

Request for Proposal
For
An Audit and Analysis of the IT Environment at CSU

Issued by the Internal Auditing Department

Colorado State University

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RFP Outline

I. Purpose of this RFP 1

II. About CSU 1

III. IT at CSU 1

IV. Central IT Environment at CSU 2

V. Decentralized IT Environment at CSU 4

VI. Scope of Audit and Analysis 5

VII. Confidentiality 6

VIII. Deliverables 6

IX. Tentative Schedule of Activities for this RFP 7

X. Responses to this RFP 7

I. Purpose of this RFP

This Request for Proposal (RFP) is issued to solicit responses from vendors who would conduct an audit and analysis of the IT environment at Colorado State University that consists of central and distributed components. Specifically, CSU is considering consolidating IT functions that would result in cost savings and provision of better services, and is seeking a consultant experienced in these areas – particularly as they apply to institutions of higher education – to conduct an on-site audit and succeeding analysis of IT systems, services, staffing, and support models to determine potential cost savings and benefits through effective consolidation.

II. About CSU

Colorado State University is a land-grant institution and a Carnegie Research University (Very High Research Activity). CSU was founded in 1870, and currently has about 25,500 students about 4,000 of whom are at the graduate level, 1,500 faculty, and 4,400 staff. Colorado State University offers more than 150 programs of study, distributed over 60 academic departments in eight colleges, and has over 100 supporting administrative departments. CSU has an annual budget of about \$850 million, and conducts about \$310 million annually in supported research and scholarship.

III. IT Environment at CSU

At CSU, IT is a strategic imperative to provide competitive environments in a variety of respects, encompassing academics, operations, and research. College staff manage and service approximately 4,800 faculty/staff and 20,000 student accounts on 6,900 faculty and 2,300 desktop computers using servers distributed across the network within the colleges. Seven of the eight academic colleges offer centralized storage ranging from 6 to 80 terabytes available in each system. Faculty in several colleges still have storage needs for very large files. Researchers in the colleges have worked together to create collaborative research computing space such as the bio-informatics cluster. Researchers still have need for more computing power and network infrastructure to support the distributed environment. The College of Business provides a very progressive all-Microsoft environment that is important to maintain their excellent academic program. The College of Engineering has pursued a strong partnership with Sun, acquired funding from student fees to deploy thin clients throughout campus at significant savings over the cost of standard PC deployment. The Veterinary Teaching Hospital on the south campus employs advanced technology in a variety of ways to support its operation and management. Advanced technology is also critical to the effective operation of the shared Infectious Disease Research Center on the Foothills Campus. IT plays an important role in submitting leading-edge research proposals that are competitive with other submissions. In any reorganization of IT, it is critical that IT remain sufficiently progressive and advanced to meet these types of unique or special needs.

IV. Central IT Environment at CSU

Central IT at CSU consists of three departments: administrative computing (Information Systems, IS), academic computing (Academic Computing and Networking Services, ACNS), and Institutional Research (IR). The scope of this effort does not encompass the Institutional Research department, and only minimally involves services provided by the IS department. The primary emphasis of the audit and analysis encompasses the services provided by the ACNS department which are significantly duplicated in some units at CSU. For context, the services offered by IS and ACNS are described below:

Information Systems (IS) – The IS department operates, supports and manages central administrative computing for CSU, including SunGard’s Banner Student Information System; Oracle’s Human Resources System; the Kuali Financial System; all back-end central Oracle databases; SunGard’s Operational Data Store (data warehouse); Oracle’s Discoverer (business intelligence); the sources of record and data feeds to the eThORITY business intelligence application; the database, server and application for the FAMIS Facilities Management system; and the Kuali Coeus Research Management System (in the process of being implemented). The IS department is responsible for production runs on all of these systems, and also provides user support for these services. IS employs about 50 FTE with an annual budget of \$4.2million.

Academic Computing and Networking Services (ACNS) – The ACNS department is responsible for domain name service (DNS), the campus backbone network, the wide area network, the campus wireless network, central IT security, support of the general assignment classrooms (central classrooms) including instructional technology (computer projectors, document cameras, clickers, CCTV, etc.), central Windows and Unix IT services, middleware (Identity and Access Management), central web page and SQL database development, operations and support of the central Learning Management System, central licensing through the computer sales store RAMtech, and coordinating the IT environment including practice and policy. Central services for each area encompasses:

Unix – The Unix support group consists of 6 FTEs who are responsible for Unix name services, Unix email, border email (send and receive), anti-spam, anti-virus and anti-phishing services, operating the Blackboard CE8 Learning Management System, message broker systems, LDAP services, emergency email services, web servers (not web services),

Windows – The Windows support group consist of 8 FTEs who are responsible for the colostate.edu central Windows domain, central Exchange services including email, calendaring, unified messaging, Active Directory, Microsoft SQL database services, active web page services (.NET and Cold Fusion, but Cold Fusion is deprecated and being phased out), cost-recovery server and desktop support services, and coordinating Windows activities with the campus.

IT Security – The IT security environment consists of 2 FTEs who are responsible for a wide array of services, including securing the central IT environment, firewalls, intrusion detection, anti-spyware, anti-virus expertise, intrusion detection systems, scanning systems and networks for vulnerabilities, testing for database injection vulnerabilities, coordinating our IT security environment with the IT staffs in the colleges, and PCIDSS compliance.

Networking – The network group consists of 4 FTEs and is responsible for the internet access for CSU, the wide area network connection that is operated for CSU and for public sector members of the community (the Fort Collins Community Network hub), routing, IP address allocation, DHCP (in some areas), the border router and security implemented thereon, the SSL gateway, the campus backbone network, some responsibility for local area networks, network level security, the general assignment classroom local area network, the campus wireless network, network designs (cabling, switches, connections, VLANs, etc.) for new and refurbished buildings, monitoring and alerting services, and for advanced network applications including internet videoconferencing.

Middleware – The Middleware group operates the central middleware infrastructure including populating, implementing, operating, maintaining and sustaining feeds from all services for active directory, shibboleth, management of central identities (eID) including login and password services, developing and supporting active campus web pages, maintaining ACNS' web pages, custom integrations of local services with third party providers (Google, iTunes, RAVE, etc.) and pulling appropriate populations for purposes of communications and related activities.

Classroom Support Services – Classroom Support Services consisting of 8 FTEs is a unit within ACNS responsible for supporting the 146 general assignment classes, in all manners except physical repair and renovation that is the responsibility of the Facilities Management department. This group installs and supports instructional technology in these classrooms, operates the closed-circuit TV system to these classrooms including the head end, programming delivery from the head end, and distribution, and operates the campus cable network including the head end downlink, the video distribution system and the programming.

Telecommunications – The department of Telecommunications also reports to ACNS, and is responsible for operating, managing, and maintaining all aspects of campus telephony services including campus voice mail (PSTN connectivity, directory numbers, directory services, PSALI, E911, and operator services), communications infrastructure (copper and fiber cabling, termination, and the campus standards associated therewith) including design, installation, operations and repair, and GIS and drawings associated therewith. ACNS is experimenting with the sipXecs IP-based communications infrastructure, and it is very likely that this technology will be adopted as a campus

Each group within ACNS is responsible for business continuity planning, disaster recovery planning, establishing and maintaining appropriate levels of redundancy, change management, securing their own environments, tier-2 and tier-3 support in their own areas, and responding to requests for information including open records requests, subpoenas and the like.

It is important to note that the ACNS department is in transition, and will become a department under and within CSU Libraries effective July 1, 2010. This is being done to elevate the Library's IT to a level of support and quality consistent with central IT infrastructure. The IT functions and IT staffing of CSU Libraries are in the process of being consolidated within ACNS. Indeed, in July 2009, the IT help desk function was consolidated with CSU Libraries as a budget saving strategy. This has already provided great benefit in terms of many more customers served as compared to previous years.

ACNS has about 40 FTE employees, and has a budget of \$2.85 million annually, plus an additional \$1.4 million per year collected on a cost recovery basis as a pass through to fund internet connectivity, and plus an additional \$311K per year for desktop/server support collected on a cost recovery basis from units that subscribe to these services. In addition, an on-campus technology store, RAMtech, is operated under the auspices of ACNS on a cost recovery basis. RAMtech maintains some software licenses for the campus, and the colleges and other units at times independently purchase licenses as well.

V. Decentralized IT Environment at CSU

In the early 1980's, IT was intentionally distributed (decentralized) through base (annual recurring) funding of \$1 million distributed to the academic colleges, with the understanding that henceforward they would be on their own to fund and support IT beyond the core services provided centrally. Since then, the colleges' IT environments have grown in different ways to meet the needs particular to each college, consistent with the resources made available from each college to support IT. Further, a large number of decentralized administrative (non-college) IT groups have been established to meet the needs of many of the administrative units on campus.

Dedicated IT staff in each college is 2.5, 5, 5.3, 8, 4.5, 10.5, 6.5, and 33 FTE, for eight colleges respectively. The colleges provide a wide variety of services to their respective faculty, staff, and students, many of which have also been offered by ACNS to meet the needs of units that may not have their own IT staffs. IT services provided internally in the colleges includes, but is not limited to:

Server infrastructure – Each college provides a differing degree of server infrastructure running a variety of platforms and offering a wide variety of services, including, but not limited to, email, Active Directory domain services, file storage, backups, disaster recovery systems, web services, DHCP, terminal services, online collaboration tools, file retention and document management systems, compute clusters, software licensing,

and database hosting. Needs are assessed internally by each individual college. Each college provides its own facilities to house servers and associated IT hardware. Several colleges have also invested in the necessary hardware and software to virtualize varying extents of their server environments. The virtualization solutions vary based upon the individual needs of the colleges.

IT Security – Each college bears responsibility for the security of its own IT environment and provides the infrastructure necessary to support that security, including firewalls, intrusion detection, anti-virus and anti-spyware applications and servers, vulnerability scanning, video surveillance cameras and others.

Networking – The colleges each manage their respective networks differently, but most purchase, manage, and support all building- and edge-level electronics, manage DHCP and IP address allocation in their buildings, and manage general network access.

Classroom support – The colleges are responsible for the management of any instructional technology in all non-general assignment classrooms (also known as departmental classrooms). There are approximately 250 of these types of classrooms spread around campus. Many units also have teaching labs with PC's, printers, smartboards and specialty software.

Further, colleges support applications and services in response to unique needs of their colleges. For example, support for research projects that require specialized IT (e.g. DNA sequencing, solid modeling applications, spatial databases), specialized printing (e.g. on cloth for the design and merchandising department), custom-built web and desktop applications for specific faculty, staff, and student needs, and environments to support instruction which also includes video conferencing capabilities. Communication among the college IT staffs has been formalized through the College IT Advisory Council, and is excellent. Additionally, the leadership in each college meets monthly in the College IT Advisory Council to discuss pressing issues.

Each college, in addition to the intra-university open option (undeclared majors), has instituted a Charges for Technology program that funds technology specifically for student use in the college. The Charges for Technology program collects a fee from enrolled students, ranging from about \$150 per semester to about \$40 per semester, with the mode and mean close to \$100 per semester. The total amount collected is about \$3.5 million per year and in general, supports computing hardware and software requirements in college labs. These labs are managed by full time IT staff in each college. All Charges for Technology collected by each college stays within the college, and in accordance with the Charges for Technology policy, each college has a technology committee comprised primarily of students who approve all Charges for Technology expenses. Students have raised as an issue the lack of printing and file storage support across colleges, with no uniform policy

concerning whether students in other colleges can print in non-home college labs. Students and staff have begun to address this issue in their separate Technology Fee meetings.

It should also be noted that there are a large number of IT groups in administrative departments and divisions around campus that aren't directly associated with ACNS. Much like the academic colleges, they provide differing levels of IT services to their constituents based upon their own specific departmental needs. IT groups, totaling dozens of IT FTE personnel, have been established in the following administrative departments and divisions, and in others not listed here:

- University Advancement
- Division of Continuing Education
- Division of Enrollment and Access, including
 - Admissions
 - Student Financial Services
 - Registrar's Office
- Division of University Operations, including
 - Facilities
 - Human Resources
 - Business and Financial Services
- Division of Public Affairs, including
 - Web Communications
- Student Affairs, including
 - Center for Advising and Student Achievement
 - Career Center
 - Academic Advancement Center
 - Student Affairs Technology
 - Lory Student Center
 - Housing and Dining Services
- Vice President for Research
- CSU Extension
- CSU Graduate School

Desktop technology between the colleges and administrative units varies around three basic operating systems and their associated hardware and software. Some units are exclusively Microsoft based, while others have a high proportion of Macintosh or Linux systems. The user and desktop support models within all but one college have their own well organized, dedicated help desk that respond to email, web or phone requests for assistance. When it is determined that the request is a central IT issue and cannot be resolved locally, college/departmental help desks pass the request over to the university help desk at the library. This understanding is reciprocated. Sometimes, the hand off between the college/departmental IT help desk and the central IT help desk is ambiguous. Users can be confused about identity and access management. Multiple logins and passwords have had to be created under the existing domain structure to provide services at the college or departmental level. As a result there is confusion as to which password has been changed

as a result of a mandatory password refresh action, etc., and these problems can be difficult to sort out due to lack of knowledge by the central IT help desk.

VI. Scope of Audit and Analysis

An on-site audit followed by an off-site analysis of the IT environment at CSU is the subject of this RFP. The audit shall encompass the entire IT environment, with most emphasis on components of the IT environment that may benefit from consolidation, i.e. it is expected that the majority of time and effort will be in the distributed IT environment. CSU intends to employ a telephone conference call with the winning bidder to narrow down the scope of the on-site audit to the most promising components, to be identified by the bidder.

Following the telephone conference call, CSU will conduct discovery prior to the visit for the audit of components of the IT environment as may be mutually agreed upon. This may include surveys, capturing data from the network, etc. CSU shall also assist in scheduling interviews, tours, etc. during the audit.

An effort encompassing between 150 and 200 person hours of audit and analysis is anticipated, with between 60 and 80 person hours anticipated on site.

VII. Confidentiality

Due to the sensitive nature of CSU's IT environment, and delicate staffing issues, the vendor conducting the audit and analysis must agree to maintain the utmost confidentiality of all information collected and crafted during and for the process, and afterwards.

VIII. Deliverables

The deliverables shall include a written electronic report and a verbal delivery of findings from the audit and analysis. The verbal delivery may be either by telephone, video conferencing, or face-to-face.

Specifically, the following topics shall be addressed both in the written report and at the verbal briefing:

- a. Audit of IT management controls and IT components: server rooms, systems, authentication and authorization, software applications, programming, services, user and systems support, licensing, and staffing for both central and distributed IT environments
- b. An analysis of duplication that may be reduced and/or eliminated through consolidation of the components, recommendations for consolidation, and an estimated range of cost savings that may result from such consolidation. As an aside, CSU's central Procurement and Contracting Services has already commissioned an analysis of savings that could result from consolidated purchase of IT hardware, and these results will be communicated to the winning bidder prior to the audit such that no effort is to be expended on this topic other than incorporating these results.

- c. A discussion of components that are candidates for consolidation under a single administrative structure, but for which staff should remain local (e.g. desktop support).
- d. A discussion of components that should not be consolidated under a single administrative structure.
- e. An analysis of benefits to the campus (e.g. improved manageability, appropriate oversight of system effectiveness and efficiency) inherent in such consolidation.
- f. Analysis of benefits to users (e.g. reduced complexity, fewer user credentials to manage, better support, etc.) inherent in such consolidation.
- g. An analysis of improvements in management controls, access controls, IT security and privacy, management and mitigation of risk, etc. inherent in such consolidation.
- h. An analysis of potential detriments to campus (e.g. decrease in responsiveness and accountability).
- i. Analysis of potential detriments to users inherent in a consolidation (i.e. decreased flexibility, grass roots activities that lead to innovation, etc.).
- j. Recommendations on best practices and strategies for effecting such a consolidation.

IX. Tentative Schedule of Activities for this RFP

A tentative schedule of activities for this RFP follows:

Release RFP on State BIDS System	April 15, 2010
Accept written questions until	May 5, 2010
RFP responses due	May 30, 2010
Selection of winning bidder by	June 15, 2010
Telephone conference call by	June 25, 2010
Pre-visit work to be completed by	July 15, 2010
On-site audit to be completed by	August 31, 2010
Produce final report and verbal debriefing by	October 15, 2010

This schedule of activities is subject to change by mutual agreement. All activities shall be arranged so as to avoid involvement of campus personnel around the start of the school year, from mid August through mid September.

X. Responses to this RFP

Those wishing to respond to this RFP shall submit a bid as follows:

- 1. A description of the audit team, including experience conducting such or similar audits, with particular emphasis on audits done in higher education environments.

2. Information that would be beneficial to the bidder for CSU to provide prior to the on-site audit. This will be a precursor to the telephone conference call, and the winning bidder will work with the University to define information practicable to collect.
3. An estimate of the number of person hours anticipated during the precursor teleconference, and the number of personnel involved in the debriefing.
4. An estimate of the number of person hours to be spent on site by the audit team, and the proposed tasks/reviews to be conducted during the audit.
5. An estimate of the number of person hours to be spent post audit, off site for the analysis, and the number of personnel involved in the analysis.
6. An estimate of the number of person hours spent during the on-site or teleconference debriefing, and the number of personnel involved in the debriefing.
7. An hourly rate in \$/hour and an itemized list of the total costs for the audit and analysis.
8. A discussion of your company's experiences in conducting these types of audits and analyses, including an overview of the results of the audit and analysis encompassing components recommended for consolidation, projected annual cost savings, any follow up to determine the magnitude of cost savings actually realized, and benefits realized through consolidation.
9. References from two or three higher education sites where similar audits have been conducted. If possible, copies reports and/or synopses from those audits where sensitive information may be redacted from the report.