From card catalogs to computers

Technologies fueling the new American library

No public institution is immune to the economic impacts of the current recession. But there is perhaps no greater example of technology being part of the solution than the modern-day library. As the role of the library continues to grow and evolve, IT leaders are making sure their facilities are poised to serve an increasingly digitally savvy constituency.

There are more than 120,000 libraries across the country, and their position as a vital public resource has never been more evident. Books and research needs have long been met between the four walls of the library. Now communities turn to libraries for everything from low-cost entertainment to a makeshift home office.

"Probably the biggest change we've seen in the last few years is how reliant communities are becoming on libraries," says Pat O'Brien, regional sales manager for state and local government for CDW. "As times get tougher, people look to libraries for Internet access."

Record unemployment is driving an increased need for computers and Internet access — resources that may no longer be feasible to have at home. Job seekers go to the library to browse local job boards, fine-tune resumés, complete online applications and more.

In St. Paul, Minn., near-constant Internet usage during open library hours prompted the recent purchase of a software program to improve monitoring of the hour-long time limit on Internet access per patron. (See *Connectivity Is King*, page 4).

IT equips libraries for mobility

Libraries are constantly under pressure to keep pace with new technologies, and are rising to the occasion in service of their patrons. The growth of mobile devices, for example, is having a direct impact on IT plans.

"People in the workforce have become more mobile," says O'Brien. "They expect to be able to pick up and walk with their device and be online all the time. They

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Quick Facts: eRate

What is eRate?

- **$2.25 billion** in federal funding available on an annual basis to promote Internet connectivity in the nation's schools and libraries
- **Libraries can apply twice** within a five-year period
- **Reimburses up to 90 percent** of eligible expenses incurred

Funding breakdown

- **The bulk (70 percent)** of eRate funding is allocated to K-12 schools.
- **The remaining 30 percent**, $675 million, is earmarked for libraries.

Eligible services

- **Priority 1 services** (funded first) relate to telecommunications and Internet access.
- **Priority 2 services** include internal connections and basic maintenance for internal connections.

Small Private College Updates Machines with Lenovo

AT LAKE FOREST COLLEGE outside of Chicago, the role of the campus library has evolved significantly over the last several years. Centrally located on the picturesque 107-acre campus, recent additions such as a coffee shop, meeting spaces and computer labs have contributed to the library's current identity as a social gathering area.

"The library has become the hub of the campus community," says Linda Mathiesen, telecommunications and end-user support manager. "The library is really used more than the traditional 'always have to be quiet and look through the stacks' uses," she adds.

Fortunately this private liberal arts college is somewhat insulated from the budget challenges confronting most libraries around the country, due to the current economic downturn. In fact, enrollment at the college has actually increased over the past few years, standing currently at about 1,500. A dedicated endowment provides a consistent funding source to update campus computers on a four- to five-year cycle.

Lake Forest IT staff is making smart use of their resources to offer many additional opportunities to students, using the latest technologies. For example, a rhetoric and production room, located in the library, allows co-eds to record and view their oral presentations on camera, to fine-tune their presentation skills.

"Technology is guiding us into providing more opportunities for the students." Mathiesen explains. A 24-hour computer lab enjoys high usage during the months when classes are in session. An additional technology resource center and a set of computer-equipped library kiosks are provided for student use as well.

Hardware Support Specialist Don Martin reveals that cost, ease of use and availability were key factors in going with Lenovo computers for its latest update. Durability was an added bonus, especially in its highest usage areas. "The keyboards and mice, especially, take a beating in the 24-hour lab," Martin says.

Lake Forest decided on the IdeaCentre Q series for its 30 kiosks. The resource center and the around-the-clock lab are outfitted with ThinkCentre M91 PCs. The small form factor leaves more workspace available for other materials students need to get their coursework done. In addition, faculty and staff that use laptops have the Lenovo ThinkPads. Much preferred over a previous brand, the quality construction helps the machines fit into an active academic's lifestyle.

Users have gotten on board with the new computers very quickly. "We haven't heard a lot from them, which is a good thing," Martin explains. "They have a tendency to let us know when something's wrong, but when it's working, we don't hear from them."

Innovation certainly doesn't stop at the library's doors at Lake Forest College. IT staff virtualized campus servers a few years ago, and they are exploring desktop virtualization as well. The small student-to-faculty ratio of 12-to-1 can increase the difficulty of implementing these initiatives in a cost-effective way, especially given the small number of technical staff.

At the classroom level, evidence is growing that Lake Forest is on the leading edge of the latest technologies. The learning environment is enriched by tools such as interactive white boards and student response systems in some classrooms, allowing professors real-time information on student understanding of course material.

Connectivity Is King

St. Paul library system equipped for the Internet age

IN ST. PAUL, MINN., library usage is at an all-time high. But it's not just the books patrons are interested in. In a scenario that will likely resonate with libraries nationwide, Information Technology Analyst Tim Schmidt reports that visitors are especially interested in the free Internet access offered on library computers.

Many patrons without Internet access at home count on the library to communicate with friends and family through email and social networking sites. The economic downturn has also increased the role the library plays as a vital resource to job seekers. In a true sign of the times, the 13-branch St. Paul system has even added a staffed job resource center at one of its locations, offering help with resumés and job applications.

St. Paul Library recently implemented a new software program to better enforce the library's one-hour-per-patron policy so that Internet access could be granted as fairly as possible. Some users had figured out how to bypass the system in order to extend their Internet use beyond the allotted hour. Now, at the point library guests request computer time, they are notified as to when their time will begin. No more idle wait time, wondering when their turn will come. Now they can make more productive use of that downtime, even leaving the library to run errands.

Desktop PCs at St. Paul libraries have been modernized to handle the added traffic. Outfitted with Lenovo M58s with Intel vPro, the cost-effective machines can hold up to high-volume, near-constant usage.

"The Lenovo M58s have been fantastic," says Schmidt. The library has been so pleased, in fact, that a pilot program with library employees has technical staff considering adding Lenovo ThinkPads at its public workstations too. "We would put laptops on a desk and lock them down, freeing up more workspace for patrons."

Other technology initiatives at the library are also supporting their goal of increasing connectivity options for visitors. Wireless access is now available at every branch to accommodate people bringing in their own laptops or tablets.

But network upgrades were needed to keep up with the demand. The previous wireless system required significant maintenance and overhead at each access point. Recently they implemented a new hub-and-spoke type system, centralizing configuration needs that could easily be pushed out to all the satellite locations. "All we have to do is hang the equipment and turn it on, and it will get its configuration," Schmidt says. "Our overhead costs and maintenance needs were drastically reduced."

In the current economic environment, it is more important than ever to make the most of limited resources. St. Paul libraries have been able to take advantage of grant funding from the Bill & Melinda Gates Foundation to help pay for technology purchases at certain branches. Matching the city's investments, the foundation's awards are based on income levels in the area. They also benefit from the federal government's eRate program, providing substantial discounts on purchases contributing to their technology initiatives.

According to Schmidt, the library is already considering additional enhancements to its technical environment. For example, plans are taking shape to purchase e-readers that patrons can check out, and use to download up to 10 books. An early adopter of this kind of e-reader program, St. Paul would loan the e-books for three weeks, mirroring the due dates of physical books borrowed from library shelves.

A few years ago, library officials purchased the necessary infrastructure to support desktop virtualization, which once implemented, will help further extend the lifecycles of their Lenovo computers. They also anticipate energy savings from reduced power and cooling, as well as decreased network maintenance demands on library staff.

Plans to equip reference librarians with additional tools are also in the works. Schmidt envisions supplying tablet devices to librarians, allowing them to get out from behind their desks and roam the facility. "If someone needs help, the librarian can look up a book for them, look up their barcode number, or even put a book on hold at another facility, all from their tablet device," Schmidt adds.

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have those same expectations when they go to a library."

Network upgrades are often needed to respond to increased demands for connectivity — including Internet access on computers within the library; as well as wireless access for library visitors toting their own laptops, tablets and cellphones. Some facilities are now offering mobile use of library laptops on the premises as well, reinforcing the need for a high-bandwidth network to enable seamless connectivity.

At Sachem Public Library in New York, for example, the facility added broadband wireless inside and outside of the facility, available for public use. The high-speed fiber replaced a lower-speed connection, described as half a T1 line. (See *Technology Takes Center Stage at Suburban Library*, page 7)

Many of today's library patrons are reading e-books on personal e-readers or other mobile computing devices. More robust e-book offerings allowing timed downloads are popping up at libraries around the country. Some innovative institutions are even adding e-reader devices to their collections, allowing users to check them out for limited periods, stocked with books.

According to O'Brien, many multi-site library systems are also implementing unified communications capabilities alongside network upgrade efforts. Taking advantage of VoIP technologies for phone service to replace aging landlines, libraries can provide presence features for staff and patrons alike. These enhancements streamline all communications avenues, providing multiple benefits: Real-time exchanges are united with more latent communications, like email and voicemail; shared initiatives are simplified, ultimately improving service to the community.

> "Things at the library have changed from ink to electronic. More is being done with PCs, the Internet and mobile computing devices."
>
> **Robert Buchenhain**, Sachem Public Library, Holbrook, N.Y.

Traditional PCs slim down

Physical computers on library grounds are growing up and slimming down. Most public agencies, including libraries, replace desktop

Intel vPro

Lenovo PCs employ a variety of technologies to enable a more mobile computing experience without sacrificing any performance or security. ThinkPads with 2nd Generation Intel Core i5 processors utilize special features like Intel Turbo Boost and Intel Hyper Threading technologies to maximize the battery life of the laptop while also maximizing performance and responsiveness. Furthermore, ThinkPads with Intel Anti-Theft Technology can disable themselves if they get lost or stolen, perfect for adding another layer of security to notebooks which are being deployed in these libraries.

Lenovo ThinkPads and ThinkCentres with Intel vPro technology provide higher levels of security and manageability, allowing the library IT professionals to remotely manage the various Lenovo PCs deployed in their environment.

To learn more, visit Intel vPro at **http://www.intel.com/content/www/us/en/processors/vpro/core-processors-with-vpro-technology.html**

computers every few years. New computers are smaller and sleeker, leaving more physical workspace for other materials important to library users' research and other activities.

While bulky monitors and towers are replaced by smaller, faster machines, they are also becoming more portable. "We've seen a lab of computers become notebooks," O'Brien says. Prices have come down, making it possible for libraries to add functionality and reduce costs at the same time.

Colleges around the country are perhaps under even greater pressure to outfit facilities with technology that integrates with the modern student's academic program. At Lake Forest College in Illinois, students have access to a "rhetoric and production" room in their library, offering tools to help polish course presentations they've prepared. (See *Small Private College Updates Machines with Lenovo*, page 3)

The "network in a cart" phenomenon has traditionally been most common in a classroom setting. School and community libraries are now embracing this option too, with some offering the same type of portable cart featuring multiple laptops or tablets along with wireless access. This computer lab on wheels can be transported to any library location, greatly increasing programming options.

Technology trends like these manifest in thousands of venerable community and school libraries around the nation, who are moving boldly into the digital age.

Technology Takes Center Stage at Suburban Library

SACHEM PUBLIC LIBRARY IN HOLBROOK, N.Y., serves a middle-class community of three townships: Brookhaven, Islip and Smithtown. A bustling area resource, the library boasts an annual circulation of more than 982,000 items. Its savvy base of patrons expects, and receives, the latest technological tools to help meet their needs for research, education and entertainment.

Network and System Specialist II Robert Buchenhain has served at the Sachem branch in a technical capacity for more than a decade. In that time, he's seen a significant transformation.

"Things at the library have changed from ink to electronic. More is being done with PCs, the Internet and mobile computing devices," Buchenhain explains, noting how library customers have benefited from some of the changes. "Now you just type in a few keystrokes and you get a listing of not only the book that you want, but also similar books and other books written by the same author."

Sachem is at the forefront of an emerging trend in U.S. libraries. Users with e-readers can now download books from the library's collection onto their own devices. Using their library account number, they can access the downloaded book on their e-reader for up to two weeks, depending on the book's date of publication. A limited number of library e-readers are also available for checkout.

To keep pace with the increased demands on network resources from the explosion of new devices, library staff has set up a broad bandwidth connection for the public throughout the 60,000-square-foot facility. Connectivity is even available in the parking lot and one-acre garden, allowing wireless Internet access for Web surfing, book searches and more.

Physical machines in the library itself were in need of an upgrade as well. Buchenhain had been building PCs in house, buying parts and putting them together based on the library's specific needs. But this time-consuming process became impractical due to the library's rapid growth. Sachem needed a new solution.

The library turned to Lenovo. Buchenhain reports that about two-thirds of the facility's computers have been changed over, thus far. Most machines are the ultra-small form factor, leaving ample workspace, a key advantage for library users. "We don't have huge desks, so the desk space does make a huge difference," he explains.

The price of the Lenovo computers makes them an extremely attractive choice for many public-sector organizations too, including Sachem Public Library. Another benefit cited by Buchenhain is the durability of the Lenovo machines — in sharp contrast to some of the other computers tested by the IT team.

In addition to the ThinkCentre PCs, the library purchased some Lenovos with towers, used in the teen center. Buchenhain explains

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that these computers accommodate the high-end graphic cards teens use for gaming. Over the past few months, Buchenhain has also added some Lenovo tablets for the teen area, allowing users to move freely within the room.

The community has enthusiastically embraced the new computers at Sachem Public Library. The sleeker machines boast impressive speeds, expediting patrons' activities on the PCs. "Doing schoolwork or writing resumés — whatever they're working on, now they can do it faster," Buchenhain said.

The library has also recently completed the installation of RFID tags into the building. RFID tags are on all library materials, streamlining the check-out and check-in processes. "You can put four or five books on a pad and it reads them all at once when you check out. Also, when you check in, you don't have to scan each individual book," Buchenhain explains. In addition, when patrons leave the building, staff is alerted if a book hasn't been checked out properly. Circulation staff receives notifications on their PCs about what book just went through the gate that hasn't been checked out, allowing resolution before the patron leaves the library building. Future plans include equipping front door staff with a tablet PC integrated with the RFID system, to facilitate resolution even more quickly.

Buchenhain feels confident about where the library is headed, relative to technology, even under the current budget constraints plaguing so many public agencies. "We are trying to keep up with the technology, because if you fall too far behind, it's a lot harder and costs you more money to try to catch up with it again."