accessibility?</td>
<td></td>
</tr>
<tr>
<td>___ <a href="http://www.w3.org/WAI/ER/existingtools.html">http://www.w3.org/WAI/ER/existingtools.html</a></td>
<td></td>
</tr>
<tr>
<td>___ <a href="http://www.vischeck.com/">http://www.vischeck.com/</a></td>
<td></td>
</tr>
<tr>
<td>___ <a href="http://www.henterjoyce.com/fs_downloads/jaws_form.asp">http://www.henterjoyce.com/fs_downloads/jaws_form.asp</a></td>
<td></td>
</tr>
<tr>
<td>X Other (please specify: Manual Audits)</td>
<td></td>
</tr>
</tbody>
</table>

4. Future Uses of Information Technology

4.A. Strategies and Future Direction

This section should summarize the agency's strategies and future direction for information technology within the agency. Topics should include:

- A summary of future changes in uses of technology, which the agency plans to implement.
- A description of the agency’s hardware replacement program or strategy.
- An overview of the agency's activities that promote collaboration.
- A discussion of factors and risks that will impact the success of the agency's information technology strategy.
- An overview of plans to implement e-government services.
- Your agency’s efforts to retain IT staff, if applicable.

1. Enhanced Data Network for Research. UNMC’s growth in research computing, both on-campus and in collaboration with researchers at
UNO, UNL and other premier world-wide institutions, has placed additional requirements on the campus computer network. As funding permits, implementing network enhancements and upgrading desktop connectivity to meet the increasing needs of UNMC’s world-class researchers is a priority.

2. Disaster Recovery. Business continuity and disaster recovery are critical elements in today’s world. Complete disaster recovery plans are very expensive due to hardware, software and connectivity duplication. Due to the physical proximity and existing high speed fiber optic link between the Omaha campuses, UNMC and UNO have the potential to conduct joint disaster recovery planning and shared disk storage for their respective mission critical systems.

4.B. Information Technology Training

Summarize the agency's efforts to address training needs relating to information technology. This should include:

- Training for users of information technology
- Training for IT staff who develop and support the information technology systems
- List areas/topics for which a training need has been identified by the agency.

During the 2003-2004 fiscal year, UNMC ITS provided a wide variety of desktop applications training to UNMC faculty, staff and students. Classes included Internet web Browser, Int to PC, Microsoft Suite of Products, Lotus Notes and Adobe Acrobat. A total of 172 courses with 1,272 staff and 385 students in attendance.

**Training/education for IT professionals included:**

Annual CERT Security Conference  
InfoTec 2004  
Sybase Training  
SANS Training  
VoiceCon (voice technologies conference)  
Blackboard Users Group Conference  
Training 2004 Conference & Expo (End User Training/Help Desk)  
AAMC  
3rd Annual Nebraska Summit on Distance Education
4.C. Future IT Projects

List significant information technology projects which are expected to be undertaken by the agency during the next two years.

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>STATUS (start date, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced Data Network Infrastructure</td>
<td>In Progress</td>
</tr>
<tr>
<td>Disaster Recovery</td>
<td>In Progress</td>
</tr>
<tr>
<td>Network Security</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

4.D. Projects Relating to the NITC’s Strategic Initiatives

In creating the Nebraska Information Technology Commission (NITC), the Legislature recognized the need for “developing a statewide vision and strategic plan to guide investments in information technology”. Each year, the NITC develops the Statewide Technology Plan that adopts goals and objectives to guide the work of the Commission. The NITC also reviews and prioritizes major information technology projects as part of the biennial budget process. This year, the NITC is proposing several changes to the planning process, in order to give policy makers more information about statewide technology goals. These changes include identifying a list of statewide strategic initiatives, giving agencies an opportunity to address those initiatives in their agency comprehensive information technology plans and biennial budget requests, organizing planning sessions to develop implementation strategies, and preparing a gap analysis for the Governor and Legislature in November.

On March 9, 2004, the NITC adopted a list of eight statewide strategic initiatives. These include (in no order of priority):

9. Statewide Telehealth Network
10. Community IT planning and technology-related economic development
11. Network Nebraska (statewide broadband communications and related services)
12. Statewide Synchronous Video Network
13. E-Learning
14. Enterprise Architecture (for state government agencies)
15. E-Government
16. Security and Business Resumption

A general description of each initiative is available at: http://www.nitc.state.ne.us/forms/.

In this section of the Agency Comprehensive Information Technology Plan, agencies have the option to describe current or proposed activities that would promote one or more of these initiatives. Agencies should also notify Steve Schafer by May 1, 2004, of their interest in these initiatives, in order to be included in any planning sessions this summer.

Although each of these initiatives is important, the NITC does not assume that projects promoting these initiatives are a higher priority than activities supporting agency-specific missions and operations.

UNMC is an active participant in both Network Nebraska and the Statewide Telehealth Network.
State of Nebraska
Agency Comprehensive Information Technology Plan

2004

Due: August 16, 2004

<table>
<thead>
<tr>
<th>Agency</th>
<th>University of Nebraska at Kearney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>July 8, 2004</td>
</tr>
</tbody>
</table>
1. Agency Contact Information

Person responsible for Information Technology in the agency:

<table>
<thead>
<tr>
<th>Name</th>
<th>Debbie Schroeder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>308-865-8950</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:schroederd@unk.edu">schroederd@unk.edu</a></td>
</tr>
</tbody>
</table>

Person to contact for additional information about the agency Comprehensive Information Technology Plan:

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
</tr>
</tbody>
</table>

If this document is posted on your agency's Web site, please provide the URL for this document:


2. Agency Mission, Goals and Objectives

The University of Nebraska at Kearney is Nebraska’s public University that is distinguished by its emphasis on undergraduate, residential education. UNK contributes to the development of students by providing a diverse, dynamic learning environment characterized by excellence in teaching and personal attention. The University of Nebraska at Kearney is committed to excellence and continuous improvement.

The University of Nebraska at Kearney is located in the heart of the Platte River valley, 140 miles west of Lincoln. Kearney is Nebraska’s fifth largest city and is an agricultural, commercial, medical and cultural center of a large mid-state region. The institution was Kearney State College until July 1991, when it became a part of the University of Nebraska system. The campus is situated on 258 acres.

Approximately 6,500 students are served by UNK through its colleges of Business and Technology, Education, Fine Arts and Humanities, and Natural and Social Sciences. In addition, the University of Nebraska Medical Center offers Nursing on the UNK campus. Undergraduate degrees offered by UNK are: Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Arts in Education, Bachelor of Science, Bachelor of Science in Education, Bachelor of Music and Bachelor of General Studies. UNK maintains a faculty of approximately 325 full-time equivalent members.
A wide variety of pre-professional programs also is available, as are Master’s degrees in multiple disciplines and Specialist degrees in Education.

The University of Nebraska at Kearney strategic plan, including the role and mission statement, is located at aaunk.unk.edu/strategicplan/I.htm

3. Current Use of Information Technology

3.A. Existing IT Environment

3.A.1. Applications

Off-the-Shelf Applications
Provide the estimated number of licenses for each of the following applications:

<table>
<thead>
<tr>
<th>Off-the-Shelf Applications</th>
<th>Number of Licenses (Best estimate, exact number not necessary)</th>
<th>Versions in Use (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productivity Suites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Office Suite</td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>Corel WordPerfect Office</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Browser</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Explorer</td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>Netscape / Mozilla</td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Virus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symantec/Norton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McAfee</td>
<td>2500</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E-mail and Calendaring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Exchange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lotus Notes</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Database Management (DBMS)

<table>
<thead>
<tr>
<th>Database Management (DBMS)</th>
<th>IBM DB2 or UDB</th>
<th>Oracle</th>
<th>Microsoft SQL Server</th>
<th>AS/400</th>
<th>Other (Specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Client Licenses</td>
<td>Client Licenses</td>
<td>Client Licenses</td>
<td>Client Licenses</td>
<td>Client Licenses</td>
</tr>
<tr>
<td></td>
<td>Server Licenses</td>
<td>Server Licenses</td>
<td>Server Licenses</td>
<td>Server Licenses</td>
<td>Server Licenses</td>
</tr>
<tr>
<td></td>
<td>Mainframe Licenses</td>
<td>Mainframe Licenses</td>
<td>Mainframe Licenses</td>
<td>Mainframe Licenses</td>
<td>Mainframe Licenses</td>
</tr>
</tbody>
</table>

List any other significant off-the-shelf applications utilized by the agency:

**SPSS**
**Symantec Ghost**

### Other Applications

<table>
<thead>
<tr>
<th>Application</th>
<th>Purpose</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Information System</td>
<td>Higher Ed Student System</td>
<td>VMS</td>
</tr>
<tr>
<td>Cash Receipting</td>
<td>Cash Receipting</td>
<td>VMS</td>
</tr>
<tr>
<td>Document Imaging</td>
<td>Financial Aid</td>
<td>Windows</td>
</tr>
<tr>
<td>Parking System</td>
<td>Tickets/Parking permits</td>
<td>Windows</td>
</tr>
</tbody>
</table>

### 3.4.2. Data

### Databases

<table>
<thead>
<tr>
<th>Application</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>Card Catalog, Patron Data</td>
</tr>
<tr>
<td>Student</td>
<td>Financial Aid, Admissions, Student Records, Student Accounts, Housing</td>
</tr>
<tr>
<td>Public Safety</td>
<td>Permits and tickets</td>
</tr>
<tr>
<td>ID Card system</td>
<td>Meal plans, printing charges</td>
</tr>
</tbody>
</table>
Data Exchange
List the significant electronic data exchanges your agency has with other entities:

Under the Department of Education, data for NSLDS, CPS, NSLP, VA
Other universities: student transcripts
Student directory data for publisher
ACT
University of Nebraska Central Administration: SAP files, data warehouse files
NSSE student sample

3.A.3. Hardware, Operating Systems, and Networks

Hardware

Every employee has a desktop or laptop computer. The majority are Windows-based, with approximately 15% Macintosh. Over 80 servers support a variety of applications and services for campus users. Network storage is available for faculty and staff. Many printers are network-based and printing in student computer labs is controlled by a Pharos system, with per page printing charges.

Desktop Operating System(s)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Approximate number of users/licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 95, 98, or ME</td>
<td>150</td>
</tr>
<tr>
<td>Windows NT</td>
<td></td>
</tr>
<tr>
<td>Windows 2000</td>
<td>550</td>
</tr>
<tr>
<td>Windows XP</td>
<td>800</td>
</tr>
<tr>
<td>OS/2</td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td></td>
</tr>
<tr>
<td>Mac OS</td>
<td>100</td>
</tr>
<tr>
<td>Other (Specify: )</td>
<td></td>
</tr>
</tbody>
</table>

Networks - LANs and WANs

UNK’s campus network is based on 10 and 100 MHz Ethernet technology. Since its inception, the campus network was based on a star arrangement implementing a router-centric collapsed backbone topology. Every building on campus, including the residence halls, is connected to Information
Technology Services in the Otto Olsen building via multi-mode and single-mode fiber. Most academic and administrative buildings are wired with enhanced Level 5 100+ Mbps High-5 Systimax Premises Distribution System. The residence halls, College of Education Building, and renovated areas of West Center and the Student Union have Systimax GigaSPEED copper cabling offering over 1000 Mbps of bandwidth. The central core of the network places each building in its own routed VLAN(s) attached to a central switch fabric. The core is capable of layer 3, layer 4, multicast and Quality of Service (QOS) decisions, and hence, is well suited to supporting future multimedia and distance learning applications.

Internet access is provided via a dedicated 45Mbps DS3 circuit to Lincoln providing access to the general Internet, Internet-2, and the Great Plains Network. A backup 100 Mbps fiber circuit from Kearney to Lincoln via Grand Island has been installed.

UNK’s central servers and major labs have moved from shared segment equipment to switched network technologies, substantially increasing throughput to the servers and labs. The Museum of Nebraska Art is connected to the UNK campus network via a point-to-point 54 Mbps wireless link, which has been a very solid connectivity mechanism. Point-to-point wireless links are hosted for the Buffalo County Extension Office and Good Samaritan Hospital, also. ISDN access is supported by an ASCEND MAX 4000 WAN access unit with 24 ports. ISDN is utilized by the Safety Center, the Airway Science program at the Kearney Municipal Airport, and various faculty and staff.

Nineteen wireless access points are located in eight buildings and campus users are required to authenticate to utilize the wireless network. A major expansion of the wireless network is planned for the 2004-2005 academic year.

### Networks – Server Operating System

Indicate the network operating system(s) utilized:

<table>
<thead>
<tr>
<th>Network Server Operating System</th>
<th>Number of server licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novell Netware</td>
<td></td>
</tr>
<tr>
<td>Windows NT</td>
<td>8</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>60</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>12</td>
</tr>
<tr>
<td>Unix</td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td></td>
</tr>
<tr>
<td>AS/400</td>
<td></td>
</tr>
</tbody>
</table>
General Information

Information Technology Services has 20 permanent staff, 2 part-time student workers, 6 part-time TECH Assistants, and 12 part-time lab monitors. The responsibilities of the permanent staff include network services; application development; client support services, including helpdesk and training; hardware and software purchasing; systems management and desktop support; and multimedia services. Part-time student workers assist with networking, purchasing, helpdesk and lab support. TECH Assistants work at the Helpdesk and provide technical support to students living in the residence halls who wish to connect a personally-owned computer to the campus network. Lab monitors are employed in the general-purpose computer lab located in the Student Union.

The College of Business and Technology, the College of Education, the College of Fine Arts and Humanities, the College of Natural and Social Sciences, and the Ryan Library have each hired Technology Coordinators to provide hardware and software support for faculty and staff desktops as well as for student labs and to supervise part-time student workers who serve as lab monitors and technology assistants.

The Center for Distance Learning has a director and two technicians to provide support for distance education classes.

Continuing Education has one Instructional Technologist to assist faculty in the development of on-line courses. He also assists with some desktop support.

Within Academic Affairs, a Coordinator for Academic Affairs provides web page support for the division. Many divisions, departments, and offices hire part-time student workers to assist with hardware and software support and to create and maintain Web pages.

An Assistant Director of Financial Aid and an Assistant Director of Registration and Records provide technical support for their respective offices. A Facilities Systems Specialist is being trained to provide some desktop support for departmental machines.
There is no contract staffing.

**NIS Tracking**

We do not use the Nebraska Information System.

**3.A.5. Other**

None.

**3.B. Value**

On the UNK campus, Information Technology Services supports both the administrative and academic functions of the campus. It is no longer possible to separate administrative from academic functions; administrative capabilities are critical resources for academic users and academic capabilities are needed by administrative users. The institutional databases record the enrollment, progress, transcripts, and graduation of students, and the financial databases record financial transactions. Student enrollment in courses generates billing statements and student payments update both student accounts in the Student Information System and ledger accounts in the SAP financial system. This integration greatly reduces the amount of work necessary for administrative processes.

Since every classroom is wired for network access, the academic services and resources can be used to directly support instruction. Multimedia classrooms are available and provide high-quality display from a variety of video and audio sources. Blackboard is available for the development of Web-based courses and Web-based components for traditional courses. Software applications used by students and faculty and communication with the network are critical components of a high quality learning environment. Library and information access capabilities on the network are equally important. Video over IP is utilized for academic classes and for meetings among campuses.

The Web, Web services and Web applications have impacted the way we do business. Students apply, register for classes, pay their bills, and get grades, along with other student service functionalities, via WebEASI, a Web-based component of our Student Information System. Faculty utilize WebSMART, another Web-based component, for advising students and course information. The upgrading of student computer labs on a three-year cycle and the standardization of software in the labs allow us to maintain a consistently high level of service for students. Network access within the residence halls allows
widespread use of network resources by students living on campus. The deployment of wireless technology in buildings on campus, including the library, allows mobile access for students, faculty, and staff. Employees utilize a Web-based application for Employee Self Service. Administrative functions in many offices are automated, including a document-imaging system that streamlines access to student files in the Office of Financial Aid and a parking permit/ticket tracking system that automates parking ticket notifications for Public Safety.

The campus network and access to the Internet are requirements for everything that we do. Managing the network and assuring reliability and access are critical to the day-to-day operation of the entire campus.

The value to UNK of these facilities and capabilities is fundamental. There is no way to quantify it, except to say that UNK could not operate without the network, these systems, and the people who install, maintain, and modify them.

3.C. Security

Security Policies

<table>
<thead>
<tr>
<th>Has your agency implemented the NITC’s Security Policies?</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If your answers to the previous question is NO, has your agency implemented other security policies?</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Agency Contact Information

Please provide contact information for the person responsible for IT security:

<table>
<thead>
<tr>
<th>Name</th>
<th>Debbie Schroeder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>308-865-8950</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:schroederd@unk.edu">schroederd@unk.edu</a></td>
</tr>
</tbody>
</table>

Narrative

Beginning in the days of punched cards, our campus has had security measures in place related to access to hardware, software, and data. Security has evolved as technology has evolved. Our rules and regulations have been designed to
work for our campus using our fiscal and staffing resources to fulfill regulatory obligations.

Due to recent events in the United States and abroad, everyone must be more diligent in addressing security. At the top of our list of security priorities is assuring that our “house is in order.” Patches for flaws in network software and in operating systems and the elimination of default settings for hardware and software installations have been basic first steps. Securing physical access to machine room servers and network equipment in campus buildings requires cooperation between Facilities and IT. University-wide collaboration and campus cooperation are helping UNK to address additional issues. Training will soon be offered to faculty and staff on security issues, focusing on the University of Nebraska Information Security Plan (Executive Memorandum No. 26) in response to the Gramm-Leach-Bliley Act. A UNK Task Force is studying ID card systems and access control for secure areas and residence halls. Software to manage the download and installation of antivirus software and operating systems patches and service packs for both residence hall computers and University-owned machines is in progress. Tools for bandwidth management and intrusion detection are utilized.


Definitions. For purposes of this document the term, "Disaster Recovery Plan" refers to preparations for restoring information technology systems following a major disruption. The term, "Business Continuity Plan" refers to preparations for restoring the operational functions of the agency. As used here, disaster recovery is a subset of business continuity, because information technology supports the business functions of the agency.

Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>IN PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency have a disaster/emergency recovery plan?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency perform regular back-ups of important agency data?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your agency maintain off-site storage of back-up data?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Narrative

Information Technology Services at UNK annually updates a disaster recovery plan focusing on administrative functionality. A new plan is in the development
stages that will incorporate a broader view of a disaster (due to the events of September 11, 2001) and include mission-critical academic services.

A general Information Technology Services Business Continuity Plan exists that serves as an inventory of all ITS systems and their system administrators, contact phone numbers as well as who has been cross-trained as a designated backup administrator for each system.

The ITS Director of Information Services is a member of the campus Emergency Response Team (ERT). This team has developed an emergency response plan for emergencies including, but not limited to, disruptions of information technology services. The role of Information Technology Services in the campus ERT plan is one of aiding communication by establishing and maintaining email and Internet connectivity for the campus and by providing directory information of faculty, staff and students.

3.E. Accessibility (Technology Access for Individuals with Disabilities)

[For more information on accessibility, contact Christy Horn at chorn@nebraska.edu]

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency have procedures in place to identify the information technology related requirements of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Has your agency evaluated its website(s) to ensure accessibility to all persons with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If yes, what tools were used to evaluate accessibility?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>__ <a href="http://www.w3.org/WAI/ER/existingtools.html">http://www.w3.org/WAI/ER/existingtools.html</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__ <a href="http://www.vischeck.com/">http://www.vischeck.com/</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__ <a href="http://www.henterjoyce.com/fs_downloads/jaws_form.asp">http://www.henterjoyce.com/fs_downloads/jaws_form.asp</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__ Other (please specify ________)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 118 of 164
4. Future Uses of Information Technology

4.A. Strategies and Future Direction

An Information Technology Strategic Plan for the University of Nebraska at Kearney was approved by Chancellor Gladys Styles Johnston in January, 1999. This document was developed to identify, based on campus-wide input and advice, the principles, long-term objectives, and priorities that should govern our near-term action plans and resource allocation. The plan was revised in 2001. Our IT Strategic Plan provides a succinct, consolidated vision of what we intend to accomplish as we deploy technology in light of our mission and aspirations as a teaching university. It is a “living document” that is reviewed continuously and adjusted to take account of changing circumstances and new opportunities.

To support the strategic initiatives recommended in our plan, a number of issues are addressed:

- Student computer labs are updated on a three-year schedule.
- Printing capabilities are continually improved.
- Software licensing options are reviewed to provide appropriate software for faculty, staff and students at the best price.
- Port-per-pillow network access is provided in all residence halls.
- Student services, such as application for admission, registration, billing, etc. are available via the Web. Additional services continue to be offered and existing services continue to be enhanced.
- Functionality and services via the Web are continually evaluated and added, including administrative services for faculty and staff, course components for students, and streaming audio and video.
- Technology resources for student with disabilities are addressed annually.
- Student assistants are hired to help faculty, staff and fellow students with technology-related issues.
- Several lab/classrooms have been equipped with 20-24 individual workstations.
- A minimum of six classrooms per year are each equipped with a computer, projector, vcr and screen, creating a Smart Classroom. As of Summer 2004, over two thirds of UNK classrooms are “smart.”
- Additional administrative functionality is provided to improve the efficiency of business operations.
- Network infrastructure is expanded and improved with the construction of new buildings and the renovation of existing buildings. New technologies are evaluated and deployed as needed and funded.
• Distance education capabilities and opportunities are evaluated and updated.
• Security issues are paramount for system and network managers. Bandwidth management, intrusion detection, and SMS are utilized.
• A disaster/recovery plan is continually revised.
• Assessment of our IT situation occurs on a regular schedule and is used to continually revise our strategic plan.

Principles outlined in the University of Nebraska Strategic Framework document provide a basis for our plan. The University of Nebraska has committed to be a national leader in using information technology to enhance teaching and to expand learning, particularly at the undergraduate level. Specific strategies include integrating new methods of using technology into the curriculum; using technology to make academic programs accessible to learners everywhere; enhancing connectivity among University units; making library resources accessible throughout the State, developing strategic partnership with other institutions and businesses; and using technology to achieve operating efficiencies.

UNK collaborates extensively with the others campuses of the University of Nebraska in technology development. The following list outlines collaborative efforts that are both ongoing and critical to the UNK campus:

• Lotus Notes is used University-wide for email and calendaring and is managed by a team comprised of representatives from the four campuses and Central Administration.
• A network between the University of Nebraska campuses is managed by the network managers from the campuses and Central Administration and served as the basis for Network Nebraska.
• UNK hosts the UNMC College of Nursing on the Kearney campus.
• UNK shares UNL’s Internet connectivity.
• UNCSN provides access to MVS for students in Beginning and Advanced COBOL classes and in Assembler language classes offered by the Department of Computer Science and Information Systems.
• UNK collaborates with the other University of Nebraska campuses to negotiate maintenance and purchase contracts that allow us to capitalize on higher discounts offered according to volume of business.
• Since the SAP software provides financial system and human resource system support for all the campuses, we work collaboratively with Central Administration and the other campuses to provide support and interfaces between SAP and campus-specific applications.
• UNK provides Student Information System data for the University-wide data warehouse.
UNK participates in a University-wide SIS Task Force to investigate new technologies and systems for Student Information.

IP-based video-conferencing among the campuses allows sharing of classes and multi-site meetings.

All campuses work collaboratively and share experiences with Blackboard.

A University-wide task force meets regularly to discuss Identity Management.

We continue to offer distance education classes at various sites. We have the ability to deliver courses over the Tri-Valley Distance Education Consortium network, as well as networks connected to Tri-Valley, reaching many ESUs and K-12s.

The biggest threat to the success of our Information Technology plan is complacency. Technology is continually changing and we must be able to respond quickly. This requires financial resources, but it also requires flexibility, a market-driven orientation, and the desire to address the issues.

Other specific risks include:

- A Student Technology Fee, now $6 per credit hour, has been paid by all students since the Fall of 1998. It provides a consistent flow of funding for technology initiatives that impact students, but the revenue is dependent on enrollment. Recruitment of new students is a competitive endeavor. The risk of declining enrollment and, hence, reduced revenue, is a concern.
- To remain competitive in higher education, it is necessary to put technology and associated resources in the hands of students and faculty. Some of the costs related to technology are beyond the control of the campus, primarily those related to networks and security. Adequate financial resources are critical.

Staff must increase to support the increased demands for service and support and to allow time for training. More network personnel, more helpdesk support, more direct workstation support personnel, and additional application development/support staff are needed to support the initiatives outlined in our Strategic Plan for Information Technology.

The campus has been fortunate that turnover among the IT staff members is low. Salaries paid to IT workers are below market averages and are not competitive for the region. Fortunately, UNK is able to offer professional challenges, career
development opportunities, and collaboration with and support from excellent colleagues, which are, perhaps, as important, or more important, than salaries.

Chancellor Doug Kristensen has asked the Senior Vice Chancellor for Academic Affairs and Student Life and the UNK Technology Advisory Committee to assess our strategic position with respect to information technology and submit a report by December 31, 2004. This review will result in a new strategic plan for information technology and provide input to the UNK Strategic Planning Committee.

4.B. Information Technology Training

Training for users of Information Technology is available for faculty, staff and students.

Student training is offered on a regular basis for technology resources that are available to students and may involve hands-on sessions or demonstrations. Sessions include desktop operating systems, Microsoft applications, Web-based training, and e-mail. IT staff offer sessions throughout the semester as well as training to academic classes as requested by the faculty.

Staff training is mandatory for administrative systems, including the financial system (SAP) and Student Information System (SIS).

Faculty training needs vary greatly and training consists of hands-on sessions, demonstrations, and one-on-one opportunities. Faculty training includes:

- Use and maintenance of electronic communications (e-mail, discussion boards and chat rooms)
- Web-based training (Blackboard, web page design, creation and maintenance - both raw html and page editors and SiteEdit software)
- Microsoft products (Word, PowerPoint, Excel, Publisher, and Access)
- Use of multimedia hardware (projection systems, digital cameras, digital video, laptops)
- Copyright issues
- Basic computer health/care
- Anti-spam and peer-to-peer
- Adobe products (Acrobat, Photoshop, PageMaker)
- Student Information System for advising purposes

The following attendance statistics are available for the period beginning July 1, 2003 and ending June 30, 2004:
The cost of training for IT staff and the small number of staff available to support technology at UNK limit the training that the campus can afford to provide for IT staff. Half of the Information Technology Services staff members receive some training on an annual basis, but budgetary constraints limit training opportunities. Training focuses on each staff member’s area of responsibility, their technical strengths, and the anticipated needs of the institution.

### 4.C. Future IT Projects

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>STATUS (start date, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wireless deployment</td>
<td>08/01/04</td>
</tr>
<tr>
<td>2. Fiber upgrades in several locations</td>
<td>05/01/05</td>
</tr>
<tr>
<td>3. Network upgrades in several locations</td>
<td>08/01/04</td>
</tr>
<tr>
<td>4. Installation of backup generator for server room</td>
<td>11/01/04</td>
</tr>
<tr>
<td>5. Installation/upgrade Smart Classrooms</td>
<td>05/01/05</td>
</tr>
<tr>
<td>6. Deployment of Content Management System</td>
<td>08/01/04</td>
</tr>
<tr>
<td>7. Deployment of Admissions tracking/recruiting</td>
<td>10/01/04</td>
</tr>
<tr>
<td>8. Deployment of SMS</td>
<td>08/01/04</td>
</tr>
<tr>
<td>9. Deployment of Perfigo for residence halls</td>
<td>08/01/04</td>
</tr>
<tr>
<td>10. Network upgrades for Calvin T. Ryan Library</td>
<td>06/01/05</td>
</tr>
<tr>
<td>11. Replacement of workstations in student labs</td>
<td>06/01/05</td>
</tr>
<tr>
<td>12. Installation of new labs for Family Studies</td>
<td>06/01/05</td>
</tr>
<tr>
<td>13. Upgrade for ID cards/door locks</td>
<td>06/01/05</td>
</tr>
<tr>
<td>14. Wiring installations for new construction</td>
<td>10/01/05</td>
</tr>
</tbody>
</table>

#### 1. Wireless Deployment

The goal of the wireless project is mobility across the campus. Planning is in progress for widespread deployment, rather than just hot spots that currently
exist. Some funding is currently available to begin the project. Vendor review has begun. The total cost is not known at this time.

2. Fiber Upgrades

To support additional network capabilities and establish redundancy, additional fiber between buildings is planned. Total cost is not known at this time.

3. Network Upgrades

Some campus locations operate on 10-12 year old networking equipment. Replacement of hubs with switches is necessary. Total cost is not known at this time.

4. Backup Generator

As part of a renovation/upgrade project to the Otto Olsen Building, a backup generator for network and server equipment will be installed. Cost estimates have not yet been received from the contractors.

5. Smart Classrooms

Approximately two thirds of the classrooms on campus are equipped with a computer, projector, digital presenter, vcr, and screen or Smartboard. Additional classrooms are upgraded annually, with a goal of 95-98% Smart Classrooms. Cost per classroom varies depending on electrical and remodeling requirements.

6. Content Management System

Ektron CMS300 has been licensed as a content management system for the UNK Web site. Software installation is complete. Training and deployment have not yet begun.

7. Admissions Tracking/Recruiting

Several applications for tracking and recruiting students have been reviewed by technical and admissions staffs. Total cost is not yet available.

8. SMS Deployment

9. Perfigo Deployment

Testing of Perfigo for authentication/verification of student-owned computers in the residence halls is almost complete. Initial costs for deployment will be slightly less than $40,000.

10. Calvin T. Ryan Library Wiring Project

Upgrades for the wiring infrastructure and the network equipment in the Calvin T. Ryan Library are in the planning stages. Total cost is not known at this time.

11. Replacement of Computer Lab and Classroom Computers

Machines in computer labs and classrooms are replaced on a three-year cycle. The next scheduled replacement is summer, 2005. Total cost is not known at this time.

12. Family Studies/Interior Design Labs

Two new computer labs are in the design stage for Family Studies and Interior Design. Networking and equipment costs are not known at this time.

13. ID Card/Door Locks

Some funding is available for upgrading the existing ID card system and deploying security systems that interface with the card system. Review of needs and functionality has begun. Total cost is not known at this time.

14. Wiring for New Construction

Many renovation and construction projects are in the planning stages for the UNK campus. Each project requires data and phone infrastructure as well as networking equipment. Total cost for the projects is not known at this time.

4.D. Projects Relating to the NITC’s Strategic Initiatives

The University of Nebraska at Kearney is involved in University-wide initiatives for Network Nebraska, the Statewide Synchronous Video Network through the UNK Center for Distance Education, and E-Learning.
Information Technology Services
Strategic Plan

June 2004
Through
June 2006

UNIVERSITY OF
Nebraska
Omaha
1. Agency Contact Information

Person responsible for Information Technology in the agency:

<table>
<thead>
<tr>
<th>Name</th>
<th>John Fiene, Assoc., V.C., Academic Affairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>(402) 554-3670</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:Jfiene@mail.unomaha.edu">Jfiene@mail.unomaha.edu</a></td>
</tr>
</tbody>
</table>

Person to contact for additional information about the agency Comprehensive Information Technology Plan:

<table>
<thead>
<tr>
<th>Name</th>
<th>John Fiene, Assoc., V.C., Academic Affairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>(402) 554-3670</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:Jfiene@mail.unomaha.edu">Jfiene@mail.unomaha.edu</a></td>
</tr>
</tbody>
</table>

If this document is posted on your agency's Web site, please provide the URL for this document:


2. Information Technology Services Mission, Vision and Values

Mission

Information Technology Services (ITS) provides technology leadership by bringing the knowledge assets of the world to the campus via high speed computer networks. ITS facilitates the innovative use of technology for instruction, research, and outreach via user-centered services and by stimulating a culture of academic discovery that contributes to the worldwide academic community.

Vision

ITS develops effective partnerships with the colleges, administrative units, student organizations, and central administration to provide needed collaboration for building technology infrastructure, and providing complementary services. These partnerships address both the principles of economies of scale and personalized services through the coordination of centralized and distributed IT professionals at UNO.
The application of technology is simultaneously performed at three levels:

- **Automation**: creating efficient methods of handling routine tasks that allow greater effort to be focused on the UNO academic mission.
- **Integration**: re-engineering to effectively integrate shared functions into streamlined processes that fulfill multiple purposes and reduce redundant efforts.
- **Innovation**: using technology to achieve what was previously not possible.

**Values**

ITS shares the values of the office of Academic and Student Affairs and hold the following values:

- Measuring success through the achievements of students, faculty, and staff.
- Creating flexible partnerships with campus units to achieve the appropriate balance of complimentary centralized and de-centralized functions and services.
- Extending the principles of shared governance and shared accomplishments.
- Enhancing the welfare, talents, and futures of ITS employees and expanding professional development.
- Encouraging involvement in professional IT associations in education and industry consistent with staff development plans.
- Promoting good stewardship through efficient utilization of resources.
- Exercising good judgment through effective applications of technology.
- Facilitating meaningful partnerships in our community to enhance learning through the appropriate use of technology.
- Leading proactively in the use of technology to solve problems.
- Encouraging the use of technology as a communication tool.
- Fostering the use of technology in support of lifelong learning.
- Embracing diversity as an effective model of the University’s working environment.
- Aligning ITS policies, procedures, and behaviors with the highest professional deals of ethics and legality.
- Protecting the privacy and integrity of the information resources of the academic community

3. Current Use of Information Technology

3.A. Existing IT Environment

3.A.1. Applications

**Desktop Operating Systems - Off-the-shelf Applications**

Italicized text indicates the instructions for each section.

*Provide the number of users, or estimated number of users, for each of the following applications:*

<table>
<thead>
<tr>
<th><strong>Productivity Suite</strong> (word processing, spreadsheet, etc.)</th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Office</td>
<td>4607</td>
</tr>
<tr>
<td>Corel WordPerfect Office</td>
<td>90</td>
</tr>
<tr>
<td>Other (Specify: ) Lotus Smart Suite</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Internet Browser</strong></th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Internet Explorer</td>
<td>4300</td>
</tr>
<tr>
<td>Netscape Navigator</td>
<td>307</td>
</tr>
<tr>
<td>Other (Specify: ) Mozilla</td>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Document Viewer</strong></th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Acrobat Reader</td>
<td>3500</td>
</tr>
<tr>
<td>Adobe Acrobat Utility</td>
<td>75</td>
</tr>
<tr>
<td>Other (Specify: )</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Anti-Virus Software</strong></th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norton</td>
<td>307</td>
</tr>
<tr>
<td>McAfee</td>
<td>4300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Multimedia/Graphic/Web</strong></th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe (Photoshop, Premiere, PageMaker, Go Live, Illustrator)</td>
<td>211</td>
</tr>
<tr>
<td>Macromedia (Dreamweaver, Shockwave, Fireworks, Flash)</td>
<td>165</td>
</tr>
<tr>
<td>PaintShop Pro</td>
<td>67</td>
</tr>
<tr>
<td>Finale</td>
<td>30</td>
</tr>
<tr>
<td>Soundforge</td>
<td>30</td>
</tr>
<tr>
<td>Miscellaneous Multimedia (Real Player, QuickTime, MediaPlayer)</td>
<td>4607</td>
</tr>
<tr>
<td>Media 100 I along with Boris, Grafiti and After Affects</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Statistical/Math Software</strong></th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maple 9</td>
<td>275</td>
</tr>
<tr>
<td>Minitab 14</td>
<td>347</td>
</tr>
<tr>
<td>SAS 9</td>
<td>391</td>
</tr>
</tbody>
</table>
List any other significant off-the-shelf applications utilized by the agency:

<table>
<thead>
<tr>
<th>Miscellaneous</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft (Visio, Project, Publisher, Picture It)</td>
<td>93</td>
</tr>
<tr>
<td>Norton Utilities</td>
<td>75</td>
</tr>
<tr>
<td>Scanning/OCR software (HP, Omnipage)</td>
<td>101</td>
</tr>
<tr>
<td>QWS3270</td>
<td>892</td>
</tr>
<tr>
<td>SAP GUI 4.5b &amp; above</td>
<td>299</td>
</tr>
<tr>
<td>AutoCAD, 3d Max</td>
<td>534</td>
</tr>
<tr>
<td>Altiris</td>
<td>356</td>
</tr>
</tbody>
</table>

Significant ITS Custom Applications

Significant custom applications developed by UNO ITS include “middleware” to integrate commercial systems with existing ones and web based systems to support critical University needs.

**myUNO (Blackboard 6.1)/SIS**

The myUNO (Blackboard) course management system was upgraded to version 6.1 the summer of 2004. This version enhanced the level of integration with UNO’s SIS system and improved system performance and stability.

**Weboffice/myFolder**

UNO has created an integrated and enhanced campus-wide file storage system with a unique web enabled method of access. By integration of campus standard products such as Microsoft Server, web browser support and SSL web encryption as well as custom integration software, the UNO campus now has a departmental file storage system called weboffice that is available to any UNO department and an individual file storage system called myFolder that is available to all UNO faculty, staff and students. The real value of these integrated systems is that files are easily accessible from any Internet connected computer.

**Reduced Sign on**

Currently there are five primary production systems and multiple web based forms and services that use a shared account and password. This shared account and password is called the UNO netID. UNO ITS has also created an account lookup and password reset system that ties in
with an individual's Personal Identification Number (PIN) as a security and service cross check.

**Sungard SCT - Student Information System (SISPLUS)**
UNO's Student Information System (SIS) supports the core academic business needs of UNO students. SIS includes Admissions, Records and Registration, Billing and Financial Aid modules. UNO has created custom enhancements to the base SIS system to meet campus-specific policies.

E-BRUNO for Students (See Work Flow on page 6.)

E-BRUNO for Faculty (See Work Flow on page 6.)

**Short Term Loan System (STLS)**
UNO developed a STLS to meet the needs of short-term student loans from the Student Accounts office.

### 3.A.2. Collaboration and Workflow

<table>
<thead>
<tr>
<th>Email</th>
<th>Email application</th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotus Notes</td>
<td></td>
<td>25,400</td>
</tr>
<tr>
<td>Microsoft Exchange</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>POP3 Application</td>
<td>(e.g. Microsoft Outlook, Eudora, etc.)</td>
<td>none</td>
</tr>
<tr>
<td>OfficeVision</td>
<td></td>
<td>none</td>
</tr>
<tr>
<td>Other (Specify: )</td>
<td></td>
<td>100 Email relay for web forms</td>
</tr>
</tbody>
</table>

### Calendaring and Scheduling
The University of Nebraska has standardized on Lotus Notes as the official email and calendar management software. UNO has the largest base of Lotus Notes users, within the University system, with 2400 faculty and staff accounts and 23,000 student accounts. These accounts provide full group calendaring and access to campus-wide address book functions. This enables individuals to find and communicate with any other UNO faculty, staff, or student and includes full Internet email abilities. In 2003 automated virus scanning of email messages was added to the system. In 2004 the spamJam unwanted email (spam) was initiated as an opt-in choice for faculty and staff accounts. Finally, the use of a quality anti-spam relay blocking system (blacklist) service was added to the systems that resulted in the automatic blocking of thousands of virus infected and spam messages that were flooding the system on a daily basis. Users have
praised these service changes indicating they save hours of time previously spent dealing with unwanted messages.

**Document Management and Imaging**

The University of Nebraska System went live with the SAP system in July of 1999. To assist with the documentation of this system SLUGO (SAP Learning and User Guide Online) was created. SLUGO can be accessed from Lotus Notes or the web ([http://slugo.nebraska.edu](http://slugo.nebraska.edu)). This system contains thousands of documents to assist the users of SAP in doing their job. SLUGO allows for one document to be accessed by hundreds of SAP users. This on-line system gives the user up-to-date documentation on all aspects of SAP. SLUGO has eliminated the need to print forms that the University uses related to Business and Finance and Human Resources.

**E-BRUNO for Students**

E-BRUNO for Students is UNO's web-based enrollment services system. With E-BRUNO for Students, students can use their student ID and PIN to log in and obtain grades, current class schedules, register for classes, pay tuition via credit card, accept financial aid and much more. E-BRUNO for Students provides students with web access to UNO’s Student Information System. ([https://ebruno.unomaha.edu/login.html](https://ebruno.unomaha.edu/login.html))

**E-BRUNO for Faculty**

With E-BRUNO for Faculty, a UNO web-based system, faculty can use their ID number and PIN to log in and obtain class rosters, submit course grades and give permits and authorizations, along with a host of special Blackboard functions. ([https://ebruno.unomaha.edu/php/facstaff/](https://ebruno.unomaha.edu/php/facstaff/))

3.A.3. Data

**Databases**

<table>
<thead>
<tr>
<th>Database</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>SISPLUS and SAP applications</td>
</tr>
<tr>
<td>VSAM</td>
<td>SISPLUS</td>
</tr>
<tr>
<td>Informix</td>
<td>Student Accounts - CashNet and Short Term Loan</td>
</tr>
<tr>
<td>MS SQL</td>
<td>Blackboard</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>Application Development</td>
</tr>
<tr>
<td>mySQL</td>
<td>Application Development</td>
</tr>
</tbody>
</table>
Data Exchange

| EDI         | Clearing House
|-------------|----------------|
|             | Transcript Exchange
| EFT         | Financial Aid Loans
| EDE         | Express Federal Student Aid Application
|             | ISIR Institutional Student Information Record
| SFTP/PGP    | Student Accounts collection agencies


Static Information on the Web

The web is used as a primary source of publishing information on campus. A primary web server is provided by ITS for campus use. Examples of static information on the web include:

UNO website
ITS website
Student Enrollment Services website
College/Department sites
Administrative unit sites
Institutional Portfolio

Web-based Services

UNO provides several significant web based services, including both commercial and custom developed ones. These include:

- E-BRUNO for Students
  Registration, schedule, grades, transcript, address, degree audit, application for degree, Financial Aid award information, Financial Aid loan status, tuition and fees payment, tax information
- E-BRUNO for Faculty
  Class lists, web grading, permits/authorizations, Blackboard: visitor accounts, grant access, merge enrollments, organization request
- Student Government Elections
  Web based elections for student government
- Blackboard
  Course Management
• MyFolder/WebOffice
  Web based storage system
• Lotus Notes
  Web Based email
• Password Reset
  Web based UNO NetID password reset service
• Multimedia Technology Service
  Provides online scheduling of multimedia equipment for classroom
  instruction and presentations, 24 X 7 via a ‘Quick Access Menu’ at
  http://its.unomaha.edu/

3.A.5. Electronic Government - Internal
[See electronic government information from agencies that will be
collected as part of the Governor’s Business Portal project and by the E-
Government Architecture Work Group.]

3.A.6. Hardware, Operating Systems, and Networks

Hardware

Desktop Operating System(s)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 95, 98, or ME</td>
<td>420</td>
</tr>
<tr>
<td>Windows NT</td>
<td>182</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>952</td>
</tr>
<tr>
<td>Windows XP</td>
<td>2308</td>
</tr>
<tr>
<td>OS/2</td>
<td>0</td>
</tr>
<tr>
<td>Linux</td>
<td>275</td>
</tr>
<tr>
<td>Mac OS</td>
<td>385</td>
</tr>
<tr>
<td>Other (Specify: )</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>4607</td>
</tr>
</tbody>
</table>

Networks - LANs and WANs
UNO has a state of the art backbone network consisting of core routers
with gigabit (one billion bits per second) connections to all major
buildings on campus and 100 megabit (one hundred million bits per
second) connections to smaller buildings on campus. UNO has the only
campus network in Nebraska that has implemented multicast services
throughout the primary network cores. These services provide a base for
building IP based video and audio streaming media services.
### Networks – Operating System

<table>
<thead>
<tr>
<th>Network Operating System</th>
<th>Number of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novell Netware</td>
<td>100</td>
</tr>
<tr>
<td>Windows for Workgroups</td>
<td>25</td>
</tr>
<tr>
<td>Windows 9x Peer Networks</td>
<td>25</td>
</tr>
<tr>
<td>Windows NT</td>
<td>200</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>1000</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>22000</td>
</tr>
<tr>
<td>OS/2 LAN Server</td>
<td>0</td>
</tr>
<tr>
<td>Other (Linux)</td>
<td>3000</td>
</tr>
</tbody>
</table>

### UNO ITS Server Information

<table>
<thead>
<tr>
<th>Brand &amp; Model</th>
<th>Primary Function</th>
<th>Processor(s)</th>
<th>Current O/S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Alpha Server 1200</td>
<td>Programming/Stats</td>
<td>Alpha 533 MHz</td>
<td>Compaq Tru64 Unix</td>
</tr>
<tr>
<td>DELL PowerEdge 6350</td>
<td>BlackBoard beta test apps</td>
<td>4: Intel Xeon 550</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>DELL PowerEdge 6350</td>
<td>BlackBoard beta test db</td>
<td>4: Intel Xeon 550</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>Dell OptiPlex GX115</td>
<td>BlackBoard config test apps</td>
<td>Pentium</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>Dell OptiPlex GX115</td>
<td>BlackBoard config test db</td>
<td>Pentium</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>IBM RS6000 model 380</td>
<td>CashNet test server</td>
<td>Power PC</td>
<td>AIX Unix</td>
</tr>
<tr>
<td>Digital Alpha Server 1000</td>
<td>Campus Webserver</td>
<td>Alpha 266 MHz</td>
<td>Digital Tru64 Unix</td>
</tr>
<tr>
<td>Compaq ProLiant 1600R</td>
<td>DNS/DHCP/TIME Srv</td>
<td>2x Intel P2/400</td>
<td>Win NT server</td>
</tr>
<tr>
<td>Compaq ProLiant 1600R</td>
<td>DNS/DHCP/TIME Srv</td>
<td>2x Intel P2/400</td>
<td>Win NT server</td>
</tr>
<tr>
<td>Dell PowerEdge 2550</td>
<td>Web Registration/Grading</td>
<td>P3 1.0 GHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell 2450</td>
<td>Network Policy Manager</td>
<td>866</td>
<td>Win NT server</td>
</tr>
<tr>
<td>Compaq ProLiant 1600R</td>
<td>Web software delivery</td>
<td>2x Intel P2/450</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>Generic</td>
<td>WinMedia Encoder</td>
<td>1: P3 933MHz</td>
<td>Windows 98</td>
</tr>
<tr>
<td>Compaq DeskPro 6350EN</td>
<td>WinMedia Server</td>
<td>1: P2/400</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>Dell PowerEdge 2550</td>
<td>Admin. Intranet server</td>
<td>P3 1.0 GHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell PowerEdge 2450</td>
<td>Mail routing/Mailing Lists</td>
<td>P3 733 MHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell PowerEdge 2450</td>
<td>Mail routing/Mailing Lists</td>
<td>P3 733 MHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell Workstation</td>
<td>Forms Designer</td>
<td>P3 700 MHz</td>
<td>Win 98</td>
</tr>
<tr>
<td>Dell Workstation</td>
<td>Forms Layout</td>
<td>P3 1.0 GHz</td>
<td>Win 2000 Pro</td>
</tr>
<tr>
<td>Dell PowerEdge 2550</td>
<td>Programming/Stats</td>
<td>P3 1.0 GHz</td>
<td>Linux</td>
</tr>
<tr>
<td>Gateway desktop</td>
<td>Ping/Traceroute via web</td>
<td>P2 166 MHz</td>
<td>Red Hat Linux</td>
</tr>
<tr>
<td>Brand &amp; Model</td>
<td>Primary Function</td>
<td>Processor(s)</td>
<td>Current O/S</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Dell PowerEdge 2550</td>
<td>Print Server</td>
<td>P3 1.0 GHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell PowerEdge 2550</td>
<td>Backup Print Server</td>
<td>P3 1.0 GHz</td>
<td>RedHat Linux</td>
</tr>
<tr>
<td>Dell 2450</td>
<td>Central Servers Backup</td>
<td>P3 666 MHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell 6450</td>
<td>BlackBoard Web/Apps</td>
<td>4XP3 700 MHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell 6450</td>
<td>BlackBoard Database</td>
<td>4XP3 700 MHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell 2550</td>
<td>Lab imaging/printing</td>
<td>P4 1.0 GHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell 2550</td>
<td>Lab imaging/printing</td>
<td>P4 1.0 GHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell PowerEdge 6450</td>
<td>Student email/calendaring</td>
<td>4X-Xeon 800 MHz</td>
<td>Win 2000 Adv. Server</td>
</tr>
<tr>
<td>Dell PowerEdge 6450</td>
<td>Facstaff email/calendaring</td>
<td>4X-Xeon 800 MHz</td>
<td>Win 2000 Adv. Server</td>
</tr>
<tr>
<td>Compaq 3000</td>
<td>File Sharing and Printing</td>
<td>2XP3 400 MHz</td>
<td>Novell Netware</td>
</tr>
<tr>
<td>Dell 2450</td>
<td>Lotus Notes testing</td>
<td>P3 866 MHz</td>
<td>Win 2000 server</td>
</tr>
<tr>
<td>Gateway E3100</td>
<td>Univ Village DHCP Srv</td>
<td>P2 366 MHz</td>
<td>Win 2000 Server</td>
</tr>
<tr>
<td>Dell Optiplex GX100</td>
<td>Network Monitor / Alerter</td>
<td>P2 400 MHz</td>
<td>Win 2000 Prof</td>
</tr>
<tr>
<td>Sun Sparc Ultra 2</td>
<td>Print Processing</td>
<td>P2 296 MHz</td>
<td>Sun OS</td>
</tr>
</tbody>
</table>
3.A.7. Staffing

Information Technology Services

**John Christensen** – Vice Chancellor Academic Affairs

**John Fiene** – Associate Vice Chancellor for Technology

**Bret Blackman** – Director, Administrative Information Services

- **Charles Wing** – Senior Systems Analyst
- **Leah Cross** – Senior Systems Analyst
- **Dan Kenny** – Senior Web Architect
- **Don Robinson** – Programmer/Analyst II
- **Todd Nelson** – Web Application Developer II
- **Stuart Wheat** – Web Designer
- **Matt Morton** – Senior Web Architect
- **Brandon Keepers** – Web Application Developer II
- **Frank Hartranft** – Statistics Support
- **Pat White** – Programmer/Analyst I

**Student Workers**

- **Lanyce Keel** – Asst. Planning Director, Distance Education
- **Shelley Schafer** – Manager, Distance Education, Marketing and Training
- **Pat Dargantes** – Coordinator, Education & Communication
- **Alice Villone** – Business Manager

**Joyce Crockett** – Project Lead, ePortfolios and Director, Academic Information Services

- **Ted Turgeon** – Multimedia Support Coordinator
- **Jon Peterson** – Multimedia Technical Coordinator
- **Craig Chytil** – Multimedia Events Coordinator
- **Robert Hromek** – Distance Learning Coordinator
- **Lisa Green** – Multimedia Design Specialist
- **Scott Blankenship** – Multimedia Support Specialist
- **Rick Abboud** – Multimedia Operator
- **Jeremy Habcock** – Multimedia Operator
- **Bill Schwertley** – Multimedia Operator

**Student Workers**

- **Matthew Crocke** – Project Lead, ePortfolios and Director, Academic Information Services
- **Ted Turg** – Student Worker

**Agency Comprehensive Information Technology Plan**

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### Instructional Technologies

Multimedia Technology Services (MTS) provides support of classroom instruction utilizing multimedia technology to assist teaching and learning. Currently MTS provides a variety of equipment and services to enhance the educational mission at UNO including:

- **Over 100 Hi-Tech Classrooms** with a networked computer system (either MAC or Windows), connected to a high lumen overhead projection and sound system. Along with an in-room ‘document camera’, these rooms are capable of displaying web pages, video, and computer applications for use in teaching.

- **Fourteen mobile “teaching carts” called Smart Carts** that provide networked computing services, display of computer applications and video tape, as well as web access for classrooms that do not currently have Hi-Tech equipment.

- **Operation of six on-campus distance learning rooms** that provide online class instruction via NEB*SAT Satellite, Fiber, and Polycom.

- **Digital Media support** that includes video editing and digitization for Windows and Macintosh, DVD and CD authoring, streaming video production, and creation of slide presentations.

- **Sound system support** for University Events.

- **Delivery and maintenance of Traditional ‘AV’ equipment** used for classrooms instruction and presentations: Audio Recorders, Opaque and Transparency Projectors, TV/VCR units, video cameras, and so forth.
The goal of Distance Education at University of Nebraska at Omaha is furthering the academic missions of the colleges and metropolitan mission of the campus. As stated in the December 2003 Distance Education Coordinating Council report, “a distance education strategy must relate to the profound impact that information technology and computer connectivity today have on the entire American higher education enterprise.” The future of distance education is characterized by three compelling imperatives:
**Imperative 1:** information technology methods used in distance education also can enhance traditional, residential courses.

**Imperative 2:** continual investment in new technology is essential to support quality distance education.

**Imperative 3:** increased access to higher education and quality of instruction must serve as principal justification for distance education expansion rather than cost savings.

Refer to UNO’s Distance Education Strategic Plan for information about how these imperatives will be addressed.

3.B. Value

The value of UNO investment in information technology is substantial and must be considered critical to the daily operations of the organization. Technology is thoroughly integrated into every function of the University and it is critically important to accomplish the University mission.

Physical assets include an 8,000+ port campus network with wide area network connections to the other university campuses and central administration, as well as the Peter Kiewit Conference Center, Offutt Air Force Base, Metro Community College, Wayne State College, the Southeast Distance Learning Consortium, Omaha Public Schools, Network Nebraska, and both Internet 1 and Internet 2. The University connects more than 4,500 desktop computers, mid-range systems, servers, and main frames to the network, in addition to associated printers and other peripherals. Software and hardware combine for a value in excess of $25,000,000. However, the most valuable assets are the knowledge and social capital that are developed in our information technology professionals and users of information technology that allow the University to work together to perform our mission.

Although our goal is innovation, work is done simultaneously at all three levels to build the necessary infrastructure as a foundation. As the discovery process continues, today’s innovation becomes tomorrow’s integration.

3.C. Information Technology Training

The number of students, faculty and staff attending ITS training in 2004 exceeded 1100 participants. In addition to formal classes, ITS Customer Service Help Desk staff provides Just In Time training to walk in and call in clients. ITS staff continually updates and expands online education including
the development of rich media content tutorials for Lotus Notes and Blackboard.

**Faculty and Staff**

ITS Training offers training to departments on a variety of computer training programs, such as Blackboard, MS Office, Lotus Notes email and calendaring, and FrontPage.

Blackboard Training is offered as a series of ten courses on using the Blackboard system. Blackboard allows instructors to place courses online via the world-wide-web to seamlessly incorporate learning materials derived from word processing, audio, video, spreadsheet and presentation files. It offers extensive assessment tools, database reporting, grade books, student tracking, real-time chat, file exchange, content rendering and a powerful search engine.

Staff and Faculty also have the ability to take training off campus. NBDC offers discounts to UNO personnel. Visit their website for the class offerings. [http://nbdc.unomaha.edu/](http://nbdc.unomaha.edu/)

**Students**

ITS Training offers training to students through their faculty. Faculty can request training for their students on a variety of software. The training will be completed during normal class time.

**IT staff**

- Conferences
  - SIS Conference
  - Educause Conference
- University courses
- Internal cross training with ITS staff
- Cisco Router/Server training.
- Windows 2000 Server course tailored to needs of ITS
- Campus Pipeline Training
- Participation in Professional Organizations
  - Great Plains DB2 Forum (Quarterly)
FUSE – FOCUS Group (Bi-monthly)
- Partner with Statehouse on training related to Mainframe, DB2, and CICS

3.D. Security

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has your agency implemented the NITC’s Security Policies?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>If your answer to the previous question is NO, is your agency in the process of implementing the NITC’s Security Policies?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>If your answers to the previous two questions are NO, has your agency implemented other security policies?</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Please provide contact information for the person responsible for IT security:

<table>
<thead>
<tr>
<th>Name</th>
<th>Steven Lendt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td>2-554-2468</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:mdt@mail.unomaha.edu">mdt@mail.unomaha.edu</a></td>
</tr>
</tbody>
</table>

The University of Nebraska at Omaha is designing and implementing a combination of security policies based on NITC specifications (http://www.nitc.state.ne.us/standards/), executive memorandum 16 and other guidelines from Internet based security agencies such as CERT. These security features are a combination of hardware, software and network configurations designed to meet the following standards.

- Divide and identify systems and their resources in to distinct security levels.
- Use of proactive detection and prevention of security incidents.
- Be as transparent as reasonably possible to authorized users.
- Provide a clear course for response and reporting for security incidents.
- Provide users with tools and information to protect their systems and data.
- Education of users of computer technology of security issues.

3.E. Disaster Recovery and Business Continuity Planning

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency have a disaster/emergency recovery plan?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your agency perform regular back-ups of important agency data?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your agency maintain off-site storage of back-up data?</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Increasingly, the campus is being probed and attacked from viruses, system crackers, and automated agents. Disaster recovery includes employing hot-
spares and full-system backups in order to be able to minimize downtime for mission-critical systems, trying as much as possible to build a robust, fault-tolerant infrastructure and recovery process. UNO will be taking the issues of disaster recovery and security and business continuity and assign groups to address individual issues and work together to develop and overall plan.

3.F. Accessibility (Technology Access for Individuals with Disabilities)

[For more information on accessibility, contact Christy Horn at chorn1@unl.edu.]

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your agency have procedures in place to identify the information technology related requirements of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
4. Future Uses of Information Technology

4. A. Strategies and Future Direction

Future Direction

Information Technology Services at the University of Nebraska at Omaha is creating a variety of services that provide increased access and self-service to individual, class, organization and public data. Many of these services share new integrated web technologies with common sign-on authentication. The goal of this new service model is to provide individuals a comprehensive and nearly seamless 24 hour access to technology services and data.

Intent

Develop strategies that will result in standardization or unified direction, where possible, in determining future technical architectures, resulting in greater economies, stability, security, convenience and service to the user community.

Technical Architecture

Our goal is information availability whenever and wherever (24x7 access, ubiquitous/pervasive, and in real-time where appropriate). Our choice will be via open standards and open source wherever possible for increased development flexibility.

This table is technical in nature and explains the technical architecture ITS will be following over the next two years. The following web site will assist in defining terms listed in this table. http://webopedia.com/

<table>
<thead>
<tr>
<th>Hardware/Servers</th>
<th>Legacy</th>
<th>Current</th>
<th>Future</th>
<th>Currently in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigabit network backbone</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IBM RS 6000</td>
<td>Limited</td>
<td></td>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td>IBM S/390 Mainframe – Based</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Intel Based (PC)</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Wireless networking</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Data Bases</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM DB2/UDB (DataBase 2/Universal DataBase)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IBM VSAM (Virtual Storage Access Method)</td>
<td>X</td>
<td>Limited</td>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td>Informix</td>
<td></td>
<td>X</td>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td>Legacy</td>
<td>Current</td>
<td>Future</td>
<td>Currently in Research</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>LDAP (Lightweight Directory Access Protocol)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lotus Notes document and tracking database</td>
<td>X</td>
<td></td>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td>Microsoft Active Directory</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft SQL (Structured Query Language) server</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open source DB (Postgres, MYSQL)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Server Software**

<table>
<thead>
<tr>
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<th>Legacy</th>
<th>Current</th>
<th>Future</th>
<th>Currently in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache web server</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>iWay ETL Manager</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>JBoss web application server</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Microsoft IIS server for web enabled applications</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PHP (Php: Hypertext Preprocessor) for web enabled applications</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tomcat</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web DAV (Distributed Authoring And Versioning)</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WebFOCUS Reporting Server</td>
<td>X</td>
<td>X</td>
<td></td>
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</table>

**Server Operating Systems**

<table>
<thead>
<tr>
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<th>Legacy</th>
<th>Current</th>
<th>Future</th>
<th>Currently in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco router language IOS</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM zOS</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linux on Intel</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft 2003 Server</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Languages**

<table>
<thead>
<tr>
<th></th>
<th>Legacy</th>
<th>Current</th>
<th>Future</th>
<th>Currently in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/CGI (Computer Graphics Interface)</td>
<td>X</td>
<td></td>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td>COBOL (Common Business-Oriented Language)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CSS</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>HLLAPI (High Level Language Application Program Interface) screen scraping</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Informix 4GL</td>
<td>X</td>
<td></td>
<td>Limited</td>
<td></td>
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<td>JAVA /J2EE</td>
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<td>Application Development Methodologies and Toolsets</td>
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<td>Current</td>
<td>Future</td>
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<td>Configuration Mgmt Tools (UNIT testing, etc)</td>
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<td>Eclipse IDE</td>
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<td>IBM DB2 (DataBase 2) Connect</td>
<td>X</td>
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<td>JDBC (Java DataBase Connectivity)</td>
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<td>LDAP (Lightweight Directory Access Protocol)</td>
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<td>ODBC (Open DataBase Connectivity)</td>
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<td>SOAP (Simple Object Access Protocol)</td>
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<td>UDDI (Universal Description, Discovery and Integration)</td>
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<td>WAP (Wireless Application Protocol)</td>
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<td>WML (Wireless Markup Language)</td>
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<td>WSDL (Web Services Description Language)</td>
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<td>Direct Analog and Digital Video over fiber</td>
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<td>H.323</td>
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<td>ISDN (Integrated Services Digital Network) H.320</td>
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<td>MPEG2 over ATM (Asynchronous Transfer Mode)</td>
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<td>MPEG2 over IP</td>
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<td>NEB*SAT H.261</td>
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<td>Windows Media Player RealPlayer Quicktime</td>
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<tr>
<td>Blackboard</td>
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<td>c.support</td>
<td>X</td>
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<td>CVS (Concurrent Version System)</td>
<td>X</td>
<td>X</td>
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<td>Microsoft Excel</td>
<td>X</td>
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<td><strong>Legacy</strong></td>
<td><strong>Current</strong></td>
<td><strong>Future</strong></td>
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<td>Web based Project Management Tool</td>
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**Authentication and Security**

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<td>FTP</td>
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<tr>
<td>IDS (Intrusion Detection System)</td>
<td>X</td>
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<tr>
<td>LDAP with Unique Username</td>
<td>X</td>
<td>X</td>
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<tr>
<td>PGP</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Photo ID card with Database</td>
<td>X</td>
<td>X</td>
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<tr>
<td>PIN (Personal Identification Number)</td>
<td>X</td>
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<tr>
<td>SAP Personnel Number</td>
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<td>SFTP/SCP</td>
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<tr>
<td>SSH Secure Shell</td>
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<tr>
<td>SSL/TLS Secure Socket Layer</td>
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<td>Student ID (SSN)</td>
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<td>UNO NetID</td>
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<tr>
<td>VPN Virtual Private Network</td>
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</table>

**Collaboration**

The projects listed in 4B represent a variety of internal and system wide collaborative efforts. Collaboration through campus and off-campus partnerships is our philosophy as stated in the Mission, Vision, and Values.

**Staff Retention**

The Information Technology Services staff retention philosophy begins with hiring principles that include assessing a job candidate’s work history and educational achievement to demonstrate:

- Working well with others in a project team setting. This includes good communication skills for working with our constituencies and understanding the value of shared accomplishments.
- Self-initiative by accomplishing creative groundbreaking ability in past positions.
- Aptitude in the area for which they are being considered (current skills are important, but the ability and personal desire to learn new skills is more important).
- The desire for association with higher education due to its operating culture, a desire to teach, or a desire to further their formal education.

These hiring principles are rigorously applied when evaluating job candidates. Such employee attributes are the most difficult and time consuming to accomplish through staff development efforts. Employees who
possess these characteristics, given an appropriate organizational environment, tend to develop a positive and enthusiastic work culture that is both synergistically effective and enjoyable; in other words, one in which they find value, gratification, and fulfillment.

Efforts are made within the constraints of public human resource practices to keep salaries within reasonable margins of the open market job equivalents, with stipends judiciously used in circumstances where significant responsibilities are added for a finite period of time. A reward program provides additional personal development opportunities for those who demonstrate the following accomplishments:

- Over the top efforts in creating client successes where they clearly would not have occurred otherwise.
- Extraordinary groundbreaking initiatives in projects.
- Have on their own initiative achieved a degree, certification, or educational award which demonstrates their understanding of the necessary role of life long learning in the profession.

The ITS organization is intentionally flat and fosters a culture whereby any staff member can comfortably discuss any issue or concern with any other member of the staff at any level without fear of reprisal. Matrix project teams are assigned in such a fashion that employee roles may differ on particular projects. An employee may be a member of several project teams with specific role assignments, yet also be assigned as project manager of other projects where those somewhat higher in the organization are assigned as team members. Project assignments are based on skill sets, developmental opportunities, and wherever possible, personal objectives and areas of interest are matched with departmental objectives.

Finally, the mission, vision, and values expressed in this plan guide the implementation of specific business practices with the express purpose of developing a collaborative team-oriented working culture. While current technologies are important, those who effectively implement them are even more important.

4. B. Future IT Projects

The following is an annotated list of Information Technology Services’ projects. The University strategic goal is listed first. The order of projects is alphabetical within each goal.

**Strategic Initiatives**

**Goal 1: UNO places students at the center of its enterprise.**
ITS Goal 1: Expand Student Technology-based Services

a. **Broaden Content Delivery Access.** In conjunction with pilot projects in the college of education, information sciences, public affairs, and UNCSN, support the use of “state of the art” handhelds and their viability as access devices to academic and administrative systems. Determine server system requirements to allow seamless access to Notes, Blackboard, E-BRUNO, Streaming Media, etc. Make recommendation and implement.
   
   Timeline: November 2004
   
   Cost: 2000 hours of team work first year

b. **Create a Course Management Taskforce.** In collaboration with faculty, determine which course management system best meets the educational and financial requirements of the campus.
   
   Timeline: November 2004

c. **Develop ITS Student Worker Community.** Through mentoring, provide the ITS student population with work that expands their professional skill set and supports the development of community within ITS and the University.
   
   Timeline: on-going

d. **Expand Customer-based Help Desk FAQ.** Using active customer request analysis UNO ITS will develop and deploy customer web based FAQ systems with active customer feedback mechanisms.
   
   Timeline: on-going, initial test releases fall of 2004
   
   Cost: 200 hours of team work per year

e. **E-BRUNO for Students and E-BRUNO for Faculty enhancements.** Implement additional web based services to support students and faculty. Upgrade technical architecture to streamline administration and take advantage of current technologies.
   
   Timeline: on-going
   
   Cost: 1500 hours of team work a year

f. **Evaluate Instant Messaging for Campus Use.** Instant messaging will bridge the gap between e-mail and in person meetings, allowing near real time conversations to take place at any time and using nearly any Internet connection speed. This project will evaluate the use of instant messaging as an educational and business tool using authentication and campus directory services.
   
   Timeline: 2004 to summer of 2005
g. **Evaluate Open Source Desktop.** Because open source applications and server operating systems have become an important economical and productive choice for many academic units, evaluation and experimental distribution of an open source desktop system and application has the same potential for the desktop environment. Security and management are key components of this project.

   - Timeline: Spring of 2005
   - Cost: 200 hours of testing

h. **Expand Kiosk Services.** Kiosk system expansion will create convenient and economical information locations that allow students, faculty, staff and visitors to access information quickly and conveniently.

   - Timeline: on-going
   - Cost: $800 plus furniture/ kiosk

i. **Expand Online General Education Courses.** Development of these courses will support provides increase options for distance education students who need these courses to complete an online Bachelor of General Studies degree.

j. **Expand Outdoor Wireless Network.** In accordance with the UNO campus wide wireless network plan, implementation of wireless network access has been completed in many student dense areas on campus and areas where traditional wired network connections are not possible. The next phase of this project is the integration of additional wireless services for classrooms and other areas where standard wired connections are not available. Implementation will be based on collaborative funding sources and specific location and application requirements. For additional information on the UNO campus wireless project, visit the web site [http://wireless.unomaha.edu](http://wireless.unomaha.edu)

   - Timeline: expansion over next 2 years
   - Cost: $50,000

k. **ID Card System**  Develop a service level agreement between UNO ITS, Business and Finance, and UNMC ITS, Business and Finance to support expanded use of the I.D. Card system for a myriad of campus services to include:

   - Vending Machine Access
   - Food Court Payments
   - Bookstore Payments
   - Event and Access Payment and Tracking
   - Lab Printing Solution. Computer labs have traditionally used extensive staff resources to monitor and assist with printing in
computer labs and classrooms. The UNO campus print solution partnership will use proven technology that has been implemented on other NU campuses and the existing ID card system to enable student, faculty and staff self service for printing in computer labs. This project will reduce ITS staff time currently devoted to lab management and reduce the waste of consumables such as paper and toner.

Timeline: fall of 2004 for initial implementation  
Cost: $80,000 one time, $10,000 on-going

1. **Laptop Loan Update and Expansion.** Continue to expand the quantity and quality of equipment available via the Laptop Loan Program for students who do not own a computer. Add free Internet access.

   Timeline: on-going
   Cost: $25,000

m. **myFolder/myWeb System.** Creation of web enabled servers with accounts for all active UNO faculty, staff, students and departments with one location storage and secure access via any Internet connected computer with a web browser. Services will include 24 hour dynamic account password services, automatic user controlled file recovery and recovery of previous versions of documents and files.

   Timeline: Fall of 2004 for myWeb
   Cost: $200,000 server and storage costs
   $50,000 each year for maintenance and software upgrades

n. **myUNO/Blackboard upgrade.** Implementations of newer versions of Blackboard will increase integration with University courses and enhance the current feature set, thus better meeting campus needs. Updates from Blackboard are scheduled to occur three times a year. The UNO Blackboard Migration Team will look at updates and make decisions regarding the best time to upgrade for the students, faculty and staff.

   Timeline: November, March and June/July 2004
   Cost: $44,000

o. **New UNO Web Home Page.** Implement a new top level web site to improve UNO’s web presence and its role in marketing the campus as a metropolitan University of high distinction.

   Timeline: Spring 2005
   Cost: 900 hours of team work a year
p. **SEVIS System.** Provide support and ongoing maintenance for International Studies and Program’s SCT SEVIS system. This system is used to track and batch register international students at UNO with the US federal government.

   - **Timeline:** on-going
   - **Cost:** 200 hours of team work a year

q. **SIS+ (Student Information Services) Support.** ITS supports critical student and faculty business processes by providing ongoing maintenance and enhancements to the Student Information System.

   - **Timeline:** Ongoing
   - **Cost:** 6000 hours of team work required annually

r. **Student e-Portfolios.** Students will create an electronic portfolio starting with their first semester at UNO. Courses will incorporate the use of e-Portfolios and students will place artifacts that demonstrate learning outcomes identified for a specific course. Incorporating text, video, audio, and graphics (still and motion) into this portfolio will go hand in hand with the student instructional training. This project will be done in stages. The first stage will be to investigate if the current Student Digital Portfolio in College of Education is scalable to the entire campus. The timeline below is for this first phase.

   - **Timeline:** January 2005 and ongoing
   - **Cost:** Equipment, software and personnel costs to be determined

s. **Technical Support for Project Achieve, Goodrich Program, Multicultural Affairs, Students with Disabilities Services and other Student Organizations.** Provide technical support that will foster the success of students in their educational and vocational goals.

   - **Timeline:** Fall, 2005

t. **Technology Support for Student Gathering Spaces.** By providing workstations and wireless network students will be drawn into spaces and facilities throughout the campus designed for individual and small group interaction and study.

   - **Timeline:** on-going
   - **Cost:** 300 hours of team work every year, equipment costs TBD
u. **Update/Expand Instructional Technology in the Classroom.** The long-term goal is to place technology in all classrooms on campus including DVD and CD-R drives. Update 8 Smartcarts.  
   Timeline: ongoing  
   Cost: 4000 hours of team work; equipment costs $147,000/annually

**Goal 2: UNO strives to achieve academic excellence.**  
**ITS Goal 2: Support for Instructional Technology and Research**

a. **Academic Quality Improvement Program (AQIP) Support.** The ePortfolio projects will provide a means to measure projects selected to be part of UNO’s accreditation process. In November 2004, three or four projects will be selected at an AQIP conference. Two projects that are being discussed are the American Democracy Project and ePortfolios.  
   Costs: TBD

b. **Campus Archive System.** Investigate and develop a system to archive the growing amount of departmental historical data to off-line or near line media.  
   Timeline: Fall 2004 for evaluation, Spring 2005 for implementation  
   Cost: TBD

c. **Campus-wide IP Video Support System.** Investigate point to point and multipoint IP video conferencing systems to be utilized with in synchronous educational, administrative and student services.  
   Timeline: November 2004 and ongoing  
   Cost: TBD

d. **College ePortfolio.** Current ePortfolio projects include the UNO Institutional Portfolio, Faculty ePortfolio, and Student ePortfolio. Colleges will be able to utilize information from the Students and Faculty ePortfolios to create the foundation for a College ePortfolio and then add other information as needed. There may be a need for further web development. This project supports AQIP.

e. **Department ePortfolio.** Current ePortfolio projects include the UNO Institutional Portfolio, Faculty ePortfolio, and Student ePortfolio. Departments will be able to utilize information from the Student, Faculty and College ePortfolios to create a framework for the Department ePortfolio. There may be a need for further web development. This project supports AQIP.
f. **Develop and implement a Distance Education Award.** In collaboration with the UNO Distance Education Advisory Taskforce, develop criteria and a selection process to a faculty Distance Education Award.

   **Timeline:** Spring 2005

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g. **Digital Media Team Support for Curriculum Development.** The following paragraphs describe the types of support that will be developed.

   1. Pedagogical Design which could include instructional design consultation and the creation of multimedia for in-class presentations, conferences and meeting presentations utilizing streaming video, dynamic HTML pages, and on-line training videos. This support will require the creation of:
      a) A quiet space for audio recording and video shooting;
      b) storage options including NA storage as well as acquisition of portable storage units;
      c) acquisition of professional camera equipment
      d) training scheme so that digital Media team is cross-trained in camera operation, use of major such software as Photoshop, Flash, Director, audio recording, and each of the in-house non-linear editors.

   2. Mass Storage for Media System. Digital video and audio records produce high quality images present extraordinary options for editing and production. The storage requirements for editing of digital media are expansive. This system would create a base storage system for active editing of digital media.

   **Timeline:** Spring 2005
   **Cost:** $18,000

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h. **Evaluate/Implement Streaming Media Support Model.** With an vested interest in providing real time and on demand delivery of multimedia services. the ITS group will work on collaborative projects with other campus organizations including the UNO Radio and Television group and the college of Information Service and Technology (IS&T) to provide high quality streaming media based distance education services.

   **Cost:** TBD

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i. **Faculty ePortfolio.** The Faculty e-Portfolio will provide a comprehensive-collection of faculty members’ academic and professional activities, practices, and achievements as they relate to instructional and research development as well as the UNO’s strategic plan. ITS will create
customized software that supports a web-based collection of items faculty select to demonstrate and communicate achievement or progress towards individual, department, school, college and/or campus goals. The software will also support reflection on current practice so that faculty can reflects/analyzes the affect of changes they implement. The Faculty ePortfolio assists with AQIP.

   Timeline: Fall 2004 and ongoing
   Cost: $150,000 one time plus ongoing TBD

j. **Institutional ePortfolio.** The Institutional Portfolio demonstrates and communicates UNO’s progress toward the campus goals outlined in our strategic plan. Institutional indicators are recorded at this site for internal and external constituencies to examine. ITS currently maintains this web site for Academic and Student Affairs.

k. **Technical Support Model for the College of Communication, Media & Fine Arts.** In partnership with the dean of this new college, develop and implement a plan to meet the IT needs of faculty.

l. **Web Conferencing Evaluation.** The state of Nebraska has adopted H.263 as one of its primary video standards for distance education and conferencing. The second standard is MPEG II. The University system has widely adopted H.323 (use of H.263 video over IP networks), but to this point it has been limited to point to point connections. This project will analyze multipoint access control units for optimal configuration within the University system to allow multiple simultaneous video connections to any points of the University network, interconnected networks, and via Internet 2. This is a joint project between ITS and UNO TV, and is also a collaborative project with the other University campuses and UNCSN.

   Timeline: Initial server setup spring 2005

m. **WebOffice System & Expanded Departmental Storage.** The weboffice system is a unique campus wide system that is based on standard windows file storage but using an innovative web interface that allows for secure access for nearly anywhere. This project will continue to expand this unique service for use by additional department and educational needs.

   Timeline: Summer 2005
   Cost: $25,000

n. **Web-based Course Evaluation Process.** (see below)
o. **Web-based Research Survey Support.** The Web-Based Course Evaluation Process and Web-based Research Survey Support are two projects that will move forward in tandem. Institutional Research is coordinating the collection of a variety of data. The need for a web-based survey system will assist Institutional Research and all colleges in a variety of research opportunities. The ability to offer departments and colleges a secure on-line course evaluation system will be an integral outcome of this project. First step of a course evaluation is to have Academic and Student Affairs, Faculty Senate, and the committee on Assessment work through issues related to online course evaluations.

  Cost: TBD

**Goal 3: UNO will actively engage with the urban, regional, national, and global communities.**

**ITS Goal 3: Extend Outreach and Community Engagement**

a. **Community-based Technology Labs.** Extend selective partnerships with external organizations to operate UNO community based computer labs to address issues of urban equity of access to technology. These labs will be equipped with state of the art hardware, software, and Internet access.

  Cost: $25,000 startup; on-going support shared among partners

b. **Nebraska Department of Education Partnership.** With administration in Academic and Student Affairs leading the UNO ePortfolio initiative, investigate the feasibility of developing similar products for the K-12 environment.

c. **Nebraska eLearning Initiative.** Through the expanded Dual Enrollment project and collaboration with MOEC, participate in eLearning projects that support integrated learning across the K-16 continuum.

d. **Promotion of K-12 Partnerships.** In collaboration with metropolitan school districts, support University and K-12 initiatives.
e. **Technology in Service and Service Learning.** Create partnerships with the University community involved in service to the community and service-learning projects to determine how technology can be incorporated into projects. Many times these service-learning projects are created for the area of our population that is considered part of the urban “Digital Divide.”

**In Support of All UNO Strategic Goals**

**ITS Goal 4: Build Campus Infrastructure**

a. **Expand Campus and Off-campus Grant Partnerships.** Actively seek opportunities to partner with faculty in obtaining grants where technology is a key and such collaboration enhances the possibility of funding. Identify potential funding sources for such purposes with the express purpose of expanding rather than redirecting resources.
   
   - **Timeline:** February 2002 and is on-going
   - **Cost:** 100 hours programming per grant

b. **Expand UNOTECHS Partnerships.** UNOTECH Partnerships. ITS values the work all technical staff achieve within the colleges and departments. The guiding principle for these partnerships will be to foster communication and to allow for partnerships where it makes sense. The projects this group will collaborate on include:
   
   - Coordinating timeframes to purchase hardware and software
   - Agreements on hardware configurations
   - Negotiating special pricing program for the personal use by students, faculty and staff
   - Advertising
   - Printer purchases for student labs
   - Creating software images for computers being purchased. Two images will be created one for faculty and staff and one for computer labs.
   
   - **Timeline:** ongoing
   - **Cost:** 300 hours of team work; equipment/software costs TBD

c. **Organizational and Resource Analysis**

ITS will continue to look inward to look for ways to change the organizational structure. This organizational analysis will assist ITS in moving forward with the varied and challenging projects in this plan.
d. **Improve Access, Security and Privacy.** This goal will be accomplished by

1. **Reducing Sign-on and Authentication.** UNO has taken these concepts and turned them into a campus-wide reality with the development of the UNO netID. The UNO netID project has taken the most used academic and campus systems and integrated them into one account and password. Password management is built in with the cooperation of Student Enrollment Services. This project’s next phase will be to expand the reduced sign-on and authentication services to more web based forms and services and to look at the feasibility of expansion of this service to computer labs.

   Timeline: Summer 2005  
   Cost: $15,000

2. **Disaster Recovery/Business Continuity Update.** Disaster recovery will employ redundancy of the most critical systems, hot spare and off site full-system backups in order to minimize downtime for mission-critical systems and, as much as possible, build robust, fault-tolerant infrastructure and recovery processes. UNO will be utilizing UNCSN’s Disaster Recovery software to augment the ITS Computer Operations Disaster Recovery Plan.

   Timeline: Off site backups currently being implemented plan.

   Cost: $400,000 plus 2500 hours of team work required to develop UNO Disaster Recovery plan

e. **Physical System Security.** This project will implement technical, procedural and physical security processes to ensure that technology locations are safe and productive for students seeking their education. This includes securing the hundreds of thousands of dollars worth of computer equipment in computer labs and high tech classrooms used by thousands of people. The safety and security of the students and equipment in these labs is critical to keeping these resources productive.

   Timeline: October 2004 to August 2005  
   Cost: $80,000

f. **Security Assessment Task Force.** The world of computing technology and security has dramatically changed in the last two years. Previously most security threats came from a limited number of defined external sources. Today, virus, worm, e-mail, web and social engineering attacks come from both external and internal sources with tens of thousands of
attacks per day. This task force will evaluate changing threats and
technologies to effectively reduce and control threats to the business,
academic and personal computer and network resources.

Timeline: Fall of 2004 and ongoing
Cost: TBD

g. **Technology Oriented Policy Review.** New technologies are bringing
forth policy issues not previously addressed. We must determine a means
of anticipating policy adjustments as these new technologies and
mandates emerge. Examples include:

1) Document Policy Compliance
2) Reduce SSN Dependency
3) Graham-Leach

h. **Data Analysis.** These projects include:

1. **Upgrade Application Development Databases.** Provide a single
database system based on both PostgreSQL and mySQL for
application development. This will provide a secure, scalable and
fault tolerant system to support critical processing needs.

Timeline: Fall 2004 through Spring 2005
Cost: 300 hours of team work

2. **Application Development LDAP.** Implement a UNO specific
LDAP store for application development. This will provide a
single campus repository for authentication and role based
information.

Timeline: Fall 2004 through Summer 2005 and is
ongoing
Cost: 2100 hours of team work

3. **Business Intelligence Implementation (Web Focus/Dashboard)***
Implement WebFocus/Dashboard as UNO’s web based Business
Intelligence system. This will provide a consistent web interface for
faculty and staff reports used to assist in campus decision making.

Timeline: Fall 2004 through Summer 2005 and is
ongoing
Cost: 2100 hours of team work

4. **Campus Datamart.** Implementation of a campus Datamart will
provide accessible, consistent and organized data critical to campus
decision making. This in conjunction with a Business Intelligence
System (see Data Analysis 3), will provide easy access to data
needed to support critical campus decision making.

Timeline: Fall 2004 - ongoing
Cost: 2100 hours of team work for Phase I.
Other phases to be determined

5. **Departmental Web Templates.** Provide web site templates to the campus community that relate to the University’s top level design. This will provide an option for those on campus wishing to have a web site with a similar design philosophy and branding as the top level site.
   
   Timeline: Fall 2005
   Cost: 1000 hours of team

6. **Application Development and Web Design Standards.** Continue the development and ongoing documentation of application development and web design standards for ITS.
   
   Timeline: On-going

7. **Expand Web Development Service Level Agreements (SLA’s).** Continue to expand campus web development support through SLA agreements.
   
   Timeline: On-going

8. **J2EE Application Infrastructure.** Implement the application infrastructure to support J2EE development and continue to monitor industry for changes. This will set the foundation for future J2EE application development.
   
   Timeline: On-going

   i. **University Academic Web Portal (uPortal)** Implement an Academic web portal that will provide a single web entry point to numerous campus wide web services. This will support students, faculty and staff.
      
      Timeline: TBD
      Cost: $40,000 server upgrade and expansion; personnel costs TBD

   j. **Web Analytics.** Implement a web analytical tool to analyze web site statistics. This will provide information on website usage patterns to developers and all levels of management.
      
      Timeline: January 2005
      Cost: 240 hours of team work; $20,000 for software and server upgrades

k. **Web-based Content Management System.** Implement a web based content management system for use by the campus community. This will
provide a web interface that will allow for easy updates to campus websites.

<table>
<thead>
<tr>
<th>Timeline: TBD</th>
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<tr>
<td>Cost: 500 hours of team work; $50,000 server upgrade and expansion</td>
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1. **Hardware Resources**

1. **Campus Web Server Upgrade.** By using a combination of new hardware, operating system and software ITS will create a high reliability web server with the ability for dynamic content update, scalable account management and additional web enabled features including secure information transfers.

   | Timeline: Initial server setup spring 2003, completion by December 2004 |
   | Cost: $50,000 |

2. **Eppley Administration Building Generator.** The Eppley building machine room houses nearly all of the primary campus systems including the network cores. Despite battery backup systems that last 15 minutes, electrical interruptions in the past years have resulted in an average of 50 hours a year in down time. When these systems and network are down, many of the campus functions and nearly all of the business functions are shut down. Installation of a generator would reduce these multi-system outages to less than 2 hours per year.

   | Timeline: Summer 2005 pending partnership with UNO Facilities |
   | Cost: $45,000 |

3. **Expanded Production Backup Services.** The current off site backup system provides secure backup and data recovery services for over 50 production systems. The system has capacity for expansion that will allow for backup of most of the additional systems listed in this document.

   | Timeline: Spring 2005 |
   | Cost: $22,000 |

4. **Server Selection and Assignment Task Force.** A server hardware task force composed of selected members of the ITS staff and other campus IT professionals will keep a current inventory of server hardware and develop a short-term and long-term
purchasing plan to achieve the highest possible utilization of server resources.

m. **Marketing.** Develop and implement a marketing plan to heighten awareness of ITS services during 2004-2006. This project includes revision of the current UNO distance education webpage.
   
   Timeline: on-going
   
   Cost: 700 hours of team work a year

n. **Personnel Development.**

1. **Document/Train on System Development Life Cycle.** By instituting a “Technology Instruction Program (TIP)”, all ITS staffs’ sets of core skills will be assessed and individualized developmental plans created. Instruction will be provided through classroom training and via a mentor based project oriented program. Assigned projects will provide the ITS techs with the tools and skills needed to support the technology and multimedia needs of the UNO community.

   Cost: 1700 hours of team work for training annually; $25,000 for course offerings onsite and offsite.

2. **Professional Memberships/Certifications.** Encourage membership in professional organizations relating to information technology and professional certifications consistent with staff development plans.

o. **Sound/Media System Support.** Provide sound systems and technical support for campus and University system extracurricular events. Encourage the participation of our student workers and staff in such activities. Events like the Malcolm X conference, UNO Athletic Women’s Walk, Regents Meetings, Chancellor’s Convocation, Honors Programs, PKI Institute events all require some form of support from ITS.

   Timeline: On-going
   
   Cost: 300 hours of team work a year

**In Support of All UNO Strategic Goals**

**ITS Goal 5: Continuously Sense and Respond to Dynamic IT and Higher Education Trends**

a. **Participation in Departmental Chairs Meetings.** Work with each of the colleges to periodically participate in chairs meetings to provide an
understanding of the departmental direction and a dialog regarding technology support. In addition, periodically attend the campus-wide chairs meeting for the same purpose.

b. **Periodic Campus Emerging Technology Forum.** Provide campus leadership for an emerging technology forum held at least once a semester to solicit input from IS&T and other technology leaders from on and off-campus to discover new technologies or new implementations of technologies affecting higher education.

c. **Research and Development Organization.** Determine an optimized and intentional response to the growing need for directed research and development efforts to assure all campus technology decisions are made within a knowledgeable and current technology context.

**University of Nebraska System-wide Initiatives**

**ITS Goal 6: Increase Collaboration with Other University of Nebraska IT Teams**

a. **Application Development.** Increase collaboration with University of Nebraska IT teams that have common application development infrastructures in J2EE and PHP. Sharing of ideas and experiences will help those involved evaluate and implement current and new application development frameworks and technologies.

b. **Comprehensive Security Plan.** This plan is to be developed in cooperation with the system-wide chief information security officer and other campus IT administration. This includes shared disaster recovery services with the University of Nebraska Medical Center, CSN and other campuses.

c. **Distributed Enterprise Directory Services.** Collaborate with University of Nebraska campuses on generating unique identity for students, faculty and staff. This identity will be used to implement distributed campus specific directories.

d. **Network Nebraska Expansion/Management.** A focus on expansion of University of Nebraska Network to create a Nebraska state-wide education network including a Metropolitan Area Educational Network and an I1 connection in Omaha.
e. **Workflow/Output Management System.**
   Determine feasibility of converting data in either paper or electronic form into a uniform electronic package. Pilot this project with the Graduate Office. Initial parts of this project include:
   - New web forms to enable quick processing and storage of new data
   - Purchase of new equipment
   - Determine type of media
   - Creation of a variety of reports and ability to retrieve ad hoc data
   - The hiring of staff to scan old data
   - In-house development of software for easy retrieval of data
   - Training and documentation on how to use software.
   Timeline: Fall 2004 and ongoing
   Cost: TBD

f. **Student Information System Task Force (SISTF).** Participate in SISTF meetings to help determine the future road map of the Student Information System at UNO and other University of Nebraska campuses.