Information Technology Report

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Information Technology Report -- 2009

This year a lot of time has been spent preparing for the future: moving Ralph Ellison to a temporary location so that their building could be remodeled, planning for wiring, computers, and phones for the remodeled building, working with the architects for the Northwest Library on technology plans, participating in Southern Oaks planning, budgeting dollars for IT costs to support those plans, and preparing for several new technology advances at the MLS Service Center. We have also made software changes that take the library forward for both customers and staff: acceptance of credit/debit cards, RSS feeds to keep customers informed about new materials and upcoming events, enhancements to the catalog that provide more tools for staff and customers and upgrade of the NonStop system that serves as the behind-the-scenes database server.

In this report, we will give you an overview of the major projects that have been accomplished during the past year as well as the status of projects still in progress and some that are ongoing from year to year. Again, all of the projects highlighted took a lot of effort on the part of many staff and could not have been completed without the cooperation of other departments throughout the system.

Projects Completed

"Mashup" Enhancements added to CyberMars/Library Catalog

And, we're not talking about "mashed up" potatoes. One of the things that the library has been looking at is how we can utilize new technologies to provide services to customers that have not been possible or that enhance services that we already provide.

So, exactly what is a mashup? In web development, a "Mashup" is a web application that combines data or functionality from one or more sources into a single integrated application. The library has developed a "mashup" by providing additional data from an outside vendor in CyberMARS. To accomplish this, we periodically upload data from our bibliographic file to *Library Thing*. When a customer searches the MLS library catalog (CyberMARS), if there's a match with the *Library Thing* database, additional information is displayed as part of the bibliographic record. This data includes information about other editions such as if there is an audio version or if it is available in large print. It also may include a list of similar titles as well as "tag clouds." Tags are key words and labels used by regular people to describe a book. A tag cloud is a visual organization of tags - the larger the text, the more people have tagged that item with that specific word.

By uploading information from our catalog to *Library Thing*, we are able to display only records that are owned by Metropolitan Library System. All information displayed is a link and by clicking that link, you can access another title within our holdings or with the "tag cloud" links, you will see other titles that have been tagged with the term you selected. Based on our latest

upload, MLS has an 85% match with information in *Library Thing's* database. This means that most of our catalog records now have this additional information available.

OverDrive Downloadable Audio Books Integrated into CyberMARS

The OverDrive downloadable audio books service was introduced to customers in early 2007 and has been a very popular service. To make the service even more accessible to customers, the bibliographic records are being integrated into the CyberMARS catalog. This will allow customers searching the catalog to see materials that are available as downloadable audio books, allow them to click the link and immediately be transferred to the OverDrive website to checkout or reserve the material. To facilitate this addition, a new client was developed for Cataloging to handle the eMedia bibliographic records and CyberMARS had additional software development to integrate the records so that they appear as part of MLS holdings.

Ralph Ellison Move to Temporary Location

Last August the Ralph Ellison Library moved to a temporary location to allow for their building to be renovated and the meeting room enlarged. IT staff arranged for data wiring and electrical work for computers to be completed in the temporary location prior to move-in. The Cox and AT&T services were also moved. VoIP phones were installed for the first time and staff was trained on the new phones. All computers were moved to the new location and all equipment was thoroughly cleaned in preparation for the re-opening. IT staff also assisted with RFID scanning of the shelves to ensure that materials were back on the shelves in the correct order and to clear up any issues with incorrect status and location codes.

RSS Feeds Added to Library Website

Library customers regularly ask for ways to be notified about new materials purchases at the library. Many have suggested that we e-mail them lists of new materials that are purchased. While finding a way to keep customers informed, we also needed to look for a method that would not be time consuming for staff. E-mail can be very time consuming as people change addresses, get new spam filters, and let their mailboxes get too full. We have learned from experience with the system reserve and overdue notifications that go to just a small portion of our customers that we must monitor and resolve returned mail issues on a daily basis.

Enter the world of "RSS." RSS stands for "Really Simple Syndication." RSS allows customers to subscribe to what types of materials or information they would like to receive and once subscribed, these items will appear in their news reader any time they access it. Many web browsers have built in news readers that can be accessed by clicking a different link or tab while browsing the Internet. The RSS feeds currently provided include new materials in various genres and formats, library news, employment opportunities, and library program information. IT staff developed the software that automatically process new materials that have been received on a daily basis as well as information about library programs from the Event calendar.

Due to RSS being a "pull" technology, i.e., the customer's browser pulls the information rather than the library pushing it to them (as you would with e-mail), we really cannot capture statistics

on how many users are subscribed. However, we can tell how many "pulls" have been made. We had over 63,000 pulls in the month of April and have had over 408,000 pulls since the service started in October, 2008.

Credit Card Usage at Circulation Desks

Library software has also been re-developed to allow customers to use credit cards at the Circulation Desk when they checkout or return materials. A new monitor has been installed on one computer at each library that has an integrated "card swipe" for processing credit card transactions. These monitors with integrated card swipes will be phased in on all circulation computers over the next three years. Customers have been using the new service quite a lot. The combined credit card collections (including CyberMARS) for the month of April were in excess of $12,000.

NonStop System Upgraded

The NonStop System is the backbone of the library's computer network. It houses all of the bibliographic records and item records of the library's materials collection as well as customer records, accounts payable information, and payroll and personnel information. This system was last upgraded in 2003. The Commission approved purchase of a new system at the September, 2008 meeting and staff began planning for the upgrade that required the system to be inaccessible to both staff and customers for several hours.

 IT staff completed the upgrade on the Wednesday night before Thanksgiving. The system went down at 6pm when the library closed and was back up and accessible to customers by 1am Thursday morning. The IT staff is very happy with the performance of the new system as the time needed to run several of the support programs for the library has been reduced in half from the old system. Overall, the upgrade went very smoothly and should provide better performance and service for the next few years.

Another benefit on the NonStop system upgrade is the reduction in operational costs. Software license fees and hardware maintenance are 35 percent less than the previous system.

Interlibrary Loan Processes Automated

The Interlibrary Loan department had new software developed for their office that allows them to keep track of ILLs more efficiently. It shows them whether the customer has picked up the material, if it is still on the reserve shelf to be picked up, or if it has been returned. Staff at libraries are now able to treat ILL material the same as other reserves. Using their computer and the VCirc software, they can receive the reserve when it arrives from ILL and check it out to the customer when they come to pick it up. Since all of the information is now automated, customers are also able to see if they have an ILL reserve ready for pickup through CyberMARS.

System Reserve and Overdue notices are sent to the customer through the regular processes and customers can use credit cards to pay ILL fines just as they can for regular fines. The only thing that cannot be done is renewal since ILL items are not eligible for renewal. Customers

and ILL staff have been very happy with the new process as they are able to easily see status of ILL materials that are currently loaned to MLS customers.

E-Rate

Each year we include e-rate as a part of this report. E-rate is a federally mandated program. Every phone customer is charged a fee on their phone bill called the Universal Service Fund. That money is managed by the Schools & Libraries Corporation, a division of the FCC, and given back to K-12 schools and public libraries in the form of a grant to pay for data and telecommunication costs. To continue receiving e-rate funds, an application has to be filed every year. For Funding Year 2008 (FY09), we received a funding commitment of $216,938.34. Our discount eligibility is based on the percentage of students eligible for free and reduced lunches in the school districts where our libraries are located. This percentage changes from year to year and our discount percentage for FY10 is 77%, up two percent from FY09. We have received a commitment for Funding Year 2009 (FY10) in the amount of $235,321.73.

Performance Appraisal System

This past year, library staff have been working with Wright Management on the development of a new performance appraisal system. This system will help standardize performance standards and appraisals for all staff.   IT staff has developed new automated performance appraisal system software that will allow supervisors to complete the appraisal online as well as keep documentation throughout the year regarding employees' performance. This system will be implemented later this year.

Ralph Ellison, Service Center Ongoing Projects

Ralph Ellison and the Service Center will show up on this report as both projects completed as well as in the plans for the next year. Because these two locations are extended projects, there are several phases that require involvement of the IT department.   These include:

> ➢ Ralph Ellison remodel – IT staff prepared bid documents for the data/phone wiring for the remodeled building, participated in the pre-bid meetings, analyzed and recommended a contractor to perform the work and is currently overseeing the project.
> ➢ Service Center – IT staff prepared bid documents for the data/phone wiring for the new service center, participated in the pre-bid meetings, analyzed and recommended a contractor to perform the work and is currently overseeing the project.

Automated Materials Handling (AMH) Equipment Bid Awarded

IT staff sent out requests for information on Automated Materials Handling (AMH) sorting equipment, prepared bid documents, evaluated bids, and Integrated Technology Group was approved as the successful bidder to design and building the AMH equipment for the library's service center.

IT has begun preliminary work with ITG on the design and completed questionnaires related to system configuration, height of casings for staff inlets, and other related items. Prior to

completion of the unit, ITG will be making a visit to tour the site and obtain finalized information in preparation for shipping and installation of the unit. IT will also be working with the vendor to test the communications with the new system prior to the actual shipment.

Software Development Begin for Binning Equipment

Currently, new materials received are stored on conventional shelving until Cataloging has put the title in the system. This new equipment and software will streamline the process by incorporating the use of a computerized storage of the materials in binning equipment during the receiving and cataloging process. Once the single copy is returned from Cataloging, the additional copies will be retrieved from the storage equipment for processing. This equipment will take up much less floor space than conventional shelving and should reduce the possibilities for injuries due to so much lifting that is done with the current setup.

The software for this new binning equipment is currently under development and has already been given a name, "Big Bin." The software will allow Technical Processing staff to both store and retrieve new materials by just scanning a barcode on the workslip. They will also be able to produce reports that show items that have been stored for too long as well as how fragmented the storage is within the unit.

Village & Edmond Re-carpeting

You may ask, "what does new carpeting have to do with IT?" Most projects at libraries take a coordination of effort between multiple departments. IT's role in the re-carpeting was to remove all of the public computers from the tables so they could be moved for carpet replacement then re-install all of these computers and tie up all wiring to make a neat and inviting installation for library customers. At the Edmond Library, all computers also had to be removed from the librarians' work area as all desks had to be moved from the room for the carpet to be replaced.

Evaluating Vista Operating System

This past year we began evaluating the Vista desktop operating system to determine what would need to be done for the library software to work if and when we made a desktop operating system upgrade. We found that Vista does not have much added functionality, just a totally different look. We also discovered that we will have to upgrade the software that connects to our NonStop system for any computer that runs the Vista Operating system. And, all library software will have to be modified for communicating with the NonStop system for it to be able to run on a Vista computer.

Reading the industry news, we have found that many businesses are choosing to not switch to Vista as it requires more processing power and memory with very little if any payoff in performance. A recent article in _Information Week_ says that Dell plans to make the XP operating system available to business customers until 2010 when the next Microsoft operating system is scheduled to be released. Information is also already being published about Windows 7, the operating system that is set to replace Vista. We will have to see if that holds true across

the industry and try to make a decision based on what is best as well as cost effective for the library system.

Further Enhancements with use of RFID

The majority of the tagging project was completed last year. However, there have been several other RFID related items worked on during this year:

⇒ Tagging of over 60,000 materials that have already been purchased for the new Northwest Library (these items are currently in boxes at the Capitol Hill Library and the Downtown 2nd floor compact shelving area. Items at both locations have been tagged and labeled that RFID tags were applied.)

⇒ Re-development of the Express Checkout software and units to use the RFID technology

⇒ Development of a Standard Interchange Protocol Version 2 (SIP2) module that will allow us to incorporate third party vendors' equipment with our RFID system. This software will be used when the automated materials handling (AMH) equipment is installed this fall at the new Service Center.

⇒ Implementation of a portable RFID reader. These portable readers allow staff to capture data by scanning materials at the shelf and checking (real time) for exception items such as materials belonging to other libraries, lost and paid items, missing items, tracer items, and items that have been shelved incorrectly or been coded incorrectly in the computer. Because it is being done in "real" time, corrections can also be made at the shelf without having to transport the material to a backroom or circulation desk for correction.

Express Checkout Upgrades

In addition to adding RFID to the Express Checkout units, software has been re-developed so that customers can pay for fines and lost or damaged materials, renew items, and view/print their borrowing record at the Express Checkout units. We have implemented the changes at two locations and will be implementing at other libraries in the near future.

Other Software Changes completed during the year

Each year there are many small changes to various parts of the library software that take place but are never mentioned. Some of these include: backend development of a web-based catalog for the Marketing department which allows staff to order marketing supplies via a webpage on the library's Intranet, modifications to the Payroll/Personnel software to support the on-call policy for maintenance staff, and new workslips to be used with the Big Bin system being installed at the new service center. While many of these items may seem small, each takes time to develop and provides an added benefit to those needing the features.

Additional Services provided by MLS Information Technology Department

Our help desk has logged and our technicians have handled 1,377 service calls over the past year. This does not include calls that can be resolved immediately over the phone. We have chosen to only log calls that require support and/or a visit by a technician to resolve the issue. We are almost completed with upgrading/installing 180 computers as part of our technology replacement cycle.

Many other software changes have been implemented. These items include changes recommended by the Tech Support group, adding in-library and remote access to new subscription databases, upgrading web browser plug-ins as they are released, and various other minor changes.

Plans for the Coming Year

The IT department will be involved with moving the computers, network, and phone equipment from the temporary Ralph Ellison location back to the remodeled library. We will also continue to be involved in working on the new Service Center as well as plan development of the new Northwest Library. In addition to the wiring for computers and phones, there are several other items that are being considered or planned for that involves the IT department. The list below includes projects that we plan to complete during the coming fiscal year as well as others that will be worked on as time allows.

Automated Materials Handling Equipment (AMH) Installation & Implementation

During the next few months we will be working remotely with the Integrated Technology Group (ITG) staff on testing the communications of the AMH equipment that will be installed at the service center. This testing will be done remotely from their offices in Georgia before the equipment is shipped to Oklahoma. The equipment is due to be shipped in September and staff from ITG will come to the Service Center to install the equipment, make sure everything is working correctly, and train staff on its use. The equipment will be used to sort new materials prepared by the Technical Processing staff as well as materials that are being transported by Maintenance staff including system reserves and materials being returned to their owning library.

Installation & Implementation of Big Bin Equipment

We have begun work to develop software that will interface with the binning equipment that will be used to store new materials received by the library system. The library will be providing a computer, two touch screen monitors and two wireless barcode scanners for staff to access the equipment for storage and retrieval of materials. Along with software development, the workslip that is put on materials sent to Cataloging will be redesigned to be printed on a label. There will be a barcode on the label that will designate the storage location within the Vertical Lift binning

equipment and can be scanned to retrieve the materials when the item is returned from Cataloging to be processed and shipped to the libraries.

Ralph Ellison Move

The wiring bid for the Ralph Ellison Library has been awarded and the vendor will begin work within the next 10 days. During the next year, we will see completion of the wiring, extension of the AT&T demarcation point to the new communications room, move of the computers from the temporary location back to the remodeled library, and installation of additional public computers as well as an express checkout unit. This will be an exciting time to be part of providing services for a newly refurbished and enlarged Ralph Ellison Library.

Service Center Move

The IT department is also looking forward to the completion of the Service Center and moving Cataloging, Technical Processing, Outreach, Interlibrary Loan, Maintenance,and the Friends of the Library computers and related equipment to the new building. In addition to the implementation of the AMH and binning equipment, we will be moving and installing computers, printers, fax machines, telephones, and network equipment. Some items will be moved from their current locations and additional equipment will also be installed. This move will also involve working with the communications vendors to move the data circuits and telephone lines to the new building.

Temporary location for Southern Oaks

The amount of work that needs to be done for the Southern Oaks remodel will require this library to move to a temporary location while the work is being completed. Once a site is chosen, IT will need to contract for the wiring and electrical needed for the computers as well as moving the data circuits and telephone lines to the temporary location. We will also be moving computers, printers, and phones to the new location and reinstalling them for staff and public use.

Call Manager/Unity Voicemail Upgrade

The Call Manager and Voicemail system used by the library system was purchased in 2004. This system is a Voice Over IP (VoIP) system and is actually software installed on three server computers. As with other computer equipment, the hardware has become obsolete and the vendor will no longer support it. We will be replacing the servers and at the same time upgrading the software for both the Call Manager and the Voicemail to make additional features available. This will not require replacement of any phones which is a significant part of a phone system investment. It will take a few weeks to configure the system and a cutover will be made during a time that the library is closed.

Study for Separate YA Computer Area

One of the areas that the library feels they lose customers is students during their teen years. The library has special areas for children and lots of adult materials but the teen areas have

been very small or non-existent. While we have separate computers for younger children, teens are currently incorporated with adults if they want to use a computer at the library. A group has been formed to study the possibilities of having computers in the teen area and the possible need for a separate sign-up system. IT will be a part of this group to advise what can be done and how it could be implemented. Based on the group's findings and recommendations, IT may be implementing computers for teens and modifications to software that will assign teens to computers located in the teen area so that they feel that the library has an area dedicated to them rather than forgetting about them.

Study/Trial of Self-pickup Reserves

Many libraries across the country have implemented self-pickup reserves for library customers. Reserves are placed on shelves on the public service floor and customers can pick them up themselves then use the Express Checkout computers to checkout when there is a long line at the circulation desk. A committee has been formed to look at implementing this process at MLS. Items that will be discussed are maintaining customer privacy and finding ways to only allow customers to pick up their own books so that someone doesn't just see a book that someone else has reserved and take it because it is a title they would like to read too. Based on recommendations of this group, a library may be chosen to implement self-pickup reserves as a pilot project to determine how it will work for our system. This will require modification of software to change the reserve labels as well as keeping customers from taking other customers' reserve materials. It will also require modifying the software that produces the "Pull List" that staff use to clear items that have not been picked up.

Implementation of Performance Appraisal System

New performance appraisal software has been developed during the current year. During the coming year, use of the new software will be implemented. This has required implementing authorizations for all supervisors that allows them to access all appraisals they have responsibility for as well as allowing reviewing supervisors access to review and make comments. It will also involve working with the Planning department in the development of training materials and supporting them as they train supervisors throughout the system.

Integration of eBooks into CyberMARS

OverDrive downloadable audiobooks are currently in the process of being integrated into the library catalog accessible through CyberMARS. Materials Selection plans to begin purchase of eBooks during the coming year and we plan to also integrate these materials into the catalog. This will require further modification of software to distinguish between downloadable audiobooks and downloadable books that can be read on your computer or a portable reader. Software will be modified to display records and download links within the catalog as well as modifications to software used by the Cataloging department to incorporate the records into the system.

Credit Cards at Extension Libraries

In April the library began taking credit/debit cards at the circulation desk. This has been accepted very well by customers as many people do not carry cash, only a debit or credit card. We plan to purchase monitors with integrated card swipes for the extension libraries, install them and provide training to staff so that customers can also use their credit or debit card at the extension libraries.

Testing of Windows 7 Operating System

Windows Vista has not been widely accepted in the corporate world as the operating system of choice. Many businesses have refused to switch to it as much of the software would not work properly or needed major modifications to work at all. Computer vendors have continued to sell systems with Windows XP installed on their corporate models. The library found that much of our software would need to be re-written to be able to continue communicating with the NonStop system which contains our most important data. Based on the need to re-write software along with finding no real tangible enhancements in the Vista operating system, IT chose to not install this as the operating system on library computers.

Microsoft has now developed a new operating system called Windows 7. IT staff plans to test this operating system during the coming year so that we can determine what would need to be done to upgrade to a new operating system and what will need to be done to make library software compatible. We know that Windows XP will not be supported forever but we want a switch to be useful and cost effective, not just change for the sake of change.

Preparing for Northwest Library

IT staff will continue working with other staff in preparing for the new Northwest Library. This will include participating in the YA computer area study and the self-pickup of reserves planning. We will also be planning for what computer and networking equipment will need to be purchased, purchase and installation of a 7-bin sorter and preparing bid specifications for the data/telecommunications wiring.

Study WiFi for Possible Upgrade in FY11

IEEE 802.11 is a set of standards carrying out wireless local area network computer communication in the 2.4, 3.6 and 5 GHz frequency bands. They are implemented by the IEEE LAN/MAN Standards Committee. The library currently has wireless access points that allow users to connect through 802.11a/b/g. 802.11a operates in the 5Ghz frequency band whereas the 802.11b/g operate in the 2.4Ghz frequency band. While 802.11a can operate at higher speeds, it is not widely used as it does not reach as far and is easily absorbed by solid objects such as walls. Because so many Internet applications are very bandwidth hungry, a task group has been working on a new standard and technologies that have become the 802.11n standard. This standard is currently still in draft form but is expected to be finalized by December 2009. This new standard will allow for much faster wireless operating speeds (144Mbits compared to 54Mbits for 802.11g) with less interference from outside objects such as microwaves, bluetooth devices and cordless telephones. As more users begin having wireless cards that operate with

802.11n, we need to look at replacing or upgrading our equipment to allow customers to connect at the higher speed. We wanted to wait until the standard was fully adopted but will be purchasing a test unit from research funds and plan to budget for upgrades in the next physical year.

Other Projects

In addition to the projects listed above, we will be upgrading/replacing approximately 155 computers. We have an inventory of over 700 devices including computers and printers and needing to replace too many in one year could have a very detrimental effect on the budget and IT staff.

We will also continue maintaining the computers we own, take care of software upgrades including updates to our anti-virus software, web browser plugins, etc. and other service calls as requested.

Future Plans

We continue to have many ongoing future plans. Again, some of these plans may not be completed in this fiscal year, but we still need to maintain awareness of the needs so that we do not come up with surprises in the future and find ourselves unprepared. These plans include:

> - Supporting Technology as part of the Library's Strategic Plan
> - Keeping abreast of emerging technologies
> - Re-evaluating our software for use by both customers and staff
> - Updating a portion of the hardware each year
> - Evaluating the desktop operating system
> - Evaluating the server operating system
> - Evaluating and updating the communications systems as needed

In closing, it seems that we say this every year, but this has once again been a busy, but productive year for Information Technology at MLS. In the coming year, we are continuing to look forward in providing customers and staff with the new and exciting items and supporting their information technology needs.

Information Technology System Description

Summary Description of Information Technology System

The Metropolitan Library Integrated System (MetropoLIS) provides vital automation 24 hours/7 days a week. It supports over 700 networked devices, including computers and printers, throughout the library system. The computers include 21 servers, 221 public computers, 10 Express Checkout computers, 40 Children's computers, 58 CyberMARS catalogs, and 268 staff computers as well as computers that manage the public computer signup and public printing.

Servers

The library's primary database server is a Hewlett-Packard (HP) NonStop database server with four CPUs each containing four gigabytes of memory and over one terabyte of mirrored disk storage. The HP NonStop system contains the databases and software that are accessed by CyberMARS through the Internet, the Z39.50 gateway, as well as all of the library support functions including circulation, in-library catalog searching, materials acquisition, cataloging of materials, accounts payable, payroll and personnel functions, etc.

The Library has 15 Windows 2000/2003/2008 servers that provide services for the system's network. Two of the servers are the primary and backup domain controllers that manage security services for the library's network and provide internal Domain Name Services. Services also provided through the servers include: Web Page services for the library, CyberMARS, a Z39.50 gateway through the Library of Congress, an internal meeting calendar, access to the staff catalog, backup files for disaster recovery, support of the Raisers' Edge software used by Development and the Friends, management of the anti-virus/anti-spyware software, the Oklahoma Images and Oklahoma Folklore databases, Oklahoma Moments videos, the meeting room booking database, and Internet filtering for wireless customers. Four servers run the Linux operating system and provide the Bess filtering service for the libraries' computers as well as utilities and images used by the IT staff for setting up computers and maintaining images of each model's hard drive. Two additional servers are specialty servers for managing the wireless network.

Desktop Computers and Laptops

The library system has 623 desktop and laptop computers. These computers are used for staff work (268), public computers with Internet access (221), children's use (40), CyberMARS (58), Express Checkout (10) and 28 others are used for computer sign-up and print management.

All of these computers are on the technology replacement cycle and must also be maintained by keeping software up to date, installing and/or updating Internet plugins, cleaning off temporary files that affect computer performance, and checking for bad hardware components. IT technicians visit each library on a quarterly basis to update software and clean up disk space on each computer in addition to other projects including computer replacements and service calls.

Network Components and Telephony

The network devices located at the various library agencies are used to connect the library system's WAN together through the use of data communication circuits. All full-service libraries and the Maintenance/Outreach center are connected to the network through 100Mb data communication lines. The Jones Library connects to the library network via a T-1 line through the Choctaw Library; Luther connects through Edmond Library via a T-1 line, Harrah and Nicoma Park have T-1 lines connected through Midwest City, and Wright has a T-1 line connected through Southern Oaks. The library system's connection to the Internet consists of two 100Mb circuit from the computer center at Downtown to our Internet Provider, OneNet.

The equipment used to make these connections consists of thirty-three routers, sixty-three switches, forty-five access points and one firewall appliance. The routers transfer both computer data and telephone traffic from building to building. The switches are used to connect individual devices within a building including computers, printers, and telephones. The access points are used for wireless computing for both staff and customers. All of these devices must be configured to maintain security on the library's network.

Security of the library's network is vital to maintaining services. We regularly deal with e-mail spamming issues, hacking attempts and attempts to use our network to share copyrighted files.

Another part of our network management is the telephony segment. We have three servers that manage calls and voice mail for the library's 219 telephones. These servers are computers with telephony and voicemail software which must be updated on a periodic basis including replacing the hardware as well as upgrading the software.

Software Description

Software for MetropoLIS includes more than 700 different programs that have been developed in-house to perform the following functions:

Circulation

⇒ Materials Circulation; checkout, renewal, checkin
⇒ Flat Panel Touch Screens used with Virtual Circ Desk software that allows navigation by touching the screen
⇒ Receipt printers that will allow staff to provide customers with a detailed receipt of their transactions
⇒ Laser barcode scanners using CODABAR and Code39 bar code number systems
⇒ RFID equipment and software that allows staff to perform functions on multiple items at the same time including checkin/checkout, receiving of reserves, inventory functions, etc.
⇒ Text-to-Speech Software that gives verbal message to staff
⇒ Automatic detection of delinquent patrons, cards with PPO restrictions, and Under 17 customers that need parental permission to check out R-rated videos at checkout time
⇒ Patron Inquiry for Transactions and Patron Information entry and update
⇒ Access to on-line materials catalog

$\Rightarrow$ Production of self-mailer overdue notices qualifying for lowest USPS rates or e-mail notifications
$\Rightarrow$ Production of follow-up billing statements
$\Rightarrow$ Production of Annual Fee Card expiration letters

Express Customer Units

$\Rightarrow$ Checkout Materials
$\Rightarrow$ Renew Materials
$\Rightarrow$ View/Print Borrowing Record
$\Rightarrow$ Pay for fines, fees, lost materials with cash or credit card

Cash Handling

$\Rightarrow$ Fines and other payment collections
$\Rightarrow$ Prepaid Accounts
$\Rightarrow$ Cash/credit card reconciliation interface with Business Office system

System Reserves

$\Rightarrow$ Placing patron reserve requests for materials system-wide
$\Rightarrow$ Automatic "Trapping" of reserved materials at checkin time
$\Rightarrow$ Daily label production for staff to pull materials from shelf that customers have reserved
$\Rightarrow$ Reserves Confirmation and Receiving functions
$\Rightarrow$ Production of self-mailer reserve notifications or e-mail notifications that alert customers when reserved materials are available for pickup
$\Rightarrow$ Detailed status information including position on list, number waiting, and number of copies available
$\Rightarrow$ Reserve Pull List

MLS Web-based Software

$\Rightarrow$ CyberMARS
  $\triangleright$ Public Access Catalog -- providing author, title, subject, call number, and keyword access
  $\triangleright$ Viewing of Personal records including transactions, status of reserves, and prepaid account
  $\triangleright$ Renewal of materials
  $\triangleright$ Acceptance of credit cards for payments of fines and/or lost materials
  $\triangleright$ Placing of reserves
  $\triangleright$ Notification of reserves ready for pickup
  $\triangleright$ Placing of Parental Preferences Option
  $\triangleright$ Customer authentication for OverDrive E-media access
  $\triangleright$ Library developed software to provide seamless access to subscription databases. This software makes access to these databases seamless by authenticating the customer through their library card information when accessing remotely or by IP address when in the library rather than requiring them to enter special user names and passwords for each database. Without the seamless integration, customers would have to be given a username and password for each database. Subscription databases available to

customers include: FirstSearch, Biography & Genealogy Index, Biography Reference Bank, Books In Print, EbscoHost, Grolier Online, Heritage Quest Online, Learning Express Library, Literature Resource Center, LitFinder, African American History & Culture, Ancestry.com, AP Multimedia Archive, Associations Unlimited, Facts.Com, Dun & Bradstreet Million Dollar database, Mergent Online, Newsbank, Proquest, Reference USA, Sanborn Maps, Science Online, Sirs, Sirs Discoverer, Novelist Reader's Advisory, Oklahoman Electronic Archives, and Mitchell's Repair manuals. All are available for access in the library and many are available for customers to access from home.

⇒ Staff Catalog
⇒ Oklahoma Images
⇒ Oklahoma Folklore Collection
⇒ Oklahoma Moments
⇒ MLS Events Calendar
⇒ MLS Meeting Calendar
⇒ MLS Staff Leave Calendar
⇒ MetroLibrary.org search function
⇒ Subscription Database redirection for transparent connection and statistics
⇒ Artist Index
⇒ Oklahoma County Building Index
⇒ Software for allowing e-mail suggestions of materials for purchase
⇒ Who's Who Pictorial Staff Directory
⇒ MLS Intranet Keyword Searching
⇒ Z39.50 Gateway
⇒ RSS Feeds

Note: Z39.50 is a national and international (ISO 23950) standard defining a protocol for computer-to-computer information retrieval. Z39.50 makes it possible for a user in one system to search and retrieve information from other computer systems (that have also implemented Z39.50) without knowing the search syntax that is used by those other systems. Many libraries across the world access the MLS Z39.50 gateway server application to obtain catalog and holdings information using a Z39.50 client. Many others access our database via the Z39.50 Gateway available through the Internet on the Library of Congress bibliographic web site.

Public Computer Access

⇒ Sign-Up system for use of public computers
⇒ Reservation slips with personal/private code
⇒ Overhead monitors to notify customers when their computer time is available using reservation code assigned when customer signs up to use computer
⇒ Internet client -- used to log customers on, verifies that customer is Internet certified, and automatically logs off inactive user
⇒ Browser access to the World Wide Web
⇒ Microsoft Office (includes Word, Excel, Powerpoint, & Access) and Encarta
⇒ Licensed reference resources
⇒ Internet monitoring

Materials Inventory Control

⇒ Assist agencies in collection management through various reports
⇒ Provide agencies with item inquiry
⇒ Provide agencies with internal agency collection control for:

- Materials Location (within agency)
- Coding Materials for rebind, mending, withdrawal, etc.
- Temporary loans of materials to other agencies
- Bindery control system

Materials Selection/Acquisition

⇒ Agency level fund accounting (detailed by type within fund)
⇒ Order entry and tracking
⇒ System level collection management information
⇒ GASB Compliant Materials Depreciation Reporting
⇒ MLS Catalog linkage with Baker & Taylor

Cataloging

⇒ Windows-based Client application for editing MARC records and transferring records from OCLC to the NonStop system
⇒ Subject cross references (both LC and local)
⇒ Automatic inventory entry
⇒ Processing "kit" production (including barcode)

Technical Processing

⇒ Automated receiving records of on order materials
⇒ Acknowledgment of receipt triggers automatic payment by the Business Office without further data entry
⇒ Access to Accounts Payable and warrant information online

Serials Control

⇒ Checkin of periodicals
⇒ Routing capabilities
⇒ Linkage to MetropoLIS
for circulation and overdue reporting
for access to serials holdings via Public Access Catalog
⇒ Bibliographic control
⇒ Claiming report
⇒ Subscription Maintenance
⇒ Subscription Usage reports
⇒ Checkin of continuations

Financial Management

⇒ Accounts Payable Processing (A/P)
⇒ Warrant creation including MICR printing
⇒ Financial Reporting including Grant Accounting
⇒ A/P interface with MetropoLIS materials order/receiving process
⇒ Windows-based client for fixed asset accounting and physical inventory
⇒ GASB Compliant FF&E Depreciation Reporting
⇒ Program budget system

Payroll/Personnel

⇒ Employee time accounting
⇒ Employee leave and personnel records
⇒ Performance Appraisal
⇒ Payroll production
⇒ Cafeteria Plan
⇒ Retirement accounting
⇒ Payroll check creation including MICR printing
⇒ Direct Deposit (ACH)
⇒ Query facility and export to MS Excel
⇒ Various reports
⇒ Safety library with checkin/checkout functionality

Reports

⇒ Collection Analysis
⇒ Library usage by time period Report
⇒ Circulation Gains/Losses Report
⇒ Patron Registration Report
⇒ Patron Registration matched to U.S. Census Geographic base file
⇒ Collection Shelf Management Reports
⇒ System Reserves Analysis Report
⇒ Billing Analysis Report
⇒ Internet Usage reports
⇒ GIS/GPS Information System

Windows Server Software/Utilities

⇒ mlsPCLibrarian -- allows staff to see who is logged on to an Internet computer
⇒ mlsPcHelper – Configurator software to allow remote updating of configuration files; allows Automation staff to deploy software updates without copying the file to each individual computer or needing to visit each computer to install the update; also allows remote re-booting of computer and other computer management functions

Other

⇒ Meeting Room Reservation System
⇒ Mailing List/Label System
⇒ Typesetting (Browsing the Shelves: Your Guide to Finding Nonfiction Materials)
⇒ CASS software interface -- U.S. Postal Service certified software interface that allows the library to mail overdue notices and system reserve notifications at automated rates.
⇒ Oklahoma Images administration software
⇒ Oklahoma Folklore administration software

Third Party Software

⇒ Raiser's Edge Software (Used for managing Endowment donors, Friends' memberships, and Volunteer records)
⇒ Electronic Mail System
⇒ Anti-virus software
⇒ AccuZip CASS software (Used for mailing system reserve and overdue notices at Automation rate)
⇒ TrackIt! (Used for IT department's work order management and computer inventory management)
⇒ ASTD (Used for Employee Training record keeping)

NOTE: All software except the Third Party software has been developed by MLS Information Technology (IT) staff and is maintained by MLS IT Staff. Software that has been developed uses a combination of Cobol, Scobol, and TAL for the NonStop system and Visual Basic, Active Server Pages (ASP), and XML for the PC based and web-based applications. PC applications that communicate with the NonStop system use Remote Server Call (RSC) to send messages between the two systems.

MLS Philosophy re: Software Development

The Metropolitan Library System develops much of its software in-house without using a turnkey software vendor. Our philosophy regarding library automation is to redevelop and update a portion of our software and replace a portion of our computer hardware each year. Using this approach, we can avoid the trauma that other libraries deal with when making an automation upgrade -- throwing out the entire system and choosing a new vendor. However, at any given point in time, MLS has the luxury of migrating to a turnkey system if it so chooses. With our given philosophy in place, this migration could take place on a timetable that would allow implementation at a well thought out pace.

Another part of our philosophy is to implement leading-edge technology while avoiding cutting-edge technology which is also referred to as the bleeding-edge. One example of this is that although we have been keeping abreast of the advancement of RFID technology for almost ten years, we did not recommend its adoption and implementation until this year. This is because it

was still evolving as a new technology and had not yet stabilized with standards across the industry and the return on investment did not justify purchase and implementation of the technology.

Another example of technology that has been studied and watched for several years is eBooks. The first eBooks could be read on a Palm device. However, these devices were very small, quality was not very good, and not many books were available as publishers were really not ready to deal with eBooks as a medium. This year the library system will be implementing eBooks as they are widely available and there are several choices of readers available for the customer. We will continue to research and evaluate new technologies for possible use and improved processes for the library and make recommendations for purchase and implementation as warranted.