TTIP’s partnerships throughout the state strive to continually improve technology services and also result in millions in savings.

Telecommunications and Technology Infrastructure Program

California Community Colleges Chancellor’s Office
Jack Scott, Chancellor

Prepared by the Technology, Research and Information Systems Division and the Office of Communications

MARCH 2011
March 16, 2011

The Honorable Jerry Brown  
Governor of California  
State Capitol  
Sacramento, California 95814

Dear Governor Brown:

I am pleased to present to you the Chancellor’s Office 2009/10 report on the 
Telecommunications and Technology Infrastructure Program (TTIP).

Greater use of new technologies continues to change the way the California Community Colleges serve students. The Telecommunications and Technology Infrastructure Program brought high-speed broadband to the system and daily challenges the status quo through innovative solutions. TTIP provides technical support, technology innovations and coordinates activities that maximize the system’s financial investment in technology with the expressed goal of improving learning outcomes for students.

This report captures recent progress in creative and innovative system improvements, including Internet connection and complementary technologies.

If you or your staff have any questions regarding this report please contact Erik Skinner, executive vice chancellor for programs, at (916) 323-7007 or eskinner@cccco.edu.

Thank you for your interest in these programs and the students they serve.

Sincerely,

Jack Scott, Ph.D.
Chancellor
Telecommunications and Technology Infrastructure Program

Executive Summary

The California Community Colleges serve more than 2.76 million students and is the largest system of higher education system in the nation. The state’s 112 colleges provide workforce training, teach basic math and English, and prepare students for transfer to four-year universities and colleges.

The Chancellor’s Office Telecommunications and Technology Infrastructure Program (TTIP), was created by Budget Act language in fiscal year 1996/97. For 2009/10, the total TTIP allocation was lowered in a mid-year budget cut, from just over $26 million to $15,290,000. This was partially offset with a one-time federal stimulus fund payment of $1,595,811.

Since 2001, TTIP has experienced a 65% reduction in funding. As a result, critical functions such as libraries and TTIP allocations for colleges to maintain local technology and infrastructure were completely eliminated. Colleges are now required to finance the technology expenditures that TTIP once supported.

TTIP provides 6% of the total funding needed to support technology programs in the California community colleges. The colleges and districts rely heavily on general apportionment and other non-TTIP revenue sources to support their technology needs.

Even with the budget reductions, TTIP continued to provide technical support and technology application innovations, and to coordinate activities that maximize the system’s investment in technology with the expressed goal of improving learning outcomes.
This thirteenth annual report highlights up-to-date information on the programs supported through TTIP. In cooperation with the Corporation for Education Network Initiatives in California (CENIC), Internet connectivity expenses were reduced and the Technology Center continued to provide technical assistance and planning, cooperative purchase agreements, and supported new statewide technology pilots and ongoing technology programs. The partnership with CENIC provides high-bandwidth connectivity and enables the system to negotiate a flat rate, which has the potential of saving the system up to $2.2 million annually through the California Teleconnect Fund Program.

Cal-PASS supported existing research efforts and continued to expand the program. @One reduced professional development costs for technical staff, and CCConfer, 3CMedia and Edustream reduced travel costs by facilitating the exchange of ideas and knowledge in a virtual environment. TTIP programs continue to drive systemwide technical and process improvements, as evidenced by Open CCCApply, Electronic Transcripts, California Virtual Campus, ePortfolios, Centralized Assessment and Affordable Content.

Through technology, TTIP strives to improve education and educational services and is committed to innovation and student success.
Methodology

The Chancellor’s Office Telecommunications and Technology Unit is continuously engaged with grant teams and personnel throughout the state. In addition to reviewing biannual updates, the technology unit staff attends regular project meetings and participates in impromptu discussions and face-to-face events with the teams. The staff also collaborates on current technology issues with advisory committees from the system’s colleges.

Data used in this report was submitted by the director of each grant project. Additional project details can be found at the following URL and then selecting the individual grant:

**TTIP Background**

The Chancellor’s Office Technology, Research and Information Systems division governs TTIP, which is guided by provisions of the Tech IV Plan. The Tech IV Plan builds upon the work established in Tech I, II, and III.

Tech IV programs have the following objectives:

- Protect the state’s prior technology investment.
- Expand and improve student services.
- Utilize current technology to leverage the existing infrastructure.

Funding for some TTIP projects comes from the Chancellor’s Office. Since 1996/97, the Chancellor’s Office has funded six system-wide technology projects, all with a competitive grant process. These projects are listed on the next page.
Summary of Chancellor's Office TTIP Funded Programs

The Chancellor’s Office recognizes that technology is an increasingly integrative and essential part of many services and programs in the college system. The following six projects are funded with TTIP dollars and the California Community Colleges and are highlighted in this year’s report:

The Technology Center, which incorporates the following programs:
  Corporation for Education Network Initiatives in California (CENIC)
  CCC Apply
  eTranscript California
  CCC Curriculum Inventory

The California Partnership for the Achievement of Student Success (Cal-PASS)

3C Media Solutions and EduStream, a partnership

CCC Confer

@ONE

California Virtual Campus, which incorporates the following programs:
  ePortfolio California
  K-20 California Educational Technology Collaborative programs

To maximize resources and services for technology projects throughout the California community colleges, The California Educational Technology Collaborative, was formed. Collaborative members are the project directors from:

  Technology Center – Butte College
  Cal-PASS – Grossmont-Cuyamaca Community College District
  3C Media Solutions – Palomar College
  @ONE – Evergreen Valley College & Mt. San Jacinto
  California Virtual Campus – Butte College
  CCC Confer – Palomar College
  EduStream – San Bernardino Community College District
The Technology Center

The California Community Colleges Technology Center (CCCTC) received funding from a $4,527,000 Chancellor’s Office grant through a grant with Butte College. CCCTC is hosted by Butte College and facilitates and coordinates technology projects such as California Community Colleges Apply (CCCApply) and eTranscript California. Additionally, CCCTC staff disburses funds, manages contracts and develops resources for external funding.

In fiscal year 2009/10, the California Community Colleges Technology Center, through the Tech IV plan, began building a platform standard that will allow the construction of new Web 2.0 applications. These applications are intended to work together, provide sharable services to the colleges, and could incorporate legacy functionality during the transition to the next generation of web applications.

The platform is composed of four technologies:

**FEDERATED IDENTITY**
- Enables a common log-in for the student and staff across applications and institutions while increasing security and privacy.
- The greatest potential benefit for the Chancellor’s Office may be in transferring student account data to California state universities (CSU) or Universities of California (UC).
- CSU and UC have Federated Identity initiatives based on the InCommon Federation.
- InCommon includes over 200 higher education institutions, government agencies and vendors.

**SERVICE-ORIENTED ARCHITECTURE**
- Deconstructs isolated systemwide applications into their component services and connects them using secure internet communications.
- This enables component services to be reused by college or vendor applications and combined into composite applications.

**ENTERPRISE PORTALS**
- There is a growing trend of colleges moving to web portal interfaces for students.
- Systemwide applications will be provided as portlets so colleges can easily provide additional services and functionality for students.
In addition, a student services portal would tie together statewide applications with a common front end.

**ELASTIC CLOUD INFRASTRUCTURE**
- Elastic cloud platforms move the computing power behind deployed applications.
- The platform is monitored and will scale up or down depending on service demand loads.
- The dynamic system has made it possible to efficiently support the annual cyclic student demand on student services applications without having to build a large data center to handle peak loads.
- This efficiency will result in lower costs to the colleges.

This year the Technology Center staff converted *TechEdge* to an online interactive newsletter. This publication provides information about systemwide technology to more than 1,800 readers while achieving significant savings over the previous paper-based publication.

Funding for the Technology Center has also made the following possible:
- ListServ services for the California community colleges (62,695 total subscriptions, 180 lists, delivering approximately 300,000 messages per month).
- Hosting for CCC Apply, eTranscript California and CCC Clearinghouse.
- Discounted help desk support services for the colleges.
- Systemwide Architecture Committee.
- Telecommunications & Technology Advisory Committee Governance.
- Automated Curriculum Reporting.
- GIS Mapping Services.
TTIP funds a portion of initiatives for California's education and research communities. TTIP leverages resources in order to obtain the most cost-effective networking. This strategy supports TTIP missions and answers the growing needs of faculty, staff, and students.

CENIC’s infrastructure costs are significantly lower than other telecommunication vendors, allowing them to provide greater service at a lower networking cost. Partnering with CENIC to use their California Research and Education Network (CalREN) has resulted in millions of dollars in savings for the community colleges. For more information see http://www.cenic.org.

CENIC consists of charter members from the University of California, California State University, the California community colleges and K-12, Stanford, CalTech, and USC.

CENIC provides:

- Centralized funding for no local cost Internet connection at all colleges.

- $2.2 million potential annual savings through the California Teleconnect Fund program, a 50% discount because of CENIC’s initiative with the CPUC.

- Connection at all colleges and districts to the CalREN for data, Internet access and video.

- Economies of scale and peering (where two or more networks exchange traffic between each other’s customers freely, and for mutual benefits) continue to assist in improving connectivity rates. $12 per mbps/mth.

- Connection at approved off-site centers to CalREN.

- Services to schedule and connect 729 video conferences.
The Technology Center

CENIC: Increased Bandwidth and Circuit Upgrades

The CENIC partnership keeps the colleges connected to the Internet and is funded through a grant with Butte Tech Center. The Technology Center staff manages and disburses funds to CENIC. A total of $2,191,400 was funded in 2009-10.

Bandwidth upgrades were initiated in 2007-08 and continued into 2008-09. The initial upgrades provided high priority sites, such as those districts serving multiple campuses, greater delivery from one connection.

CENIC initiated and with support from the California Public Utility Commission, the California Community Colleges became eligible for California Teleconnect Fund discounts on December 1, 2008. The cost savings realized from these discounts provided resources for additional circuit upgrades for the remaining colleges that were not part of the initial phase.

Internet Traffic Charges

CENIC annually renegotiates the pricing of Internet traffic generated by the California Community Colleges. In addition, CENIC's aggressive efforts to establish peering connections reduced Internet traffic charges even further.

For FY 2010 and beyond, CENIC has been able to bundle Internet service into the base fees. As a result, community colleges are no longer charged for Internet traffic based upon usage. The following table shows the Internet traffic charges by year:

<table>
<thead>
<tr>
<th>Year</th>
<th>Mbps Rate per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to 2003</td>
<td>$260</td>
</tr>
<tr>
<td>2003/04</td>
<td>$126</td>
</tr>
<tr>
<td>2004/06</td>
<td>$95</td>
</tr>
<tr>
<td>2007/08</td>
<td>$20</td>
</tr>
<tr>
<td>2008/09</td>
<td>$16</td>
</tr>
<tr>
<td>2009/10</td>
<td>$12</td>
</tr>
<tr>
<td>2010</td>
<td>flat rate - $225,000</td>
</tr>
</tbody>
</table>

2010 – flat rate - $225,000
The Technology Center

CENIC: Connectivity to Approved Off-site Centers

One-time funding was included in the 2006/07 budget to extend the CalREN network to the approved California Community Colleges’ off-site centers. In following years, several new centers were added to the network. Even without ongoing funding, CENIC was able to provide these centers with improved connectivity without increasing the current TTIP allocation.

Video Conferencing and Connectivity

CENIC works with the California community colleges and their partners to facilitate video conferences. The California community colleges have held 729 conferences in FY 2009/10 for approximately 5,400 hours of videoconferencing using CENIC’s CalREN Video Services. This represents every scheduled videoconference in which at least one participant was a community college site, but does not include non-scheduled, point-to-point videoconferences.

Use of videoconferencing for intersegmental conferences (meetings including CCC, CSU and/or UC sites) has increased by 17%. However, the California community colleges use of videoconferencing overall has decreased by 28%. This decline is ascribed largely to continued budgetary constraints, causing cancellation of some educational programs along with increased faculty use of alternate technologies, such as collaborative applications for distance learning.
The Technology Center

Library Automation and Electronic Information Resources

In prior years, TTIP provided the California Community Colleges with financial assistance through the TTIP allocation process. In 2009/10, the library community suffered severe cutbacks and TTIP allocations to libraries were eliminated.

In an effort to support the libraries, TTIP offered a $150,000 Leadership Grant to help sustain the community while library leadership developed a new approach to supplying content. The grant enabled the community college libraries to maintain a master agreement, offered through the California Community College League. The agreement provides library content at a 60% reduction in cost.

In addition, the library leadership grant team proposed several solutions, including central purchasing and statewide adoption versus individual college adoption. The solutions will allow the libraries to provide much needed services at a lower cost.

The library community continues to seek innovative technology solutions and is looking at open source solutions to library automation versus paying for an online catalog. Open source solutions are developed and maintained by user groups and offer free to low cost technology solutions for partners. Mendocino College has been selected as the pilot to test the quality and viability of using an open source catalog statewide.
CCCApply is a web-based student application process that is made available to all community colleges, and is funded through the Butte Technology Grant. The site (www.cccapply.org) provides comparative descriptions of the colleges and their programs in an efficient, automated program. To date, 100 colleges subscribe to CCCApply.

Student applications are up significantly from fiscal years 2007/08 to 2009/10.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Student Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2007–June 2008</td>
<td>1,169,555</td>
</tr>
<tr>
<td>July 2008 – June 2009</td>
<td>1,596,578</td>
</tr>
<tr>
<td>July 2009 – June 2010</td>
<td>1,794,147</td>
</tr>
</tbody>
</table>

The current application process is being updated to operate under the new Systemwide Technology Infrastructure (see previous section). To improve the user’s experience, the next generation’s specifications utilize Web 2.0 interfaces. New technologies such as Federated Identity will aid in tying together student account data for transfer to CSU and UC. The project, OpenCCCApply, is to be completed by summer 2012.

The goals are to:

- Lower costs to the colleges.
- Provide better service for colleges and students.
- Improve the student experience.
- Ensure reliability and security.
- Streamline the transition as colleges move to this new system.

OpenCCCApply, now in development, will be offered as a new choice for colleges. Colleges will move to this new, cost effective system when ready.

- New website released with help for student services and parents.
- Specifications for next generation application underway.
With governance from the CCCApply Steering Committee, the California Community Colleges Technology Center (CCCTC) at Butte College will operate OpenCCCApply and provide direct support and training for the colleges. It is currently being built and tested, so the students will receive support through a contracted help desk vendor overseen by CCCTC.
The Chancellor’s Office has established a statewide Internet-based system for requesting, transmitting, downloading, and viewing academic transcripts. This system is referred to as “eTranscriptCalifornia” and was formerly known as “CCCTran" (http://www.eTranscriptCA.org). Current participants include:

- 35 California community colleges
- 17 California state universities
- 5 private universities

The Universities of California are currently in contract review to participate.

Development was completed in 2009-10 on the ability to receive high school transcripts. Through the California Transcript Connection partnership with California Student Information System (CSIS). Transcript Center and eTranscript California, high school transcripts can be sent electronically directly into two- and four-year colleges without handling paper transcripts.

Development has focused on enhancing the ability for eTranscript California members to send and receive XML format transcripts from other states via the SPEEDE server at the University of Austin, the established national hub for eTranscripts.

eTranscript California highlights include:

- 57 California institutions currently participate.
- 150,000+ live student transcripts delivered.
- Reduced per transcript processing cost from 7-10 dollars to 50 cents.
- Reduced staff workload--500 transcripts automatically process in 15 minutes.
- High school electronic transcript capability in production.
The Technology Center

CCC Curriculum Inventory

The Online Grants and Instructional Resource Clearinghouse, funded through a grant with the Butte Technology Center, (http://www.governet.net/C4/) is a web-based, central electronic repository for materials, resources, processes and best practices for grants, projects and instruction.

In 2009/10, the project's focus and its funding were repurposed to support the automation of curriculum reporting and curriculum application processing from the 112 colleges to the Chancellor’s Office. The amended project, formerly known as the CCC Clearinghouse, was renamed CCC Curriculum Inventory and was successfully launched for statewide use in spring 2010. At present, the previous paper-based process has been replaced and is now fully automated for both credit and non-credit courses and programs.

The widely used CurricUNET System, which exists under the California Community Colleges Clearinghouse umbrella, was modified to support the web-based reporting and workflow automation for programs and curriculum. Select CurricUNET features now process course outline and program information that is electronically submitted by the 112 colleges, for both CurricUNET districts and non-CurricUNET districts. In addition, it serves as a single data repository for curriculum and programs, which are critical to maintaining data quality and consistency.

Project highlights include:

- Electronic submission of curriculum and programs to the Chancellor’s Office is fully operational.
- Improved program application tracking and processing times.
- A single data storage location for curricular programs at the Chancellor’s Office.
- Reduced paper usage and improved data accuracy.
All districts have access to the Chancellor’s Office automated program and curriculum submission feature, including non-CurricUNET users. In 2010/11, the project will be further enhanced to provide advanced web-searching and ad hoc reporting features. This will provide powerful real-time curriculum searching and analysis capabilities to serve the needs of the colleges and the Chancellor’s Office.
**California Partnership for the Achievement of Student Success (Cal-PASS)**

The California Partnership for the Achievement of Student Success (Cal-PASS) ([http://www.cal-pass.org](http://www.cal-pass.org)) began in 1998 as a data-sharing project between San Diego State University and the Grossmont-Cuyamaca Community College District. Its purpose is to collect and share performance data as students progress from one educational level to the next. Cal-PASS is supported through a $1,139,000 grant with the Grossmont-Cuyamaca Community College District.

Since its inception, Cal-PASS has brought together primary, secondary and post-secondary segments through regional educational data-sharing partnerships. Its member institutions now include all UCs granting baccalaureate degrees, 18 of the 23 California state universities, several private universities, all community colleges, and two-thirds of the K-12 districts.

To further the efforts of curricular alignment, 64 professional learning councils (with more than 1,200 faculty members from all of the segments) meet monthly to improve student transition and success.

Cal-PASS highlights include:

- The Cal-PASS initiative, Aligned Curricula and Career Education for Student Success (ACCESS) identified and sequenced all entrance and exit competencies for English and math, from 11th grade through postsecondary transfer level.

- More than 7,700 K-12 schools and higher education institutions in 58 counties participate.

- More than 360 million student records are in the Cal-PASS research database.

- Standard metrics for analyzing, reporting and tracking (SMART) tool deployed to all community colleges.
• The SMART tool enables users to access to their data through an easy point and click interface.
• Eighty research studies conducted on member institutions.
• Partnered with the Chancellor’s Office and Santa Barbara City College on Investing in Innovation, i3 grants.

Striving to continuously improve practice, Cal-PASS innovations have shown both initial and on-going success in removing barriers and increasing student success.

• The English Composition Alignment Project demonstrated improved student success when English curriculum is aligned in high school.
• Math for Chemistry Bridge Program include chemistry terminology in an algebra framework and students perform better in chemistry.
• Jump Start Math took students who performed at the remedial level on college assessments through a 30 hour bridge program, resulting in 90% higher placement.
• Contra Costa Professional Learning Council partnered with CalTeach to develop an integrated science course for students at risk of not completing the science “a-g” requirements.
3C Media Solutions and EduStream, a partnership

3C Media Solutions

3C Media Solutions (www.3cmediasolutions.org), formerly CCCSAT, is a digital communications system for broadcasting distance education, instructional and professional development programs to the California community colleges.

In 2008/09, 3C Media Solutions partnered with EduStream, a video-on-demand service hosted by the San Bernardino Community College District, to provide professional video-on-demand guidance and services to constituents. 3C Media Solutions and EduStream are supported through a 2,500,000 TTIP grant to Palomar and San Bernardino community college districts.

Additional services include: television programming and production, streaming media resources (including on-demand video with EduStream), podcasting, conference media support, webcasting, lecture capture, and video production services.

3C Media Solutions highlights include:

- More than 120 conference presentations captured and distributed.
- 65% of the campuses directly served.
- 85 of the 110 campuses participate in 3C Media webcasts.
- 170 submissions from colleges throughout the system for the Fifth Annual Student Film and Video Festival and sponsorship from eight major commercial sponsors.
- Successful transition to digital broadcasting over the Internet, using the CENIC backbone, thus paving the way for discontinuing satellite distribution.
- More than 7,500 viewers on the system’s YouTube channel.
EduStream was envisioned by San Bernardino Community College District as a way to provide quality online educational media for faculty and staff to use in their online courses.

EduStream is a digital repository that partners with content vendors to provide high-quality, American Disability Act compliant educational media for the benefit of faculty, staff, and students.

Faculty and staff link educational media into their course management systems where students can view it during the online course. Learning objects provide a more interactive learning experience and increased academic rigor.

EduStream has some exciting new projects that will complete or launch in the near future. These include:

- New content vendors are constantly being evaluated as possible partners to add to the repository of proprietary content.
- High quality ADA compliant content from Ambrose video and Coast Learning Systems will be added in the near future.
- In talks with different vendors to integrate functionalities of EduStream within popular Course Management Systems such as Blackboard, Moodle and Sakai.
- The ability for EduStream users to search over other databases/repositories and for those databases to search over the EduStream repository is also being developed (what is typically known as a Federated Search.)

Kern Community College District, Sierra College, and Palomar Community College/3C Media are some examples of institutions that have used EduStream to stream live events such as board meetings, educational seminars and conferences such as the recent Online Teachers Conference 2010 in San Diego.
During the summer semester of 2010, EduStream piloted an Online Tutoring Program for our local colleges. Live math tutoring sessions were streamed to allow students to view a math instructor, ask a question in real time and have it addressed by the faculty member live. Students are also able to access the archived version of the session after the live event is over for future reference. Student response was good with one student exclaiming “Awesome! Thank you! I love this whole online tutoring thing, it's a huge help!” EduStream plans to continue this in the fall and also plans to add additional subjects for tutoring such as chemistry and biology.

**EduStream highlights include:**

- 3,000+ American Disability Act compliant educational videos.
- Service provided to California community colleges at no local cost.
- 69 California community colleges currently as members.
- Over 170 non-California community colleges as members.
- Seamless integration into any course management system such as Blackboard, Moodle, Angel etc.
- Four 24/7 live web-streaming channels (more can be added as needed).
- 100GB of multi-media storage provided for each California community college.
- Redundant infrastructure to ensure maximum service availability.
Systemwide e-Conferencing – CCC Confer

CCC Confer provides no cost, systemwide audio and electronic web-based conferencing services to all college staff and faculty.

The e-Conferencing grant for $3.2 million, awarded to Palomar College in 2001, funded the development of a comprehensive, coordinated e-conferencing tool to complement the decentralized infrastructure of the California Community College system.

Initially supporting small group meetings, the success of CCC Confer eventually prompted a separate grant to encourage and expand the use of e-conferencing technologies in the classroom.

![CCC Confer 2003 through June 2010](chart.png)

- Participants
- Meetings
Systemwide e-Conferencing – CCC Confer

CCC Confer highlights include:

- 31,767 e-conferencing meetings, serving more than 215,000 individuals.
- 300% growth in demonstrations and training.
- 77% growth in Teach & Confer.
- 58% growth in faculty office hours.
- More than 1 million minutes a month usage.
- New customers, particularly in the areas of student services.
- Perpetual license agreement, allowing unlimited users.
Systemwide Technology Training for Faculty and Staff (@ONE)

This project was funded through a grant of $650,000 in partnership with Evergreen Valley College and Mt. San Jacinto. Striving to improve instruction through technology @One offers free or low cost ($100 maximum) training for the faculty and staff of the colleges, thereby providing colleges with a substantial cost savings for high quality professional development. Instructors provide face-to-face training, online and self-paced courses, webinars, accessible archives, and downloadable materials. @One (http://www.cccone.org/) provides training and technology information.

Trainings fall into five general areas and are designed in various skill-level tracks to address the needs of faculty and staff:

- Fundamental technology skills.
- Technology-enhanced instruction.
- Multimedia.
- Online teaching and learning.
- Technical training.

In 2009/10, @One responded to the demand for quality distance education and launched the Certification Program for Online Instructors, created a vibrant community of distance education coordinators and continued to promote participation in the Online Teaching Conference. In addition to effectively delivering upon the original charter to develop and deliver high quality training courses using cutting-edge technology and innovation.

The Certification Program for Online Instructors created a complete certification curriculum pattern for current and future instructors interested in achieving a recognizable standard of excellence in online distance education.

Certification Program highlights:

- Standardized statewide curriculum.
- Curriculum aligned with the International Association for K-12 Online Learning (iNACOL) standards.
- Course redesign and continuous improvement.
- Complete certification curriculum pattern
- Increased number of sections to facilitate timely certification completion.
- Establish process and standards to incorporate ePortfolios to demonstrate participant competency and store training artifacts.
- Custom certification programs for districts and colleges.

Training and Professional Development Highlights:
- Offered free or low-cost training to community college faculty and staff.
- 90% of training participants give @One a good or very good evaluation.
- Completion rates doubled from 33% in 08/09 to 60% in 09/10.
- Delivered 60 seminars and 25 online courses to approximately 4,000 registrants.
- 3,708 participants enrolled in instructor-led, distance education courses.
- The Online Teaching Conference achieved its largest participation ever with 268 people meeting face-to-face and 520 participating online.
- 162 participants benefited from Hands-On Institutes computer training. (*down from 365 in 08/09 due to local travel budget constraints)
- ONE Trainers’ Bureau provided on-site training to over 300 individuals at nine community college campuses.
- 127 distance education coordinators actively involved in the @One created online Distance Education Coordinators Community.
- The @ONE eNews reaches 7,393 individuals, an increase of 12%, and delivers training news and tips.
California Virtual Campus

The California Virtual Campus (CVC) is a 10 year statewide community college system program to create comprehensive instructional support for faculty and students. It addresses development of content and delivery of cutting-edge online and hybrid instruction. The principal goals are to support the California community colleges in online course offerings, e-learning and/or distance education. It is funded through a $2 million grant in partnership with Butte College.

In 2008, California State Senate Bill 1437 created an expanded role for the California Virtual Campus as an educational entity. It authorized the “California Virtual Campus to pursue specified purposes relating to education technology to the extent funding is available.”

As such, the bill supported programs to advance universal Internet service, as well as:

- Research-based innovations in teaching and learning using new technologies.
- Ongoing collaboration with 10 community-based organizations.
- Providing residents in low-income neighborhoods with access to high-speed networking and computers.
- Provide education entities with technical assistance.

The Chancellor’s Office has responded to the direction of this bill by:

- Forming the California Educational Collaborative, a K-20 group dedicated to sharing information on technology. This group is currently collaborating with the California Stem Learning Network on intersegmental Science, Technology, Engineering, and Math (STEM) initiatives.
- Launching a community-based organization Connectivity Pilot Project with CENIC over the CalREN educational network.
- Establishing initial grants to provide CalREN access to community-based organizations to increase access to online education resources.

- Developing two intersegmental online California High School Exit Examination preparation tutorial courses and expanded their use to 42 counties. These tutorials prepare students to pass the exam.

- Partnering with LA Trade Tech, expanded course concurrent enrollment opportunities for underrepresented and underserved K-12 students across the state by integrating high-quality interactive digital media and providing ten online classes that fulfill both high school and college credit transferrable to four-year colleges and universities.

- Convening four annual meetings of the K-20 CETC community, California state libraries, community-based organizations, State Dept. of Education, California Technology Assistance Project, adult education and universities so that all segments are represented.

- Commencing the Electronic Portfolio Pilot Project, ePortfolio California. Recruited 21 participating institutions from all California educational segments (K-12, California community colleges, CSU and UC) to test multiple ePortfolio applications for 50 courses; licenses in use are 3,127. The program also includes development of an educational research base by Stanford's College of Education and collaboration with the Postsecondary Electronic Standards Council to develop appropriate data interchange standards to help ensure that future student ePortfolios will be easily portable across a variety of systems and platforms.

- Establishing an initial partnership to enhance transfer opportunities with CSU East Bay and the California Community College system – the CSU-CCC Pathways Project.

- Creating a science, technology, engineering and mathematics education plan from meetings with the business community.
California Community College Educational Technology Collaborative

The California Community College Educational Technology Collaborative’s (CCCETC) (http://www.cccetc.org) mission is to foster collaboration between systemwide technology projects and the individual colleges to improve and enhance technology resources and services.

The collaborative strives to maximize resources and services available to the California Community College system through:

- Effective resource management.
- Resource sharing.
- Prevention of service duplication.
- Increasing funding opportunities.

CCCETC members are technology infrastructure providers, service providers, fundraising experts, program directors and Chancellor’s Office staff.

Current memberships include:

- CCC Confer ~ e-Conferencing.
- 3C Media Solutions ~ satellite broadcasting, pod-casting, streaming.
- EduStream - IP-based media content broadcast.
- @ONE ~ faculty/staff training.
- CCC Clearinghouse ~ electronic repository.
- CVC ~ California Virtual Campus.
- CCC Technology Center ~ shared information infrastructure services.

The collaborative's partner organizations include:

- Foundation for California Community Colleges, fiscal agent.
- CENIC, network provider.
California Community College Educational Technology Collaborative (CCCETC)

CCCETC highlights:

- Furthering improvement and enhancement in the reach of technology resources and services.
- Managing and sharing resources to eliminate duplication of services.
- Expanding membership and opportunities into K-20.
- Providing each college with 100GB of multi-media storage through EduStream.
- Initiating digital textbook pilot to support e-Textbook purchases and integrating with student and course management systems.
The Chancellor’s Office provided 6 percent of the $15,209,000 TTIP budget. General apportionment funds accounted for 70 percent. Instructional equipment, state funds, federal funds, local, and private funds accounted for the remaining 24 percent. The table below shows TTIP funding over the previous seven fiscal years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Funded Amount</th>
<th>Percent Change from previous year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>$44,300,000</td>
<td>58</td>
<td>Continuation of prior year's services.</td>
</tr>
<tr>
<td>2002-03</td>
<td>$18,500,000</td>
<td>&lt;139&gt;</td>
<td>Videoconferencing upgrade; Phase 1 of connectivity upgrade (T-1 to DS-3); all local technology initiatives and technology training monies eliminated.</td>
</tr>
<tr>
<td>2003-04</td>
<td>$22,050,000</td>
<td>16</td>
<td>4Cnet merges into CENIC; DS-3 connectivity upgrade continues; dedicated video T-1 is eliminated and moved onto CENIC.</td>
</tr>
<tr>
<td>2004-05</td>
<td>$23,397,000</td>
<td>6</td>
<td>Completion of Internet &amp; video upgrades; addition of California Virtual Campus line item into TTIP.</td>
</tr>
<tr>
<td>2005-06</td>
<td>$24,397,000</td>
<td>4</td>
<td>CCCApply introduced international applications and a BOG Fee Waiver; 300 percent increase in CCC Confer usage; completion of CVC program transition.</td>
</tr>
<tr>
<td>2006-07</td>
<td>$26,397,000</td>
<td>8</td>
<td>10 year anniversary of TTIP program; CCC-Tran goes live after beta-test phase; Cal-PASS expansion with additional funding; @ONE and CCC Confer increase usage by faculty and staff.</td>
</tr>
<tr>
<td>2007-08</td>
<td>$26,197,000</td>
<td>0</td>
<td>Same budget as previous year. Began adding the official off-site centers to CalREN. Increased bandwidth for colleges maxing out on current connection. Began the K-20 CETC.</td>
</tr>
<tr>
<td>2008-09</td>
<td>$26,197,000</td>
<td>0</td>
<td>Same budget as previous year.</td>
</tr>
<tr>
<td>2009-10</td>
<td>$15,290,000</td>
<td>&lt;42&gt;</td>
<td>Additional one-time federal stimulus fund payment of $1,595,811.</td>
</tr>
</tbody>
</table>
**Chart 1**, below, shows the percentage of funds for the seven funding sources (Telecommunications and Technology Infrastructure Program; instructional equipment, library materials, and technology program; general apportionment funds; other state funds; federal funds; local, and private funds).
Chart 2, below, shows the relationship of funds in the seven areas reported by the colleges compared to the previous six fiscal years. Consistent with previous years, the general apportionment category continues to represent the majority of expenditures for college technology dollars, with TTIP funds on the decline.
Chart 3, below, details the expenditure trends over previous six fiscal years. TTIP allocations are shown by category.

TTIP allocation to the colleges fell drastically in 2009/10. CENIC expenses for 2004/05 decreased due to more favorably renegotiated bandwidth usage rates, which have remained fairly steady through 2008/09. In 2008/09 CENIC’s growth was due to increased bandwidth for some colleges, who were maxed out. In 2009/10 CENIC continued to improve connectivity rates using peering connections and negotiated a 50% discount through the California Teleconnect Fund Program. TTIP allocations for Library Automation were eliminated due to budget cuts and colleges received $0 in 2009/10. Technology training has not been funded for several years, reflects little to no annual spending and therefore has been removed from the chart.
Emerging Concepts

In the spirit of continuous improvement, the Chancellor’s Office Telecommunications, Technology and Infrastructure Program is looking to the following areas where technology could enhance the educational experience and generate efficiencies. Each area is defined and highlighted below:

Centralized Testing and Assessment (CCCAssess): a centralized assessment test delivery system and data warehouse for the California Community Colleges. Centrally selected assessment instruments will be delivered via the Internet and test scores, along with additional assessment data, will be stored in the data warehouse. It allows for a reduction in testing instrument costs, improves test portability and provides comparable data to improve predictors of student success.

2009/10 Update: approximately 300 faculty and matriculation representatives from across the California Community Colleges came together to define the testing instrument requirements for CCCAssess. Testing instrument and technology requirements were combined to create the Request for Information (RFI) document. The project team will release the RFI to prospective vendors in August 2010 and feasibility study in 2011.

Affordable Content Choices (Digital Content): facilitates the purchase of lower cost of electronic textbooks and digital content by seamlessly integrating the bookstore and student and course management systems. Electronic textbooks may be purchased at the time of course registration and directly linked to a student’s course(s). In addition to electronic textbooks, viable open educational resource options are being explored.

2009/10 Update: two districts/six campuses signed up to participate in the CourseSmart Integration pilot. CourseSmart offers currently adopted textbooks in digital format at 51% lower cost than traditional textbooks. The bookstore integration with CourseSmart is complete and eTextbooks are available for students to purchase. The second phase will integrate CourseSmart with the Student Information and Learning Management Systems.
Video Teaching and Learning

TTIP is working with experts in the field of allied health to improve the working conditions for instructors and bring more learning opportunities to students. Through video teaching and learning technology, instructors use simulation and computer generated graphical displays to teach real-life scenarios encountered by students in the health field. In addition, instructors will be able to reach underserved populations by combining technology and distance education.

2009/10 Update: Due to budget cuts, TTIP funds are unavailable to fund this effort and the TTIP is seeking grant funding to upgrade college video equipment which is out of service. Modern video equipment is required to run these state-of-the-art simulations.

ePortfolio

ePortfolio California is part of the California Virtual Campus (CVC). CVC serves the needs of distance education students statewide. ePortfolio California is focused on delivery, evaluation, research, and development of a vibrant and interconnected community of practice, expanding on the work of the Electronic Portfolio Action and Communication group.

2009/10 Update: Phase I Pilot’s key instructors outlined the work for ePortfolio. Phase I is complete. The project is currently in Phase II and focused on outreach and research. A working group with the Postsecondary Electronic Standards Council is developing the technical standards. Phase III will focus on the transition to steady state, where the emphasis will be on delivery of core services.

CCC Clearinghouse

TTIP plans to develop a next generation search engine that will search all curriculum and course outlines for the California and other states participating in the Governet Curriculum Inventory Project.

21st Century Skills and Digital Literacy: to enhance transfer, workforce success and improve student access to programs and services, the 21st century skills task force will evaluate and develop digital competencies and needed skills in California.
Conclusion

Using technology continues to change the way educational institutions run their business and educate their students. The Telecommunications, Technology and Infrastructure Program brought high-speed broadband to the California community colleges and the program continues to challenge the status quo through innovative solutions.

The partnership with CENIC provides high-bandwidth connectivity and enabled the California Community Colleges to negotiate an annual savings of up to $2.2 million through the California Teleconnect Fund Program. During the economic downturn, this savings allowed other critical initiatives to continue supporting the California community colleges and the extended educational community as the TTIP funding declined. Initiatives under the TTIP umbrella support the colleges through a wide range of complementary technologies and functions:

- Transcripts, college applications and curriculum data are sent electronically.
- Ideas are shared in virtual meetings.
- Low-cost technology trainings are available for staff development.
- Multi-media solutions and educational materials are available for all the community colleges.
- Intersegmental collaboration facilitates ideas for expanded services.

TTIP funding was cut by 42% this year, from $26,197,000 to $15,290,000 with one-time ARRA funds of $1,595,811. TTIP worked with CENIC, the California Public Utilities Commission, and the California Teleconnect Fund to reduce Internet costs for all colleges in the system and worked diligently to continue to seek out technology-related grants.

With funding support for existing projects cut, 2009/10 was a difficult year for new technology efforts as TTIP reprioritized initiatives. The Affordable Content project, delayed by six months, was unable to offer digital textbooks (a 51% cost savings) to students as planned. The Open CCCApply project delayed development, and the California community colleges’ admissions process is at greater risk due to possible changes in the market place.
In 2010/10, TTIP will continue implementing a variety of project-related strategies to deal with long-term, lower technology funding levels. In this vein, one of the principal goals of the Tech IV Plan, created in 2010, is to leverage and build upon its investment in existing projects, reduce costs and develop innovative solutions to support the educational communities of the future.
Acknowledgments

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