Executive Summary

The What and Why of CU-Boulder’s IT Strategic Planning

The IT Strategic Planning process examines plans and priorities for the use and support of information technology in support of the mission of the University of Colorado at Boulder. Like its predecessor, the campus’s 2002 IT Strategic Plan combines high level strategic planning with some degree of tactical planning. The campus has undertaken this strategic planning process for several reasons:

- To establish plans and priorities for the use of IT on campus.
- To create greater cross-campus understanding of and involvement in IT issues.
- To fulfill requirements established by the Colorado Commission on Higher Education.

The campus last engaged in an IT strategic planning process in 1998. The resulting plan led directly to action and significant changes to the campus’s IT environment, including the establishment of:

- A four-tier model for campus IT support and the Distributed Academic and Campus Technology Coordinators (DACTCs);
- The Faculty Computer Purchase Program and a student computer recommendation;
- The Network Task Force and the ResNet project;
- The position of CIO (Chief Information Officer, as part of the Associate Vice Chancellor for Academic and Campus Technology position) and of the IT Council.

Since that time, the campus’s IT infrastructure has matured greatly, and the campus’s needs have also changed, which is reflected in the two plans:

| 1998: emphasis on IT resources and infrastructure |
| 2002: emphasis on academic and administrative IT services |

Recommendations of the 2002 IT Strategic Plan

The ITSP process is notable for considerable information gathering, including interviews, focus groups, and surveys of a wide range of faculty, staff, students, and campus leaders; and for work completed by 25 committees composed of over 100 IT staff, faculty, and other campus representatives. This process has defined the focal points of the plan:

- Developing and enhancing programs and support for educational technology, including hardware, software and staff support, technology-enhanced facilities, and information and information technology literacy programs for students;
- Improving and greatly expanding web-based student services;
- Maintaining and further developing the middleware layer of the campus’s infrastructure, including security, access and authorization, and directory services;
- Improving coordination, communication, and governance of campus IT resources.

Of the specific recommendations presented in the plan, several were deemed to be of highest priority. They are listed here in unranked order.
Educational Technology

• Establish a well-communicated and coordinated educational technology support model for instructional design and advanced technological and pedagogical innovation, as well as for course content and course management and organization.
• Establish campus-wide goals and programs for information and information technology (I/IT) literacy for students, and facilitate the creation of goals for discipline-specific I/IT fluency.
• Provide coordinated and broad support and services for digital media and videoconferencing as well as develop a digital asset management strategy for storing and accessing campus-generated research and learning materials.
• Develop an effective scheduling process for, improve support to, and upgrade existing technology-enhanced instructional facilities.
• Develop a robust, unified, and supportable web-based learning management system infrastructure capable of supporting every course at CU-Boulder.

Web-based Student Services

• Provide excellent, unified web-based student services that are tailored to individuals based on their affiliation with CU-Boulder, in short, a campus student portal.

Support and Services

• Continue to develop the Enterprise Directory and Directory Services, and create the underlying campus-wide IT service provisioning infrastructure to address account maintenance processes, naming protocols, identity, authentication and authorization.
• Address IT security issues, including network and data integrity and reliability, and proactive IT security management.
• Provide enhanced and new email services to all faculty, staff, and students.

Coordination and Communication

• Centrally coordinate specific aspects of IT to achieve efficiency and decrease duplication (e.g., wireless, security); centrally manage other aspects to achieve reliability and stability of the campus IT infrastructure (e.g., Enterprise Directory, software licensing); continue to distribute responsibility for some departmental-specific IT services (e.g., desktop support, departmental-specific applications).
• Communicate IT resources availability, policies and guidelines, and the roles and responsibilities of the Office of the Associate Vice Chancellor for Academic and Campus Technology and of IT advisory bodies to the entire campus.

Governance Structures

• Re-configure the existing IT leadership and advisory body (IT Council) to reflect the complexity of the campus’s IT environment, and the need for increased participation by and communication with a wide array of campus constituents by establishing faculty, administrative, and student advisory committees for IT.

Some other important recommendations include: expanding wireless access on campus, continuing to develop the four-tier IT support model, improving access to assistive technologies, developing a campus-level file systems solution, and providing web-based faculty and staff services.

Evaluating the Impact of the Strategic Plan

An integral element of the implementation of the IT Strategic Plan will be the evaluation of its impact on the campus and its IT infrastructure. The intended impact of each of the recommendations listed above is articulated in the plan’s evaluation section, as are the methods that will be used to assess each of the intended outcomes.

The total cost of all the priorities listed in this executive summary almost certainly will exceed what the campus will be able to invest in new IT initiatives over the upcoming four year period. Therefore, campus discussion will be needed to prioritize the initiatives further. This discussion will necessarily include the consideration of which initiatives are essential to fulfilling the campus mission at an acceptable level of quality, and which could be deferred even though this may entail a reduced, or unimproved, level of service. This campus discussion also will consider multiple funding sources that are possible for these initiatives, including campus general fund support, support from fees, and departmental contributions in cases where services currently provided by departments are
shifted to being provided centrally. The campus may need to realign priorities in the event of mandates—funded or unfunded—from the System, State, or federal government.

Vision

Introduction
The University of Colorado at Boulder’s mission is to lead in the discovery, dissemination, and application of knowledge through instruction, research, and service to the public. CU-Boulder’s computer and network resources support that mission by providing state-of-the-art IT resources, innovative educational technologies, and an array of IT services and support. The CU-Boulder campus has engaged in comprehensive strategic planning processes that are the keystone of the development of the campus’s IT environment. CU-Boulder’s 1998 IT strategic planning process provided the blueprint for building out a solid, accessible IT infrastructure. The hallmark of this current strategic plan is its emphasis on academic and administrative IT services.

2002 IT Strategic Vision
Over the past several years, technology has been developing at ever-increasing rates; concurrently, faculty, student, and staff expectations of the campus’s IT environment, resources, and their support structures have risen, and will continue to do so. Faculty increasingly rely on robust and effective educational technology tools to enhance teaching and research. Students expect mobility, flexibility, and customization in their use of IT for classes, and in their electronic administrative interactions with the university. Staff desire specific, timely, and accurate information to support their work. Even with the improvements to the campus’s IT environment over the past four years, including increased levels of support, faster networks, and greater access to educational technology, campus users expect ever greater performance from the campus’s computing and network resources. CU-Boulder is responding to these varied expectations by articulating an IT vision that focuses on:

- Educational technology use and support; and student information and IT literacy and fluency;
- Providing integrated web-based IT services to faculty, students, and staff;
- Moving IT support closer to end users;
- Improving the coordination of critical elements of the campus’s IT environment; and
- Improving communication about IT resources to the campus community.

Integrating the components of this vision into CU-Boulder’s academic and administrative IT landscapes will help meet growing expectations of faculty, students, and staff, and will contribute to the “Culture of Excellence” called for in CU President Elizabeth Hoffmann’s Vision 2010.

Key Area #1 – Educational Technology
The IT strategic planning process has made it apparent that each school, college, and department has significant educational technology needs and uses, many of which are increasingly discipline-specific, but concurrently reliant on centrally-managed resources. A robust, centrally-managed technology and support infrastructure—well-coordinated with unit-specific support structures—can provide faculty and students with critical IT resources they need, such as:

- Advanced instructional facilities;
- Academic digital content;
- A robust learning management system;
- Comprehensive educational technology support, including desktop and facilities support, production assistance, and instructional design support; and
- High performance research computing.

Additionally, initiatives such as Information and Information Technology (I/IT) literacy for students will provide a foundation for discipline-specific I/IT fluency goals. The campus must facilitate departmental level planning to better meet both unit-specific educational technology needs and I/IT fluency goals.

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1 Educational technology is the use of existing and emerging media and information technologies to enhance teaching, learning, and research.
2 CU-Boulder defines information literacy as a student’s ability to recognize what information is needed independent of its format, to know where to find it, and to be able to evaluate it and then use it critically and creatively. Fluency comprises those more advanced abilities that may be specific to particular disciplines or groups of disciplines or to higher levels of learning.
Key Area #2 - Integrated Web-Based Services
The web is increasingly the virtual space for the campus community to access information and do its work. Students rely on web-based student services and course content, staff use web-based applications to complete a wide range of business and work transactions, and faculty access online information and digital content in support of their teaching, research, and creative work. The campus must provide web-based services that fulfill a wide range of needs and that are technically, administratively, and culturally integrated. The campus must strengthen and strategically expand current web-based services for students, faculty, and staff. In addition to being able to access financial aid and registration services, for example, students should be able to access personal calendaring, online course materials, and other services through a single, interactive website. These services, and corollary web-based services for faculty and staff require collaborative efforts by several units across campus, including ITS, University Communications’ Office of Web Communications, Enrollment Management Services, and many other units that provide student, faculty, and staff services.

Key Area #3 - Effective IT Support and Services
Cross-campus collaboration within a centralized/departmentally-based hybrid IT support model should be a hallmark of the campus’s continued provision of effective IT support. Providing coordinated, targeted support close to the user is the means by which the campus must facilitate effectiveness across areas as diverse as educational technology, facilities, central IT and web-based services, and desktop support. For instance, the campus should continue to develop partnerships between ITS, academic service units, and departmental IT staff to provide faculty with a wide-range of educational technology support—from assistance with course web page design to the creation and management of digital media for teaching and research. In addition to providing effective IT support, the campus should continue to provide excellent central IT services and to expand and enhance those services wherever feasible. The campus must continue to provide a suite of central infrastructure services on which the day-to-day operations of the campus increasingly depends, including, for example, email, security, an enterprise directory, and reliable network and telephony services.

Key Area #4 - Effective Coordination of IT Resources
Technological advances and the increasing criticality of security necessitate cross-campus participation and cooperation to ensure reliability of information and effective provision of both central and departmental services. To ensure that all IT resources—including the network, email systems, telephony, and support—are robust, accessible, and reliable, the campus must provide better coordination of critical services, including security, authentication and authorization, directory services, and educational technology support. The campus must centrally manage some services (such as Enterprise Directory Services, server registration, an incident response system, and software licensing) and coordinate others centrally (such as wireless deployment, antivirus protection, and email filtering). At the same time, the campus must continue to work toward a distributed model of IT support, in which, for example, desktop support is provided locally and tailored to departmental needs, but with the full resources of ITS available centrally.

Key Area #5 - Effective Communication about IT Resources
Effective communication is critical for IT resources to be broadly accessible, used appropriately and to the fullest, and supported effectively. Communication from both ITS and the Office of the Associate Vice Chancellor for Academic and Campus Technology (AVCACT) must be targeted and frequent. A comprehensive communication plan ensures that faculty, staff, and students know what IT resources, services, and support are available to them, and where they can access them; that the campus is aware of the appropriate use of academic and administrative IT resources; and that end-users know and understand pertinent information about policies, guidelines, and processes. Effective communication processes using IT resources as a conduit also ensures that pertinent information about critical incidents reaches all end-users.

Key Area #6 - Effective and Inclusive Leadership for IT
The Office of the Associate Vice Chancellor for Academic and Campus Technology and the IT Council work with ITS and other IT providers on campus to provide strategic direction for campus-wide IT initiatives. The campus must make this strategic leadership more inclusive by establishing a faculty committee for IT and an administrative IT committee, both of which would address both strategic and tactical issues. These two committees and IT Council must establish stronger communication and working ties with other leadership and advisory bodies on campus, including the Boulder Faculty Assembly (BFA), the Student Union (UCSU), the United Government of Graduate Students (UGGS), and Staff Council.
Trends

Introduction

Leading global, higher education, and campus technology trends helped shape the 2002 IT strategic planning processes. These IT trends contributed to discussions regarding the role technology could play in almost every aspect of the CU-Boulder campus, whether in the classroom, residence hall, or research lab.

General technology trends

- **Ubiquitous web presence**—technology increasingly provides access from almost anywhere to the Internet, creating a virtual conduit for the individual to connect to a wide range of information as well as to different communities. Additionally, individuals expect access to high-quality, just-in-time information from expert sources.

- **Rapid connectivity**—high-speed networks, remote access, and wireless increasingly provide seamless access.

- **Increasing freedom with mobile devices**—increasingly, people are choosing portable, small, and wireless devices for their computing needs, which helps them realize unprecedented mobility in information and network access. Additionally, these devices provide more capacity and functionality in a single device.

- **24/7 Service Expectations**—individuals anticipate service and support assistance to be 24 hours a day, seven days a week.

- **Electronic Commerce**—consumers expect the convenience of numerous products and services to be available via secure online purchase and transaction systems.

- **Sophisticated applications**—greater use of more mature, common-platform applications, and easier-to-use multimedia tools, has a great impact on educational technology in areas including course management systems and video editing software.

Specific higher education IT concerns

In 2002, the third annual Educause survey identified current IT issues affecting higher education. Participants of the survey were asked four key questions: 1) What is the most important IT issue to resolve for the institution’s strategic success; 2) What IT issue has the potential to become more significant; 3) What IT issue do IT leaders spend their time on; and 4) What IT issue represents the biggest expenditure of institutional resources?

The top IT concerns of higher education institutions, especially large, public universities, taken across all four questions, include:

- Security management
- Faculty development, support, and training
- Administrative Systems/Enterprise Resource Planning (ERP)
- Online Student Services/Enterprise Portals
- Maintaining network infrastructure
- Distance Education
- IT funding strategies

Specific CU-Boulder Trends

CU-Boulder continues to have an explosive growth in demands on computing and network resources. Specific data, which reinforces this growth, includes:
• PLUS is now used by 99% of CU-Boulder undergraduate students and has the highest use and satisfaction rating of any student service on campus. During the first week in the fall semester of 2002, with approximately 26,000 students, PLUS was accessed over 180,000 times.

• In 1997-98 62% of the incoming freshmen class owned their own computers as compared to 95% in 2001-02. In addition, student-owned computers increasingly are mobile computers; the percentage of laptops among student-owned computers grew from a small percentage in 1998 to 40% in 2001 and now, in 2002, a majority of students prefer and purchase laptops over desktops.

• From 1997 to 2002, Internet traffic on campus has increased four-fold. Additionally, Internet2, which support academic research, has become available for CU-Boulder faculty and researchers.

• In 1997-98 13,500 campus computers were connected to the campus network as compared to 23,000 in 2001-02.

• In 1997-98 very few academic courses had any web-presence. Now, in 2002 virtually all classes do. Also, in 1997-98 a central course management system did not exist. Now, in 2002, over 300 courses, supporting over 15,000 students, utilize the campus’ course management software, WebCT.

• The Libraries are increasingly relying on adding digital materials via a subscription service rather than owning the hardcopy periodical and/or journal.

• In 1997-98 72% of students had CU-Boulder email accounts as compared to 100% in 2001-02.

• In 1997-98 41% of centrally scheduled classrooms had network connectivity as compared to 58% in 2001-02.