Network Infrastructure Request

Package Summary:

An effective information technology infrastructure is a critical component of Eastern Washington University’s success in fulfilling its teaching mission, enhancing academic quality, and in conducting daily operations. Students, faculty and staff are reliant on the technological infrastructure to conduct daily business. Eastern’s students use the infrastructure to register for classes, to conduct coursework, and to interact with faculty. Eastern’s faculty use the infrastructure for instruction, student interaction, and research. Granting agencies assume that a network infrastructure foundation is available at the university. Eastern’s staff rely on the technological infrastructure to serve students, provide mandatory reporting, award financial aid and reduce administrative costs. The university has an obligation to provide a high level of security to protect confidential student information and to maintain the integrity and preserve the safety of university information.

Requested funding will address teaching and learning, security of university information and critical business processes, and enhanced functionality for administrative technology.

Eastern Washington University requests $6,354,000 to upgrade and enhance network, telephone, and information technology infrastructure in FY10 and FY11.

Network Infrastructure Request Fiscal Detail for FY10 and FY11

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<th>FY 2010</th>
<th>FY 2011</th>
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<tr>
<td>Salaries</td>
<td>612,000</td>
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<td>Benefits</td>
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<td>Operations (on-going)</td>
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Package Description:

1. **Electronic Systems Upgrade** -- $672,000
The recent procurement of an Internet Protocol (IP) based telephone system, the campus rollout of wireless access points, and the proliferation of multiple IP based video systems and demanding applications (academic and security prevention) are driving the need for more sophisticated data distribution electronics to ensure the effective and efficient transmission of network traffic. Current levels of service consisting of high-availability, throughput, and continuity, partnered with the commitment to the university’s constituents are rapidly changing. The explosive growth in the use of the university’s data network to support learning, access to on-line media and individual research has accelerated the need to upgrade the electronic systems to adequately support the high amount of data traffic. Upgrading the data network core systems is a critical part of the measured, comprehensive plan to provide a fast, secure, and managed internet to support faculty, staff, and student. This initiative is also in effort to support the building infrastructure requirements along with manufacturer warranted cabling, which eventually will provide gigabit data rate speeds to the entire university computing system.

In conjunction with the Voice over IP-based telephone system, the university is now required to support and provide E-911 services to faculty, staff, and student. As such, an effective and efficient network must be fitted with the necessary electronics to assist in providing priority to critical network traffic, ensure completed transmission, and allow for an identified “quality of service” (QoS) to specific protocols.

A full-time regular ITS 4 support position is included in this request.

Requested: $336,000 in FY10 and $336,000 in FY11 to provide network support to all students, faculty and staff

**Outcome:** The university will be able to keep pace with increased network usage.

2. **Infrastructure Upgrades -- $618,000**

For almost the past decade, the university has undergone a number of large infrastructure upgrades to both academic and administrative buildings. The funding for this project will conclude the campus-wide cabling infrastructure that began in FY 2000. Eastern has one last major campus facility to undergo a full network infrastructure upgrade, which will directly impact and add a significant computing benefit to the university students, faculty, and research thereof. The University’s Library is the last major building to be brought to both university and the State’s Department of Information Services Telecommunication standards.
The library’s current infrastructure has proven to be very problematic, in that delivery and modifications of telephone and data services have been difficult to provide. This constraint is primarily due to deficient pathway and limitations of cabling ranges for effective data transmission. This facility serves a major resource to faculty, staff, student, and even community constituents. Funding for such projects in previous years has consisted of operating, capital, and customer-recharge revenue. As the library provides a significant range of network services - wireless, data, helpdesk, telephone, research, and video, to the entire university, it is difficult to effectively rely on recharge revenue to sustain the infrastructure needs. Lastly, network upgrades require a large amount of planning, consulting in effort to meet the needs of the institution. As such, the upgrade will be preceded by a comprehensive needs review, and will conclude with installed and tested infrastructure support.

With the vast majority of the university’s buildings on par with telecommunication standards, the completion of these upgrades require the last infrastructure (fiber) cabling upgrade between buildings. This part of the request will augment the university’s existing cabling, thus providing fault-tolerance and affording the institution to meet its service level agreements and sustain a significant impact to its core routed infrastructure. The following fiber runs will be required to accomplish the aforementioned:

- Pearce Hall to the Computing/Engineering Building
- Isle Hall to Huston Hall
- Pence Union Building to Science
- JFK Library to Pence Union Building
- Communications to Computing/Engineering Building
- Communications to Physical Education Classroom
- Martin Hall to Computing/Engineering Building
- Showalter Hall to Huston Hall

Requested: $308,000 in FY10 and $309,000 in FY11 to provide network support to all students, faculty and staff

Outcome: All major campus facilities will have data accessible at high data speeds.

3. **Wireless Systems and Services** -- $276,000

Eastern has historically sought funding from the student body (ASEWU) as a means to implement wireless services with the exception of the associated infrastructure. The need for wireless network services and availability, while perceived to be driven solely by the students has resulted in wireless access
services primarily, but in limited academic areas. Consequently, services generally available in common public and academic areas are not wide-spread and highly available throughout the university’s campus. Eastern proposes to add and augment wireless network access to not only facilities lacking such services, but common and public areas where student, faculty, and even staff could utilize a wireless, but yet very accessible suite of networked services. EWU has identified the remaining areas (the athletic complexes, three major academic building, two student buildings, and three administrative buildings, having both student and staff presence, all of which provide direct and indirect networked services to the institution.

Requested: $138,000 in FY10 and $138,000 in FY11 to provide wireless access to academic and research systems

**Outcome:** Eastern will provide enhanced wireless access to critical academic and research systems through a robust and secure wireless data network.

4. **Unified Messaging – $378,000**

Eastern proposes to add voicemail to the e-mail system structure. Unified messaging merges the voicemail and e-mail environments so that subscribers can effectively utilize an array of communication mediums, saving and forwarding voicemail in the same manner e-mail is handled. Effectively, the staff will be managing electronic communications in a single environment, thus promoting efficiency and collaboration both in and out of the office. In essence, the systems will provide the university with a tool to facilitate a more effective and dynamic workforce, thus promoting research and the academic mission. The current system utilizes the Cisco Unity Voice Messaging platform(s). In effect, while voicemail and e-mail become and are treated the same, the systems also become a single computing unit.

The proposed system will integrate seamlessly into the university’s recently implemented electronic communication system. The proposal consists primarily of licensing and consulting services for implementation, as such resources and skill to not currently exist on staff. The proposal will consider both core systems, e-mail and voicemail and determine which solution will be the most cost-effective and fiscally responsible. A full-time regular ITS 4 support position is included in this request.

Requested: $283,000 in FY10 and $95,000 in FY11 to provide a unified messaging system
Outcome: Faculty and staff efficiency will increase through the use of a consistent technology system for accessing voicemail and e-mail.

5. **Telephone System Upgrades -- $253,000**

Funding will complete the campus telephone system upgrade project that was started in FY08. During the past year, the university upgraded the telephone system across the majority of campus, replacing an antiquated analog telephone system with a new digital telephone infrastructure. A full-time regular ITS 3 support position is included in this request.

Historically, telecommunication systems and services provided to the university have been funded through a process of recharges to the customer. As a result, the systems upgrade is long overdue and cannot be sustained without implementing a more aggressive re-charge structure, thus over-burdening academic, administrative, and other critical university programs. To complete the project on schedule, the following buildings still require an upgrade:

- Student Pence Union Building
- The Athletics Complex
- Tawanka
- Cadet Hall
- Monroe Hall
- LA Hall
- Cheney Hall
- Patterson Hall

Requested: $180,000 in FY10 and $73,000 in FY11 to upgrade the campus telephone system

Outcome: The entire university community will use an enhanced digital telecommunications technology.

6. **Server Replacement -- $459,000**

Standard practice when purchasing university computing systems, is to procure the systems with a five year maintenance program. At the end of this period, the systems are replaced. The decision to replace on a five- year cycle ensures core applications, services, and systems operate on reliable and warranted hardware. Moreover, as the systems near the end of the 5-year depreciation cycle, maintenance costs increase, and often as a result, so does down-time.
project funds the replacement for those production systems that will be going off maintenance each of the below identified years.

The university owns approximately 125 servers, which provide core services such as voicemail, e-mail, authentication, back-ups, disaster recovery, domain name services, international student reporting, etc. While the number of servers has increased on average 25% each year, the university also recognizes the need to both conciliate and/or co-located like systems through methods of virtualization and the like. Such an initiative will demonstrate an effort to conserve energy, maintenance costs, and infrastructure requirements, generally lent to a legacy “server farm” approach.

Requested: $255,000 in FY10 and $204,000 in FY11 to maintain critical computer systems

**Outcome:** Eastern’s file server hardware will be systematically upgraded to prevent critical application failure.

7. Administrative System Hardware Replacement -- $612,000

Eastern’s main administrative system is Banner, and the functionality of the system is critical for all university units. The university’s student, financial aid, and finance information currently reside on this system.

The Banner system hardware was originally purchased and implemented (to support the Banner Student and Financial Aid Modules implementation) in 2004. Capital funds were set aside to support this purchase. Enhancements to these systems (also funded through capital funds) were made to support the Banner Finance module implementation in 2006. The Banner Human Resources module implementation is underway, due to go live in January 2009. With minor enhancements funded by the Office of Information Technology, the current system capacity is sufficient to support the implementation of this final module.

Standard usable lifetime for this equipment is usually 4 – 6 years. This hardware is quickly approaching the end of its useful life and must be replaced to ensure continued system functionality and data integrity. This initiative provides the necessary planned investment for this system replacement. The proposed solution only accounts for a full replacement and does not represent a significant change in capacity. Funds for ongoing maintenance and support of the current systems were established early in the project, but funds for replacement have not been set aside at this point in time.
This acquisition will include necessary server hardware, and vendor implementation support. Although this initiative will not take place until funding is identified, it is expected that the institution will stay with the current hardware vendors (IBM and Dell) though this replacement.

Many higher education institutions nation-wide, including institutions within the state, utilize these technologies. It is the intent to follow appropriate State purchasing regulations and guidelines in the competition, selection, and purchase of these systems,

Requested: $612,000 in FY10 to purchase new hardware for Banner

**Outcome:** Eastern will have reliable and secure Banner administrative system functionality providing integrity to major student, financial aid, finance, and payroll functions.

8. **Enterprise Public Key Infrastructure (PKI) — $995,000**

The need for improved cyber security is becoming more apparent, as new technologies are introduced to the university. Networks and systems, especially those in higher education are a constant target for hacker attacks, viruses, and spam. Higher education networks tend to be “open”, which leaves the network vulnerable and exposed to attackers. Public Key Infrastructure (PKI) is a mature and developed infrastructure security solution, which promotes safe and secure file sharing, communication, and collaboration. Moreover, PKI allows for securely controlled intellectual property, research, and other academic and business materials.

Funding will provide asymmetric key encryption following industry security practices. Authentication will be the baseline for access to university systems, preventing passwords alone as being the barrier to accessing systems and information. Digital signatures will replace the need for hard copy documents and fulfill the intent regulatory requirements. Email will be equipped with secure transmission and unaltered communication. Web authentication and encryption will enhance the ever growing university web environment, creating the secure reliant infrastructure such applications, research and other academic programs might require.

Eastern currently does not possess a mechanism or technology readily available to the enterprise in effort to digitally identify users, digitally sign or manage documents, in a secure manner, transmit information outside
of organizational boundaries, and/or seamlessly and securely communicate and transmit “not-for-public” data amongst state institutions.

This project will be preceded by a comprehensive study, to include a needs review as it pertains to academia, regulatory requirements, FERPA, and other presiding governance. Additionally, the project will conclude with installed and tested infrastructure support, meeting the needs of the university programs to protect data, all the while facilitating efficiency, security and productivity.

Most importantly, it is Eastern’s intent to partner with the State’s Information Services Board (ISB) and the Department of Information Services to ensure compliance with IT Investment Standards and practices, as it pertains to implementing and investing in a public key infrastructure.

Requested: $615,000 in FY10 and $380,000 in FY11 to purchase and install enterprise public key infrastructure.

**Outcome:** Eastern will provide instructional opportunities and conduct business using high level industry standard security practices. Eastern’s will have reduced risk exposure related to occurrences of serious electronic breaches of security.

9. **Electronic Storage Enhancement** – $305,000

Electronic storage needs continue to grow, along with the need to provide backup and faculty/staff public and private network storage. Eastern proposes to provide an increased and available disk-based storage system, as well as backup to support digital content management, staff and faculty network storage. Additionally, the storage solution will accommodate the growth in the Banner system usage (data storage, reporting, moving old system data to archiving), as well as document imaging.

On average, the institution’s raw data growth rate increases annually by 35%. This growth pattern can be contributed to the increased need for electronic and data retention, multimedia storage requirements, as well as data types and sizes. As a result, faculty and staff are utilizing personal storage devices such as portable drives and other removable media. Additionally, individual, departmental, and college storage needs are being met by utilizing client workstation and laptop capabilities. This practice cannot only lead to loss of
unrecoverable data, but also places the burden of data retention management on each individual end-user, which is difficult to mandate or enforce.

Lastly, this proposal will satisfy the requirement of data retention through the use of backup systems and methodologies, meet the institutional needs for disaster recovery, and business continuity. Increase storage capacity will enable the institution to store necessary data utilizing a centralized service, thus leveraging a standard of mechanisms to manage retention policies, further protect sensitive data, and in some cases, prevent the inadvertent loss of portable storage devices housing such data.

Requested: $305,000 in FY10 to purchase and install electronic storage

**Outcome:** Eastern will provide necessary electronic central storage to meet the increasing needs of the campus community.

10. **Document Imaging Archival, Management, and Collaboration Tools – $771,000**

Eastern has a need for a comprehensive business automation system to manage and share university documents via workflow to provide greater insight and more effective collaboration throughout the institution. Most documents currently reside in non-centralized file directories, and students, faculty, and staff rely on traditional methods such as email and file level access to collaborate. This proposal would allow increased coordination via workflow, managed compliance with document retention requirements, and improved collaboration.

Funding will provide centralized document management, document and forms workflow, and collaboration, served via the web. Regulatory requirements will be met by establishing storage, security, and settings policies, dynamic enough to support changing governance, and reduce litigation risk through effective and managed document control. A full-time regular ITS 4 support position is included in this request.

The implementation of this system will greatly enhance the efficiency and timeliness of many institutional business processes. This solution may be utilized to offset storage of hardcopy originals of documents, but will provide an opportunity for departments to store original documentation off-site, allowing for better utilization of space.

Although there is not an industry standard for these systems, it is expected that the successful vendor will have experience with integration of the Banner Administrative system.
This acquisition will include necessary application, server hardware, end user equipment (scanners, software licensing, etc.), training, and vendor implementation support. Although a final determination as to vendors has not yet taken place, examples of vendors in this market include Nolij.

Many higher education institutions nation-wide, including institutions within the state, utilize these technologies. It is the intent to follow appropriate State purchasing regulations and guidelines in the competition, selection, and purchase of these systems.

Requested: $437,000 in FY10 and $334,000 in FY11 to purchase and install enterprise public key infrastructure.

**Outcome:** Eastern will experience increased efficiency related to digital access to all central university documents.

11. **Web Portal -- $465,000**

Eastern, along with higher education institutions nationwide, is striving to increase student enrollment. As a result, many higher education institutions offer enhanced web portal access for students, faculty, and staff. Web portals allow all university constituents (including students, staff, faculty, parents and guests) access to systems respective to their needs. The proposed system is personalized and provides power search tools, self-managed information, integration with university learning tools and applications, and other services such as secure online communication with students, faculty, and parents. A full-time regular ITS 4 support position is included in this request.

The web portal system will provide students, faculty, staff, parents, guests, and alumni with enhanced services such as personal information updates, payments, donations, announcements of general university business, email accounts, wireless access, secure communication.

Commercial businesses have been utilizing this technology for many years now. Current and prospective students expect this type of functionality to be available when attending college.

Requested: $234,000 in FY10 and $231,000 in FY11 to purchase and install a web portal.
Outcome: Eastern’s customizable web portal, “myEWU”, will be offered to all university affiliates.

12. Help Desk System -- $550,000

Eastern has a significant need for comprehensive service and support for information technology systems. This proposal would enhance the service and support of information systems by providing comprehensive help desk service with additional staff support. Users could access the help desk system by telephone or the web (e-mail and live chat) and in some cases, resolve issues through the use of a self-service and knowledge base tool.

The Office of Information Technology is charged with supporting over 1,800 faculty and staff, as well as over 11,000 students at any given time. Over the past three years, on average Eastern’s technology support teams have responded to 1200+ support calls for faculty and staff, averaging 440 calls for support per month. Moreover, trends are indicating the need for support increases at both the start of academic quarters and during major system implementations. This support is not only required at peak times, but also during the life cycle of the product and during any major system, university, or program-level changes. Three full-time regular ITS 3 support positions are included in this request.

The largest university systems, Blackboard (On-Line Learning), Banner, (Student and Financial Information Systems), and OpenLDAP (authentication), serve a sum of 12,500 end-users, which consists of student, faculty, and staff. With the myriad of other institutional systems, a comprehensive support helpdesk application will assist in support the support needs for all faculty, student, and staff. Core criteria for this system will allow the support team(s) to identify criticality, level of support skill required, a comprehensive knowledge base for self-service, and a mechanism for identifying support trends and even potential or up and coming issues. In addition to applications, the increased presence of information technology in the organization, to include enhance classroom equipment, personal computing systems, and media driven devices have significantly increase the need for skills, support tools, and even custom developed knowledge bases.

Requested: $321,000 in FY10 and $229,000 in FY11 to implement an integrated information technology help desk
Outcome: Eastern’s integrated help desk system with institutional telephone and network systems will provide centralized access to support information technology systems on campus.