Cypress College Technology Plan

2017 – 2020

Prepared by

Academic Computing in consultation with

Cypress College Campus Technology Committee

Document Review & Approval Dates

Campus Technology Committee Review – February 8, 2017

Campus Technology Committee Approval – February 8, 2017

Budget and Planning Committee – March 16, 2017

President's Advisory Cabinet – April 20, 2017

Table of Contents

Executive Summary

Information technology is a defining ingredient in a dynamic higher education environment. Like other higher education institutions, Cypress College is changing as a result of advances in information technologies that expand the possibilities for creative teaching, efficient College management, and work on day-to-day operations. We are committed not only to continue to respond proactively to these changes, but to responsibly guide and lead them. To explore and implement effective technology advances, Cypress College Academic Computing enables and encourages a wide and varied use of technology guided by the triennial Information Technology Plan.

Cypress College is an Associate Degree and Baccalaureate granting institution of higher learning with strong Career Technical programs. Programs of study are offered in Business, Computer Information Systems, Health Sciences, Fine Arts, Language Arts, Social Sciences, Science Engineering, Mathematics, Physical Education, and many Career Technical fields. Underpinning the Technology Plan is a campus-wide vision that information technology exists to facilitate our educational mission and nurture the success of our students. And, while student learning is the highest priority, a practical approach is taken in the plan to balance the development of information technology with the need for flexible anywhere, anytime technology access by students, staff, and faculty.

The Technology Plan is a comprehensive guide to the technology resources of Cypress College and is used to support decisions made at all levels of the college, especially within the Annual Planning and Budget Process. The Plan identifies specific technology management, resource allocation, and support objectives to enhance the support of student learning and expand technology access, while addressing the need to ensure the sustainability of our core services. Current goals are:

1. Technology Funding
2. Network Security
3. Infrastructure, Network Up Time, & Data Backup
4. Training and User Support
5. Technology Replacement and Updates
6. Technology Support

The Cypress College Technology Plan is reviewed periodically by the Campus Technology Committee to incorporate updates as the technology needs of the College change. During the previous cycle, updates and modifications to the Plan were needed, specifically within the Network Infrastructure and campus software support necessitating a one-year delay in submission for final approvals. The 2017 – 2020 Technology Plan exists in the context of other college planning documents that guide campus improvement including the Educational Master Plan and the Campus Strategic Plan.

Technology Planning Process

Technology planning is part of the overall planning and budget process at Cypress College. The Technology Plan is directly linked to the Educational Master Plan, the Strategic Plan, and is funded through the Annual Planning and Budget Process including the One-time Budget Allocation process.

Cypress College Technology Mission, Goals and Objectives

Cypress College Technology Mission

The Technology Plan supports the educational mission, strategic plans, and day-to-day operations of Cypress College. It is a guide to our current infrastructure, resource allocations, support services, and all computing, communication, and network technologies. It serves as a technology roadmap by defining planning, resource, and support goals focused on meeting the needs of our students, faculty, and staff.

Goal 1: Technology Funding

Maintain and explore funding mechanisms necessary for technology updates and replacement. This goal includes identifying sources of ongoing and one-time

funding for equipment, software, systems replacement, and support agreements. It identifies the ratio of computer needs in several key functional areas such as student labs, staff and faculty areas.

Objectives
1. Identify sources of ongoing funding to maintain software applications updates and/or replacement on an annual basis.
2. Maintain a ratio of one computer for every 20 full-time students.
3. Ensure computer access for students with disabilities.
4. Maintain a ratio of one computer for each full-time faculty member and appropriate access to computers for Adjunct faculty members.
5. Maintain computer access to a minimum 80% of full-time classified staff.

Goal 2: Network Security

Continue to explore, develop, review and implement strategies to maintain secure access to systems and applications.

Objectives
1. Perform an annual review of security standards that provide basic rules, guidelines and definitions for the secure use and administration of the campus systems.
2. Review, identify and implement security systems for the campus network.

Goal 3: Infrastructure, Network Up-Time, Data Backup, & Risk Management

Develop strategies and systems for ensuring the uptime and backup of networked systems and data. This includes maintaining data integrity, data backup, core data restoration and core services risk management.

Objectives

> Identify funding sources to increase or maintain infrastructure up-time rates by increasing system redundancy.Maintain a backup power system that is tested quarterly and will provide backup   power for a sufficient period of time to allow the distribution of information and telephone services.3   Perform an annual review of the Campus Computing Disaster Recovery Plan.

Goal 4: Training and User Support

Develop effective training opportunities for faculty and staff members. This includes ongoing training that ranges from basic needs to advanced topics.

Objectives

1. Advertise individualized productivity training each semester, including: smart classroom, email, and other general training.
2. Continue to provide user support utilizing the Academic Computing staff members and the college Help Desk.
3. Develop and post helpful information for faculty, staff and students, including but not limited to; email awareness, safe internet surfing, protecting personal information etc.

Goal 5: Technology Replacement and Updates

Maintain access to computers and technology to support instructional and operational objectives. This goal includes the replacement and update of equipment and technology.

Objectives

1. Provide an annual review and update of the campus computer system inventory listed on the replacement cycle.
2. Provide an annual review of the classroom technology replacement schedule.
3. Provide an annual review for network equipment replacement.

Goal 6: Technology Support

Provide timely and effective technology support for faculty and staff. This includes providing support during regular business hours as well as Help Desk and repair support for extended day, instructional, and staff needs.

Objectives

1. Continue to explore, develop, and implement effective strategies to maintain timely and effective support during regular business hours.
2. Continue to explore, develop, and implement strategies to maintain after-hours support during the evening hours.

Staffing

Academic Computing provides technology and multimedia support directly to faculty and staff, and indirectly to students. Academic Computing is responsible for the planning, design, implementation, and maintenance of the college network and all college hardware and software. It is also responsible for installation of software, licensing, and end user support. Campus labs provide direct student support with lab personnel and in-house staff and faculty.

Eight full time employees currently staff academic Computing, including one manager, one administrative assistant, and six technical support personnel. The campus Instructional Designer works with Academic Computing on projects related to instructional technology, and faculty and staff training. Examples include: maintenance of the Academics area of the campus web site, individual home pages, department home pages, and special program training.

9 Academic Computing Personnel

1. **Manager of Technology Services (1)**: Oversees technology and media for all faculty staff, and student support technical issues.
2. **Administrative Assistant II (1)**: Provides administrative support for Academic Computing.
3. **Information Technology Coordinator I (2)**: Provide network and infrastructure support.
4. **Information Technology Specialist**, **Systems Applications (2)**: Provide computer, software, and multimedia support.
5. **Information Technology Technician (2)**: Provides desktop, peripheral, software and classroom multimedia systems support.
6. **User Support Analyst (1)**: provide Help Desk support.

Technology Funding

Financial resources for replacement hardware, technology, and media are identified and funded through the annual one-time budget process. Academic Computing rarely submits additional requests for funding from year to year, unless there are unforeseen and critical needs to be met in software, applications or maintenance requirements that warrant a request.

- **Academic Computing Budget**: Academic Computing provides the Vice President of Administrative Support Services with an updated three-year budget forecast each year in an effort to plan for future expenditures beyond allotted budget allocations.
- **Technology Replacement Funding**: The Technology Replacement Plan process includes an analysis process to clearly define replacement needs in any given year. Cypress College is committed to the annual funding of the Technology Replacement Plan.
- **Software and Applications Funding**: Software, applications and maintenance support for campus systems are provided on an ongoing basis as part of the

Academic Computing annual budget. Software licensing to meet campus business and instructional needs are reviewed and evaluated year to year.

Network Security

Securing Cypress College information resources requires balancing the need for access with the need to support the operational and instructional environments on the campus while reducing the risk of unauthorized intrusion. The following key baseline network security systems are in place:

- Safe-Connect: Network Access Control (NAC)
- Cisco Wireless Controller
- Blue Coat: Network bandwidth control
- Cisco ASA Firewall: Public gateway security
  - MS Security Essentials: desktop anti-virus software
  - Microsoft Active Directory Services
  - Solar Winds Network Management

Infrastructure, Network Uptime, and Data Backup

Infrastructure

Wireless Access

The need for additional wireless access to the campus is increasing for students, faculty, and staff. The current wireless network consists of 250 Access Points extending coverage within and around every building on campus. ACT staff will continue to address wireless density as demand increases. Wireless provides system authenticated access to employees and students from virtually any area of the campus. Visitors are welcome to use the wireless network upon acceptance of our Acceptable Use Statement via the issuance of temporary credentials. In addition to indoor coverage, exterior Wireless access is available to most campus buildings and parking areas. The wireless network has been deployed as buildings are remodeled or constructed and will continue to grow with demand.

Remote Access

A limited deployment of Virtual Desktop Interface (VDI) provides virtual desktop access to software and campus network drives. Virtual desktops provide a single point of access to applications and systems in support of instructional and operational requirements that would normally reside on campus client computers. This service has been extended to students in support of Distance Education and traditional in-person courses.

Time Warner Cable TV Programming

Support for cable TV services for the campus is provided through a subscription with Time Warner Cable. Currently, the campus supports ten main channels of programming with the ability to offer programming selections for a full cable TV channel lineup broadcast on channels 50 - 59. A complete listing of campus channel programming is available upon request from Academic Computing.

Videoconferencing and Teleconferencing

Currently, there are three video/teleconferencing services available for use and funded by the State Chancellor's Office. These systems are Scopio, Zoom and Cranium Café. Two videoconferencing units are available for use in the Cypress Complex. One additional unit is ready for deployment. However, the services are device agnostic. Laptop computers and mobile devices should be considered as primary use devices to access these services. Strict adherence to campus/district business and educational use of these systems is required.

Network Uptime and Data Backup

Academic Computing has upgraded the backup system to include duplication support for its Veeam Backup System, which includes the ability to replicate to redundant storage arrays deployed across the network or chained to an offsite network.

A generator provides backup for continued power to all network and environmental support systems in the main distribution frame (MDF) serving the campus and community. The generator is tested quarterly. Emergency backup power has been increased to provide backup indefinitely. Core infrastructure components are redundant and provide maximum uptime to support campus user community needs and functions. Academic Computing also uses network monitoring applications to ensure optimal network performance on a daily basis. In order to provide an appropriate system for reliability and emergency backup, all core networking equipment serving the campus is connected to a transfer switch and generator in case of power problems. This configuration allows for the core network hardware, phone system, and servers infrastructure to remain available in the event of power loss. All Cisco data switches in each campus building are connected to Uninterruptable Power Supply (UPS) only providing a small window of uptime to the switching equipment. In the event of campus/building power loss, this lesser configuration does allow a small window of time for connected security cameras to record data as they are powered directly to these switches.

The generator serving the Main Distribution Frame (MDF) is serviced and tested once a semester and has a 48 hour runtime on a tank of fuel. To date, the generator has not been in continuous service for more than 8 hours, which was for planned electrical maintenance work performed by campus and the local power utility.

Hardware

Shared Storage

Network Storage is provided for many operational, planning, support material needs, and is available to all faculty and staff on and off campus. In addition, departments have shared drives in support of specific program and operational needs. Individual staff and faculty members have access to shared storage in support of campus related needs.

Virtual Server Systems

The campus production network systems have been functioning in a virtual environment using VMware. This provides Academic Computing and the campus with a very powerful, flexible, and reliable management platform for providing campus networking and systems services. Currently about 90% of the campus production systems are being run in the VMware environment. This results in a cost savings, including lower resource needs for electricity, lower cooling requirement, space saving and consolidation, and reduced systems management overhead.

Some classes require students to have access to multiple systems for training purposes. The virtual desktop interface (VDI) provides this capability without the need to purchase multiple systems for student use. This arrangement provides student with access to virtual systems in the classroom, lab, or remote locations while providing the campus with a lower cost of ownership.

Software

Software Licenses and Agreements

Software	Type of Software	Used By	License Type
Microsoft Campus Agreement	Desktop Productivity	Instructional and Operational Programs	Campus
Adobe Creative Cloud	Desktop Productivity	Instructional and Operational Programs	Campus
Various Software Maintenance Agreements/Licensing	Varied	Varied	Varied

Cypress College maintains a Microsoft Campus Agreement which supports a large part of the software used by instructional and operational programs. Other software needs are met by annual agreements or purchased for instructional needs by Academic Computing.

A budget for additional instructional software for use with existing and new curriculum will be made available to the Planning and Budget Committee for discussion and acceptance into the annual software maintenance schedule. Academic Computing recommends that software maintenance costs should be included and accounted for in any grant process.

Virus Protection

Anti-virus protection is deployed on the network and on campus desktops and updated weekly. Current practice provides a satisfactory level of virus protection. Security gaps have been reduced with the addition of a Network Access Control (NAC) appliance and wireless controller. The NAC prevents users without anti-virus protection, anti-spam, anti-spyware and critical system updates from connecting personal laptops to the campus network.

Electronic Mail

Microsoft 365 email services are provided to all faculty and staff. Students have a variety of off-campus sources for email and generally have several email accounts. They are not provided with Cypress College email. However, Associated Student Executive Board members are provided with a Cypress College email account upon request.

Web Site

The campus web site is hosted and supported by the Cypress College Academic Computing Office. Website content is administered by the Director of Campus Communications Office. The campus web site serves as a tool for communication of College programs and services to prospective and currently enrolled students, staff, and the public. The website continues to evolve and grow based on the needs of the college.

Blackboard Course Management System (CMS) & Distance Education

Distance Education Technology

Members of the Distance Education committee review software, hardware, and courseware delivery systems on a regular basis in an effort to provide effective options and lower cost solutions for quality distance education. For more information on the course management system and Distance Education technology, refer to the current Distance Education Plan.

Blackboard Course Management

Blackboard, a course management system designed for web-based instruction, is currently the single official course delivery system administered and supported by the Distance Education Program. Cypress College Blackboard is administered by the Distance Education coordinator and is hosted by Blackboard. With the current Blackboard contract, instructors also have the option of using Blackboard for web-enhanced courses. MyGateway, the district portal, also supports web-enhanced courses.

Training and User Support

Academic Computing provides structured training, instruction, and user support to all faculty and staff for VDI and email systems each semester. Additional training for Windows file management, network drive usage, and functionality is provided on an as needed basis via Help Desk request. Training for these topics occurs in small groups and within the offices of the individuals requesting help.

Training for faculty and staff home pages is made available 4 to 6 weeks into each semester. Training is scheduled to accommodate both morning and afternoon options. Currently, Web Editor faculty and staff home page training is also available in a self-paced online format.

Computer Replacement Schedule: Technology Replacement and Updates

The Computer Replacement Schedule consists of a three and a five-year replacement schedule as a minimum starting point and only applies to the Central Processing Unit

(CPU), keyboard and mouse. The Computer Replacement Schedule does not include monitors or printers the total number of computers within the rotation is approximately 1800: to 20% for Staff, 63% for Instructional lab systems, and 17% for Faculty.

Replacement Cycles

Instructional Lab Systems: 3 Year Cycle

The *Three Year Replacement Cycle* applies to Instructional labs and other applications that require replacement on a more frequent basis. The three-year cycle is applied to systems in high performance computing environments such as Digital Graphics and Photography, and to high-level business function systems such as campus accounting and finance. An analysis is conducted periodically to determine the exact need for each area to include a three-year outlook. As systems are replaced, they are repurposed and used in other areas on campus.

Faculty and Staff Systems: 5 Year Cycle

The *Five Year Replacement Cycle* applies to certain instructional labs and areas (Business CIS, Library, LRC), staff and faculty systems, many of which may have been handed down as a result of the ongoing PC Replacement Plan process. Academic Computing, working with staff and faculty, determine and validate the system requirements of the program, functional area, and individuals due for replacement. An analysis is conducted to determine additional or unique needs. As these systems are replaced, they are surplussed.

Funding

The Computer Replacement Schedule is funded on an annual basis with one-time funds.

Challenges Based on Funding Model

History has shown several years with a high number of computer replacements and several years with a low replacement schedule. This creates the following challenges due to the one time funding model:

- The lack of ability to average out the computer purchases per year.
- Requests from year-to-year can increase or decrease by as much as seven times.
- Strained Academic Computing resources during the replacement years with high numbers of computers to be replaced in relation to available staff to make the changes.

Computer Replacement Analysis Process

Academic Computing performs an annual analysis of the systems on the master replacement list. The Computer Replacement analysis process begins in the summer months and extends into the Fall Semester. Academic Computing works in collaboration with faculty to make informed purchasing decisions. In most cases, many systems do not need to be replaced with up to date technology, instead, can receive a component level upgrade therefore leveraging the initial investment and obtaining extra years of use.

- A budget for additional computers planned for use with existing and new curriculum should be made available to the Planning and Budget Chair for committee discussion and acceptance into the PC Replacement Plan.
- A spreadsheet for the current year replacement cycle is available on the campus "J drive".

Computer Replacement Schedule Eligibility

Eligible Systems

1. *Desktops*: Desktop systems (CPU only) purchased through the annual one-time budget process. Desktop systems not approved and purchased through the one-time budget process will not be included on the replacement plan.
   a. Desktop systems (inclusive of monitor, keyboard and mouse) purchased with grant funding and for augmentation of existing instructional labs will be included in the replacement cycle with prior approval from both Planning and Budget and Presidents Advisory Council committees.
   b. Expansion of instructional lab computers must be planned for and performed at the next replacement cycle to ensure system consistency.
2. *Laptops*: Transition from a desktop system to a laptop computer maybe authorized and eligible for partial funding for replacement based on replacement funding established and allocated for desktop systems (CPU only) in any current year.
   a. Faculty and staff electing to purchase and use a laptop computer in lieu of a desktop system are fully responsible for the purchase and replacement of the laptop.
   b. A request and replacement of a laptop for a desktop computer may be accommodated if the requesting party purchases a monitor, mouse, and keyboard to support that system
   c. Departments possessing laptop carts for instructional purposes must be prepared to fully fund replacement costs associated with these systems.

Non eligible Systems

Printers, mobile devices, and mobile software are not eligible for inclusion in the Computer/Technology Replacement Schedule.

1. *Printers*: Sustainable, green thinking should govern the purchase of new or replacement printers. Printers must be network capable and allow for double sided (duplex) printing. Shared printing services are highly encouraged.
2. *Mobile Devices and Software (Apps):* Please refer to the *iDevice Guidelines* for further details.

Classroom media and network infrastructure

Maintenance and replacement of media equipment (Projectors and Smart Classroom components) and network infrastructure components (network switches and file servers) is the responsibility of Academic Computing. Each of these components is maintained and supported based on a predetermined shelf life. Funding for replacement of these

items is assumed within the annual budget allocated to Academic Computing and Technology Replacement Plan.

Software Purchases and Maintenance

Academic Computing administers software purchases and maintenance agreements through its annual budget allocation. Agreements are in place for Microsoft operating system software and Office product suites including discount pricing available to staff, faculty and students for personal use. Adobe software titles and suites are also purchased across campus with licensing maintained by Academic Computing. Adobe software is also available at discounted pricing for staff, faculty and students.

Software purchased for individual office use with grant monies must include a budget for maintenance and upgrades and is the responsibility of the grant administrator. Software not included and funded in the existing budget pool which is considered for purchase in quantity for instructional use must have prior approval by Planning and Budget and Presidents Advisory Council for ongoing support and maintenance.

Goals Met: Technology Plan 2011 – 2016

Impact of Planning on College - Technology Plan

Goal	Implementation Year	Goal Achieved	Measurable Contribution / Impact	Resource Requirements	Alignment With Mission
Establish funding mechanisms necessary to maintain and further develop the effective replacement of technology.	Annually	Fully	What new funding streams have been developed for technology purchases? *Grant funds and one Time Funding Requests.* What technology has been replaced in the past year? *Faculty, Staff, and Instructional PC's, Network Switches and projectors..*	The Technology Replacement Plan is given top priority (Advanced Funding) in the annual One Time Funding process for campus needs outside established budgets. With the continued support of the Campus Budget and Planning Committee in approving funding for the Technology Replacement Plan each year, this has provided an opportunity for instructional system to be current with industry. Staff and faculty also benefit as operating systems and software evolves. Grant monies have also provided some opportunities for implementation of new systems and software to meet instructional needs. Without these funding sources, our faculty and students would be falling behind industry standards and therefore at a disadvantage in the job market.	The following apply to all Goals 1. Transfer 2. Award 3. CTE 4. Basic Skills 5. Life-long learning 6. Community Enrichment: Economic & social development 7. Diversity
Develop effective training opportunities for faculty and staff.	Annually	Fully	What new training opportunities have been developed? *Formal training opportunities are offered each semester and on an individual basis as requested. Helpful Tips & Tricks are sent out for email usage and security.* What do faculty and staff think about these new opportunities? *Well received in that ACT staff goes to the individual offices and classrooms, which adds a more convenient and personal attention to individual needs.*		
Develop strategies and systems for insuring the integrity of systems and data.	Annually	Fully	What strategies and systems have been developed to insure the integrity of systems and data? *Veeam backup has been added to our systems for backing up data.*		

Impact of Planning on College - Technology Plan

Goal	Implementation Year	Goal Achieved	Measurable Contribution / Impact	Resource Requirements	Alignment With Mission
			What level of performance has been achieved as a result of these changes? *having fully redundant systems Veeam has given us a robust backup system which ensures less downtime.*		
Develop and implement strategies to maintain secure access to systems and applications.	Annually	Partially This is an ongoing effort to ensure systems security.	What strategies have been developed and implemented to maintain secure access to systems and applications? *Active Directory (AD) services are fully deployed and now District wide allowing faculty, students and staff the ability to authenticate and access services at each campus.* What impact have these changes had? *Expansion of access to network usage for all faculty, students and staff without the limitation of using a single PC.*		