Current and Future Uses of Broadband in Libraries in the San Joaquin Valley Library System

Prepared by CENIC in Partnership with the San Joaquin Library System, August 16, 2013

Executive Summary

California's education and research communities currently leverage their networking resources under CENIC, the Corporation for Education Network Initiatives in California. Work is underway to secure funding to connect all California's public libraries to CENIC as a sixth segment, with the California State Librarian acting as the libraries' interaction point with CENIC. As a pilot, three groups of California libraries will be connected to CalREN in 2013. The San Joaquin Valley Library System will be the second system to connect to CENIC's high-speed network, CalREN, in the fall of 2013.

This report discusses needs in these communities, describes current uses of technology in these libraries, identifies the obstacles librarians face as a result of limited bandwidth, and documents ideas librarians have for using expanded broadband capacity to serve their patrons..

> In communities with high rates of poverty, unemployment, and homelessness, libraries level the playing field and allow access to all. In rural areas, libraries are the community center and the safe place. They can change lives because of the services they provide and the relationships they build.
>
> — Laurel Prysiazny, Fresno County Public Library

Needs

The communities served by the San Joaquin Valley libraries have a larger immigrant population and higher rates of poverty than other area of the state. Low educational attainment, illiteracy, and

unemployment are among many serious problems. For many residents, English is their second language and they need greater access to education and employment. Among the most poorly funded libraries in the state, the San Joaquin Valley libraries play a critical role in providing this access. Technology is essential to this work.

Current Programs and Services

Despite limited broadband, librarians are working hard to assist people in taking full advantage of the technology resources the libraries can currently provide. Libraries are offering classes and tutorials to build digital literacy, providing access to critical health information, using digital media with teens and supporting patrons as they search for employment.

Obstacles

The main libraries in the San Joaquin Valley Library System have very limited broadband, with a connection speed of 3 Megabits per second (Mb/s), the lower end of today's connection speeds for an average home. Many of the branch libraries have only 1.5 Mb/s. This extremely limited connectivity prevents librarians from offering many programs and services they perceive would be of value to their patrons. Videoconferencing, streaming media, content creation, specialized software, longer sessions on terminals, and unlimited wireless access are simply not possible due to limited connectivity.

Future Plans

Librarians are eager to expand their broadband enabled programs and services once connectivity is expanded to 1 Gb/s per library as a result of the partnership with CENIC. Ideas include:

- Technology programs for teens
- Reference questions answered by librarians circulating throughout the library with iPads
- Videoconferencing for meetings, staff training and public programs
- Collection development: E-books, digital magazines, and digital music
- Supporting individual and group online learning
- Digitizing community history materials
- Expanded computer tutorials and classes
- Genealogy research
- Tele-health applications, especially in rural communities

- Developing assistive technology centers
- Use of streaming media to bring the world into the library

Background

About the San Joaquin Valley Library System – www.sjvls.org

The San Joaquin Valley Library System is comprised of 10 main libraries and their associated branch libraries in seven counties in the Central Valley of California. Many residents of these communities face high unemployment, obstacles to educational attainment, and a low standard of living relative to other communities in the state.

Libraries are essential to the health of these communities, but are chronically underfunded. Laurel Prysiazny, Director of the Fresno County Public Libraries says, "Low educational attainment, unemployment, and ill health are persistent problems in the communities we serve. Libraries level the playing field and allow access to all. In rural areas, libraries are the community center."

About CENIC – www.cenic.org

California's education and research communities currently leverage their networking resources under CENIC, the Corporation for Education Network Initiatives in California, a non-profit corporation created by the California research and education communities in 1997 in order to obtain cost-effective, high-bandwidth networking to support their missions and respond to the needs of their faculty, staff, and students. CENIC designs, implements, and operates CalREN, the California Research & Education Network, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected. CalREN consists of a 3,800-mile CENIC-operated backbone, shown at right, to

which nearly 10,000 schools and other institutions in all 58 of California's counties connect via leased circuits obtained from telecom carriers or fiber-optic cable. Over ten million Californians use CalREN every day.

About the Collaboration

Work is underway to secure funding to connect California's public libraries to CENIC as a sixth Associate, with the California State Librarian acting as the libraries' interaction point with CENIC. This would involve adding California's libraries to the fabric of education institutions already connected to CalREN. As a result, libraries would have the capability to collaborate more seamlessly with one another as well as draw on content, expertise, and opportunities from schools, colleges, and universities, extending these capabilities to individual libraries and library patrons statewide and thereby enhancing access to information, research, and credit/non-credit distance learning.

The San Joaquin Valley Library System is one of three groups of libraries in California participating in a pilot project to demonstrate both the feasibility and benefits of joining CENIC. By the fall of 2013, eight of the main libraries in the San Joaquin Valley Library System will increase their connectivity from 3 Mb/s to 1 Gb/s.

This report describes current uses of technology in those libraries, discusses the obstacles their current limited connectivity creates, and documents ways in which librarians intend to use the greatly enhanced broadband capacity as a result of their participation in CENIC to more effectively serve their patrons.

Need for Technology Access and Training in the San Joaquin Valley Library System Jurisdiction

The communities served by the San Joaquin Valley libraries have a larger immigrant population and higher rates of poverty than other area of the state. Low educational attainment, illiteracy, and unemployment are among many serious problems. For many residents, English is their second language and they need greater access to education and employment. Libraries play a critical role in providing this access.

Many librarians interviewed for this study talked about the essential role for libraries in combating unemployment. Diane Satchwell, Director of the Merced County Libraries, points out that there are no other public access computers in Merced County. "We serve people who have lost their jobs and cannot pay for

their home Internet connection. The library is the only place they can search for jobs, file for unemployment, and do their required check-ins. The questions that guide all our work are: "How can we make our population competitive? What is it we can do with our technology that will support people in their efforts to better themselves and their communities?"

"People have to be computer literate to compete for most jobs, and many people in our communities have not developed this skill," notes Sherry Gomez, Director of the Kern County Libraries. "Libraries can play a role as a site for job training, small business development, and technology training – all critical to the health of our communities."

Another problem facing communities in the San Joaquin Valley is educational attainment. There are significant problems with high school completion and access to higher education. Gang activity in some of these communities creates a need for safe places for teens and high-quality after-school activities. However, teens in Merced County have no place to go, and many branch libraries close at 2:00 pm. Librarians would like to make libraries a safe and constructive gathering place for teens by extending hours, expanding computer access, opening teen gaming centers, and offering other services of interest to teens.

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Many of our patrons work in agriculture, and many are blue-collar workers. Many jobs are only advertised online and require you to apply online. However, many people in our community do not have reliable Internet access and are unfamiliar with using computers. The library is one of the only places where residents can do this work.

— Mary Catherine Oxford, Tulare City Library

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Computer access is not a given for people in these communities. Many residents do not have computers in their homes, and the digital divide is very large. Ellen Mester, Director of the Madera County Libraries, estimates that 50% of people in her library jurisdiction do not have computer access at home. At the library, however, patrons typically face a waiting list for computer access, can only use low-bandwidth applications, and are limited to one hour or less online. In some branch libraries in Merced County, the waiting lists for computer access are so long librarians were forced to introduce a limit of half an hour per patron per day.

While the main county libraries are in cities or towns, the branch libraries are mostly rural, and located in areas with very few

services. Although they play a critical role in these underserved communities by enabling residents to access information and services to improve their job readiness, literacy, and educational attainment, five of the libraries in the San Joaquin Valley Library System are among the ten most poorly funded libraries in the state of California.

Current Broadband Enabled Programs and Services

The The main libraries in the San Joaquin Valley Library System have very limited broadband, with a connection speed of 3 Mb/s, the lower end of today's connection speeds for an average home. Many of the branch libraries have only 1.5 Mb/s. This extremely limited connectivity prevents librarians from offering many programs and services they perceive would be of value to their patrons. Videoconferencing, streaming media, content creation, specialized software, longer sessions on erminals, and unlimited wireless access are simply not possible due to limited connectivity. Yet, despite this limitation, librarians are working hard to assist people in taking full advantage of the technology resources the libraries can provide.

In the Fresno County libraries, as in all of the San Joaquin Valley libraries, users can gain access to public computer terminals connected to the Internet, although their use is limited to one hour per day per patron. Patrons use library computers for social media to stay connected to family and friends, to undertake job searches and complete job applications, to research unemployment and Medicare benefits, to participate in online classes, and to conduct research. Computer classes are offered at many of the library branches, including training sessions on how to use the libraries' many electronic databases. The library also offers self-checkout to patrons, which can slow down due to limited connectivity.

In Kern County, the main branch computer lab is staffed with a dedicated person who offers classes, recruits volunteer technology assistants, and offers one-on-one assistance by appointment. Recently, the branch has held gaming days for teens and drop-in seminars to assist people in using their mobile devices. As is the case in many libraries, e-books are becoming more popular, and the branch has conducted extensive staff training on this topic. The library has also developed an "anywhere app" for mobile phones.

Leaders in Kings County libraries have cultivated partnerships with local community agencies to leverage their facilities and equipment for the benefit of residents. For example, in partnership with the Social Security Administration (SSA), training sessions on completing SSA applications and using the SSA website were offered to the public using library computers. In partnership with Kings County United Way and Kings Community Action Organization, free income tax preparation was provided through the Volunteer Income Tax Assistance (VITA) program. Volunteers from these organizations brought their laptops and

used the library's wireless connection and meeting room to assist residents in filing their tax returns.

In partnership with the County of Kings Public Health Department, the library also hosts two wireless ExploreHealth kiosks at the Corcoran and Hanford branch libraries. As in most other counties served by the San Joaquin Valley Library System, the public library is the only county agency in the County of Kings that provides free wireless service for the public.

Other library systems have significant community partnerships as well. The Porterville Public library also has a collaboration with the Social Security Administration. In Madera County, the libraries and the Veterans Affairs Department work together to offer small classes where veterans are taught how to use the computers and access resources.

The Tulare County libraries have an Electronic Resources Librarian who circulates e-readers and offers classes on a range of software applications, on job searching, and on resume writing. This librarian selects subscription databases and trains staff in their use. The library has created a grant-funded technology literacy initiative which focuses on helping patrons find credible information on the Internet. They have also created a digital media lab for teens; programming at the lab is planned by the teens themselves, including making videos, planning their own summer reading program, and hosting Wii gaming and movie nights. Teen programming is a priority as the library is one of the only institutions in the community where teens can go in their free time. The Tulare County libraries are becoming known for their work in placing library book machines to dispense books at sites in the community. These have been a huge success and are frequently used.

In the Tulare City Library, genealogy and local history are a big part of library services. The library has a dedicated scanner and computer, run by volunteers and dedicated to genealogy research. Librarians are already using technology and social media to make patrons aware of library services and events, but they would like to enhance the current library website with online tutorials and a virtual tour of the library.

As technology become more important, libraries are redesigning their facilities and reprioritizing their equipment budgets. For an overview of the current facilities and equipment supporting patron use of technology in the libraries, see Section X, Table 1.

Obstacles Created by Limited Bandwidth

Despite these innovative efforts, limited connectivity continues to prevent librarians from offering programs and services they know would be of value to their patrons. Videoconferencing, streaming media, content creation, specialized software, longer sessions on terminals, and unlimited wireless access are simply not possible due to limited connectivity.

Sherry Gomez, Director of Libraries in Kern County Libraries, notes "Due to bandwidth limitations, streaming content is not accessible to our patrons, and no streaming content can be put on our website. There is a waiting list for computers at times and patrons must be limited to one hour per day. The network can be so slow that often it is not possible to finish a task, such as a job application, in that time."

Natalie Rencher, Kings County Librarian, also feels the limitations imposed on her operations by only 3 Mb/s of connectivity. She reports, "We have reached our limit in terms of the number of computers our current connectivity can support. As a consequence, wait times for computers is common. This is the only place in the whole county where residents can use a public access computer, but we cannot meet their demand."

Laurel Prysiazny, Fresno County Library, says, "We open the door at 10:00 am each day, and patrons are waiting outside to use our computers. The terminals we have are being used every single minute of the day, and we could easily double the number available to the public."

Almost all librarians interviewed expressed a similar frustration. The head of libraries in Merced County, Diane Satchwell, described her frustration when learning that, in one of the branch libraries, so many people were waiting for computers that they had to limit use to half an hour.

Librarians in Porterville have ambitious plans for renovating the library to better serve patrons and relocating all computers into a computer commons area. They are also planning to make their large meeting room into an adult learning and literacy center with computer terminals for instruction. In this case, connectivity not only limits patron access to information and library services, it is also severely limiting the redesign possibilities for the library.

All librarians expressed frustration at the speed of the Internet in their libraries. With their current connectivity, a single web page can take one minute to download, leaving patrons very frustrated. Searching the library catalog is also slow, especially on the public

terminals. At peak use times, back-end operations such as checkout slow down as well.

Future Plans: Broadband Enabled Programs and Services

Librarians are eager to expand their broadband enabled programs and services once the obstacle of limited connectivity is removed. Below are some of the ideas librarians have for programs and services once connectivity is expanded to 1 Gb/s per library as a result of the partnership with CENIC.

Fresno County Library

Laurel Prysiazny, head of Fresno County Public Libraries, has many ideas about how to use advanced broadband to better serve library patrons, including a plan for "roving reference" where librarians will be given iPads and go out onto the floor to answer reference questions. A pilot of this project in another library saw reference questions increase by 25%.

Prysiazny would also like to make the library an access point for services that cannot be found in the rural communities that are served by her branch libraries. For example, in a former position, she opened an assistive technology center to train people with disabilities to use technology and would like to do this at some of the Fresno County branches.

> Once bandwidth is no longer an obstacle, the Fresno County Library plans to create a Discovery Center. Aimed primarily at teens, it would contain a video and sound recording studio, performing studio, and an artist studio. Related to this, they would also like to build a "Digibus," a roving teen services vehicle with similar equipment but able to travel around the community.

Videoconferencing is a top priority for librarians in Fresno County. It would allow staff to meet regularly and training could be provided online. This would save staff hundreds of hours a year in driving time. Videoconferencing could also allow the library to be used as a medical care point. Patients could confer with doctors and other health care professionals from their local library. As there is a tele-health network already connected to calREN, this opens up all kinds of possibilities.

Literacy is a serious problem in Fresno County. To combat low graduation rates, the library would like to offer students access to college preparation websites and classes that could be taken individually or in groups. Workforce literacy is also a significant

problem and technology literacy is a necessary part of workforce training. Librarians would like to address both issues at the library and in the workplace. They plan to launch a mobile branch to send librarians out into the field. Librarians will go to community centers, Starbucks, the Chamber of Commerce and other community locations to serve people in places they frequent.

> Kern County Main Library has an active teen program. Teen supporters of the library created videos to promote library use among their peers and other citizens. However, due to limited bandwidth, these videos could not be posted on the library website. Teens are anxious to expand their video production and to share their work with the community.

Kern County

Kern County staff and librarians have a wide range of innovations that they hope to undertake when next generation broadband comes to their libraries, including:

- Tutorials for patrons on how to use library services which could be streamed on library computers and accessed on the library website;
- Bringing the world into the library through videoconferencing with authors, experts, and advisors;
- Bringing fiber into the 300-seat auditorium to provide streaming content of interest to the community;
- Loaning laptops and tablets to patrons;
- Offering more classes on a wide range of topics;
- Placing podcasts of students performing in the Community Read and at other library events on the library website; and
- Documenting the work of their teen robotics group, sharing it on the library website, and supporting their travel to other libraries to foster robotics groups in other communities.

Business Manager Mark Lewis notes, "It will be important to document cost savings across operational areas as a result of enhanced broadband. What kinds of savings in staff time and operational costs accrue? How can these resources be deployed elsewhere?"

Kings County

Natalie Rencher, head librarian in Kings County, points out that next generation broadband will further qualify their library as a first responder site in the event of a disaster, making the libraries a point of connection for extended families. She envisions a whole

range of mobile "library anywhere" applications including library card barcodes on smartphones and instant referencing using text messaging. She would also like to make use of tablet PCs, both to loan to library users and to use in classes such as information literacy sessions. Kings County libraries currently collaborate with community organizations to create programs in the library focused on health, literacy and job training and they would like to dramatically expand this activity.

Madera County

The main library in Madera County has a dedicated room for California history and genealogy, but it has no public access computers or scanners. They are now a FamilySearch affiliate with the Mormon Library but cannot really use the service due to limited connectivity and lack of computers in genealogy room.

> Madera County Library has developed a project with three Tribes in their jurisdiction. They intend to expand the work of their genealogy room by digitizing historical documents, photographs, recordings, and other materials provided by tribal members. These materials will be available to the public at the County Library, at a community kiosk and in the Tribal Libraries. Expanded broadband is essential for the success of this project.

Librarians aspire to upload rich content to their website to connect patrons to the library and to the community. They hope to develop and post virtual tours of museums, parks, and the library itself on their website but limited broadband makes this impossible. They have been approached by the local PBS affiliate to be a partner in a project in which the station works with people in the community to produce videos about their lives. These would be uploaded to the PBS and library websites.

Merced County

Merced County librarians would like to create a Teen Center where teens can use multimedia to make short videos and create other web content. Notes Diane Satchwell, Head Librarian, "I had a whole multimedia room in the last library I directed. Here we are in a place where it is needed the most, and we have the least. I want the library be the place for young people. I want to use technology to create programs for gang-involved youth, to create intergenerational programs, and to develop GED completion programs using e-readers. We don't have a population that can compete because they do not have the tools. The library can help provide them with these tools."

> Diane Satchwell, Head Librarian in Merced County, notes that intergenerational learning is a top priority. "We can teach parents and caregivers how to engage children through literacy activities. I would like to videotape story time and put it on our website so parents and caregivers can access these stories anytime. Coupled with training sessions in the community, this repository of stories becomes a tool for modeling caregiver-child interaction through literature."

Diane has also worked on the "Transforming Life after 50" initiative with the California State Library. "How can we engage active adults in the library?" she asks. "If we don't have anything to offer, they are not going to support us. There are all kinds of potential uses of technology in a project like this."

Porterville Public Library

Vikki Cervantes, Head Librarian at the Porterville Public Library says "High speed broadband will give us more capacity to fulfill our mission: to make the library a place of lifelong learning." She envisions greater access to online higher education classes taken individually and in small groups and plans to use videoconferencing to connect to authors, performances, and other live events of interest to the community.

She describes a host of innovative ideas including offering Saturday science courses in the library and showcasing student work from these classes on Facebook and in live feeds on YouTube.

Cervantes notes that they have long talked about creating a "technology petting zoo." As digital devices proliferate, patrons need a low-pressure place where they can try out various devices with the assistance of library staff and volunteers and find the ones that best meet their needs.

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Mary Catherine Oxford, former Library Manager at the Tulare City Library looks forward to a "happier public." "We currently field lots of complaints – video takes forever, searching the catalog is very slow, computer terminal use is limited to an hour. This time limit is frustrating enough for our patrons and then it takes a minute for a page to load, adding to their frustration and cutting into their time online. The user experience is not what we want it to be and I think some people just give up and stop trying."

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Tulare City Library

The Tulare City Library would like to use videoconferencing to connect with local authors as well as authors in other areas. They would also like to expand their working relationship with the local school district. The library is part of fourth grade curriculum and, to supplement the fourth grade visits to the library, they would like to regularly connect with classrooms remotely. A number of school software programs are available at the library and are heavily used by students. Examples include Lexia and the Tech Prep High School math curriculum.

Tulare County Library

The Tulare County Library is also a partner in the program sponsored by PBS, mentioned earlier, in which rural residents discuss their lives. Library patrons in Tulare County will be interviewed, and PBS will use these interviews as a part of an upcoming production. Advanced broadband will allow interviewees to participate more fully in this project. For example, the library will be able to post these interviews on their website and provide real time video-conferencing with producers.

Librarian Jeff Scott also looks forward to the time when better connectivity for patrons will reduce wait time for page loads and improve their overall experience on library computers.

Tulare County libraries have also developed community partnerships that will be greatly strengthened by advanced broadband. For example, they have a current partnership with the

University of California at Davis Nutrition Department to establish "play and learn islands" to teach good nutrition. The library is supplying resources, some of which will be electronic. They also currently have a partnership with the Workforce Investment Board in which job coaching is supplemented by online resources and book machines with business related books are placed in strategic locations in the community

Sources of Information on Technology and Libraries Identified by Interviewees

- Calix: California library e-news
- Librarian blogs such as the 21st Century Library (One is written by Tulare County Head Librarian Jeff Scott: http://gathernodust.blogspot.com/
- Infotoday (http://www.infotoday.com/)
- Library and Information Technology Association (http://www.ala.org/lita/)
- Rural Libraries listserv
- Director's conference in Sacramento at the California State Library
- Quarterly meetings of the San Joaquin Valley Library System
- Infopeople for training

Experts on Technology in Libraries Identified by Interviewees

- Derek Wolfgram, Deputy County Librarian, Santa Clara County Library
- Sara Houghton, Library Director, San Rafael Public Library. Writes the Librarian in Black blog

Acknowledgements

The following people were interviewed in the preparation of this report:

Table 1: Current Facilities and Equipment

	Fresno	Kerns	Kings	Madera	Merced	Porterville	Tulare City	Tulare County
Branches	34	24	7	4	16	1		15
# Borrowers*	289,655	175,723	32,000	29,893	43,559	22,151	23,163	50,984
# Visits*	2,996,000	928,011	274,029	220,304	621,616	202,393	168,649	416,325
Per capita Operating expense*	27.94	9.69	14.91	7.2	10.72	16.78	13.08	6.14
# Computer users per day								
# Annual computer users*	839,837	222,243	90,958	28,114	75,525	64,000	35,700	93,856
# Public terminals w/ internet access	500	260	85	24	58	23	26	134
Private Carrels or group study rooms	No	No	No	No	No	Yes, adult literacy	4	No
Classrooms with terminals	No	3 sites	1	No	No	1	No	1
Meeting rooms with terminals	No	No	No	No	No	No	Yes, for tutoring	No
Loaner laptops	11 sites	No	16	10	No	15	6	Yes
Scanners for public	No	1	No	5	No	1	No	No
Video Conferencing	No	No	Yes	No	No	No	No	Yes
Public wireless	Yes	Yes, 8 sites	Yes, 4 sites	Yes, 3 sites	Yes, 3 sites	Yes	Yes	Yes, 2 sites
iPads, digital readers for loan	No	No	No	No	No	No	10	Yes
Library use of social media	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Current network capacity, main	4.5 mbps	3 mbps	3 mbps	3 mbps	3 mbps	3 mbps	3 mbps	3 mbps
Technology plan	No	Yes	No	No	No	No	No	No
In-library technology support personnel		1	1	1	2	1	No	1
**Edge Initiative Participant	No	No	Yes	No	No	No	No	No

*Source: California State Library Website, 2010-11 General Profile

**The Edge Initiative is a voluntary, assessment program being piloted through the California State Library (http://www.libraryedge.org).