Pfau Library Technology Plan 2012-2014

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Pfau Library
Technology Plan
2012-2014

Prepared by:
Jonathan M. Smith
Head of Library Information Technology
CSU, San Bernardino

Updated: May 10, 2012
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Executive Summary

This technology plan is essentially a two-year plan that focuses on modernizing current technology in Pfau Library and laying the groundwork for future projects that will transform the library into a leader amongst peer institutions. Significant strides have been made recently to address many of the critical issues facing the library. The library website was redesigned, servers were relocated to the IRT server room, and a number of computers have been purchased to refresh public computers labs and offer new services. The continuation of these efforts to modernize is essential to building a solid foundation from which Pfau Library can launch digital initiatives to become a “future oriented” library which can effectively serve as “the catalyst for research and knowledge attainment at CSUSB.”

The process for creating this plan involved documenting the current technology environment, gathering stakeholder feedback via a student focus group, gathering feedback from librarians and library staff, and conducting an assessment of the current technology environment. Through assessing the library technology environment and evaluating feedback we were able to identify critical areas that need to be addressed as well as future goals to strive towards.

The technology plan can be summarized as follows:

- Modernize computer workstations in public and staff areas
- Address critical issues facing library technology and services
- Improve digital access to library resources and services
- Provide state-of-the-art technology services

The highlight of projects currently underway include: development of a mobile library application, refreshing public computers in two labs (55 workstations), the establishment of a digitizing unit, development of a laptop lending program (40 laptops), migrating servers to the virtual environment provided by IRT-DCHS, and an eCommerce solution that will allow library patrons to pay library fines online.

Opportunities for collaboration

Despite current efforts, there remains much to do in order to get public and staff computers up to official campus minimum standards. Following implementation of current projects, most librarian and staff computers as well as one-third of public computers will remain below 2011-12 standards. Even so, public workstations are in high demand, so increasing the number of available workstations should also take place. Once we achieve the campus standard, this plan recommends a three-year refresh cycle for computers. These propositions are expensive and necessary, so cooperating with other campus units would be beneficial.

Another opportunity for collaboration involves a solution to provide access to library services and resources for the variety of patrons who use the library. Besides faculty, staff, and

---

1 Pfau Library Vision Statement

http://www.lib.csusb.edu/about/missionAndStrategicPlan.html
students, there are many other “types” of users, e.g., visiting scholars, volunteers, Friends of the President, special summer programs, etc. Some problems in providing access are introduced by inconsistencies with data entry into PeopleSoft - particularly with the aforementioned special groups. When such problems do arise, the library does not have the ability to add or edit records in PeopleSoft. Granting additional PeopleSoft privileges to the library and enforcing standard data entry amongst campus units will go a long way towards solving these issues.

**Document revision**

With the ongoing acceleration of technological change, it is recommended that this document be reviewed on an annual basis, with additional fact finding and analysis conducted. It is recommended that the plan be significantly updated in 2014 with the goal of extending the plan to look three to five years into the future.
### Action Items and Timeline

<table>
<thead>
<tr>
<th>Project</th>
<th>Start</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>NovaStor Backup solution</td>
<td>underway</td>
<td>Spring 2012</td>
</tr>
<tr>
<td>PL-1003 Refresh</td>
<td>underway</td>
<td>Summer 2012</td>
</tr>
<tr>
<td>PL-2005 Refresh</td>
<td>underway</td>
<td>Summer 2012</td>
</tr>
<tr>
<td>Multimedia Production Workstations</td>
<td>underway</td>
<td>Summer 2012</td>
</tr>
<tr>
<td>Pfau Library Mobile App</td>
<td>underway</td>
<td>Summer 2012</td>
</tr>
<tr>
<td>Digitizing Unit</td>
<td>underway</td>
<td>Summer 2012</td>
</tr>
<tr>
<td>eCommerce Solution</td>
<td>underway</td>
<td>End of Summer 2012</td>
</tr>
<tr>
<td>Migration of Public Web Services off ColdFusion</td>
<td>underway</td>
<td>End of Summer 2012</td>
</tr>
<tr>
<td>Server Migration to Virtual Environment</td>
<td>underway</td>
<td>Spring Qtr 2013</td>
</tr>
<tr>
<td>Technology Documentation Project</td>
<td>underway</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Laptop Lending Program</td>
<td>Spring Qtr 2012</td>
<td>Winter Qtr 2013</td>
</tr>
<tr>
<td>Wireless Network Improvement</td>
<td>Summer 2012</td>
<td>Fall Qtr 2012</td>
</tr>
<tr>
<td>Staff Workstation Refresh</td>
<td>Fall Qtr 2012</td>
<td>Fall Qtr 2012</td>
</tr>
<tr>
<td>Website Usability Studies and Improvement</td>
<td>Fall Qtr 2012</td>
<td>Fall Qtr 2012</td>
</tr>
<tr>
<td>Migration of Staff Web Services off ColdFusion</td>
<td>Fall Qtr 2012</td>
<td>Fall Qtr 2012</td>
</tr>
<tr>
<td>Reference Lab Refresh</td>
<td>Fall Qtr 2012</td>
<td>Winter Qtr 2013</td>
</tr>
<tr>
<td>Alternative Printing Card Payment Method</td>
<td>Fall Qtr 2012</td>
<td>Winter Qtr 2013</td>
</tr>
<tr>
<td>Institutional Repository planning and implementation</td>
<td>Fall Qtr 2012</td>
<td>unknown</td>
</tr>
<tr>
<td>Website Accessibility Maintenance</td>
<td>Winter Qtr 2013</td>
<td>Winter Qtr 2013</td>
</tr>
<tr>
<td>Discovery Interface Study</td>
<td>Winter Qtr 2013</td>
<td>Spring Qtr 2013</td>
</tr>
<tr>
<td>Smart Group Study Rooms</td>
<td>Spring Qtr 2013</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Website Architecture Redesign</td>
<td>Spring Qtr 2013</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Staff Workstation Refresh</td>
<td>Summer 2013</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Review Technology Plan</td>
<td>Summer 2013</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Increase Number of Public Computer Workstations</td>
<td>Fall Qtr 2013</td>
<td>Winter Qtr 2014</td>
</tr>
<tr>
<td>Project Description</td>
<td>Start Dates</td>
<td>End Dates</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Implement Digital Information Kiosk</td>
<td>Fall Qtr 2013</td>
<td>Winter Qtr 2014</td>
</tr>
<tr>
<td>Integrated Library System Evaluation and Study</td>
<td>Fall Qtr 2013</td>
<td>Spring Qtr 2014</td>
</tr>
<tr>
<td>Implement Self-Checkout</td>
<td>Fall Qtr 2013</td>
<td>Winter Qtr 2014</td>
</tr>
<tr>
<td>Revise Technology Plan</td>
<td>Spring Qtr 2014</td>
<td>Summer 2014</td>
</tr>
<tr>
<td>Staff Workstation Refresh</td>
<td>Summer 2014</td>
<td>Summer 2014</td>
</tr>
</tbody>
</table>
Current Technology Environment

During the fall quarter of 2011 a library-wide inventory was conducted to describe the available computers and servers. As a recent inventory did not exist, this inventory was created from scratch. Since completing the inventory, we continue to fill in holes and create additional documentation. While there is plenty more that could be documented, the current inventory and recent documentation can give us a good picture of the current technology environment at Pfau Library.

Public Computing

Pfau Library currently provides a total of 86 desktop computer workstations to library patrons in open labs and 24 in an instructional lab. The open labs are available to patrons during regular library hours. The instructional lab contains 24 student and one instructor workstation in room PL-2005. These workstations are only available during instruction sessions and do not hold open lab hours.

<table>
<thead>
<tr>
<th>Location</th>
<th>Lab Type</th>
<th>Operating System</th>
<th>Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>40</td>
</tr>
<tr>
<td>PL-111</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>14</td>
</tr>
<tr>
<td>PL-1003</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>20</td>
</tr>
<tr>
<td>PL-2005</td>
<td>Instruction Classroom</td>
<td>Windows XP</td>
<td>25</td>
</tr>
<tr>
<td>3rd Floor OPAC</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>4</td>
</tr>
<tr>
<td>4th Floor OPAC</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>4</td>
</tr>
<tr>
<td>5th Floor OPAC</td>
<td>Open Lab</td>
<td>Windows XP</td>
<td>4</td>
</tr>
</tbody>
</table>

Computers in the public areas have a variety of technical specifications as they have been purchased at various times, and some labs have been upgraded in a piecemeal fashion. The following table illustrates the general capabilities of the public computers.

<table>
<thead>
<tr>
<th>Location</th>
<th>CPU Type</th>
<th>CPU Speed</th>
<th>Memory Size</th>
<th>Hard Disk Size</th>
<th>Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>Intel Pentium 4</td>
<td>2.4GHz to 3.4GHz</td>
<td>0.5GB to 1GB</td>
<td>40GB to 80GB</td>
<td>17” flat panel</td>
</tr>
<tr>
<td>PL-111</td>
<td>Intel E8400</td>
<td>3.0GHz</td>
<td>3GB</td>
<td>150GB</td>
<td>19” flat panel</td>
</tr>
<tr>
<td>PL-1003</td>
<td>wide range</td>
<td>2.33GHz to 3.4GHz</td>
<td>1GB to 3GB</td>
<td>75GB to 233GB</td>
<td>14” CRT or 17” CRT</td>
</tr>
<tr>
<td>PL-2005</td>
<td>Intel Pentium 4</td>
<td>3.4GHz</td>
<td>1GB</td>
<td>75GB</td>
<td>13” CRT</td>
</tr>
<tr>
<td>3rd-5th Floor OPACs</td>
<td>Intel Core 2 or Intel Pentium 4</td>
<td>1.7GHz to 3.4GHz</td>
<td>0.5GB to 2GB</td>
<td>38GB to 238GB</td>
<td>15” to 17” CRT or 17” flat panel</td>
</tr>
</tbody>
</table>

User Types

Different patron types are allowed different levels of access to library resources, as defined in the Library Terminals Use Policy approved by Dean Caballero in March, 2010. Anonymous users are allowed access to the library’s subscription-based research databases and electronic journals, all websites in the .edu, .gov, and .mil domains, and other selected sites considered to have significant research value. CSUSB affiliates (students, faculty, staff, etc.) may login with their MyCoyote ID number and password. They have access to these additional resources: all web domains, Microsoft Office 2007, SPSS17. Guest Users have full internet access.
access including all web domains, but do not have access to campus productivity software (Microsoft Word, and SPSS). The only workstations Guest Users may access are in the Reference Area.

**Printing and Copying**

Public printing is available for all public workstations. One color and three black & white printers are located at the Reference Desk on the first floor. Several copy machines and a fax machine are located on the first floor in the Copy Room. The copy machines are capable of scanning documents to a digital file which can be saved on a USB flash drive provided by the patron. To print or copy in black & white patrons are charged $0.15. To print in color patrons are charged $0.60. Patrons may pay using a Coyote OneCard or a Guest Printing Card. Cards may be purchased and/or loaded at a ValuePort Machine. ValuePort machines only accept paper cash, they do not accept credit/debit cards or change. The printers and ValuePort machine are maintained by IRT-ACM (Academic Computing and Media). The copiers are maintained by Printing Services (Division of Administration and Finance).

**Librarian and Library Staff Computing**

There are currently 76 computers in use by librarians, library staff, and student assistants. There is not a plan to refresh librarian/staff computers. Only a handful of new computers have been purchased for librarians/staff in the past year.

Over 94% of the operating systems in use are Microsoft Windows XP. 3% are various versions of Macintosh OS X and another 3% are Microsoft Windows 7. As there is a large variety of hardware specifications, please see the appendix for a detailed inventory. For some general statistics, please see the following.
**Processing Power**

A large number librarian/staff computers employ the Pentium 4, a processor that Intel ceased production on in 2008. These are likely the oldest computers currently in use by librarians/staff.

<table>
<thead>
<tr>
<th>Processor</th>
<th>No. of computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD Athlon 64 3500 2.2 GHz</td>
<td>2</td>
</tr>
<tr>
<td>Intel 6600 2.4 GHz</td>
<td>5</td>
</tr>
<tr>
<td>Intel Core 2 2.4 GHz</td>
<td>7</td>
</tr>
<tr>
<td>Intel Core 2 3.0 GHz</td>
<td>10</td>
</tr>
<tr>
<td>Intel Core 2 Duo 3.0 GHz</td>
<td>12</td>
</tr>
<tr>
<td>Intel Core 2 Quad 2.33 GHz</td>
<td>2</td>
</tr>
<tr>
<td>Intel Core Duo 2.0 GHz</td>
<td>1</td>
</tr>
<tr>
<td>Intel Core i5 2.7 GHz</td>
<td>1</td>
</tr>
<tr>
<td>Intel E8400 3.6 GHz</td>
<td>1</td>
</tr>
<tr>
<td>Intel E8400 3.0 GHz</td>
<td>4</td>
</tr>
<tr>
<td>Intel Pentium 4 1.7 GHz</td>
<td>2</td>
</tr>
<tr>
<td>Intel Pentium 4 2.2 GHz</td>
<td>1</td>
</tr>
<tr>
<td>Intel Pentium 4 2.53 GHz</td>
<td>3</td>
</tr>
<tr>
<td>Intel Pentium 4 2.8 GHz</td>
<td>2</td>
</tr>
<tr>
<td>Intel Pentium 4 3.06 GHz</td>
<td>4</td>
</tr>
<tr>
<td>Intel Pentium 4 3.4 GHz</td>
<td>10</td>
</tr>
<tr>
<td>Intel Pentium 4 3.6 GHz</td>
<td>5</td>
</tr>
<tr>
<td>Intel Q8200 2.33 GHz</td>
<td>1</td>
</tr>
<tr>
<td>Intel Xeon 3.2 GHz</td>
<td>2</td>
</tr>
</tbody>
</table>

**Storage Space**

About 40% of librarian/staff computers have hard drives with less than 100GB storage capacity while over 93% have less than 250GB.
**Computer Memory**

Four librarian/staff computers currently run using only 512MB of RAM, while 87% have 2GB or less.

Due the amount of time IT support staff spend fixing computer viruses and malware infections a new policy is currently being implemented so that student assistant and library staff accounts will no longer be able to install programs without their supervisor’s permission. Librarians and Library IT staff will still have administrative rights on their computers.

**Printing and Copying**

A majority of librarians/staff have individual desktop printers attached to their computer. Some areas of the library have networked printers and copiers for librarian/staff use.
Servers

Most library servers are currently housed in the Information Resources & Technology server room, where they are provided the same environmental (air conditioning, power supply) protection as university servers. Library staff maintain, support, and administer the servers.

<table>
<thead>
<tr>
<th>Server</th>
<th>Operating System</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell PowerEdge 2950</td>
<td>Linux</td>
<td>Backup file server</td>
</tr>
<tr>
<td>SunFire T2000</td>
<td>Solaris 10</td>
<td>Webserver</td>
</tr>
<tr>
<td>SunFire V440</td>
<td>Solaris 9</td>
<td>Millenium</td>
</tr>
<tr>
<td>SunFire 280R</td>
<td>Solaris 8</td>
<td>Sunscreen Firewall</td>
</tr>
<tr>
<td>Dell PowerEdge 1950</td>
<td>Linux</td>
<td>LAMP, LibNews, LDAP</td>
</tr>
<tr>
<td>Dell PowerEdge 2950</td>
<td>FreeBSD</td>
<td>libsort</td>
</tr>
<tr>
<td>Dell PowerEdge 2950</td>
<td>Linux</td>
<td>EZproxy</td>
</tr>
<tr>
<td>Dell PowerEdge 1950</td>
<td>FreeBSD</td>
<td>DNS server</td>
</tr>
<tr>
<td>Dell PowerEdge 1950</td>
<td>WinServer 2008 R2</td>
<td>NovaStor backup server</td>
</tr>
<tr>
<td>Sun Enterprise Sparc 450</td>
<td>Solaris</td>
<td>Storage</td>
</tr>
<tr>
<td>PC</td>
<td>WinServer 2008 R2</td>
<td>Interlibrary Loan</td>
</tr>
<tr>
<td>PC</td>
<td>WinServer 2008 R2</td>
<td>WAMP, OpenRoom</td>
</tr>
<tr>
<td>PC</td>
<td>Windows XP</td>
<td>GovDocs</td>
</tr>
<tr>
<td>PC</td>
<td>Linux</td>
<td>test</td>
</tr>
</tbody>
</table>

Network

The wired and wireless networks are provided and maintained by IRT-TNS (Telecommunications and Network Services).

Support

With a few exceptions, the Library Information Technology department provides support for any technology related solutions for Pfau Library. Within the Library IT department responsibilities are generally divided into three areas: systems, web services, IT support. The IT Support Team currently consists one full-time staff and five part-time student assistants. They handle all initial end-user support requests and maintain the public and librarian/staff computers.

Web Services

Public Website

The Pfau Library website [http://www.lib.csusb.edu](http://www.lib.csusb.edu] underwent a redesign during 2011 and launched on January 6, 2012. The redesign included a completely new graphical appearance, new navigation, new site structure, and revised content. The website is primarily static HTML pages along with CSS stylesheets to determine the style. JavaScript is used occasionally, with ColdFusion powering forms and some database driven areas. There are two areas powered by PHP and MySQL: a news blog using WordPress and a room reservation system called OpenRoom.
The library pays for a hosted service called LibGuides, which provides the means to create research guides without knowledge of HTML. Library staff have limited ability to edit appearance of the site though server access is not provided. Other external services used by the library that require varying degrees of support by library IT staff include LibraryH3lp, QuestionPoint, and ILLiad.

IRT-ACM (Academic Computing and Media) conducts an annual evaluation of university websites for ADA accessibility compliance. In working with ACM staff, Library IT staff were able to achieve a score of 100% compliance for the main library website. External sites and some special projects are handled separately for the purpose of accessibility scoring.

Results of the annual accessibility evaluation:

<table>
<thead>
<tr>
<th>Date</th>
<th>Website</th>
<th>URL</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/15/2012</td>
<td>John M Pfau Library</td>
<td><a href="http://www.lib.csusb.edu">www.lib.csusb.edu</a></td>
<td>100%</td>
</tr>
<tr>
<td>3/15/2012</td>
<td>Special Collections</td>
<td><a href="http://www.lib.csusb.edu/collections/specialCollections.html">http://www.lib.csusb.edu/collections/specialCollections.html</a></td>
<td>100%</td>
</tr>
<tr>
<td>4/19/2012</td>
<td>OpenRoom</td>
<td><a href="https://openroom.lib.csusb.edu">https://openroom.lib.csusb.edu</a></td>
<td>60%</td>
</tr>
<tr>
<td>4/23/2012</td>
<td>Library News</td>
<td><a href="http://libnews.lib.csusb.edu/">http://libnews.lib.csusb.edu/</a></td>
<td>68%</td>
</tr>
<tr>
<td>4/23/2012</td>
<td>Latino Baseball</td>
<td><a href="http://www.lib.csusb.edu/SpecialCollections/Latino_baseball_history_project.cfm">http://www.lib.csusb.edu/SpecialCollections/Latino_baseball_history_project.cfm</a></td>
<td>100%</td>
</tr>
<tr>
<td>4/24/2012</td>
<td>Research Guides</td>
<td><a href="http://libguides.csusb.edu/">http://libguides.csusb.edu/</a></td>
<td>56%</td>
</tr>
<tr>
<td>5/1/2012</td>
<td>OLLIE Tutorials</td>
<td><a href="http://www.lib.csusb.edu/researchAssistance/OLLIE.html">http://www.lib.csusb.edu/researchAssistance/OLLIE.html</a></td>
<td>83%</td>
</tr>
</tbody>
</table>

**Librarian/Staff Website**

Although there is not a single web portal for librarians/staff, there are several websites intended for use by librarians/staff only. The largest site is a wiki maintained by IRT-ISO (Information Security Office). It is accessible and editable by all librarians/staff, and include information pertaining to policies & procedures, library departments, and library groups (such as committees). Reference Point is an in-house developed ColdFusion site intended for reference and instruction librarians. There are also several librarian/staff only databases used as forums or work logs.
Current Technology Projects Underway

Public Computing

**PL-1003 Refresh**

Anticipated completion: Summer Session 2012  
Current status: Awaiting the hardwiring of PL-1003, GPOs under development

Computers were recently purchased for the purpose of replacing all of the computers and monitors in the PL-1003 public computer lab. The computers selected are HP Z210 workstations with 20" monitors as recommended by the Campus Computer Standards Group. PL-1003 is currently a wireless lab, but upon review it was decided to hardwire the room. New GPOs (Group Policy Objects) are being developed to take advantage of recent advances in Microsoft Windows user account management.

**PL-2005 Refresh**

Anticipated completion: Summer Session 2012  
Current status: Awaiting installation of new furniture, GPOs under development

Computers were recently purchased for the purpose of replacing all of the computers and monitors in the PL-2005 Instruction Lab. The computers selected are HP Z210 workstations with 20" monitors as recommended by the Campus Computer Standards Group. New furniture has also been selected to replace the current desks in the lab. New GPOs (Group Policy Objects) are being developed to take advantage of recent advances in Microsoft Windows user account management.

**Multimedia Production Workstations**

Anticipated completion: Summer Session 2012  
Current status: Awaiting selection of a secure location for installation

Two high-end Mac Pros were recently purchased along with professional-level industry-standard software for the purpose of multimedia creation and editing. The workstations will be housed in secure study rooms in the Library MultiMedia Center. The computers and software have been received, however doors with locks need to be installed in the preferred location prior to setting up the workstations.
**Laptop Lending Program**

Anticipated completion: Implementation by the end of Summer Session 2012, evaluation during 2012-2013 school year  
Current status: Purchasing equipment

Pfau Library was recently awarded $71,100 from the Vital Technologies Fee fund for the creation of a laptop lending program. As proposed, 40 MacBook Pro laptops with SSD drives and dual-booting operating systems (Mac OS X and Microsoft Windows 7) will be purchased for lending within the library to students and faculty. The amount awarded will also fund the purchase of two laptop storage carts, 40 laptop locks, and six Ti-89 graphic calculators. The goal is to make the service available for the Fall 2012 quarter.

**Systems**

**NovaStor Backup Solution**

Anticipated completion: Spring Quarter 2012  
Current status: Client implementation underway

For the purpose of providing a backup solution to librarians/staff a solution was purchased called NovaStor Backup Remote Workforce. This solution allows for remote backup of data on client computers to a central server. 30 licenses were purchased.

**eCommerce Solution**

Anticipated completion: End of Summer Session 2012  
Current status: Working on PCI compliance

Pfau Library would like to be able to accept payment from library patrons via the Millennium (the ILS). In order to do so a number of changes to the current environment must take place to become PCI (Payment Card Industry) security standards compliant. Library staff and faculty are working closely with IRT-ISO and Innovative Interfaces (Millennium vendor) to meet PCI requirements. Some issues currently being dealt with: firewall policies, network reconfiguration, user authentication, creation of merchant account.

**Server Migration to Virtual Environment**

Anticipated completion: Spring Qtr 2013  
Current status: Developing documentation, testing, and training

IRT-DCHS (Data Center & Helpdesk Services) provide an environment for the hosting of virtual servers. Given the benefits of a virtual environment and the age of some of the library’s
physical servers we have begun investigating the possibility of migrating some services to the virtual environment. Following testing and training we plan to evaluate the feasibility of migrating services and create a timeline, with the goal of beginning implementation following Spring Quarter 2012.

**Web Services**

*Pfau Library Mobile App*

Anticipated completion: Summer 2012  
Current status: under development

We are working with Dr. Arturo Concepcion and his CSE 455 class to develop a mobile app for the library. At this time the first iteration is complete with requested functionality that provides access to basic information and mobile versions of the catalog and select databases. It is possible that the current iteration could be launched with minor edits as a mobile website. The class is currently working towards completing iPhone, Android, and Windows Mobile app versions and getting them into their respective marketplaces. Phase Two will incorporate advanced functionality such as library account access, book renewals, and other features.

*Migration of Web Services from ColdFusion to PHP/MySQL*

Anticipated completion: Phase One - End of Summer Session 2012, Phase Two – Fall Qtr 2012  
Current status: Researching solutions, staff learning PHP, awaiting setup of LAMP test server

Many parts of the public and librarian/staff websites are using an old version of ColdFusion. IRT-ISO has agreed to cease security scans of our ColdFusion based pages as we plan to migrate all pages and services from ColdFusion. There are many open source solutions built on PHP/MySQL that could meet our needs, so that will most likely be the platform those services are migrated to. Phase One will see the migration of all public pages and services from ColdFusion, Phase Two will see the migration of all librarian/staff pages and services from ColdFusion.

**Digital Initiatives**

*Digitizing Unit*

Anticipated completion: Summer Session 2012  
Current status: Testing equipment, learning

Per the library’s 2011-12 strategic goals, the Pfau Library needs to have a digitizing unit set up in support of the WRI, Special Collections, and the library in general. The ultimate goal is to be able to create digital copies of scanned materials that would be searchable and accessible from our online catalog. A primary purpose for this system is preservation of rare/fragile
materials. The digitizing equipment was purchased and recently setup. It currently being tested with the goal of beginning a pilot project soon. The unit is currently looking for training opportunities, and has not yet begun work on a system for organizing stored digital files and making them accessible to patrons.

**Institutional Repository**

Anticipated completion: Winter Quarter 2012
Current status: Complete - Recommendations submitted to Provost

The Institutional Repository Task Force recently completed its work of examining the viability of establishing an Institutional Repository at CSUSB, and submitted a proposal to Provost Bodman.

**Other Initiatives**

**Technology Documentation Project**

Anticipated completion: Summer 2013
Current stats: Developing documentation

A year ago very little documentation existed for the technology environment of Pfau Library. There was no computer inventory or list of assigned IP addresses; very little documentation of systems, servers, or web services; and very little written procedures or policies. During the past year we have made developing documentation, policies, and procedures a priority. Significant progress has been made in developing a complete hardware inventory, systems documentation, and procedures that address technology acquisitions, IT support, and web development. There are still plenty of areas that need documentation created and additional policies yet to be written. Summer 2013 is the target deadline for completing and assembling documentation of existing systems.
Technology Assessment

The following section describes the assessment of the library’s current technology environment. The assessment provides a clearer picture of which areas of technology require improvement and which are worth maintaining. The Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis identifies key factors in the library technology environment. A general assessment of different areas of library technology follow the SWOT analysis.

SWOT Analysis

Strengths

- Library Information Technology staff expertise
- Current projects underway to improve library technology
- Location of the library building (high traffic)
- Recently redesigned website
- Reliable wired network infrastructure
- Library Multimedia Center

Weaknesses

- Wireless network performance inconsistent
- Insufficient number of public computer workstations
- Slow and aging public computer workstations
- Slow and aging librarian/staff computer workstations
- Aging server hardware
- No baseline technology budget
- Resource discovery (i.e., interface, incomplete cataloging)
- Method of payment for printing and copying

Opportunities

- Money available from student technology fees
- Virtual server environment provided by IRT-DCHS
- Virtual lab environment provided by IRT-DCHS
- CSU system-wide library initiatives (e.g., Xerxes2)

Threats

- State economy and budget cuts
- Lack of central planning from the University
- Internet search engines (e.g., Google)
- eBook marketplaces (e.g., Amazon, Apple)
- Increasing number of mobile devices connecting to wireless network
Public Computing

It is generally understood that the majority of the library’s 111 public computer workstations run slowly and require frequent maintenance. Despite this, the demand for workstations is much higher than what is currently available. Computer labs are frequently full, and students report frustration at the lack of available workstations.

To help alleviate the problem of aging workstations the library recently acquired 55 new HP Z210 workstations to replace those currently in public lab PL-1003 and instruction classroom PL-2005. In addition, the library was recently awarded funds to purchase 40 MacBook Pro laptops for the purpose of lending them to students and faculty for use in the library. The addition of these laptops will result in a 37% increase in available computers.

The operating systems currently on public computer workstations are entirely Microsoft Windows XP. Although Microsoft ended mainstream support of Windows XP in April 2009, they will continue to provide extended support (which only includes security updates for free) through April 2014. With the addition of newer computers, some workstations will feature the current Microsoft operating system Windows 7, and others will have Mac OS X 10.7.

The Campus Computer Standards Group provide minimum requirements that university units are expected to adhere to.

2011-2012 PC Workstation Minimum Requirements
• Processor - Intel i7 Quad Core
• Memory - 8GB (4x2GB) DDR3
• Video/graphics card - 1GB with 2nd video/graphics card
• Hard Drive - 250GB SATA 7200
• Optical Drive - DVD+-RW
• Network card - 100/1000
• Monitors - 19-inch LCD
• USB 3.0

All public computer workstations currently fail to meet the minimum campus requirements. Upon completion of current projects, 36.6% will still fall short. While the library is poised to make significant strides in updating the public computing resources, over one-third remain below spec - and the majority of these are in the first floor Reference Area, a very high-traffic location. It is recommended that funds be located as soon as possible to upgrade those computers. A lower-cost option to purchasing full workstations would be to use thin-clients supported by the virtualized environment that IRT now provides. Hardware costs would be roughly ~$600, as quoted by IRT. A full investigation is needed to ascertain the feasibility of this solution.

Additional workstations are also needed to alleviate demand. It is unknown what impact the additional 40 laptops will have. It is recommended that we monitor their use, and consider additional laptops rather than desktop computers.

**Printing and Copying**

Library patrons have been very vocal in their frustration at the method of payment for printing and copying. They often request the ability to pay using a credit/debit card or loose change. It is recommended that an investigation be conducted to determine an alternative system - preferably one that allows credit/debit card payment, or perhaps a method to allow adding funds to a Coyote OneCard via the ValuePort machine or an online system.

**User Authentication**

User authentication for access to public computers and online library resources is currently a mixed bag. A melange of solutions are currently in place which leads to inconsistent user experience. Because of the number of services involved and the number of user populations the situation is quite complex. Add to the complexity that many issues are cause by insufficient or incorrect entry of data into PeopleSoft. Potential solutions involve taking advantage of campus LDAP services, changing policies regarding PeopleSoft, using a Single Sign-On solution such as Shibboleth or CAS (Central Authentication System - already being used by some CSUSB services.), and reducing the number of library user types. The goal should be a seamless, consistent experience from the library patron’s point of view.

**Librarian and Library Staff Computing**

At this time the library does not have a plan for updating librarian and library staff computers (otherwise known as a “refresh cycle”). While librarian/staff computers are not generally in as bad shape as the public computers, they are definitely showing their age. 96% of librarian/staff computers do not meet the 2011-12 Campus Standards minimum requirements. It is recommended that a three year “refresh cycle” be established where one third of the computers (the oldest third) be replaced every year. To accomplish this, funding must be identified.
Servers

The library servers have generally been stable and secure, and most are currently housed in the IRT server room where they receive the same protection as university servers. However, a number of the servers have exceeded their End of Life (EOL) date - thus no longer vendor supported. Several more servers are not, in fact, server hardware but personal computers (PCs). These factors present a clear need to upgrade server hardware.

Services currently on obsolete hardware or PCs acting as servers:
- Sunscreen Firewall
- Interlibrary Loan
- OpenRoom
- GovDocs

Two additional servers are also past their EOL date, however the library has contracted with a third-party, Dynamic Systems, to provide support.

Services currently on hardware supported by Dynamic Systems:
- Webserver
- Millenium

An opportunity was recently identified with the virtualized server environment that IRT-DCHS provides. A project is currently underway to assess the feasibility of migrating to this environment. It is recommended that the project continue with the goal of migrating services from high risk servers to the virtual environment. An additional option is to repurpose the newer Dell PowerEdge servers we currently have to host services that we choose not to migrate.

Network

The wired network performance has been reliable and satisfactory. Wireless performance has been inconsistent. At the beginning of the school year, and again at the beginning of the Winter Quarter, we received complaints about difficulty connecting to the wireless network. Recently we have not received as many complaints, so perhaps the problem has been sorted out by IRT-TNS. We have also experienced frequent problems with the wireless in the PL-1003 computer lab. This is one reason we plan to convert the lab to a hardwired network environment.

A major concern is that with an increase in the number of mobile devices brought to the library by patrons and the creation of a laptop lending program in the library, that the wireless network may need to be made “more robust” to handle increased connections and traffic. It is recommended that the library work with IRT-TNS to increase capacity and monitor the situation.

Support

An analysis of IT support was not conducted. In general, patrons, staff, and librarians seem satisfied with the support they receive from the Library IT department. Library IT staff are extremely busy with projects and end-user support, thus impacting the amount of time that it
takes to complete tasks as well as the amount of projects that may be undertaken. It is recommended that additional staff be assigned and/or hired to supplement current staff, with special attention paid to the requirements of new projects and new services.

In the past, IRT provided much support for the library, however library patrons and staff were dissatisfied with the timeliness and quality of the support provided. IRT continues to provide support in some areas, but the quality remains inconsistent and seems to depend on the unit within IRT.

Web Services

Public Website

As part of the website redesign a new “look” was created and all of the content was reviewed - with much content being rewritten. The website has received positive reviews from library staff, university faculty, and students. The next step in improving the functionality and design of the site is to conduct usability studies. This will allow us to continue improving the site, as usability studies were not conducted as part of the redesign.

A strength of the website is that with the cooperation of IRT-ACM it was able to score 100% compliance of the ADA Accessibility Review. There are some periphery portions of the library website that were scored separately which need additional attention to increase their scores.

Of immediate concern is the reliance on an out-of-date version of ColdFusion on portions of the site, even where the use of ColdFusion is entirely unnecessary. A project currently underway is to migrate all web services from ColdFusion to alternatives. Some solutions may simply be rewritten in HTML, some developed in-house on a PHP/MySQL platform, and others may use open source solutions. The goal is to adhere to standards and not to reinvent the wheel.

The website architecture uses static web design, a practice that is 5-10 years old. It is recommended that the website architecture be redesigned using dynamic, database driven design - perhaps using a content management system (CMS) platform. Given the recent redesign, the focus of this project could be site architecture rather than design or content.

Librarian/Staff Website

The library staff wiki receives pretty good use and seems to be satisfactory for many librarian/staff needs. Reference Point has served its purpose well, but no longer meets the needs of librarians. Many potential solutions exist in open source solutions with more features, and that are more powerful, than what is currently used. It is recommended that Reference Point and other ColdFusion based librarian/staff websites be replaced.

Mobile Access

At the moment, mobile access to the website is achieved via a special CSS stylesheet, developed by IRT-ACM, that reformats that page to fit the mobile browser. This is not an ideal situation so a mobile website/app is currently under development in cooperation with the Computer Science department. The basic functionality of the mobile site/app is currently
acceptable, but increased functionality is desired. It is recommended that additional staff time be devoted to supporting the development of “Phase Two” of the mobile app.

**Areas Not Assessed**

Given the time constraints in producing this document there are several areas that were not included in the technology assessment. It is recommended that this document be revised by a task force to address the following topics:

- History
- Budget
- Staff skills and expertise
- Integrated Library System
- Discovery Interface / Online Catalog
Appendix A: Student Focus Group Report

On April 17, 2012 a focus group was held from 12:00pm to 1:00pm involving library student assistants, and moderated by Jonathan M. Smith, Head of Library Information Technology. A call had gone out to library supervisors asking for student assistant volunteers to participate in a focus group about library technology, with a free pizza lunch added as motivation. Student assistants were paid for their time. Despite the intention to limit focus group participation to around eight students via RSVPs, fourteen students participated.

During the session, the moderator asked a set of prepared questions with the intention of eliciting honest responses and sparking conversation between the focus group participants. In some cases the moderator pursued topics by asking a follow-up question. An audio recording was made of the session.

There were some areas of library technology that the students were complimentary on: they like the website, they like the online catalog, were very excited about how well InterLibrary Loan works, and were satisfied with article databases. Several students were very happy with the ability to listen to music or watch movies in the Library Multimedia Center.

The major library technology themes that students are frustrated with:

- **Slow public computers.** The students were very frustrated with how “slow” the public computers run, and were unsure of whether to blame the age of the computers or a problem with the network.

- **Not enough public computers.** Despite the “slowness” of the public computers, they are in high demand, and as such the students felt that it can be difficult at times to locate an available computer. They were upset about their peer students who use the computers to “waste time”, and suggested having computers that can only be used for research, and using librarians to kick-off students “playing on Facebook.”

- **Printing and copying.** The students were very vocal about their dissatisfaction with the method of payment for printing and copying. They would prefer to pay directly with a credit/debit card, or at the very least be able to add money to their Coyote OneCard with a credit/debit card. There was also a complaint that copy machines are often broken or jammed.

- **Wi-Fi.** A couple students were not happy with “difficulty” connecting to the wi-fi network, as well as difficulty reconnecting to the wireless network after being dropped while using the elevator.

When asked to offer solutions to technology problems in the library, the following are the major themes that the students suggested:

- **Laptops.** The focus group was unanimous and vocal about the need for the library to provide laptop computers to students for temporary checkout. Some of the students stated their desire to checkout a laptop from the library that they could take to class. When the moderator asked them what they would choose when faced with the option of
using brand-new, fast desktop computers, or laptop computers for use in the library; the students unanimously chose laptop computers.

- **Smart study rooms.** Although the students did not use the term “smart study room”, that is what they described. They suggested that each study room have a computer and a projector so that a group could comfortably view a computer display without having to crowd around a small screen. They would also like to be able to bring in a personal laptop to plug into the projector. It was also suggested that study rooms could be checked-out like books, in this way students looking for a study room would simply have to check online to see what was available.

- **Printing and copying.** Again, the topic of using a credit/debit card to pay or add money to their Coyote OneCard was raised. The participants felt strongly about this.

Other suggestions made by the participants include: new desktop computers, a printer on each floor, an entertainment room with video games, and “quiet study” areas.

There were two other topics which the students were very vocal about - eBooks and mobile phones.

**eBooks**

It was clear that the students expect eBooks to become far more common than print books - although I had the impression that they did not differentiate between electronic monographs and electronic journal articles. They expressed frustration with print course reserves as items seem to be unavailable when they need them. They suggested that if eBooks were used instead, there would be no limit on the number of students who could access it at the same time - and it would save their professors money. The students are looking forward to a time (very soon) when electronic textbooks are the norm, and expect that they will be much cheaper than their print counterparts.

From the way that the students described their desired use of eBooks, it was clear that they expect eBooks to be accessible regardless of device. Throughout the focus group session they variously described accessing eBooks on smart phones, tablet computers, laptop computers, and desktop computers. I’m convinced that the variety of devices mentioned was unintentional - they simply expect a similar experience regardless of device.

**Mobile phones**

The students expressed a desire for a mobile phone application (app) for accessing library resources. CSUSB recently released a mobile app for the university, and several students in the focus group already use it, and are pleased with it. They stated that they also use their phones to access Blackboard, and to access their school email accounts.

When asked what they would like from a library mobile app the students were quick to offer the following features:

- An easy to search catalog interface
- Ability to check-out books using the phone
- Receive notifications of when books are due
• Access to electronic course reserves
• To see what study rooms are available
• To see what labs have available computers
• Precise location of books on the shelf
Appendix B: CSUSB Library Technology - Student Focus Group Questions

Thank you for meeting with me!

We asked you here today because we are currently creating a technology plan for the library. This will help us identify areas we would like to improve, new services to offer, and technology to invest in. We want to make sure that we hear from students about what is working, what isn't, and what we can do to improve.

All information we collect today is confidential as to who provided it. For example, we will not disclose who actually participated in this focus group nor will our final report make any attributions for quotes. I hope this encourages you to speak freely.

I will be recording today's session. Is this okay with everyone?

Any questions before I start?

1. I realize that you are all employees of the library. What I would like to learn is how you use technology in the library as students... could you describe something you've used technology for at the library this year?
2. What frustrations do you have when using technology at the library?
3. What support and/or resources would you like to overcome those obstacles?
4. Do you use library computers? What for?
5. Do you access library resources online from home?
6. If you could step into the future five years from now, how do you picture students using technology in the library?
7. Would you be interested in using library laptops?
8. Would you be interested in using tablet computers?
9. What do you think of eBooks?
10. Have you use your mobile phone for anything school related?
Appendix C: Strategic Planning Session Report

All Pfau Library staff and faculty were invited to participate in a strategic planning session that took place on April 18, 2012 from 2:00pm - 5:00pm. The session was led by Dean Cesar Caballero, University Librarian, with some portions being conducted by Jonathan M. Smith, Head of Library Information Technology. During the session participants were reminded of the University and Library’s mission, informed about recent technology advancements, the current technological environment, ongoing technology projects, and results of the student focus group. Feedback was garnered from participants primarily through three exercises: a SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis, a visioning exercise, and the drafting of strategic goals.

SWOT Analysis

A SWOT Analysis was conducted as one large group, with participants offering ideas.

STRENGTHS

- Library Information Technology staff
- Library building location (central on campus, high traffic)
- The library is future-oriented
- A recently redesigned website
- Current efforts to improve available technology
- Wired network infrastructure is reliable

WEAKNESSES

- Wireless network performance is poor
- Location/quantity of electrical outlets
- Number of public computers
- Lack of central planning from University
- No baseline technology budget
- Security of students’ personal laptops

OPPORTUNITIES

- Money available from student technology fees
- Virtual servers available from IRT-DCHS
- CSU system-wide level initiatives
- eBooks

THREATS

- eBooks
**Visioning Exercise**

All of the participants split into five groups of four to share their vision about a possible library future, and determine three top strategic goals for Pfau Library.

**Drafting of Strategic Goals**

Following the visioning exercise, the group reconvened to share their top three goals. Then every participant got to spend a total of three votes to choose from among the goals shared by the groups, and determine the most popular strategic goals.

Results of voting on the strategic goals:

<table>
<thead>
<tr>
<th>Votes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Smart group study rooms</td>
</tr>
<tr>
<td>8</td>
<td>Self checkout</td>
</tr>
<tr>
<td>7</td>
<td>Touch screen information kiosk</td>
</tr>
<tr>
<td>5</td>
<td>Credit/debit card printing/copying</td>
</tr>
<tr>
<td>5</td>
<td>Paperless office workflow</td>
</tr>
<tr>
<td>4</td>
<td>Classification for all catalog record items (e.g., eBooks)</td>
</tr>
<tr>
<td>4</td>
<td>Mobile application</td>
</tr>
<tr>
<td>4</td>
<td>Single web-portal for all services</td>
</tr>
</tbody>
</table>

Other items that were discussed, but did not receive four or more votes:
- Providing content creation equipment such as digital cameras
- Upgraded public computers to include large touchscreen monitors and a reduced hardware profile
- One-stop “search engine” to include course information integration
- Everything digital
- Mobile application for retrieving books
Appendix D: Planning agenda for strategic planning session - technology:

Prepared by Dean Cesar Cabellero, University Librarian

1. Welcome and review of strategic planning process  Cesar C.
2. Review of Mission and Objectives - Cesar C.
   a. University
   b. Library
3. Immediate past and present
   a. Review technological change (last 3 years)
   b. Review current status; current projects - Jonathan S.
4. Environmental scan
   a. Results of focus group session with students - Jonathan S.
   b. SWOT Analysis - Cesar C.
5. Future strategy formulation
   a. Scenario development - Jonathan S.
   b. Visioning exercise participants
   c. Draft strategic goals - participants
6. Strategy Implementation
   a. Draft action plan w timelines; J.S. (by end of April)
   b. Validation at unit level - Coordinators/Heads and staff, by May 9, 2012
   c. Review and approval - Dean, May 11, 2012
   d. Begin implementation, May 14, 2012
7. Review/evaluate; quarterly basis
Appendix F: Wireless Coverage Maps
Provided by David Hatch, IRT-TNS
Pfau Library Basement