Mt. San Jacinto College

Technology Master Plan
2011-2015

Information, Communication and Technology Committee
Approved October 26, 2011

Information Technology Mission

It is the mission of the Information Technology Department to provide an institutional computing environment that manages and maintains accurate, reliable, and efficient technology services for the success of the College community.

Information Technology Administrative Unit Outcomes v2011

1) *The IT department will provide a technology infrastructure that is conducive to student learning and College operations, by providing an institutional computing environment that is robust, reliable, secure, and adaptive to the expanding requirement for remote services. The department will continually assess the infrastructure and provide recommendations to maintain currency in the institutional technology needs.*
2) *The IT department staff will maintain proficiency in the hardware and software deployed at the institution, applicable to their role at Mt. San Jacinto College.*
3) *The IT department will recommend and support the software needed for student, faculty and staff communications and operations. (Note, in direct support of ILO #1 regarding Communication)*

Introduction

Technology is at the core of virtually every aspect of the educational mission of the College, College operations, and the assessment and measuring of student learning and institutional effectiveness. Technology presents complex challenges to serve growing demands in an ever-changing technology environment, especially given budget and staff constraints. In 2010, the College finds that the technology we are invested in is at a tipping point where the expectations of students, faculty and staff are that technology drives all aspects of the system including:

- technology that is available anytime, anywhere via mobile applications,
- applications are integrated with each other, with student communication and calendaring tools,
- forms are available and backed by workflows, and
- web accessibility to student and instructional services continues to grow.

The initiatives contained in the Technology Master Plan (TMP) were developed to directly support the visionary educational goals of the District, as articulated in the Educational Master Plan and the Facilities Master Plan (in development).

An excerpt from the Educational Master Plan (EMP):

> *Current and future campuses and growth in enrollment will bring an increased load on all systems. There will be a greater demand for online services as well as greater demand for infrastructure, security, system access, more training, storage, better diagnostic tools, etc. With the addition of more faculty and staff, new buildings with new infrastructure will be needed. There will also be a need to separate the infrastructure on the separate campuses. Applications functions can be centralized, but infrastructure and networking should be developed on each campus. Decentralized functions will require specialists, not generalists, to manage the systems and provide services. A presence on each campus will be necessary.*

The TMP is developed to provide a framework for the development of technology and related resources at Mt. San Jacinto College for the AY 2010-11 thru 2013-14. It is intended that the institution can prioritize the technology initiatives, set annual technology goals, and make progress toward the implementation of these goals.

The TMP should be reviewed annually to assess the priorities and goals, and to ensure that new planning initiatives and goals are developed.

The budget estimates in the TMP should be considered Initial Project Estimates. Technology costs change rapidly, and final budgetary figures are not available until the College has worked with technical vendor partners for system design and cost estimates.

Background

In June of 2001, the College hired the Tech Ed group to facilitate the development of a new Technology Master Plan. This plan was created in compliance with the mandated reporting element of the Telecommunications and Technology Infrastructure Program (TTIP) program. The breadth of the study was broad and was intended to be effective as a five-year effort. Review and revision of this plan is under the administration of the Information, Communication and Technology Committee (ICTC). The goals developed in this plan were generally without high levels of specificity because of rapidly changing technology needs and developments. However, the Institution has remained committed to deploying leading-edge technology services at the most expedient level possible. For example, the College implemented a new VoIP telephone system with a CISCO backbone, maintained growing capacities in inter- and intra-campus bandwidth, moved to a centralized leased desktop computer plan and maintained upgraded and standardized software, and maintained currency in hardware and software associated with the Datatel investment.

In 2008 the Information, Communication and Technology Committee developed the outline of the new Technology Master Plan to classify the technical needs of the College. The ICTC set these milestones to direct the development of the TMP:

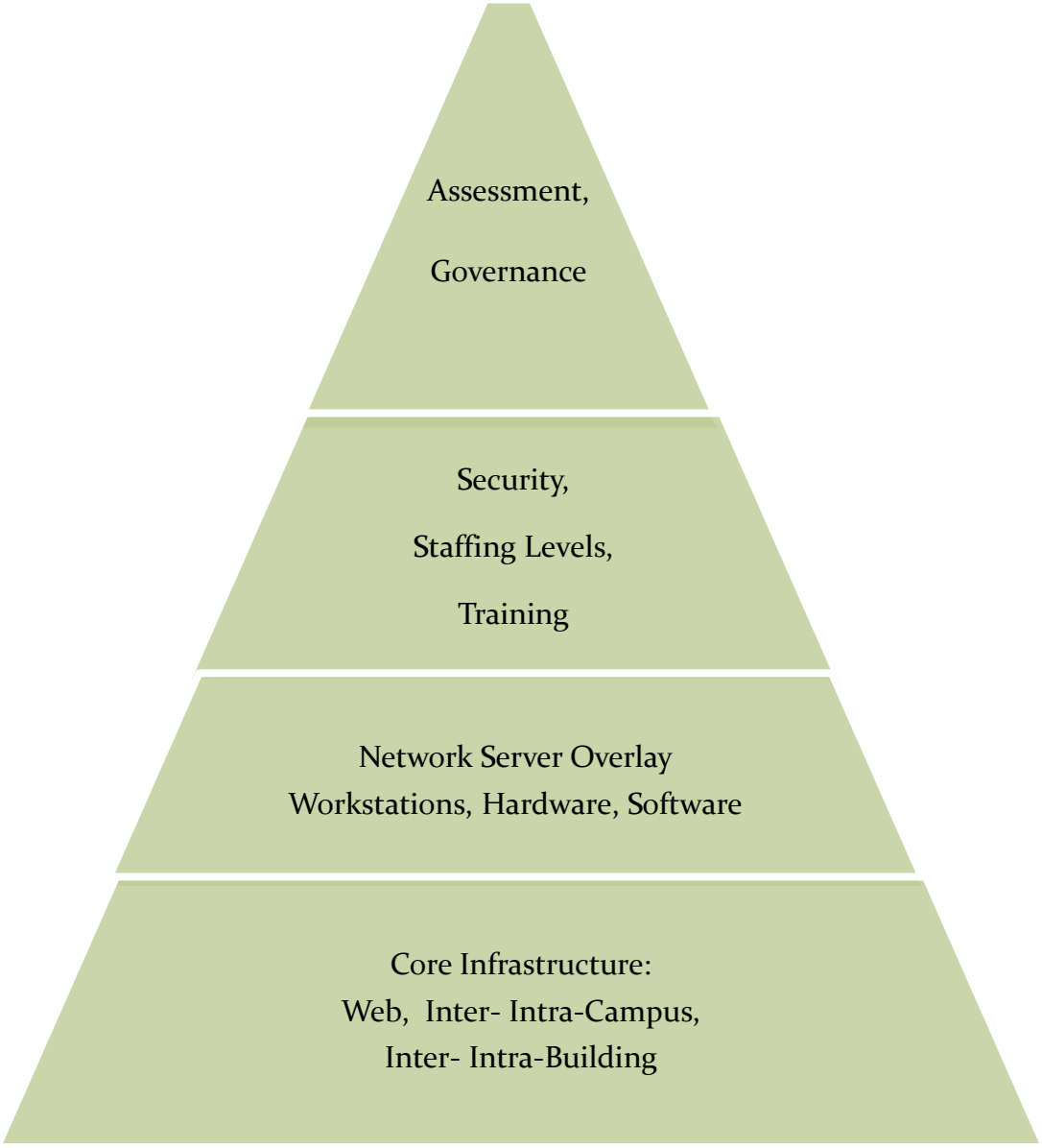
1) Conduct a full assessment of the District's existing technical environment,
2) Develop a written report of recommendations and strategies to alleviate any deficiencies in the current environment,
3) Identify additional technology needs as the College grows at the rate to be determined by the educational master plan, and
4) Develop a technology planning document that identifies budget requirements for current and future needs.

In Fall 2010, inventories of College equipment including desktop computers, peripherals, servers and data communication equipment were completed. These assessments serve as a foundation for this planning document.

The Instructional Technology initiatives for effective deployment of technology in the classroom as well as for Distance Education are under the administration of the Educational Technology Committee (ETC). The ETC developed an Educational Technology Plan in 2002, and is revisiting that plan in 2010-2011.

A Framework of Support (FS)

The vision of the TMP is to design, develop, implement and maintain technology initiatives in a Framework of Support that provides an integrated technology strategy as depicted below.
The technology initiatives are delivered in a framework from the 'ground up' as depicted below.



Framework of Support (FS) Themes:
Throughout the TMP, and throughout the development and implementation of the recommendations contained in the TMP, these FS elements will be considered as core values.
The goals and objectives of the TMP should be considered first in the context of providing support academic and operational excellence.

- Enterprise Architecture: Consider the application from physical infrastructure and moving up, to streamline and integrate applications.
  - Consider the technology needs of the College community by utilizing committees, focus groups, survey tools, or other methods of input.
- Develop project outcomes
- High availability
- Redundancy
- Accessibility
- Security
- Recapitalization/Replacement Lifecycle
- Physical environment
  - Minimize energy consumption
- Effective use: Ensure that all users have needed training and ability to choose and use applications as needed.
- Provide a balanced method to prioritize initiatives
- Provide infrastructure for robust communication and collaboration tools
- Compliance review, research and remediation (where needed)
  - Authentication and accessibility for students (Blackboard)
  - Application hacking
  - Regulations/Policies
    - Enrollment
    - Reporting
    - PCI Compliance
    - Authentication compliance
- Assess project outcomes

Technology Master Plan Goals

Maintaining current technology, maintaining systems security, and ensuring effective use of technology is all negatively impacted by the fiscal crisis in California. It is imperative, therefore, to strategically consider the acquisition of hardware, software and personnel and then prioritize the initiatives.

Annual Review

This plan will serve as the catalyst to set College and Departmental annual goals.
This plan should be reviewed annually by the Dean of Information Technology and the Information, Communication and Technology Committee.

Given this framework, the goals of the plan are stated:

Table 1: Goals of the TMP

Layer 1: Core Infrastructure		
	Goal 1	Provide a stable, secure, robust, and scalable core infrastructure to meet the ever-expanding current and future technology requirements of the College community.
Layer 2: Network Server Overlay, Workstations, Hardware and Software		
	Goal 2a	Ensure that the network topology is current, robust, redundant, stable and capitalized.
	Goal 2b	Make desktop computing environment effective and current, and the desktop computers and peripherals are re-capitalized for replacement.
	Goal 2c	Ensure effective use of the Datatel investment, third party software and integrations.
Layer 3: Security, Staffing and Training		
	Goal 3a	Ensure that system access, security, backup and disaster recovery is in place.
	Goal 3b	Provide technical support that matches the technology investment, including administrator and user training.
Layer 4: Assessment and Governance		
	Goal 4a	Provide an environment for project assessment tied to project outcomes.
	Goal 4b	Develop, review and revise technology related policies and procedures.

Layer 1: Core Infrastructure

Goal 1: Provide a stable, secure, robust, and scalable core infrastructure to meet the ever-expanding current and future technology requirements of the College community.

A prioritized core technology plan developed in the Spring of 2011 is included in Appendix B. The spreadsheet shows a proposal with 5 core initiatives that were funded in the Spring 2011 semester as part of a Budget Committee technology reserve. The following initiatives were designed to allow the College to maintain the core infrastructure at a current level during the state economic crisis.

1. Refresh Phone System	$ 70,570 financed for five years = $13,862/annually
2. Datatel Hardware move toward SQL	$ 187,000 five years = $ 31,702/annually
3. SAN Renew Maintenance Agreement	$ 73,052 / 1x
4. Datacomm Edge equipment	$ 16,000/annually
5. Upgrade desktop computers	$ 18,000/ann

Connectivity

The network infrastructure is a combination of physical connections, hardware, and software that provides for the transmission and receiving of data, and voice or video transmission. Planning for the expansion of the network infrastructure is critical for the College to grow in headcount, facilities, and technological capabilities. A strong network infrastructure is critical to ensure all students, faculty and staff members have the best opportunities available for teaching, learning, and College business.

Inter-Campus: The intercampus wide area network is contracted to Verizon as Transparent LAN Service (TLS) to provide the backbone for a Gigabit Ethernet network that carries data, voice and video conference data packets between and among campuses. The TLS provides a full Gigabyte of data connectivity between the San Jacinto and Menifee campuses. The College supports a T-1 line from the San Jacinto campus to San Gorgonio, and a T-1 line from the Menifee Valley campus to Temecula Complex. All of these lines are directly contracted with Verizon, discounted under the Educational rate program. The connectivity is administered by IT.

As discussed in the EMP, the growth in enrollment and expansion of campus buildings will bring an increased load on all systems. There will be a greater demand for infrastructure to support these growing needs.

To the internet: Internet connectivity is provided by the California Community College Chancellor's Office Telecommunications and Technology Infrastructure Program (TTIP). The TTIP program administers a partnership with the CENIC K-20 EDUCATIONAL BACKBONE. The CENIC program installed a DS3 (45Mbps) line from the San Jacinto campus to the CENIC backbone. Until Fall 2010, all internet traffic channeled through the DS3 connection. This meant that all data traveling to/from the internet from Menifee, Temecula and San Gorgonio traveled back

to San Jacinto, through the routers, and to the internet. In July 2010, the Chancellor's Office provided a 1.0 Gb connection point to Menifee. The long-term goal is a complete build-out of the secure infrastructure required at the Menifee campus so that internet traffic can travel through the nearest connection. At that point, the Menifee and San Jacinto connectivity would serve as redundant internet access points. That is, if the connection at Menifee goes down, all internet traffic can flow through San Jacinto, and vice versa. As of May 2011, the College has not funded a router, firewall, and packet management or intrusion detection so that the Menifee connection can be fully utilized. Only the instructional data, the student classrooms and labs at all campuses, utilize the internet connection at Menifee. Note: All instructional data, including data from SJC, MVC, TEC and SGP use the Menifee connection. All faculty and staff workstation connectivity requirements utilize the San Jacinto connection.

Because the Menifee link is saturated, there is a need to get a full 1.0 GB link at San Jacinto to allow internet access at the closest physical connection. The College should move toward a model that has fully built out the internet connection at both main campuses, with supported firewalls, routers, and security/intrusion detection to make a fully redundant and fault tolerant internet connection, at the fastest speeds available**.** The network should be capable of prioritizing traffic related to the academic mission of the College, for instance, to and from the learning management system and to the instructional networks.

[Objective 1, connect. Expand the bandwidth coming into the College and between College sites to fully redundant connections at both main campus sites, at highest speed feasible].

[*Objective 1, security:* The College should invest in intrusion detection equipment and software, fully supported, and adequate personnel resource to manage and monitor system security.] The EMP discusses the need for system security and diagnostic tools, with training and personnel specialists, not generalists, to manage the systems and provide services.

Inter-Building: Connection between the campus buildings is established with single or multimode fiber optics, with Category 5/5e cabling used within the buildings to provide connectivity to end-user locations. The core switching equipment was purchased in 2003 as part of the phone system/infrastructure upgrade, accounting for $330,000 of the $897,500 project. The switching devices have been stable, but are approaching end of life. In Spring 2011, the College approved spending $12,500 (5 * $ 2,500) annually to support the purchase of five switching devices annually.

A replacement strategy for the data communication equipment should be developed. Some of the equipment is outdated and oversubscribed. In many instances, the physical environment of the equipment is not properly secure and does not have a satisfactory physical environment that includes monitoring tools, dust control, proper ventilation, an adequate footprint, sufficient electrical capacity, and so on.

[Objective 1, switch: Ensure that the equipment and cabling supporting the College network is capable of high speed connectivity. The equipment should be current to be support via contract, and the College should have replacement spares on hand. Each communication closet should have ample UPS, power, ventilation, and physical security.]

Wireless Overlay

The College has limited access points for wireless connectivity. The access points have been added as facilities were added or remodeled, or added by departmental funds because the access point was deemed strategically beneficial. Students and faculty log into and access wireless internet using their Blackboard login/password. In 2006, the College undertook a wireless site survey, and in subsequent years the IT department submitted unfunded proposals for expanding wireless access. The College should now revisit the site survey, develop standards, and plan for wireless access that includes software and hardware for management and security. The wireless plan should define the protocol, tools to manage wireless bandwidth, tools for security and intrusion detection, and non-anonymous authentication.

[Objective 1, wireless: Wireless access should be fully implemented at all campus sites. The College should now revisit the site survey, develop standards, and plan for wireless access that includes software and hardware for management and security.]

Teleconference

A teleconferencing system is available for scheduling meetings across campus sites. The District's TLS connectivity provides ample bandwidth for the system to connect between campuses. CENIC provides a teleconferencing bridge system. The College has added teleconference systems as able, and systems are now available at TEC (1), MVC (3), and SJC (3). An assessment of teleconferencing needs to ensure strategic and secure placement should be considered. The equipment is, in some cases, accessible in student areas and in some cases does not have lockable cabinets and standardized operations, causing training and support issues.

[*Objective 1, teleconference* Perform an evaluation of equipment placement, security, usability]

College Phone System

The District's voice system infrastructure is Cisco's architecture for Voice, Video and Integrated Data (AVVID), a robust Voice Over Internet Protocol (VOIP) solution. Implemented in 2003 at a cost of $150,000 (70k phone servers, 70k installation, 10k training), the system has proven to be a reliable and scalable architecture. The 2003 upgrade placed approximately 65 new switches on SJC/MVC as well as Call Manger Servers, voicemail and phone trees. The College switched to Direct Inward Dial numbers in 2005, and there are 900 numbers each for SJC and MVC to maintain a logical pattern for direct calling of extensions from off-campus. The maintenance contracts on the core phone servers expired in 2009, and the system could no longer support software patch and version upgrades from CISCO. The College became unable to deploy new and desirable functionality due to the obsolete servers. In the Spring of 2011, as part of the IT initiatives funded by the technology reserve, the College approved the purchase of new core switches to upgrade the phone system as described below:

Cost:	$ 40,570	Call Manager Servers and storage
	$ 26,000	Controller switch and new UPS needed
	$ 4,000	Tape drive
subtotal	$ 70,570	total that can be financed over 5 years at $ 15,500 annually
	$ 12,500	Training (10,500 for 3 people plus 2,000 travel/per diem)
Project Total	$ 87,070	

[*Objective 1, telephony:* Maintain the telephone and voice messaging system hardware on a funded replacement cycle. Maintain the software at the most current level. Take advantage of full telephone capabilities and messaging interfaces through training and communication.]

Goals/Objectives Chart 1:

Recommendations Goal 1: Provide a stable, secure, robust, and scalable core infrastructure to meet the ever-expanding current and future technology requirements of the College community	**Budget Estimate**	**Measurable Outcome**
Obj1connect. Expand the bandwidth coming into the College and between College sites to fully redundant connections at both main campus sites, at highest speed feasible. • Purchase Required Router, Firewall and intrusion equipment to make MVC fully connected • Upgrade current router equipment at SJC • Purchase QOS and monitoring software to survey packet management • Expand internet connectivity using alternate ISP • Ensure network diagnostic tools are available •	$60,000 1x equip costs. CO provides link.	Perform bandwidth analysis, using appropriate tools, to quantify data movement and capacity.
Objective 1security: • The College should invest in intrusion detection equipment and software, fully supported, • adequate personnel resource to manage and monitor this area, including a Security Officer specialist to manage the system. • The College should schedule with a data security consulting firm for an on-site audit.	$35,000/1x $95,000/ann $30,000/1x	Saves man-hours vs. log-checking Reports from appropriate software intrusion tools can quantify the safeguards. Our insurance may pay for a security audit. The firm will give a scorecard for improvements.
Objective 1switch. Ensure that the equipment and cabling supporting College buildings is capable of high speed connectivity. The equipment should be current to be support via contract, and the College should have replacement spares on hand. Each communication closet should have ample UPS, power, ventilation, and physical security. • Create and implement a switch and UPS replacement strategy 25% annually		Quantify: self-insure vs. recapitalize this

• Survey the edge and building switches and upgrade • Perform a new capacity plan for the equipment, much of it is oversubscribed and out of date • Perform an environmental scan, and ensure satisfactory physical environment: secure, ventilated, dust-controlled, temperature controlled, ample electricity, etc. • Find adequate space for equipment storage and staging	$30,000/ann $30,000/1x $65,000 1x $0 scan $0 – 65,000/1x	equipment Uptime With appropriate space and environment, equipment PM and equipment downtime is minimized.
Objective 1wireless. Wireless access should be fully implemented at all campus sites. The College should now revisit the site survey, develop standards, and plan for wireless access that includes software and hardware for management and security. • Perform wireless overlay mapping, prioritize deployment • Provide LDAP authentication for faculty and students as required by CENIC that includes sign on / password management. The current system supports only 500 heads-down users due to licensing constraints of Clean Access. The system must be expanded. • Ensure campus network is protected from virus brought on by PCs and mobile storage • Design and implement VPN • Design, develop, implement solution to protect rogue access points	$3,000 $35,000/1x $30,000/1x $0 $30,000/1x	More students and faculty accessing the wireless network. More applications being used on the web. Economies of survey tools, e.g. faculty evaluations that can be run campus-wide via the web, allowing for faster turnaround on the analysis.
Objective 1telephony: Maintain the telephone and voice messaging system hardware on a funded replacement cycle. Maintain the software at the most current level. Take advantage of full telephone capabilities and messaging interfaces through training and communication. • Create and implement a phone system core equipment replacement strategy e.g. 4 year cyclical refresh • Ensure maintenance of equipment and software upgrades and patches • Develop telephone handset purchase and replacement strategy • Develop standards and strategies for integrated mobile phone technology • Investigate IP outbound access for long distance. • Investigate IP gateway services as cost effective solutions • Determine need for redundancy in voice and core servers.	$17,000/ann $0 $7,000/ann $0-$5,000/1x $0 $0 $0	Increased telephone functionality and integration.
Objective 1teleconference Perform an evaluation of equipment placement, security, usability • Pull equipment from student access areas • Ensure operational standards (Room 805 at MVC is a classroom) • Meet ongoing training and support needs.	$0 $0 $0	Quantify hours saved.

Layer 2: Network Server, Workstations, Hardware and Software.

Goal 2a: Ensure that the network topology is current, robust, redundant, stable and capitalized for growth and obsolescence.

Server Overlay

In 2006-07 the College replaced many aging standalone servers with a clustered server environment and a Storage Area Network. Additional storage capacity has been purchased on a per incident basis. Additional servers have been funded by need and replaced strictly by age of the hardware rather than a cyclical replacement cycle. The result has been that server needs are funded when a server fails or there is a disruption in vital services.

The clustered servers purchased in 2006 are reaching their supported end of life. Current standards call for the implementation of virtual machines (VM). VMs as servers allow for multiple applications to share a single physical machine as though the application was running independently on the machine. Virtual servers save energy, reduce the number of servers that must be purchased and maintained, and reduce maintenance costs. However, VM servers introduce complexities for staff that will require adequate training and support.

In Spring 2011, the IT department did an analysis to convert the College file, print and application servers to virtual servers. The plan was developed and submitted to SCE and analyzed for zero/low interest loans and on-bill-financing. The amount that qualified for SCE funding was ultimately about 40%, and the decision was made to move this project to a 2012/13 timeline. The cost of the servers is identified in Table 2 below.

Table 2: Cost of VM transition

	Server Names	Model	ea	quanity	shipping	sub-total
Hyper-V Server - Production Fast Disk (2 Proc)	Hare1-4	Dell R510	$ 15,089.90	4	$ -	$ 60,359.60
Hyper-V Server - Production Slow Disk (2 Proc)	Turtle1-4	Dell R510	$ 14,837.90	4	$ -	$ 59,351.60
Hyper-V Server - Testing (2 Proc)	Testing1-2	Dell R510	$ 14,837.90	2	$ -	$ 29,675.80
					subtot	$ 149,387.00
					ship	$ 300.00
					tax	$ 13,220.75
					total	$ 162,607.75

[Objective 2VM: Develop and implement a plan to convert the main College file, email and application server to VM. Include recapitalization costs on a prudent refresh cycle].

Instructional Technology:

The Instruction Technology planning component is being developed by the Educational Technology Committee, directed by Dean Patricia James.

Goals/Objectives Chart 2:

Recommendations Goal 2a: Ensure that the network topology is current, robust, redundant, stable and capitalized.	Budget Estimate	Measurable Outcome
Objective 2VM: Develop and implement a plan to convert the main College file, email and application server to VM. Include recapitalization costs on a prudent refresh cycle. • Consolidate and upgrade all servers using VM and/or other current alternative technologies • Develop strategies for data storage capacity needs, short and long-term. Consider system access and security requirements.	$ 170,000 Can be financed over 5 years in a cycle.	Reduce service disruptions. Increase server capacity. Decrease power load. Increase security.

Goal 2b: Desktop computing is current, robust and capitalized

<u>Desktop Hardware</u>

Computer workstations are an indispensable component of every office, utilized in all aspects of faculty, staff and administrative roles. It is essential that each workstation represent current technology to support the essential applications that comprise day to day College operations.

All Classified, Administrative, and full-time Faculty employed at the College are provided with a desktop computer capable of running College supported software. The part-time faculty can access workstations clustered in faculty workrooms at each site. The ICTC annually sets a minimum standard for computer support, and computers not meeting those requirements are recommended for replacement.

In 2007/2008 the College approved a plan to move the 722 administrative computer workstations into a leased model, replacing 20% each year. To date, 550 have been moved into the leased model, leaving 172 machines to upgrade. Of these 172 machines, 90 will be upgraded in the Spring of 2011 by adding RAM to bring the machines up to minimum standards. That leaves 82 College computers that are below minimum standards and should be considered for replacement. In lieu of leasing 82 new machines, the IT department recommends configuring as many workstations as possible into less expensive 'thin clients' – a client/server scenario. The IT department will conduct a full feasibility of thin clients, due July 1, 2011. Thin clients may be feasible in faculty areas where heads-down concurrent usage is low, and in departments where computers are used as user interfaces to Datatel. The thin clients may be purchased at a ratio of 9 thins + 1 server, costing approximately $8000. This represents a 40% savings over funding single workstations, and will realize a material reduction in power consumption. The IT department should ensure that all desktop purchases are made fully considering the Guiding Themes of the Technology Plan, reference Page 2.

The College must be diligent to maintain currency in desktop computing with ongoing refresh cycles. Investing in thin client solutions may allow cost savings while deploying robust computing solutions to the desktops. A thin client plan; that is, deploying 'sets' of thin clients, redeploying the salvaged machines, and upgrading the remainder, is being developed. Given the current/projected

software supported by the College for the next 3 years, this solution will hold all faculty/staff computers for 3 years.

Application streaming, remote desktop services, anytime/anywhere computing, terminal services, and key servers are all aspects of desktop computing that should be explored.

[O*bjective 2b, desktop:* Maintain robust and secure desktop computing].
The use of dual monitors has become a productivity tool that boosts office productivity. Dual monitors have been deployed in key areas, funded partially by IT and partially by department.

A fiscal synopsis of the computer lease schedule is shown in the following Table:

Table 3: Cost of Desktop Computer Leases:

Cost of Desktop Computer Leases	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Sch 6 07-08A Instructional Computers	$75,446.15	$11,415.63			
Sch 8 08-09B Misc 2 payments / year	$64,068.00	$64,068.00	$32,034.00		
Sch 9 08-09 C for MAC computers Instr	$28,333.46	$28,333.46	$6,732.62		
Sch 10 08-09 D Monitors for MACs Instr	$3,146.35	$3,146.35	$661.83		
Annual Payments Lease Sched 08-09-10	$95,547.81	$95,547.81	$39,428.45		
Sch 3 07-08A San Jacinto Faculty	$21,855.69	$3,306.93			
Sch2 07-08A Instructional Admin	$12,958.22	$1,960.69			
Sch 4 07-08A Stu Svcs	$14,689.89	$2,222.69			
Sch 5 07-08 A Police	$719.58	$108.42			
Sch 6 07-08A Instructional Computers	$75,446.15	$11,415.63			
Sch 7 Lease 08-09 Misc	$13,066.90	$1,986.46			
Sch 8 08-09B Misc 2 payments / year	$64,068.00	$64,068.00	$32,034.00		
Annual Payments Lease Sched 01-07	$202,804	$85,069	$32,034		

Instructional Computer Labs

The Instructional Computer Labs and classroom computers are under the administration of Dean Pat James and a discussion for this component is contained in the Instructional Technology Master Plan.

Computer Laptops

Laptop computers are provided to employees with the approval of their department administrator. Laptop computers are funded by the requesting department. Generally, laptop computers are not offered as an option to the primary desktop computer but the number of exceptions has been growing. In Spring 2011, the demand for laptop computers is being tempered by the use of smart phones and devices like the iPad. There is no developed procedure around the purchase of laptops, including defining who gets a laptop and under what circumstances, if the laptop becomes the only

College supported computer, how to cyclically check the laptop in for PM and security checks, and how to assess value and make users accountable for lost or stolen laptops. There should be policy in place about the data that can be stored on laptops or other mobile media, and how to protect that data.

[*Objective 2b, laptops*: The College should develop standards and procedure including authorization parameters for laptops, security of portable data, physical security of the laptop, wireless access, authorization forms for portable equipment, replacement, cost of security licenses, etc.]

Printers

Printers and other peripherals are purchased on an as-needed basis and have no set replacement cycle. The College has adopted a practice of making leased Xerox printers, clustered by office, the default file printer. Black and white desk printers are purchased by the department, as are color print. Toners are purchased by the department.

In the Spring of 2011, the College is considering the cost savings of a managed print solution.

[*Objective 2b, printers:* The College should analyze the feasibility and cost savings to outsource printer management.]

Electronic Mail

The use of electronic mail as a means of communication has expanded rapidly for several years. Email is a collaborative tool that is critical for student to/from faculty, College to student, College to faculty/staff communications. The College utilizes Microsoft Exchange server technology with Microsoft Outlook clients. All full-time and part-time faculty and staff have Outlook mail accounts that resolve to @msjc.edu. Each user is provided with an allocation of disk space for their email. The College has adopted policies for the acceptable use of the College computing facility. There is a policy in place for students, and one for faculty/staff. A copy of these documents can be found in the online Board procedure manuals.

The College uploads data to support a student email system hosted by Microsoft called live@edu. All students are issued an email that is Userid@student.msjc.edu. The User ID is the same login ID that students use to access the Blackboard system.

The allocation of email storage space, and users using email storage as a file storage device as well as a communication system, is a continuing problem. There is a need for email archival appliances that will not only assist with storage, but will also assist with eDiscovery requests and requirements. The development of email Administrative Procedure is addressed in the Layer 4 Governance of this document.

The email system needs to be evaluated from the perspective of the TMP Guiding Themes.

[Objective 2b, Email: Ensure that College email is supported with servers that allow for current levels of software, e.g. Exchange 2010, and that email space is allocated fairly and used efficiently.]

College Software

As the College grows, the management of software licensing is increasingly difficult. Faculty requires course-related software. Generally, software is becoming more user friendly, prompting an increasing number of user requests to install. Faculty and staff sometimes bring in software from home.

A growing problem is the acquisition of software and the expectation to integrate that software with other packages, without utilizing a total cost of ownership approach. All software procurements should include adequate implementation and support staff. Adequate hardware with capacity planning should also be considered.

A concern expressed by the ICTC is that with the proliferation of cloud computing and the availability of software tools via the web, e.g. Wiki's, file sharing software, and blog tools, there is increasingly a lack of standardized tools to use. One group may use Googledocs while another uses a Blackboard; or, one group may use a Zoomerang while another uses SurveyMonkey. It is increasingly important to standardize the software toolset for consistency, support and training.

Migrations from Microsoft Office Suites and Microsoft operating systems must be systemically planned, supported and funded. Maintaining consistency and standards in OS and Office versions is important for support and training. A plan should be developed to move to Exchange 2010, and the plan should be a model for future transitions.

[*Objective 2b, software*: Develop, fund and implement ongoing replacement strategies and policies for software licensing and maintenance contracts]
[Objective 2b, TCO: All software procurements should include adequate implementation and support staff, as well as adequate hardware.]

Goals/Objectives Chart 3:

Recommendations Goal 2b. Desktop computing is current, robust and capitalized.	Budget Estimate	Measurable Outcome
Objective 2b.desktop Maintain robust and secure desktop computing • Consider thin client pods • Terminal services • Application streaming • Remote desktop services • Virtual desktops with terminal services • The College desktop hardware should be purchased with a funding model that allows for a cyclical refresh cycle, Create and implement desktop technology replacement program 20% annually. The current lease program should be maintained , supported, and should continue. • The College should look at dual monitors as a standard productivity tool.	~ 250,000 annually	Cyclical refresh of desktop equipment allows departments to run more effectively, allows for standardization of training and support.
Objective 2b laptops: The College should develop standards and procedure including authorization parameters for laptops, security of portable data, physical security of the laptop, wireless access, authorization forms for portable equipment, replacement, cost of security licenses, etc. • Create and implement laptop procurement, replacement, refreshment strategy. • Create and implement solutions for secure portable data • Ensure anti-theft technology such as Safe Stop tagging and/or Absolute licenses are utilized. • Create laptop wellness check policy.	$0 $0 - $7,000/1x $300-$3,000/ann $0	
Objective 2b printers: The College should analyze the feasibility and cost savings to outsource printer management.	$0	
Objective 2b email: Ensure that College email is supported with servers that allow for current levels of software, e.g. Exchange 2010, and that email space is allocated effectively and used efficiently. ▪ Develop email archiving solution to manage the exponential growth of data in the system, purchase appliance ▪ Develop better strategies to remove inactive associate faculty and unused group accounts from the system	$ in VM solution $40,000 $0	
Objective 2.b.software: Develop, fund and implement ongoing replacement strategies and policies for software licensing and maintenance contracts and computer peripherals. • Conduct software inventory, consolidate budget and administration, and look for economies of scale. • Evaluate key server software check out solution. • Audit cost of software, some users pay their own licensing and maintenance contracts while others have it	$0	

centralized. • Obtain an auditing package to track software • Set standards for software usage so that various groups don't use disparate tools. For example, Class Climate as the survey tool, vs. Zoomerang or Survey Monkey. • Create a model for maintaining currency in Microsoft OS and Office Suite versions; migrate to Exchange 2010 and Office 2010.		
Objective 2b TCO: A Total Cost of Ownership approach should be taken when software procurements are made. Support staff should be specialists, not generalists, to effectively manage systems and provide services. • Adequate implementation and support staff • Adequate training for support staff as well as user staff • Adequate hardware, including long-term capacity planning • Provide a training room at Menifee. • Update the training room at SJC.	Variable $50,000	

Goal 2c: Ensure effective use of the Datatel ERP investment, third party software, and integration between systems.

Datatel ERP

The College invested in the Datatel Colleague higher education integrated software system in Fall 1999, and subsequently upgraded two version releases to be on the most current version Colleague 18. The Datatel system provides the software base for student enrollments, management of academic records, class offerings, student financials, and financial aid. The College has implemented many in-house software reports, subsystems, and changes to the as-delivered Datatel source code. A Colleague Application Software Team (CAST) meets regularly, comprised of module leaders from across campus. Module leaders serve as the resident experts for subsystem functionality, departmental training, subsystem setup parameters, troubleshooting, and reporting.

The College is recognized as having a strong Datatel implementation and viewed as a leader both in the success of Datatel at the institution, and for taking a leadership role in Datatel user groups.

The College investment in Datatel is at a tipping point. Datatel has made platform and software upgrades that are impressively progressive. The College must upgrade the hardware to be able to take advantage of the improvements that are aligned with the expectations of our current tech-savvy faculty, staff and students, including:

- Portal functionality that is seamlessly integrated with Web 2.0 and Datatel
- Mobile technology on phones
- Enhanced reporting via SQL
- Enhanced web functionality and dashboard reporting

The 2010-11 Software Cost for Datatel is outlined below.

Table 4: Annual Cost of Datatel Software for 10-11

Initiative Description	**2010-2011 Paid**
Datatel ESSA	
Maintenance Portion	$186,717.00
License Portion	$37,510.00
Datatel Partner Products	
Maintenance Portion	$33,209.25
License Portion	$2,480.00
E-Commerce transaction fees - additional estimate	$970.00
E-Commerce Base Fee	$4,683.00
Total Cost/Datatel	$265,569.25

Datatel hardware.

The Datatel environment: Datatel runs on a Unix/Unidata platform on HP equipment purchased in 2006 as a 5-year solution at a cost of $ 211,975. The hardware and software capacity (144 licenses) is stretched thin during peak periods. In 2011, Datatel recommends a distributed architecture with the SQL database and the Datatel applications on separate servers.

A 'best scenario' would be to purchase new hardware and migrate to SQL now at a cost that would approach $ 350,000. The new hardware would be loaded with and put into production with SQL. For a variety of reasons, including cost and staffing, this conversion is not feasible in 2010-11 through 2011-12.

The alternative recommendation is to defer the SQL migration until 2012-13, and purchase equipment that will extend the current HPUX solution, as outlined below:

Table 5: Datatel to SQL Migration

New Hardware and SAN for Datatel SQL		
Extended Service Agreement HPUX		
3- Dell Servers for WebAdvisor, eCommerce, User interface and Web Services Servers	$70,000.00	Financed by Dell at .59% over 5 years.
HPUX Server	$80,000.00	Financed @ 3.5% $ 87,000
Memory Modules for conversion 4@ $406	$1,624.00	one-time
Networking Switches/Cables	$39,191.48	two-time
Software Licenses	$27,674.00	one-time
4 Security Certs for new **servers @ 349**	$2,792.00	one-time (5 Yr.)

[Objective 2c SQL: To create a more robust and effective architecture for web-based student services, integrated technologies (portal, communication tools, and web services) and reporting, upgrade the existing server infrastructure, the OS to Microsoft, and the database to SQL.]

Historically, the College has made software procurement decisions based on a number of possible requirements:

- Mandated processing and reporting. Examples: We purchased Curricunet due to state Chancellor Office recommendation. The Datatel system has functionality for the mandated MIS reporting needs.
- Productivity gains, for new functionality, and to gain access to information for faculty, students, and staff. Examples: the College purchased a content management system based on Sharepoint to more effectively allow for timely website update. We purchased SARS modules for counseling to have functionality for counselor scheduling and reporting. We purchased Datatel to have an effective student information system. We purchased the DSS system to allow easy access to data regarding class fill rates.
- Environmental Scan, such as the growth models that come from the Chancellor's Office and our own Research Office, the demographics of our College community(ies), and the local business climate. Example: we purchase hardware with no less than 30% growth capacity because we are a growing district

- Based on the education master plan or BOT goals. Examples: we license Blackboard Connect to ensure a reliable communication path to students, faculty and staff in an emergency, supporting the BOT goal for campus safety.

Hardware purchases are based on the requirements of the software we run, or based on capacity needs. Example: we purchased servers around specifications for video surveillance. We increased the WAN bandwidth due to the need for more system capacity.

- Hardware and software purchases are influenced by the compatibility with existing systems and personnel expertise. For example, we do not purchase systems based on Oracle because we have no in-house expertise. We purchased third party software including Hershey Imaging and SARS based on existing integration with Datatel.

Before any hardware or software purchases are made, it would be in the best interest of the College to ensure that all software investments are maximized.

[Objective 2c ERP: Utilize the Datatel business services team to analyze effective use of our Datatel investment.
While the analysis cost zero, the solutions will be identified with cost.]

<u>The MSJC Portal</u>

Currently we are using the Blackboard Enterprise software as our portal system and Sharepoint as our Content Management System for the College website. This solution was developed and implemented in the 2004-2005 fiscal year and was considered a leading edge portal implementation. Since that time, other vendors that the College is vested in have developed portal applications that may functionally operate more effectively than the Blackboard portal. Some of the problems recognized with the Blackboard solution include an inefficient architecture, distributed tech support, a single point of failure in staffing, a reliance on third party vendor development, limited communication tools, confusion at the point of access, lack of overall general organization, and lack of work flow tools.

The College should consider the changes necessary to utilize Sharepoint as the foundational architecture with Blackboard as a course level and academic portal within the Sharepoint portal. Use of Sharepoint would allow for better communication, reporting, and access for the entire College community. The move would streamline staffing and procurement resources. This would allow us to accomplish the single sign-on goal for all appropriate applications for faculty, staff and students, which is not possible at the present time. This change will allow for modular maintenance that does not interrupt all services or cause specialized implementation for every maintenance activity or other disruption. Mobile access to College-wide applications will be improved.

[Objective 2c Portal: The Blackboard portal should be evaluated against the benefits of moving to the Datatel web portal product on the Sharepoint platform. The integrated portal will increase user friendliness, provide efficiencies through single sign-on and increase communication and collaboration]

Third-Party Applications

Third-party (3P) applications are software systems and subsystems that are purchased for a specific function that is generally not addressed in the Datatel ERP, or perhaps not addressed to the users' satisfaction in the Datatel ERP. The 3P software can dramatically improve the effectiveness and efficiency of College student learning and business processes. The college has invested in a number of third-party applications that are intended to fill operational gaps in the adopted enterprise software (Datatel). These applications are utilized in a variety of departments.

While many of the 3P applications are utilized on a daily basis, the effective use of many software products suffer from a lack of trained staff that are tasked to support the adopted software. Third-party applications are often purchased and implemented to support an isolated business process, and often purchased with one-time funding. Many times, training and even occasionally, staffing, are supported during the implementation phase of the software; however, as time passes, staff and training dollars are not committed in an ongoing budget.

Some 3P applications function optimally only when integrated with the Datatel ERP. When this is true, the 3P systems and Datatel must be customized to share data. The interfaces can be complex, and maintaining software integration during upgrades and patching is challenging.

[Objective 2c 3P: The software that the college has invested in should be utilized effectively for optimal return on the investment. Effective utilization includes sufficient hardware, sufficient technology support staff for integrations and maintenance, and sufficient user personnel so that users are specialized in the use of the system.]

Table 6: Listing of 3P Applications

Software	Purpose	Integration Status	Departments
Hyland Singularity	Document Imaging Archive	Highly	
OnBase Transcripts	Transcript Imaging Application	Highly	
Hyland Index	Document Imaging Application	Moderately	
SarsGrid	Appointment Management	Moderately	
SarsCall	Automated Phone Contact Application	Moderately	
SarsAlert	Instructional Student Intervention	Moderately	
SirsiDynix Unicorn	Library Management	Lightly	
Student Education Plan	Counseling	Lightly	
Softdocs Doc-E-Serve	Print Server Software	Highly	
Comevo	Student Admissions Orientation	Highly	
Accuplacer	Student Admissions Assessment	Highly	
Jams	Judicial Affairs Management	None	
Decision Support System	Instructional Strategic Planning	Highly	
LIVE@EDU Email	Hosted Student Email	Highly	
Open Class List	Dynamic Web App to Display Open Classes	Highly	
Elumen	Student Learning Outcome Assessment	Highly	
Class Climate	Online Surveys	Moderately	

Instructional Program Review	Online Instructional Program Review	Moderately	
CurricuNet	Curriculum Management	Lightly	
Blackboard Connect	Emergency/Disaster Contact Application	Moderately	
InfoTek DocuTek	Imaging System	None	

The College is not fiscally independent; we contract with Riverside County Office of Education to provide financial accounting, budget and payroll applications. Integration between the two major systems, Datatel and Galaxy, has been identified as desired, but has not been funded or had resources devoted to it.

[Objective 2c Galaxy: Develop Datatel integration with Galaxy to improve access to financial and budget information.]

Goals/Objectives Chart 4:

Recommendations Goal 2c: Ensure effective use of the Datatel ERP investment, third party software, and integration.	**Funding Source**	**Measurable Outcome**
Objective 2c SQL: To create a more robust and effective architecture for web-based student services, integrated technologies (portal, communication tools, and web services) and reporting, upgrade the existing server infrastructure, the OS to Microsoft, and the database to SQL. Create data warehouse and reporting tools to make relevant data easily accessible to end-user.	$230k District Can be financed over 5 years.	Increased integration leads to less programmatic solutions for interface. Staff / Research ability to self-fulfill data needs.
Objective 2c Portal: The Blackboard portal should be evaluated against the benefits of moving to the Datatel web portal product on the Sharepoint platform. The integrated portal will increase user friendliness, provide efficiencies through single sign-on and increase communication and collaboration.	$ 180k	Student satisfaction with web and mobile applications. Enhanced student, College, faculty communication tools.
Objective 2c ERP: Utilize the Datatel business services team to analyze effective use of our Datatel investment, module by module. While the analysis cost zero, the solutions will be identified with cost.	$ 0 +	Measured workflow improvement.
Objective 2c 3P: The software that the college has invested in should be utilized effectively for optimal return on the investment. Effective utilization includes sufficient hardware, sufficient technology support staff for integrations and maintenance, and sufficient user personnel so that users are specialized in the use of the system. Ensure that third party products are not purchased without	$ 0 +	

investigation into vested products. Ensure that third party products are not at a custom level that they are difficult to maintain and support. Consider AP regarding third party software products.	Variable	Analysis may identify costs. Measured workflow improvement.
The College should capitalize institutional and instructional software as an ongoing need with a sustainable budget model.	Variable	IT administers $ 540k budget for software maintenance.
Objective 2c Galaxy: Develop an integration with Galaxy to improve access to financial and budget information	$40,000	Measured workflow improvement. Improved budget modeling and reporting.

Layer 3: Security, Staffing and Training

Goal 3a: System access, security, backup and disaster recovery are in place.

System Access

The College controls user access with signature authority based on least privilege required for operation by position. Accounts are deactivated upon separation. Policy and procedure is in place for control of system access and removal of access. Passwords are set to expire every 90 days. The department was supporting a self-password reset option available on the online access to email site: eaglemail.msjc.edu. This self-password reset tool was freeware, and became unusable. The College should invest in password management software.

[*Objective 3a Password*: The College should invest in Password management and integrated single authentication tools.]

System Security

The College computer network is a vital resource to faculty, staff and students for academic and administrative purposes. The College is committed to maintaining the integrity, confidentiality, and availability of College data. Student data and employee privacy information are areas that must be protected from intrusion and inappropriate use or disclosure.

A firewall is in place to protect the systems from unauthorized access. Virtual LANs are used within the campus to segregate the student access traffic from the network used by employees. The College does not have an intrusion detection appliance, or a Security Officer (a state mandate for the California State University and University of California systems). The IT department has been challenged to provide adequate intrusion detection by reviewing logs and traffic flow, as personnel was available to do so. Certainly, we have not been able to provide 24-hour attention to this, and it is necessary to purchase a security appliance.

[*Objective 3b Security:* Ensure system security].

[Objective 3c Environment: The physical environment for computer equipment must be adequate and secure.]

Data Backup and Recovery

All systems are backed up with RAID or SAN technologies. The primary server farm resides at SJC. Backup tapes for servers are stored in fireproof safes. This chart shows the backup tape rotation and recovery schedule.

Table 7: Backup Rotation

SYSTEM	DESCRIPTION	SCHEDULE	RECOVERY*
Blackboard LDAP	File directories & system states; BB_LDAP1 | BB_LDAP2	7-Day Weekly Incremental Backup, Full Backup on Sunday	Up to 3 Wks.
Active Directory	System States; MVCDATABASE | RIMSMOBILE | RIMSSQL | SHAMWOW | SJCAPP | SJCBOOKDATA | SLAPCHOP | SNUGGIE | THECLAPPER | WINPRISM	5-Day Weekly Incremental Backup, Full Backup on Friday	Up to 3 Wks.
Email	Exchange Databases; EAGLEMAIL0 | EAGLEMAIL1 | *Backup Database*	7-Day Weekly Full Backup, **Full Monthly Backup**	**Up to 1 Yr.**
File	Directories; EAGLE1DFS | EAGLEADMIN | EAGLEFILE3 | EAGLEPUBLIC | FILE4 | MVCDATABASE | ROBOT | SAGE | SJCAPP | SJCBOOKDATA | THECLAPPER | WINPRISM | *Backup Database*	7-Day Weekly Incremental Backup, Full Backup on Sunday	Up to 3 Wks.
Firewall	Directories; FIREWALL	5-Day Weekly Incremental Backup, Full Backup on Friday	Up to 3 Wks.
SQL	SQL Databases; EAGLESQL | MVCDATABASE | RIMSSQL | SJCAPP | SJCBOOKDATA | WINPRISM	7-Day Weekly Incremental Backup, Full Backup on Sunday	Up to 3 Wks.
Web Server	Directories; SPIDER1 | WEB SERVER SQL Databases; WEB SERVER	7-Day Weekly Incremental Backup, Full Backup on Sunday	Up to 3 Wks.

***from date of backup**

HARDWARE:	SOFTWARE:
DELL PowerEdge 2950 (DGBZLB1) **2x Intel Xeon 3GHz Quad Core Processors** **4GB Physical Memory** **DELL ML6000 TAPE LIBRARY (CN89J81)** **4 Drives** **18 Import/Export Slots** **109 Storage Slots** **1 Cleaning Slot**	**Windows Server 2003, Enterprise Edition Build 3790 (Service Pack 2)** **CA ARCserve Backup v12.5 (Build 5854)**

The Dean of IT developed a system inventory and recovery framework rubric that inventories and documents all systems so they can then be graded into a recovery prioritization. The initiative has not been completed due to lack of staff resource. All software and hardware systems should be assessed and scored in the rubric. Completed documents are stored on the public drive, under the Data Recovery Plan (Committees).

[*Objective 3d Backup and DR:* Ensure systems are backed up and data recovery strategies are organized and prepared]

Goals/Objectives Chart 5:

Recommendation Goal 3a: System access, security, backup and disaster recovery are in place.	**Funding Source**	**Measurable Outcome**
Objective 3a Password: The college should invest in Password management and integrated single authentication tools. ▪ Develop strategies for self-reset password management ▪ Ensure that strong password is enforced ▪ Integrate LDAP authentication that can be traceable back to student for accountability (note: is also a goal in 1- Infrastructure: Wireless)	$30,000/1x	
Objective 3b security: Ensure system security ▪ The College should strongly consider hiring a Security Officer to oversee the many security initiatives and needs. ▪ Implement intrusion detection appliance and workflow ▪ Maintain and expand the technical solution to alert the campus in the event of an emergency ▪ Support the College initiatives for security camera and emergency phone stations ▪ Enhance the protection of College information and data security through training and technology e.g. encryption. ▪ Enhance SPAM block	$ 110,000/ann $30,000/1x $75,000/1x	
Objective 3c Environment: Ensure the physical environment for computer equipment is adequate and secure ▪ Resolve power management issues ▪ Resolve ventilation issues ▪ Resolve the need to accommodate computer infrastructure equipment with adequate space planning, by developing standards ▪ Resolve physical security; most data communications areas are not alarmed.	Variable	
Objective 3d Backup and DR: Ensure systems are backed up and data recovery strategies are organized and prepared ▪ Perform feasibility study for hot swappable site ▪ Perform backup recovery testing on a regular basis ▪ Long-term data storage strategies should support effective backup and recovery strategies. ▪ Complete the refresh of the data recovery and disaster preparedness documents and assessment.	Variable	

Goal 3b: Provide technical support that matches the technology investment, with comprehensive staff and faculty training.

Technical Support

Technical support for the College is handled in-house. The Information Technology staff consists of the following staff.

- Dean of Information Technology
  - Administrative Assistant
  - Supervisor, Computer Applications
    - Senior Programmer Analyst 4 FTE
  - Supervisor, Network and Infrastructure 2 FTE
    - Network Administrator Phone
    - Network Administrator File, Email
    - Assistant Network Administrator 3 FTE

As software applications and hardware needs evolve, so does the need for continuing support. The College technology staff must be kept up to date and supported with adequate training to properly support College investment in software and hardware. Additional positions should be added as necessary to ensure the level of support is not compromised as the number of supported application programs and the overall end-user base increases.

The computer applications staff supports a Datatel environment that has been customized to adapt to changing College requirements, and the integration of many other software packages. While this creates flexibility in the system, it is more labor-intensive to support and less adaptable to product upgrades by the vendor. A complete dialogue on the Datatel environment is found in Layer 2, Goal 2c – Datatel.

The Network division supports the following devices and functions, with approximate numbers:

- 950 Administrative, faculty, staff desktop computers
- College required software, including Microsoft
- 25 Servers on MS OS,
- SQL Server and database
- 2 VM Servers, will grow as silo servers are phased into VM in 2013
- CENIC ISP and inter-campus TLS connectivity
- System Access, Password Management and Data Security
- Bandwidth and IP Traffic Management
- Cisco AVVID VOIP System
- 1000 Cisco IP Office Phones
- 125 Mobile Devices
- IP-based Security Cameras and Emergency / blue light strobe stanchions
- Administration of Software Licensing
- Helpdesk support

Considering the software and hardware support workload, an increasing demand for 24/7 technology access, and the requirement to perform system maintenance during off-hours, the IT department is critically under-staffed. In 2010, the California Community College Chancellor's Office issued revised support baseline standards. Corresponding existing college staff to the support guidelines identifies the level of personnel needed at the college. Table 8 shows the CCC CO model, the current college staffing level, and the need for additional staffing. These standards are based on Mon-Fri, 8 hours each day.

Table 8: Total Cost of Ownership Model

Position	TCO Model	MSJC Staffing	MSJC Need
Computer Technician	1/100	2 = 1/475	6 FTE
Network Manager	1/3000	2 = 1/5000	2.5 FTE
Technical Trainer	1/300 FTE	0	2.0 FTE
Programmer/Analyst	1/3000 FTE	4 = 1.2625	0
Helpdesk	1/3000	1/10,500	2.0 FTE
Supervisors	1/10	3	0
Administrator	1	1	0
Data Security Officer	Unspecified	0	1.0
Total		13	13.5 More

[Objective 3b Staffing: It is necessary to plan for adequate technology staffing, and the recruitment, retention and training for technology staff.]

Staff and Faculty Training

With the increasing reliance on technology to support the academic mission of the College as well as the functional operations of the college, there is an increase in the demand for faculty and staff training. Providing accessible, applicable and timely training for college staff is unfunded. In recent years, the college was de-funded the staff development and TTIP budget allocations for training programs. The College has no personnel devoted to training for most effective use of College supported software.

[Objective 3b Training: Ensure professional development strategies and activities that address the needs of faculty and staff to contribute to success in the application of technology.]
[Objective 3b Training Areas: Ensure that there are training rooms and personnel.]

Goals/Objectives Chart 6:

Recommendations Goal 3b: Provide technical support that matches the technology investment, with comprehensive staff and faculty training	**Budget Estimate**	**Measurable Outcome**
Objective 3b: Staffing: Plan for adequate technology staffing, and the recruitment, retention and training for technology staff. ▪ College staffing for technology should follow a Total Cost of Ownership (TCO) approach that examines technology purchases not only in terms of capital outlay but also in terms of staff resources required to maximize the investment. ▪ Systems should be audited to ensure having adequate staffing to maintain critical functions in an environment that has increasing expectation of 24x7 operations and .995 uptime. ▪ The College should implement a routine systemic maintenance schedule that recognizes the need for scheduled downtime that is least impactful to the College community, but allows for IT staff management. ▪ The College should assess that we have properly matched IT staff with department responsibilities, and that assigned staff have access to training to maintain currency in their expertise. ▪ The College does not have a Security Officer, as mandated for the UC and CSU system, and should prioritize the hiring of a data SO. ▪ The College can consider web-based helpdesk with a knowledge base for user self-help. ▪ Additional web-based training tutorials can be developed to save time for orientations and basic training.	Variable	
Objective 3b Training: Ensure professional development strategies and activities that address the needs of faculty and staff to contribute to success in the application of technology. ▪ The College should support ongoing technology training with budget for materials and a training coordinator.	$60,000/ann	
[Objective 3b Training Areas: Ensure that there are training rooms and personnel.] • The College should provide training labs that are set aside for this specific use. Computers must be segregated from students due to the security of the College software.	$ 45,000/1x	

Layer 4: Assessment and Governance

Goal 4a: Provide an environment for project planning and assessment tied to project outcomes.

The ICTC is a standing, shared governance committee whose purpose is to enable a culture that continually improves the technological operations of the district, and guides the College toward most effective use of technology. The committee has administrative oversight of the development of the Technology Master Plan (TMP).
[Objective 4a.TMP: Continuous cyclical review and update of the TMP]

The committee is also charged to perform acquisition and accountability analysis. IT submits an annual budget based on the priority projects of the TMP, aligned with the Educational Master Plan, the Facilities Master Plan, and the College goals. The ICTC should govern the assessment of the goals with the use of the IT Project Assessment Rubric (Appendix A). The committee and IT should use the results associated with the assessment to improve the planning and implementation model for technology projects.
[Objective 4a.Assessment: The committee should regularly review technology related acquisitions and projects. The committee should govern project assessment.]

Because technology rapidly changes, it is necessary to assess the related policy and procedure regularly. The ICTC governs a number of Administrative Procedures, including, but not limited to:

AP 6505 Procedures for Acceptable Use by College Employees for Computer and Communications Technology
AP 6506 Use of College Email
AP 6507 Disaster Recovery
AP 6508 Disk Management Quota
AP 6509 Archival of Data
AP 6510 System Access
AP 6511 Computer Equipment Release
AP 6512 Use of College Telephone System
AP 6513 Computer/Network Work Order
AP 6514 Off-Campus Equipment Authorization
AP 6515 Web Page Guidelines
AP 6516 College Cell Phone
AP 6517 Social Media Procedures
AP 6520 Security for College Property
AP 6521 Security Monitoring and Recording
AP 6526 Printer Management (Proposed)

[Objective 4a AP: The ICTC should perform a regular review of the technology Administrative Procedures, and recommend the necessary changes.

Over the past three years, eDiscovery has become a greater burden to the College and to IT staff resources in the past three years. When litigation occurs, email communications is requested as a public record. Without an email archival appliance, the IT staff must recover files from backup tapes and perform very inefficient searches to find requested data.

[Objective 4a eDiscovery: The College needs to define a process to establish a litigation hold on records, a designated College official to administer a hold, and proper email archival equipment to process data required for litigation holds.]

Goals/Objectives Chart 7:

Goal 4a: Provide an environment for project planning and assessment tied to project outcomes.	**Budget Estimate**	**Measurable Outcome**
Objective 4a TMP : Review and update TMP annually ▪ Perform annual review or TMP and prioritize goals ▪ Create the environment for continuous improvement and update of the TMP ▪ Develop an annual report regarding progress and updated goals in the TMP	-0-	
Objective 4a Assessment: The committee should regularly review technology related acquisitions, and analyze project achievement upon completion. ▪ Review technology procurements for compatibility, conformity and cost effectiveness ▪ Review technology procurements for technology staffing and training recommendations ▪ Use the IT Project Assessment rubric to analyze projected to actual project outcomes. Perform longitudinal analysis to show deficiencies in the planning and implementation cycles.	-0-	
Objective 4a AP: The ICTC should perform a regular review of the technology Administrative Procedures, and recommend the necessary changes	-0-	
Objective 4a eDiscovery: The College needs to define a process to establish a litigation hold on records, a designated College official to administer a hold, and proper email archival equipment to process the data required for the hold	$ 50,000/1x and Variable/annual	

Conclusion:

Mt. San Jacinto College has been a community college leader in technology and should strive to remain a leader. Technology enhances all of the excellent qualities MSJC provides through its excellent faculty, staff and students.

The planning, acquisition, integration, training, and recapitalization of software and hardware are all integral parts of this technology plan.

Funding sources for technology related acquisitions will be challenging given the downturn in the federal and state economy, and the lack of a community supported bond for infrastructure support. However, the college has historically recognized the need to emphasize technology, and has prioritized technology funding. This practice must continue so that the technology needs of our students, faculty and staff continue to be met.

Technology must continue to be a major component of the campus planning and institutional effectiveness initiatives.

-end

Technology Master Planning Committee:

The 2010-2011 ICTC Committee Chairs:

Susan Guarino, Dean of Information Technology, Administrative Chair
Don Jenkins, Instructor, Faculty Chair
Anthony Sanchez, Network Administrator, Classified Chair

ICTC Members and Other Contributors:

Patricia James-Hanz	Cindy Nance
Guy Reams	Mark Dumas
Fred Madore	Justin Bennett
Milton Reyes	Stephanie Cason
Marcus Castellanos	Nick Abbondanza
Amrik Randhawa	Andre Uckert
Amelia Bowden, Student	William Albert, Student
Belinda Heiden-Scott	Staci Ferris
Cheryl Smith	Lon Smith
Katherine Stratton	Annette Wickman
Robert Holman	Kim Nguyen
Chris Platt	Michael Barr, Student
Brian Orlauski	

Appendix A: IT Project Assessment Rubric
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SGuarino IT Project Rubric for Assessment 4/29/2011

	A	B	C	D	E	F	G	H
1	(Weight)	Exceptional (3)	Acceptable (2)	Marginal (1)	Unacceptable (0)	Scores		
2	Topic	Cite all Evidence.	More positive than negative	More negative than positive	Nearly all negative	Raw	Weight	Final
3	Requirements	The project originated from a documented need within the originating department. The need is clearly stated and supported with data/evidence. The project goals/outcomes are clearly stated and supported with data/evidence. The project goals support departmental and/or institutional goals.					20%	
4	Requirements	The project went through the prescribed budget change proposal process and the prescribed procurement process.					20%	
5	Requirements	Adequate funding was identified for staffing the solution, purchasing equipment, end-user training, and on-going maintenace. There is adequate staffing of personnel resource in technology. There is adequate staffing levels in the user area, dedicated as needed for testing and training. The user department staff has the authority to make decisions regarding the system requirements and setup.					25%	
6	Requirements	The project deliverables were developed as mock-up, sign-offs were obtained, and timelines estimated. The timeline for the project was scheduled, prioritized, planned, agreed upon, and communicated.					15%	
7	Requirements	The future usage of project resources was scaled to need and growth. This includes future needed growth in equipment, infrastructure and bandwidth, and storage space. Or, other. 3.					20%	
8	Requirements	Total 135 out of possible 300					100%	

J:\SJC\Information Technology\Assessment\IT Project Assessment Rubric Template Dev Mar 2011

SGuarino IT Project Rubric for Assessment 4/29/2011

	A	B	C	D	E	F	G	H
17	Post-Implementation	The project resulted in a tool that met the goals and objectives as stated in the project need. The project resulted in a tool that advanced the goals of the department or the institution. The project resulted in a tool that is being fully and effectively utilized by the user department.					25.00%	
18	Post-Implementation	The project documentation is in place for the architectural, technical, and end-user requirements.					25.00%	
19	Post-Implementation	The ongoing funding need for annual license or maintenance renewal, upgrades, patch management, change control, [server, bandwidth and storage needs], and ongoing training for new employees is in place and available.					25.00%	
20	Post-Implementation	The project Requirements and Implementation phases have been reviewed by the technical area and the user area to identify process improvement for future projects.					25.00%	
21	Post-Impl	Total					100%	

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SGuarino IT Project Rubric for Assessment 4/29/2011

	A	B	C	D	E	F	G	H
9	Implementation	There was open and regular communication in the form of dialogue and reports between developer and user department. Changes to the requirements were communicated and signed off via change control forms. Changes to the schedule were communicated and agreed upon. There was little or no 'scope creep' as the project progressed.					15.00%	
10	Implementation	The administration of both technical and user area were kept informed of project progress or challenges.					15.00%	
11	Implementation	The user department staff was available to the project requirements, and received the proper training to support the project.					15.00%	
12	Implementation	The technical department staff was available to the project requirements, and received the proper training to support the project.					15.00%	
13	Implementation	The project was completed within the budgets allocated for technical staff, user staff, equipment, infrastructure and bandwidth, and storage space. Or, other.					15.00%	
14	Implementation	The project was completed within the scheduled timeline as developed or revised with agreement.					15.00%	
15	Implementation	The user area staff was properly trained to use the tool upon implementation.					10.00%	
16	Implementation	Total					100.00%	

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Appendix B. SP11 IT Initiatives
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SP11 IT Initiatives - Budget

Priority		Total Cost	Note	Budget Code Assigned	2010-2011 cost estimate	2010-11 Amount Spent	Purchase Notes	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	Phone System											
1	Servers, storage, controller, backup	$70,570.00	Financed 3.5%	11-143-0000-0-6780-0075-6496	$15,500.00	$13,862.26	A0000647 GHA Technologies 1849.39 Dell Inc. 5232.72 Verizon Select Services 6780.16	$13,862.26	$13,862.26	$13,862.26	$13,862.26	
	3 people training 10,500 + $2k travel/per diem	$12,500.00	one-time	11-143-0000-0-6780-0075-5222	$12,500.00	$12,482.01	R4013503 Verizon Select Services $10500.00					
	Project Total By Year				**$28,000.00**			**$13,862.26**	**$13,862.26**	**$13,862.26**	**$13,862.26**	
	New Hardware and SAN for Datatel SQL											
	Extended Service Agreement HPUX											
	~~New Hardware and SAN for Datatel SQL~~ defer	~~$350,000.00~~										
	HVAC for MVC Server Room	$12,500.00	one-time	11-143-0000-0-6780-0075-6229	$12,500.00							
	Hardware - Servers/Storage	$187,000.00	Financed by Dell at .20% over 5 years.	11-143-0000-0-6780-0075-6496	$0.00		A0000679 Dell Financial Services $31702.77	$31,702.76	$31,702.76	$31,702.76	$31,702.76	$31,702.76
	Hardware - Networking Switches/Cables	$28,000.00	one-time	11-143-0000-0-6780-0075-6496	$28,400.00	$28,333.21	R4013098 Infinity Micro Inc 1060.50 R4013608 GHA Technologies 27272.71	$0.00	$0.00	$0.00	$0.00	$0.00
	Software - MS DataCenter OS Licenses	$2,336.00	one-time	11-143-0000-0-6780-0075-5691	$2,336.00	$1,752.00	R4013606 Computerland of Silicon Valley	$0.00	$0.00	$0.00	$0.00	$0.00
	Software - MS DPM 2010	$1,050.00	one-time	11-143-0000-0-6780-0075-5691	$1,050.00	$270.00	R4013607 Computerland of Silicon Valley	$0.00	$0.00	$0.00	$0.00	$0.00
2	Software - 4 Security Certs for new servers @ 349	$1,396.00	one-time (5 Yr)	11-143-0000-0-6780-0075-5691	$1,047.00			$349.00				
	Software - Red Hat Subscription				$0.00			$2,650.35	$2,650.35	$2,650.35	$2,650.35	$2,650.35
	Software - Datatel Fee Migrate to SQL	$59,500.00	over 2 years	11-143-0000-0-6780-0000-5691	$29,750.00	$29,750.00	A0000680 Dell Financial Services $29750.00	$29,750.00				
	Financial Aid BFAP Contribution	$30,000.00	One-Time 2010/11		-$30,000.00							
	Project Total By Year				**$45,083.00**			**$64,452.11**	**$34,353.11**	**$34,353.11**	**$34,353.11**	**$34,353.11**
	Allocated Budget				**$55,567.50**			**$39,559.00**	**$39,210.00**	**$39,210.00**	**$39,210.00**	**$29,407.50**
	Balance				**$10,484.50**			**-$14,408.61**	**-$9,551.72**	**-$4,694.83**	**$162.06**	**-$4,783.55**
	Datatel Fee Migrate to SQL	$70,000.00	over 2 years								$35,000.00	$35,000.00
	4 - Dell Datatel Servers App and SQL	$85,437.00	Financed by Dell at .59% over 5 years.								$10,000.00	$10,000.00
	2 - Dell Servers & Equallogic 16TB SAN array & UPS	$28,000.00	Financed by Dell at .59% over 5 years.								$14,000.00	$14,000.00
	Total Project Cost by Year							$0.00	$0.00	$0.00	$59,000.00	$59,000.00
	Storage Area Network Support											
	~~VM Servers to Replace All Servers~~	~~$170,000.00~~									$170,000.00	
3	Stand down on $170k server upgrade, and purchase support for existing storage	29,320 annually or 73,052 for 3-year						$73,052.00	$0.00	$0.00		
	Solarwinds Storage Profiler	$7,000.00	Pd power incentive		$0.00							
	Project Total By Year				**$0.00**			**$73,052.00**	**$0.00**	**$0.00**		
	Datacomm switches and backup solution											
	5 self-insure switches deployed in 2003	$12,500.00	5 annually @ $2,500	11-143-0000-0-6780-0075-6496	$12,500.00	$12,451.81	R4013033 GHA Technologies	$12,500.00	$12,500.00	$12,500.00	$12,500.00	
4	KVM switch for Management of equipment	$6,000.00	one time	11-143-0000-0-6780-0075-6496	$6,000.00	$5,969.44	R4013020 GHA Technologies					
	UPS batteries 20% each year	$3,500.00	annually	11-143-0000-0-6780-0075-4570	$3,500.00	$3,469.54	R4013037 GHA Technologies	$3,500.00	$3,500.00	$3,500.00	$3,500.00	
	Project Total By Year				**$22,000.00**			**$16,000.00**	**$16,000.00**	**$16,000.00**	**$16,000.00**	
	~~New Leased Desktops 82 $ 1,351~~	~~$110,000.00~~	stand down									
	Purchase thin clients at a cost of 75%	$82,500.00	can still be financed					$18,000.00	$18,000.00	$18,000.00	$18,000.00	$18,000.00