

LAKE TAHOE
COMMUNITY COLLEGE

TECHNOLOGY PLAN
2005-06

OCTOBER, 2005

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I. INTRODUCTION

The purpose of this Technology Plan is to project the technology goals and needs of Lake Tahoe Community College, and serve as a tool for evaluating the technology infrastructure, equipment, and systems the college currently possesses. The document is comprised of the following areas:

- Technology goals and objectives for the next one to three years
- A snapshot of the current technology at LTCC, and history where appropriate
- A technology replacement plan
- A list of software and hardware systems carrying an annual maintenance agreement
- The role and responsibilities of Computer Services

On an annual basis, this plan will be updated in the following ways:

- Update stated goals – define applicable activity or completion
- Add new, revise existing, and delete goals no longer planned
- Update changes to the technology infrastructure, equipment, and systems

The intent of this document is to centralize the technology information of the college into one document to assist in institutional planning, budgeting, and evaluating the college's technology.

Basic Assumptions

The Technology Plan is a three-year perspective and identifies ongoing technology trends and needs for the college. The following assumptions are of particular significance:

- Adequate funding levels need to be identified to successfully implement the plan.
- Baselines for technology, support, and training need to be established.
- The plan is a “living document” and will be reviewed and adjusted on an annual basis.
- The plan is modular in nature and most of the initiatives can be implemented independent of the whole.

Technology Themes

The items described in this document cover a broad range of complex technologies. The following list is a simple summary of the common themes that appear throughout the full report.

- Connecting students with appropriate technology is priority one.
- Existing technologies need appropriate support and should be replaced on a scheduled cycle. The plan uses the Total Cost of Ownership model (TCO model), which is the industry standard method of defining the cost of acquiring, implementing, and supporting technology.
- Our students and staff want and need current technology.
- Our students and staff expect technology to shrink in size, become faster, more secure, and easier to use.
- Wireless technology will grow in importance.
- The infrastructure that delivers technology must be constantly improved.

II. GOALS & OBJECTIVES

Short Range Goals for 2005-2006

A. Administrative systems

1. Acquire and implement at least 4 emerging technologies to facilitate student learning and information acquisition, processing and dissemination, over the base year of 2003-2004, such as:
 - Wireless mobile computer cart
 - Wireless access network throughout LRC and wired network access included in some furniture
 - Radio frequency technology for book security in library
 - Video conferencing capability in LRC(SP-6/08)

2. Implement the final stage of the Faculty Access System by creating accounts for adjunct faculty. This will allow them to view their course rosters and enter grades.
3. Phase out usage of student social security numbers as the student identifier.
4. Automation of office and administrative processes

This refers to a number of ongoing project requests to update and automate manual processes. Projects of this type are regularly submitted by departments such as Admissions & Records, Instruction Office, Student Services, and Human Resources and are generally associated with the college's administrative systems. Solutions to these projects are developed in-house by the programmers in Computer Services. Projects of this type are ongoing and will be held in this generic category from year to year.

6. Update and improve the methods for schedule and catalog production. (added from PP)
7. Upgrade CampusConnect to version 3 (both student and faculty systems).
8. Implement detached billing for the registration/billing system.

B. College wide information systems:

1. Upgrade the LTCC website by:
 - Reactivating the Web Advisory Council to initiate new ideas and to monitor our website
 - Developing procedures and guidelines for submitting updated webpage content and new webpages
 - Formulating a procedure for keeping the website current and consistent
 - Improving navigation, making it more intuitive for finding information
 - Giving better exposure for events and important dates
 - Adding information such as, housing information, job availability, and activities
 - Creating an area for online forms
2. Implement student tracking system (SP)
3. Provide online orientation.
4. Create a centralized repository of documents.

II. GOALS & OBJECTIVES

Short Range Goals for 2005-2006

C. Faculty, Administrator & Staff computers:

1. Research and develop remote administration of faculty/staff computers (EMP/CSPP)
2. Complete migration to Windows XP.

D. Help Desk & support services:

1. Acquire and implement web-based help desk software. This will simplify the process of submitting work requests for the college employees. It will also streamline the delegation of work process and provide electronic historical records.

E. Institutional Research & MIS reporting:

1. Integration of defined college data into one database with the supporting programming for easy access to information
 - Provide one tutorial per quarter that explains the available data and reports (SP-1/06)
2. Create website for feedback from former students (NatSci PP)
3. Assessment tracking (assessment to placement grade) by age and ethnic groups
4. Create an automated process to track instructional data across curriculum and historically.
5. Develop a more accurate estimation of FTES in the loadreport.

F. Instructional Areas:

1. Centralize learning resource centers into existing library area (LAC, GMC) (EMP)
2. Remodel D125 to accommodate a computer area for network and PC hardware classes.
3. Digitize the Art department slide collection.

G. Library & Media Services:

1. Finish construction and move into the new Learning Resources Center. Acquire and install the following technology:
 - Twenty four student computers and a few computers distributed around the book stacks
 - Wireless network for student use
 - Wireless mobile cart of laptop computers
 - A print/copy system (pay system for printing or copying)
 - Radio frequency system for book security
 - Provide dedicated video-conferencing space (EMP)

II. GOALS & OBJECTIVES

Short Range Goals for 2005-2006

H. Security:

1. Create and implement a network security plan.
2. Increase levels of network security (intrusion detection, intrusion prevention) (EMP/CSPP)
3. Create a wireless network usage policy.
4. Upgrade network wiring in the CDC to CAT5.

I. Staff development/training:

1. Provide continued training for the Computer Services staff (EMP)
2. Provide cross-training within the Computer Services department

II. GOALS & OBJECTIVES

Long Range Goals for 2006-2008

A. Administrative systems

1. Provide high capacity digital optical storage and retrieval to reduce need of physical storage of files and to make record retrieval easier.
(SP-9/06)
2. Implement an integrated and linked electronic system for interdepartmental information transfer and communication, such as:
 - A&R billing functions and fiscal services
 - HR contract functions and fiscal services
 - Financial Aid and Fiscal Services
 - Financial Aid and A&R
 - Schedule production functions and registration(SP-6/08)
3. Integrated administrative software (include financial aid, A&R, Business, Counseling, Instruction office). (EMP)
4. Continue to automate manual processes. Examples include, schedule building and production, full-time and adjunct faculty load calculation, and numerous instruction office reports.

B. College wide information systems:

1. Automate a variety of standard functions to improve efficiency and provide ease of use to students.
 - Provide educational plans and advising services on-line
 - Provide online counseling and transfer information
 - Expand student ID system to be used for photocopying, bookstore purchases, cafeteria, etc.(SP-9/06)

C. Faculty, Administrator & Staff computers:

No goals currently planned

D. Help Desk & support services:

No goals currently planned

E. Institutional Research & MIS reporting:

1. Rely on research and analysis to assess student learning and success to improve teaching and learning process (SP-1/07)
2. Tracking referrals to services from counseling.

II. GOALS & OBJECTIVES

Long Range Goals for 2006-2008

3. Probation outcomes (of students receiving a probation letter, how many were successful?)
4. Early Alert.

F. Instructional Areas:

No goals currently planned

G. Library & Media Services:

1. Digital storage system for media specialist to handle digital photographs and digital video.

H. Security:

1. Create VPN (Virtual Private Network) for offsite access to the college's network (EMP/CSPP)

I. Staff development/training:

1. Provide wider support for instructional faculty for activities such as online class development.
2. Cross-train Computer Services programmers in SQL and Visual Basic

J. Promising new technologies:

1. Wireless technology (laptops, pda, cell phones-policy for usage) (EMP)
2. White board scanning (EMP)
3. Plasma screens (for meeting room projection) (EMP)

III. CURRENT TECHNOLOGY AT LTCC

A. Technical Infrastructure

1. NETWORK

a. **Connectivity:**

In 1988 the college moved to its present facility. The installed network at that time consisted of a 10mbps thickwire backbone and 10mbps thinwire cable running to the individual computers. The network server was a Digital MicroVax running the DecNet protocol. In 1996 the first Microsoft NT server was introduced. To keep pace with the growing demand for network services such as Internet, email, and file storage, the network infrastructure was completely upgraded between 1999 and 2001. The 10mbps wiring, network devices, and the thickwire backbone were replaced with 100mbps wiring, switches and hubs. The internal wiring of the buildings is Cat5 copper wire and fiber optic cabling is run between the main building and all external buildings. The core infrastructure of the network is managed Cisco switches.

LTCC's Internet connection and router are owned, managed, and provided by Corporation for Education Network Initiatives in California (CENIC). In September 2004, the two T1 lines previously serving our Internet traffic were replaced by a DS3 line, which is roughly equivalent to (28) T1 lines.

b. **Email:**

Email accounts are currently provided to full-time faculty, classified staff, administrators, and adjunct faculty (upon request). Student accounts are not provided by the college, but students are encouraged to obtain email accounts from free email services, such as Hotmail or Yahoo. Off-campus access to the college email and calendaring system is available for those personnel with college email accounts.

c. **Internet**

The Chancellor's Office has provided Internet connectivity to the college since the mid-1990s. In 1997, two T1 lines were provided to us, one for Internet, and one for video conferencing. In September 2004 these two T1 lines were replaced with a DS3 line, which is equivalent to (28) T1 lines. This, and the equipment necessary for connection to the Internet is owned, administered, and maintained by CENIC.

d. **Video-conferencing**

The Chancellor's Office provided one time funding in 2003 for the purpose of upgrading video-conferencing systems statewide to be compatible with the new Internet-based protocol they adopted (IP over H.323). This was part of a three year statewide plan to consolidate the K-12, Community College and CSU/UC networks by providing a minimum of DS3 Internet access to each school and running video-conferencing over this high capacity Internet network.

LTCC finalized the installation and configuration of the Tandberg 880 video-conferencing equipment in November 2004. Also installed at this time was a gateway device, necessary for transmitting video over the Internet. This device is owned and maintained by CENIC.

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2. SYSTEM ADMINISTRATION

The number of servers has dramatically increased since the introduction of the college's first Windows NT server in 1996. As new electronic solutions are added and old manual processes automated, the number of servers the college acquires, maintains, and supports grows.

To address the growing number of servers, increasing power demands, and the shrinking space in the college's Computer Room, a server rack cabinet was purchased in the fall 2003. Three new circuits were added in the computer room to accommodate the increasing power requirements. The added circuits share the electrical distribution which has minimized the chances of electrical overload and unnecessary down time. Also purchased was a centralized tape backup system.

All new servers are purchased with RAID level 5 with a minimum of three hard drives, dual power supplies, dual network interface cards and a five year maintenance agreement.

B. Administrative Systems:

In the late 1980s, LTCC acquired registration and financial software developed by Campus America. The software ran on Digital mini-computer systems using the OpenVMS operating system. Both systems were open-source which allowed them to be customized. By 1997 it was apparent the systems needed to be either replaced or upgraded for the approaching Y2K. Following research into acquiring a new system, the college decided to upgrade the Campus America Registration and Academic History system to version 3 and, at the same time, purchase the Student Billing and Accounts Receivable version 4 module. A Digital Alphaserver 1200 was purchased to run these new systems,. The Fiscal Services department chose to run its fiscal, payroll and purchasing functions directly from the El Dorado Department of Education (EDCOE) system running Quintessential School Systems (QSS) financial software. Access to the EDCOE system is via the Internet through Reflection for HP software. This migration eliminated the need for entering financial transactions twice, as was required previously (once into our system, and once into the EDCOE system).

CampusConnect, the college's web registration system, was obtained in 2003 and went live for the spring 2004 quarter. At the same time, the web-based student application and class schedule, both developed by Computer Services, went live. These online systems allow students to add and drop classes, pay fees online, and view their schedule, grades, transcript and billing account information.

The Financial Aid office uses PowerFAIDS as its software package. This is a standalone system and does not integrate with the registration and billing systems.

In addition to the traditional POISE applications, a number of custom in-house programs have been created since hiring a Research Programmer/Analyst in 2002. This position opened opportunities in the areas of SQL and Access databases, and the Visual Basic programming language. The position was created as a half time load performing research functions, and the other half working on operational projects. Since the

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position was created, a data warehouse has been developed and contains a variety of data, such as student, course, enrollment, curriculum and assessment information. The intent of this database system is to collect meaningful data from the college's different non-compatible systems into an environment where relationships between the data could be formulated, as well as serve as a foundation for institutional research projects. Systems that have been developed and automated by the research programmer include:

- Roombook (quarterly schedule building)
- Graduation List
- Web schedule (quarterly schedule accessed via the LTCC website)
- Online student application (for new and returning students)
- Transcript database
- Kid's College

The college has acquired a number of custom solutions by outsourcing to other vendors. In 2000, Degreeworks was purchased from Software Research Northwest (SRN) to serve as our degree audit system. Since this system runs on a UNIX platform, SRN offered to develop a way to run the Degreeworks from their host system via the Internet until they developed a Windows NT product. Their programmers developed a bridge program to accept our data and our programmers developed a process to capture data from the registration system to FTP to their bridge. The system went live at LTCC in 2003. During this time Sunguard Bi-Tech purchased SRN and has since announced they no longer have plans to develop the product for the Windows server platform.

In 2002, a Curriculum Management System (CMS) was developed and implemented for the Instruction Office by Sands Data Solutions. The system allows faculty to create, modify and delete curriculum and includes an automated approval hierarchy. The database system was originally created in Access but has since been converted to a web-based SQL application.

In 2004 Sands Data Solutions created an electronic document storage system for the Disability Resource Center (DRC). Student records are scanned then stored in a network database.

SARSGrid is utilized in Student Services and the DRC as an electronic scheduler for counselors.

C. Instructional Technology:

The college has over 200 computers designated for student use. Seven teaching computer labs, including 4 Technology wing classroom labs, a MIDI lab, Digital Arts lab, and the Language Learning Center (LLC), are available for instruction. In addition 3 computerized labs are available for student support. These include the Learning Assistance Center (LAC), Gateway Math Center (GMC) and Disability Resource Center (DRC).

The computer labs are set up, configured and maintained by Computer Services. Consistency on all computers is maintained by using a centralized imaging system to image the computers, and by using desktop security software. Images are custom configured to meet the needs of a particular lab. The security software allows the

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students and instructors to modify the systems, but then restores the computer to its original configuration on reboot. This software is used on all computers accessible to students.

The Library, Internet Café, Chemistry lab and Biology lab also provide computers for student use.

Fourteen smart classrooms have been set up and designed for instructional use. Each contains an instructor station, computer, LCD projector, projection display screen, audio speakers, VCR, and Internet access. Software installed on these computers mirror the configurations of the computer labs in the Technology wing. One benefit of this configuration is that students can prepare class presentations in the computer labs and have the confidence it will work in the smart classroom. It also provides a consistent platform for the faculty. Four mobile units are available (computer and projector) for 'non-smart' classrooms and areas.

An adjunct faculty office is available for part-time instructors. It contains two computers, a printer and Internet access. A Teaching Learning Resource Center, containing four computers, is available for faculty training and development. Training is available in Frontpage, GradeSource, Etudes, and PowerPoint.

Other assorted instructional equipment include a HP plotter, laser printer access in all instructional labs, scanners in the Technology wing, and Timekeeper computers in each lab. A weather station with a computer display is displayed in the college Commons area and is maintained by the science department.

D. Desktop Environment (Faculty/Staff/Administrative)

1. Hardware:

Since moving to the current campus location in 1988, the college adopted a standard of providing a desktop computer for every permanent faculty, staff and administrator. Part time employees have access to a computer as needed. About 150 computers serve this population. With the exception of our Digital Arts program using Macintosh computers, all supported computers on campus are PC based with Gateway as the vendor of choice since 1990.

A study was done by the Gartner Group for the California Community Colleges Chancellor's Office (CCCCO) regarding the Total Cost of Ownership (TCO) for the technology. A self-evaluation of the technology on our campus as compared to the Gartner Group proposed standards yielded the conclusion that we met or exceeded the standard in every category. Each computer has access to the college's network, the Internet, email and a network printer.

2. Software:

The college employs a standard base of supported software on faculty and staff computers that include:

- Microsoft Windows 98/XP
- Microsoft Office 2000/XP
- Microsoft Outlook 2000/XP

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- McAfee VirusScan
- Microsoft Internet Explorer
- Adobe Acrobat

Other specialized software, installed by request are:

- Skylite
- Quickbooks
- Reflections for HP
- Microsoft Publisher

All other software installed on the computers must be approved, licensed and purchased by the individual departments.

3. **Support Services & Helpdesk:**

The Computer Services Helpdesk was created to provide a single point of contact for users with problems, questions, or work requests. For Computer Services, the Helpdesk provided a process to help prioritize the many support requests it receives. An emergency number (x343) is provided for users needing an immediate response for a critical problem or question. For requests not requiring immediate attention, an electronic work request form is available at the Computer Services website. The new web-based helpdesk solution was introduced in July 2005. In addition to being very easy to use, the system provides electronic records of requests and can serve as a knowledgebase for documented solutions.

E. Web Management:

In 2000, the college contracted the overhaul and modernization of the LTCC website to School Web Services. As part of the plan, two website domains were created - Ltcc.edu the main college website, and Ltconline.net the faculty website. This was done to preserve the consistency desired on the main college website, while giving the faculty freedom to create and design web pages without following the standards of the main website. The server and website maintenance were both managed by School Web Services.

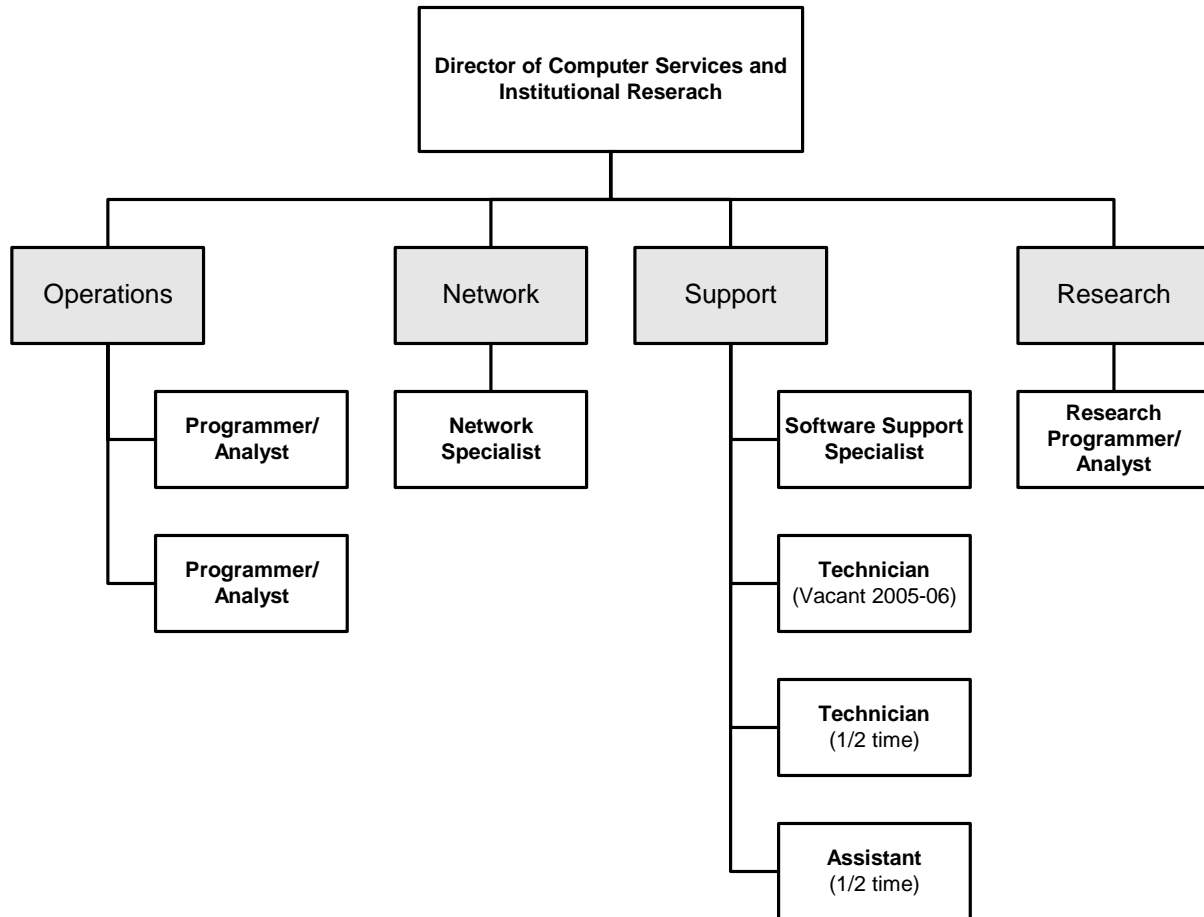
In 2002, the college ended its relationship with School Web Services. The search for a new webhost resulted in obtaining the services of OnRamp113 to host our 2 web sites and Sierra Web Services (SWS) to perform the duties of website management. Our websites physically reside with OnRamp113 in Dixon, California.

Web pages are created and modified in Microsoft FrontPage 2000. Support for instructional development is offered through the Teaching & Learning Resource Coordinator and Computer Services. Web content for the LTCC web site is updated through the Public Information Officer, who then forwards the request to Sierra Web Services.

Local web servers are utilized and maintained by Computer Services for the specific purposes of the college's student online application, and web registration. Because of the sensitivity of this data, access to these servers are through secure, encrypted Verisign SSL connections.

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F. Support Staff & Structure:



Prior to 1989, the Computer Services department was run by one person who had split assignments between Computer Services and Computer Science instruction. In 1989, the position officially became the full-time Director of Computer Services. Since then new positions have been added and the current status is represented by the above diagram. The history of these positions are as follows:

- 1990 Programmer (later reclassified as Programmer/Analyst)
- 1993 Technician
- 1996 Software Support Specialist
- 1998 Network Specialist
Technician (half-time permanent)
- 2000 Programmer/Analyst
Computer Services Assistant
- 2002 Research Programmer/Analyst
- 2003 Computer Services Assistant cut to half-time
- 2004 Full-time technician out due to disability in May 2004 – filled with full-time temporary person in September 2004

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2005 Full-time technician position not funded for 2005-06 thus becoming vacant

This college historically has committed itself to providing adequate levels of staffing to Computer Services to maintain a high level of technology support. In recent years, however, events have occurred to challenge maintaining these adequate levels of staffing. More specifically:

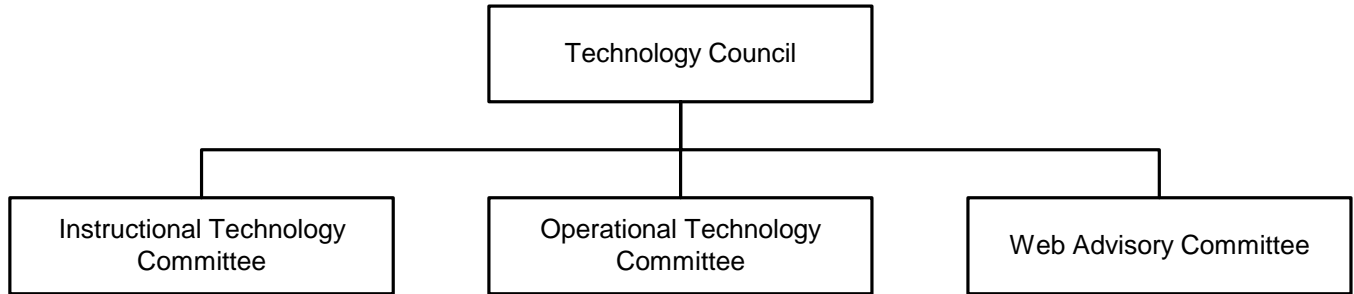
- The budget has increasingly become tighter in the last 5 years. As a result, positions have been cut back in the technology support staff. In 2003-04 the Computer Services Assistant was decreased to a half-time position and the Educational Technology Specialist position was eliminated. Beginning July 2005, the full-time technician position in Computer Services was not funded, leaving a vacancy for 2005-06.
- New security threats (such as viruses, spyware, adware, malware) are continually being introduced through the Internet. Each new threat requires research, planning, acquisition of new systems or discovery of new solutions, and support and maintenance of the implemented solution.
- As the college and Computer Services introduce and implement new systems, the new systems require ongoing support, maintenance and upgrading beyond the implementation phase.
- Introduction of new technology in the classroom adds more responsibility to the Computer Services support staff in the areas of research, planning, implementation, and on-going support.

The demand for new technology and on-going support continues to increase, while the technology support staffing is in a downward trend. This trend will need to be analyzed and addressed as appropriate.

G. Governance:

Prior to 2000, the primary technology committee at LTCC was the Data Ideas and Support Committee (DISC). This was a large committee of approximately 15 members representing a cross-section of the various departments of the college. With technology rapidly growing in all areas of the college, it was suggested that a new and more efficient and specialized structure be designed. In 2000, DISC was subdivided into the structure illustrated below. This hierarchy has allowed people with similar interests to identify and evaluate the needs in their own specific areas.

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- The Technology Council is composed of the Superintendent/President, Vice President of Academic Affairs and Student Services, Vice President of Business Services, Director of Computer Services, and a faculty member in the technology field. The purpose of this committee is to discuss current issues and topics, assist Computer Services in project prioritization, determine applicable hardware and software standards, review proposals for network and system improvements, create and maintain a Technology Plan, and process technology issues and items passed to it from other committees and groups on campus.
- The Instructional Technology Committee (ITC) is comprised of faculty members appointed by the Academic Senate and also includes the Vice President of Academic Affairs and Student Services and the Director of Computer Services. Its function is to discuss technology issues, formulate new ideas, and make recommendations from an instructional perspective.
- The Operational Technology Committee (OTC) is led by the Vice President of Business Services and includes the directors of the various operational departments such as Computer Services, Admissions & Records, Fiscal Services, Human Resources, Maintenance and Operations and Financial Aid. The primary mission of this committee is to discuss technology items and issues dealing with the operations of the college.
- The Website Advisory Committee (WAC) is a made up of a variety of faculty, classified, and administrators to discuss the operation and maintenance of the college's website.

Items for further review or approval and recommendations from these three groups are passed along to the Technology Council for discussion, consideration, and appropriate action if necessary.

Other specialized groups important to technology at LTCC have been formed since 2000 and include:

- Automated Registration Committee (ARC) – this group was formed to direct, plan, and implement an online student registration system. ARC is composed of administrators, directors and members of classified staff in Admissions & Records, Student Services, Computer Services and the Instruction Office. ARC identified and analyzed previous manual processes, planned their automation, and was responsible for the implementation of the web registration, student online application and online schedule systems. This committee, formed in 2001, still meets regularly

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to evaluate and identify ways to improve the systems and processes currently in place.

- Computer Services and Admissions & Records group (CSAR) – this committee is composed of the Directors of Computer Services and Admissions & Records, A&R Specialist, and 3 Programmer/Analysts. CSAR originally was organized in parallel with ARC to discuss the more technical issues of automating student registration. CSAR meets every two to three weeks to discuss new issues and solutions, and passes recommendations to ARC for review.
- The Operational Systems Support (OSS) group, consists of the Director of Computer Services, 2 Programmer/Analysts, and the Software Support Specialist. Meeting every two weeks, OSS discusses our administrative software systems, the data warehouse, institutional research, and processes and procedures related to these systems.
- The Technical Systems Support (TSS) group, consists of the Director of Computer Services, Network Specialist, Software Support Specialist, Technician, part-time Technician, and Computer Services Assistant. Meeting every two weeks, this group discusses help desk, network and technical issues, and solutions with our desktop environment and network systems.

Both OSS and TSS communicate ideas, new trends, new problems and issues; brainstorm solutions for Computer Services and the college; communicate between others of the group.

H. Institutional Research:

In 1991, Computer Services developed and published the first edition of Graphically Speaking. This annual document consists of a wide array of charts and graphs including student demographics, financial data, and a variety of instructional data. In 1993 a Student Equity section was added and since then the publication has evolved and improved. Graphically Speaking continues to be a major source of information for institutional and instructional planning.

Other forms of institutional research produced by Computer Services are: the standard quarterly and annual MIS requirements to the Chancellor's Office; quarterly data submissions to IPEDS (federal); annual data submissions for CalGrant; quarter data to the Student Loan Clearinghouse; various regular reports and on-demand reports.

More recently, quarterly reports have been developed for the Performance and Access to Student Success (PASS) committee and include persistence, course completions, and class sizes. During the years of our Title III grant (1999-2004) a custom database and publication, 'Keeping Your Eye on the Ball' was created and maintained by the Title III Director.

The increasing demand for data by various key planning personnel led to the creation of a Research Programmer/Analyst position in 2002. Since then, a data warehouse has been created and has integrated data from various independent systems, such as the

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registration system (student, course and enrollment data), Curriculum Management System (CMS), room and class scheduling, assessment data, and local high school student data.

In the spring 2004, a Research Committee was formed to identify and determine what data was important and meaningful to the planning process. Currently, Computer Services is validating data in the registration system databases and work is in progress to plan and develop a delivery method for research data.

I. Technology for the Disabled:

Technology in the Disability Resource Center (DRC) is diverse, state-of-the-art, and well maintained. The ability to keep technology current is made possible by State funding. The computers available to students are divided into two areas. The tutoring lab consists of ten computer stations and the teaching lab, which acts as a classroom, has six computer stations. Assistive technology is supported in other computer classrooms and student support areas on campus. These areas include the four Technology wing classrooms, LAC, and Library. One computer in each of these areas is setup for accessibility and reserved for the disabled students. Software includes Zoom Text, JAWS, and Dragon Dictate. In the immediate DRC area, technology includes:

Hardware:

- 16 student state-of-the-art student computers
- 7 staff computers
- 3 laptop computers
- 1 Timekeeper computer
- 1 SARSGrid (scheduling) computer
- 1 wireless LCD projector
- 1 Color laser printer (HP3500); 2 black&white laser printers (HP4000); 7 inkjet printers (HP 990c)
- 1 high speed document scanner (HP5080C) for Student Management System
- 1 HP5550C scanner
- Phonic Ear
- Portable screen magnifiers
- Braille
- Optelec-TV
- The Reading Edge
- Server for Student Management System

Software:

- Student computers are set up initially with an image of the Technology wing software configuration, containing all instructional programs taught in that area. In addition, the computers contain the 'specialized software' listed below and other miscellaneous software.
- Staff computers contain the standard software supported by the college.
- SARSGrid is utilized for scheduling staff and counselor meetings.

Specialized Software:

- JAWS

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- Dragon Naturally Speaking
- Zoom Text
- Kurzweil 3000
- Inspiration
- Text Help
- Student Management System

J. Library & Media Services:

The Voyager automation system, acquired in 1999, is the core of technology in the Library and is supported by both the Library staff and Computer Services.

Technology in the Library includes:

- The Voyager automation system. The system runs on a UNIX server and includes its own webserver. Two computer stations are located at the Library front counter for checking books and keeping public records. Books are checked in and out using a student or library ID card and bar code readers.
- The Library website resides on its administrative server and is maintained by the Library staff.
- Ten computers for public use are located in the Library. Two laser printers and a copying machine are available for printing material.
- Each of the four full-time library staff have desktop computers. The Media area contains two computers – the media technician computer and one for close-captioning video material. One laser and one inkjet printer are accessible to the staff.
- Subscriptions to 20 online databases. (see Appendix B for full listing)
- One Satellite dish was provided by the Chancellor's Office and is used for presentations by the California Community Colleges (CCC) system. Another dish is used for other satellite presentations outside the CCC system.
- Four mobile Media carts, consisting of a computer and LCD projector, are available for computer presentations in 'non-smart' rooms on campus. The Media area is also responsible for various other equipment, such as tape duplicators, vcrs, televisions, a slide scanner, digital still cameras, and a digital video camera.
- A network of coaxial cable runs throughout the campus to connect televisions to the cable television system. This network is maintained by a local cable company and contracted technicians outside the college.

Appendix A: Technology Replacement Plan

In 2000-01, the California Community Colleges Chancellor's Office began allocating funds based on a Total Cost of Ownership (TCO) model recommended by the Gartner Group. The TCO model defines a minimum level of technology, training, and support each college should be providing its students and staff. The funding was put in place to allow colleges to reach and maintain these levels. At that time, LTCC was meeting virtually all the minimum standards listed in the TCO model and was committed to maintaining those levels. Since then, however, the TCO funding has been discontinued by the Chancellor's Office and the college budget is becoming increasingly tighter.

Basic assumptions for LTCC replacement plan:

1. Funding will be available.
2. Computers for the classrooms require a higher level than those for the employees. Instructional computers run many high-end applications that require modern hardware.
3. Staff computer needs are primarily word-processing, email and calendaring software, an Internet browser, and software to provide access to appropriate operational data, such as in QSS and the registration system.
4. Most staff do not need high-end computers.
5. Computers added in new areas will be factored into the budget process for long-term replacement.
6. Funding to keep technology current in appropriate areas will come from a combination of restricted and unrestricted funds.

Desktop Computers:

- Three year replacement cycle for Technology wing and LAC computers. Annually replace computers for two labs.
- Replace DRC computers every two years.
- Computers replaced with new computers will cascade to the college faculty or staff.
- Purchase new computers for high-end employees, such as the reprographic technician and media-technician, and key positions in Computer Services. These computers should be replaced every two years.
- When a lower-end computer is not capable of performing the tasks needed by a user, the decision of whether to upgrade it with new components, or replace the computer will be evaluated on a case by case basis.

Laptop Computers:

- With few exceptions, the college does not purchase laptop computers for faculty and staff use. In addition, personal laptop computers are not allowed on the college network.

Printers:

The college currently has

- Instructional laser printers
 - 4 year replacement cycle
- Operational laser printers
 - Replace high-volume printers every 3 years
 - + A&R, Instruction, Reprographics, Business, Library
 - Cascade instructional printers to lower volume areas
- Inkjet printers
 - Replace on an as-needed basis
- Color laser printers
 - Replace on an as-needed basis

Appendix A: Technology Replacement Plan

Institutional Server:

- This is a high-end, high-performance server running the college's registration, student billing and web registration systems. This server was purchased with a 3 year maintenance plan (can be extended on an annual basis) and should be upgraded every 5 years. The cost of this server with installation, configuration, and migration of programs and data is approximately \$60,000.

Windows Servers:

- New servers are purchased with a RAID array of hard drives, dual power supplies, and a 5 year maintenance agreement. The RAID and dual power supplies minimize potential down time. This is appropriate for most of the college's servers. Servers critical to the operation of the college should be replaced on a 5-year cycle. Others not so critical, or do not meet the performance needs of new server technology, can be a recipient of a cascaded server.

Network Devices:

The critical, core switches are covered for failure with maintenance agreements. Although these devices are covered by maintenance, a failure could mean a segment of the network could be down for 1-2 days.

- For our non-critical switches, a spare switch is kept.
- In 1999-2001, the college network was upgraded from 10mbps to 100mbps. A plan has not yet been formulated on how and when to begin upgrading the network to gigabit.

Projectors:

- There are currently 14 fixed and four mobile classroom computer projectors. They should be warranted for the time we plan to use them (five years) and replaced on that cycle.

Smart classroom computers:

- Replacement of these computers should be on the same cycle as the Technology wing computers. A standard was implemented in 2004 to install the same version of Microsoft Windows, Office, Internet Explorer, and matching the software configuration of the computer labs.
- Media carts: four computers; four lcd projectors

Issues to address in the future:

As new equipment, such as computers, printers, and projectors, are added to the college's technology inventory, the following should be considered:

- How is the equipment going to be replaced in the future?
- Should a maintenance agreement be purchased on the equipment?

As new software or hardware systems are added, the following should be considered:

- Will the system require the purchase of a new server or network device?
- Should a maintenance agreement be purchased?
- Will the system require support from Computer Services?

As the college purchases LCD monitors with new computers, consideration should be given to whether these monitors should be passed along to faculty/staff when they are replaced. The LCD monitors will most likely not be under warranty, and they are more expensive to replace than the same sized CRT monitor.

Appendix B: Responsibilities of Computer Services

OPERATIONAL SUPPORT

Responsibilities of the operational systems are generally handled by our two Programmer/Analysts and one Research Programmer/Analyst. These systems include:

SYSTEMS:

- Registration system
- Web registration – Student Information System (SIS)
- Student Billing
- Faculty Access System (FAS)
- Web schedule
- Web application
- Degreeworks (degree audit system)
- Library automation system
- PowerFAIDS (financial aid system)
- Track-It system
- Timekeeper
- Adjunct faculty contracts
- Compass (Assessment testing software)
- Roombook (program and database for schedule building)
- Gradlist database (for tracking our college graduates)
- Transcripts database
- Kid's College database
- International studies database
- QuickBooks
- Early Alert database
- Quarterly registration file preparation and configuration

INSTITUTIONAL RESEARCH:

- Data warehouse
- Quarterly and annual MIS data reporting to the California Community Colleges Chancellor's Office
- IPEDS reporting (quarterly federal report)
- Hope Scholarship
- Ad hoc reports for institutional research
- Program planning data
- Custom reports
 - Faculty evaluation
 - Enrollment report
 - FTES report (320)
 - Probation list
 - Quarterly PASS data
 - Quarterly enrollment data (census, mid-term, end-of-term)
- CalGrant reporting
- Graphically Speaking (annual publication of institutional research)
- National Student Clearinghouse

NETWORK SUPPORT

The following duties and responsibilities are handled by the Network Specialist.

SYSTEM ADMINISTRATION:

- Network servers - install, configure, secure, maintain, troubleshoot and repair.

Appendix B: Responsibilities of Computer Services

- Server backup system and scheduling
- Patch and software upgrade management
- Create, install, and renew Verisign digital certificates
- Create and manage user and group accounts
- Create and manage email accounts and global distribution lists
- Setup and maintain Chancellor Office listservs
- Setup and maintain network shares and user access to them
- Monitor UPS(s) and replace batteries as needed

NETWORK ADMINISTRATION:

- Network switches (install, configure, monitor, update)
- Firewall (maintain and modify configuration)
- Internet connection and router (monitor utilization)
- Infrastructure upgrades and maintenance
 - Installation, configuration and monitoring of network devices
 - Installation of new cabling
 - Preparation and execution of network disaster recovery plan
- Anti-virus system (server/PCs)
- Anti-spam system
- Anti-spyware system
- Network Printers (create print queues and monitor printer services)
- Monitor annual maintenance agreements on network equipment and servers

INSTRUCTIONAL SUPPORT

The following duties and responsibilities are handled by the Computer Support Specialist and one Technician (half-time).

- Computer lab Imaging, support and maintenance (Altiris)
- Smart classrooms
- Labs – Dwing, LAC, LLC, GMC, MIDI, DRC, Library, Student services, TLRC, adjunct office
- Computer desktop security software
- Support FrontPage and Gradebook programs
- Digital Arts lab (Macintosh)

FACULTY / STAFF SUPPORT

- Help Desk – daily support for faculty, staff, and instructional labs for hardware, software and network needs. This includes support for Microsoft Windows, Office applications, Outlook, and Internet Explorer.
- Upgrade and maintenance of faculty/staff computers