Casper College Technology Plan
January 2009

Introduction

The mission of any technology department needs to focus on providing tools to stakeholders of the organization. Because the IT Department is a support arm of the organization, success metrics are a bit harder to quantify. When things in the department are running smoothly they are basically transparent to the rest of the organization. So it could be said that if the HelpDesk or the IT Director's phone numbers are not on speed dial, you are running a successful IT Department.

In looking at a direction for the IT Department for a college two different area must be addressed. The first is similar to the needs of any organization, providing tools for the employees to do their job effectively and efficiently. In doing this one needs to be prudent in integrating newer technology. If adopted too soon, the organization risks compatibility issues with existing internal systems as well as the systems of customers and vendors. Conversely if new technologies are not adopted soon enough the organization runs the risk of needing to do an emergency technology overhaul in order to keep interoperability between its internal systems and those external to the organization.

The second area that needs scrutiny is student needs. As an institution of higher learning, the college needs to not only have the correct technology tools for its faculty and staff, it also needs to have the correct technology resources for its students. It is at this point that technology planning becomes quite challenging. It is important to have current technologies, but it is also important to make sure that the new technologies that you are implementing and teaching are standards that industry is embracing as well. The college must walk a fine line between staying current and becoming a slave to every whim of technology.

Creating a formal technology plan for Casper College has required several different steps. The first was to analyze the state of our technology as it is today. Using the first step as a springboard, the second step was to determine where our technology was deficient compared to today's standards. The third step was to identify technology trends that bear watching. And finally to come up with a systematic approach to bring our technology to the standard of the industry and, remembering that keeping technology current is a process rather than an event, to keep it there.

Where we are

Understanding that it is important for our students to be working on the technology used by industry, Casper College's Department of Information Technology (DoIT) provides both PC and Mac platforms. The Mac labs have the Tiger operating system, with plans to migrate to Leopard over the summer of 2009. We have a single lab that has Windows Vista. All of the other PC labs and the majority of the PCs not in labs are running Windows XP Professional. We have not chosen to migrate to Windows Vista because of the backward compatibility issues both with software and hardware. With newer computers, this roll out becomes more of a possibility; however, based upon the reviews of the new operating system, Windows 7, it is likely that we will wait and go directly from Windows XP Professional to Windows 7.

Three years ago DoIT introduced a four year technology refresh program. We started with the desktop computers, both PC and Mac. One of the goals of the program was to increase usage of laptops by faculty. We are pleased to report that every year since the refresh program began, more faculty are requesting laptop/docking station combinations, rather than a standard desktop computer. Many staff and administrators are also requesting the laptop/docking station combination. This will be the fourth year of the program, and by next summer, with a few specific exceptions, no one will be using a computer that is more than four years old. Costs are kept down by negotiating attractive lease rates and by leasing the computers in bulk. Last year printers were added to the refresh program as well.

During the summer of 2008, in response to dissatisfaction to the existing student email system, the College adopted Google as the platform for student email. This solution offers students email in a form that most are familiar with, as well as the ability to use Google Apps, which includes a word processor, calendar and a myriad of other productivity tools using a web browser to access them. This solution also allows each student storage space and a collaboration area that can be used for group projects.

Casper College has a campus license for Oracle and is using it for several applications, such as Web CT (a learning management system) and Resource 25 (a facilities scheduling software). Oracle is also used as the database for Image Now, a document imaging system by Perceptive Software. ImageNow is being used in the Financial Aid office, and is in the process of being rolled out in Enrollment Services, with the Business Office and Human Resources to follow. The entire roll out should be completed before the summer of 2009.

The current enterprise system is Colleague by Datatel. This system is very powerful, but also very complex. It runs on a single HPUX server using a Uni Data database. All seven community colleges are running on a similar platform. The most recent version of the product, R18 allows for "database independence," meaning that it is

possible at some point in the future to migrate to a more vendor agnostic database such as Microsoft SQL or Oracle. The server we are using is almost 4 years old, and the Wyoming Community College Commission is starting to generate specifications for its replacement. This server replacement will provide the opportunity for the seven colleges to change the underlying database for the Colleague system. Because of our Oracle campus license, and the expertise we have gained in its use, the College will recommend that we migrate to an Oracle database.

What's Lacking

We have a stable Cisco network architecture; however, it is five years old and it is time to begin replacing many of the components. Many of the switches are coming to their end of life, end of support. One example of this is the PIX firewalls we use to provide security for our sensitive data. The PIX firewalls will need to be replaced in the 2009-2010 budget year. We will also need to replace a percentage of the switches. We will be working with Cisco to create a comprehensive replacement/refresh plan (similar to that used for computers and printers) that will be implemented in 2009-2010.

The College's bandwidth now stands at 15 Mbps. We often bump up against that threshold. This connection is also not redundant, meaning that a fibre cut anywhere between Casper and Cheyenne results in an Internet outage. This has happened several times. We are investigating a redundant connection through an alternate provider, Bresnan. This will require a redesign of parts of the network and acquisition of additional network equipment. We plan to add the redundancy to our network in the summer of 2009.

Our telephone system is predominately and analog system running on Category 3 copper. The call routing programming and the voice mail system are also quite antiquated. An RFP was sent out last year for a new phone system. After analyzing the responses and their relative costs, it was decided to wait until we begin building the new buildings that will be added to the campus. The new buildings will be designed with the new phone system in mind and will be rolled out through the existing buildings at that time. The State of Wyoming released an RFP for video and Internet Protocol communications. It will be important that the solution we choose is compatible with the one the State chooses.

Having implemented many new applications, such as Resource 25 and Image Now, our storage needs, both digital and physical, are burgeoning. The physical needs will be addressed by replacing our single with blade servers, which will provide more server power in a smaller space. The digital storage needs will require the purchase and provisioning of a Storage Area Network (SAN). An RFP for a SAN was published, and responses were received. It was decided by upper management that

it would not be funded at that time. In order to provide adequate space for our applications, further growth, and our faculty and staff, this project needs to be funded.

We are in the process of updating our Business Continuity Plan. Notification of all stakeholders in the case of an emergency is extremely important. Technology can play a big part in this endeavor. While Public Address speakers, and visual clues, such as flashing lights can be effective on campus, provision must also be made for stakeholders who are not physically on campus, such as non-traditional students who need to be notified to not come to the college. It is also important to have a disaster recovery plan in case of a catastrophic failure of the server and network systems. We do have some of these pieces in place, such as spare equipment and maintenance contracts; however we do need to implement a comprehensive off site back up plan.

A self-service web portal for students, faculty and staff has been in the works for about a year. Due to staffing constraints, progress on this front has been very minimal. A request for a new position will be included in the 2009-2010 budget request. This request will be for a person with strong Microsoft networking skills, to aid in the implementation of the portal, as well as several other applications being researched by the Student Services area of the college. With the addition of new applications and new programs, our desktop support area is also dealing with severe staffing constraints. A request for a new position in this area will also be included in the 2009-2010 budget request.

Student Response Systems, also known as "clickers" are being used in both the Business Division and in the Health Science Division. While they are each using a different manufacturer, each is using the type of clicker that provides the functionality they need. The Business Division uses a system by CPS. It is a very robust system, allowing for students to take quizzes in class and then being able to see their grades within minutes. The CPS system is rather difficult to use and has a steep learning curve. Health Science uses a system by Turning Point. This system does not have the same type of data gathering capabilities as the CPS system, but is much easier to use. It provides the interaction during class that the Health Science faculty needs. Students seem to like this type of interaction, and it would be beneficial for more faculty members to find a way incorporate this type of technology into their classes. It is Information Technology's role to provide information about these systems, as well as to facilitate training in their use, whether that training is conducted by Casper College employees or trainers sent by the manufacturer.

Finally, the College is in need of some type of reporting tool that easily extracts data from our enterprise system, Colleague by Datatel, and generates useful, user defined reports. All seven of the Wyoming community colleges are looking at this problem and are working with their respective presidents and other stakeholders to define a solution as well as a funding source.

Technology Trends

Web 2.0 technologies are becoming more and more prevalent in higher education. Web 2.0 is a buzz word for interactive web applications. Wiki's are a prime example. A wiki is a web site that is collaboratively written its the users. Blogs are another type of site that is written by its users but rather than being collaborative collection of knowledge and best practices, it is usually personal observations. Both of these types of sites have been used to augment classroom instruction. Casper College is in the process of determining how best to introduce this technology. We are currently working with the Center for Excellence to create a Wiki for faculty best practices.

Many institutions of higher education have a presence in Second Life, which is an interactive virtual world in which the users (known as Residents) build and script their own areas. In some cases, universities have a "Virtual Campus" that allows Residents to come and take a virtual tour of the campus, and interact with Residents representing the school. Information about the application process and the cost of the school is available. Other institutions actually hold classes in Second Life, or use Second Life as a way to augment classroom learning. Second Life is owned and operated by Linden Labs. It requires a monthly subscription fee that is on a sliding scale, depending upon how much virtual land the school owns.

Wonderland is another type of virtual world, but it can be housed on a server owned by the school, and as such there are no recurring subscription fees. However, the interface (the look and feel of the people and the land) is not as clean and lifelike. We have been watching the development of Wonderland with a great deal of interest and are hoping that the next upgrade of the system will have a better interface.

Conclusion

Over the last 3 and a half year the IT department has made great strides. The consolidation of the two disparate departments into one was the first achievement, followed by the institution of technology refresh schemas for computers and printers. We have added many new applications, including Oracle and ImageNow. A great foundation has been laid.

We cannot, however rest on our laurels, and much work remains to be done. Some of the larger single purchases may be financed by grants, but with the importance of Information Technology to higher education, we cannot rely on grants. It is going to be necessary for the culture of the college to shift just a bit, to prioritize funding of IT projects and the maintenance of those projects in the annual budget.