

Information Technology Report



Prepared by:

Jimmy Welch, Deputy Executive Director/Technology
Anne Fischer, Director of Information Technology

June 1, 2010

Table of Contents

| | |
|---|----|
| Projects Completed..... | 4 |
| Ralph Ellison Returns to Remodeled Library..... | 4 |
| Service Center Move | 4 |
| Automated Materials Handling (AMH) Equipment Installed..... | 5 |
| Binning Equipment Software Interface Developed & Implemented | 5 |
| Purchase Order and Workslip Processes Updated | 5 |
| Call Manager/Unity Voicemail Upgrade | 6 |
| Surveillance added to Library Network..... | 6 |
| PCI Compliance Implemented..... | 6 |
| Preparing for Northwest Library..... | 6 |
| Configuration and Installation of Door Counter Servers | 7 |
| E-Rate | 7 |
| Integration of eBooks into CyberMARS | 7 |
| Autofill/Autocomplete Added to Library Catalog Searching | 7 |
| System Reserve and Coming Due eReminders | 8 |
| Study/Trial of Self-pickup Reserves | 8 |
| Materials Selection System Reserve Process Enhanced | 8 |
| Implementation of Performance Appraisal System..... | 8 |
| Testing of Windows 7 Operating System..... | 9 |
| Other Software Changes completed during the year | 9 |
| Additional Services provided by MLS Information Technology Department | 9 |
| Plans for the Coming Year..... | 10 |
| Temporary location for Southern Oaks | 10 |
| Northwest Library Preparation | 10 |
| Southern Oaks Library Remodel Preparation | 11 |
| Separate YA Computer Area Planned for Northwest & Southern Oaks | 11 |
| Begin WiFi Upgrade in FY11 | 11 |
| MLS Application Conversion for Windows 7..... | 11 |
| Changes to Materials Selection Software for Customer Suggestions..... | 12 |
| NonStop System Operating System to be Upgraded..... | 12 |

| | |
|--|----|
| Other Projects | 12 |
| Future Plans..... | 13 |
| Information Technology System Description | 14 |
| Summary Description of Information Technology System | 14 |
| Servers..... | 14 |
| Desktop Computers and Laptops..... | 14 |
| Network Components and Telephony | 15 |
| Software Description..... | 15 |
| Circulation | 15 |
| Express Customer Units | 16 |
| Cash Handling | 16 |
| System Reserves | 16 |
| MLS Web-based Software..... | 16 |
| Public Computer Access..... | 17 |
| Materials Inventory Control..... | 18 |
| Materials Selection/Acquisition | 18 |
| Cataloging | 18 |
| Technical Processing | 18 |
| Serials Control..... | 18 |
| Financial Management..... | 19 |
| Payroll/Personnel..... | 19 |
| Reports..... | 19 |
| Windows Server Software/Utilities..... | 19 |
| Other | 20 |
| Third Party Software | 20 |
| MLS Philosophy re: Software Development | 20 |

Information Technology Report -- 2010

This year we continued preparing for the future as well as seeing the completion of two major construction projects. Ralph Ellison moved back to their newly remodeled library. IT's part in this project included bidding out and overseeing installation of the data/telecommunication wiring as well as moving all computer related devices and adding additional computers. The long awaited move to the Service Center also took place this year. In addition to moving computer equipment for all departments that moved, two new technologies were implemented at the Service Center: the Automated Materials Handling (AMH) sorter and Big Bin, the vertical lift equipment for storing new books. We spent time working with the architects for the Northwest Library on technology plans, participating in Southern Oaks planning, and budgeting dollars for IT costs to support those plans. We have also continued to make software changes that take the library forward for both customers and staff: eReminders for both reserve pickup and coming due materials, autofill/autocomplete for catalog searches, and upgrade of the telephony and voicemail systems.

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

Ralph Ellison Returns to Remodeled Library

After many delays, the Ralph Ellison Library was moved back to their renovated library building. IT staff planned, bid out, and oversaw data/telecommunication wiring for computers at the renovated building. The Cox and AT&T services were also moved. All computers were moved back to the renovated building and all equipment was thoroughly cleaned in preparation for the re-opening. We also added an Express Checkout and six additional public computers to the Ralph Ellison Library. Power outlets were added to five tables to make it more convenient for users with laptops using the library's wireless internet service.

Service Center Move

The IT department also completed the computer equipment move to the Service Center for Cataloging, Technical Processing, Outreach, Interlibrary Loan, Maintenance, and the Friends of the Library. This included the implementation of the AMH and binning equipment, moving and installing computers, printers, fax machines, telephones, and network equipment as well as having the data wiring installed. Some items were moved from their current locations and additional equipment was also installed. This move also involved working with the communications vendors to move the data circuits and telephone lines to the new building.

Automated Materials Handling (AMH) Equipment Installed

Last year we reported that the bid for the automated materials handling equipment for the new Service Center had been awarded. We developed the SIP-2 server software to interface the sorter to our system and tested remotely with Integrated Technology Group (ITG) staff to verify that everything was going to work as expected. It did and plans moved forward for installation.

The AMH equipment was delivered and installed the week before Thanksgiving this past November but did not start being used until staff moved in January, 2010. After working through a few glitches and procedural issues, the sorter is functioning well. It occasionally has issues as all equipment does. However, you find that staff really do get used to having it. When it was down a few weeks ago, a staff member was overheard saying, "You mean we have to sort by hand?" We found that quite amusing since they have always sorted by hand until the sorter was purchased. It shows how quickly people get used to technology and how they miss it when it's not working.

Binning Equipment Software Interface Developed & Implemented

Prior to the move to the Service Center, new materials received were stored on conventional shelving until Cataloging had put the title in the system. The new binning equipment and software has streamlined 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 are retrieved from the storage equipment for processing. This equipment takes up much less floor space than conventional shelving and helps reduce the possibilities for injuries due to so much lifting that was done with the previous setup.

The software for the new binning equipment was developed and given the name "Big Bin." The software allows Technical Processing staff to both store and retrieve new materials by just scanning a barcode on the workslip. They are also 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.

We also provided and installed a computer, two touch screen monitors and two wireless barcode scanners used to access the equipment for storage and retrieval of materials.

Purchase Order and Workslip Processes Updated

Before the move to the Service Center, purchase orders and workslips for library materials were printed in the IT department on custom designed and printed forms on a large line printer. With the move to the service center, purchase orders are now printed on perforated blank stock and workslips are printed on the same labels as those used for system reserve labels. This allows Tech Processing staff to print all forms. The workslips also have a barcode on them that allow for the storage and retrieval of materials in the Big Bin unit. Library software was redesigned to allow Tech Processing to be able to perform these tasks.

Call Manager/Unity Voicemail Upgrade

The Call Manager and Voicemail system used by the library system is a Voice Over IP (VoIP) system and is actually software installed on three server computers. As with other computer equipment, the hardware had become obsolete and the vendor would no longer support it. And, the software could not be upgraded unless the hardware was upgraded too. In February, 2010, we prepared the servers for installation and migrated all of the data from the current servers to the new servers. We then came in over a weekend to cutover to the new servers and to test that everything worked as it should. This did not require replacement of any phones which is a significant part of a phone system investment.

Surveillance added to Library Network

This past year, new surveillance equipment needed to be purchased for both Ralph Ellison and the Southern Oaks libraries. It was determined that the best approach would be to go with the newer technology of IP cameras that would incorporate them into the library system's network and provide better access for the Security Manager. The technology was installed this spring at both locations. The Security Manager is working on instructions for staff at the agencies so they will be able to view cameras if needed and also provide access for the security guards at the Ralph Ellison location.

As the older, outdated equipment at other libraries is replaced over the next few years, we plan to upgrade these systems to the new IP network technology. The cameras provide much better video when needed and provide security staff the needed tools to maintain safety at the libraries.

PCI Compliance Implemented

The Payment Card Industry Data Security Standard (PCI DSS) is a set of requirements designed to ensure that **ALL** companies that **process, store or transmit** credit card information maintain a secure environment. Essentially any merchant that has a Merchant ID (MID) must be PCI Compliant. To become PCI compliant, the library adopted a set of security guidelines regarding credit card security for customers and our network is tested on a monthly basis to make sure that it remains secure and that we do not make changes that would cause transmission of personal data to be compromised.

Preparing for Northwest Library

IT staff have continued working with other staff in preparing for the new Northwest Library. This included discussion of separate computers in the Young Adult area and planning for the self-pickup of reserves. We have also planned for what computer and networking equipment will need to be purchased, the purchase and installation of a 7-bin sorter, and preparing of bid specifications for the data/telecommunications wiring.

Just this week we completed our first project at the Northwest Library. We have installed a webcam at the construction site so that customers can visit the library's website and see

progress on the construction. We are very excited about this as it is a first for the library and hope to use this technology on other projects in the future.

Configuration and Installation of Door Counter Servers

Last year we purchased a test set of wireless door counters and server to determine if it could provide us the statistics we needed for reports to the Oklahoma Department of Libraries as well as other statistical information regarding building occupancy and utilization. The tests worked very well and we budgeted for door counters and servers at all 17 agencies. These units have been purchased and IT has configured the servers to be on the network at each library and installed them at each agency. Planning Services is currently working with Maintenance to get the door counters installed. Once all units are in place, MLS will be able to provide more accurate counts on the number of visitors to the library as well as the occupancy of the building during programs and other events at the library.

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 2009 (FY10), we received a funding commitment of \$235,321.73. 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 FY11 is 77% which remained the same as last year. No funding commitments have been issued yet. We have asked \$208,432.39 for Funding Year 2010 (FY11). This amount is lower for FY11 due to better pricing on some of the data circuits and the fact that last year we paid installation costs for upgrading the data circuit at the Downtown Library.

Integration of eBooks into CyberMARS

OverDrive downloadable audiobooks and eBooks have been integrated into the library catalog accessible through CyberMARS. The icons located to the left of the title indicate whether the material is an audiobook or an ebook. Software was 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.

Autofill/Autocomplete Added to Library Catalog Searching

When searching on the Internet, most search engines will give a list of possible words/searches when you start typing letters in the search box and if you see the item you want in the drop down list, you can click on it and it will complete the typing for you. This same feature has been added to the library's catalog search function. It does offer only valid suggestions so if someone types in characters or invalid words trying to cause that word to come up for other customers, it is eliminated from the system and will not come up as a choice.

System Reserve and Coming Due eReminders

Many customers have asked that we notify them electronically when they have material coming due. We decided to also extend this notification to system reserves to remind customers that have not picked up their reserve. We allow customers to choose to be notified either by e-mail or by text message to their cell phone. Many customers have signed up for this service and we send out between 200 and 300 notices on a daily basis.

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 was formed to look at implementing this process at MLS. The committee discussed customer privacy and worked with IT to come up with a code instead of the customer's name for material pickup identification. Several iterations were run against the library's customer database to make sure there would not be a lot of duplicate codes.

Based on recommendations of this group, Ralph Ellison Library was chosen to implement self-pickup reserves as a pilot project to determine how it would work for our system. This required modification of software to change the reserve labels as well as keeping customers from taking other customers' reserve materials. It has worked very well and has now been implemented at both Midwest City and Village Library in the last month.

Materials Selection System Reserve Process Enhanced

For many years the IT department printed a complete system reserve list of all titles that were on reserve every two weeks and sent it to the Materials Selection department. The Selection staff then worked the list by checking for titles that needed more copies purchased, moving reserves to another bib record, and checking for reserves that needed to be canceled. IT has developed software that now automates much of this process. It is now run on a weekly basis and staff can switch reserves from one bib record to another with a click of a button, sort the list in title or date order, export the list to Excel, look at a bibliographic or title record from a link on the list, and see issues where there is a large number of reserves for a particular title but only a very few copies owned. This has reduced the time needed to work the list and made this process more efficient.

Implementation of Performance Appraisal System

New performance appraisal software was developed during the last year for the re-vamp of the library system's performance appraisal system. The new system allows supervisors to complete appraisals online. It required implementing authorizations for all supervisors to allow them access to all appraisals they have responsibility for as well as allowing reviewing supervisors access to review and make comments. The Planning department developed training materials and trained supervisors throughout the system. The system was implemented for appraisals in November, 2009.

Testing of Windows 7 Operating System

In last year's report, we reported on plans to test Microsoft's new Windows 7 operating system. IT staff has tested this operating system and determined that library software will have to be modified to work with Windows 7 and communicate with the NonStop System. However, we know that Windows XP will not be supported for much longer and that there are enough positive new features that we will be ordering our FY11 computers with the Windows 7 operating system.

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: enhancement to the Baker & Taylor payment system that produces a pdf document that is automatically e-mailed to Baker & Taylor, the Business Office, and Technical processing showing what invoices/purchase orders were paid on a weekly basis, update to ILL software to allow them a more automated process when materials are returned from other institutions, for sending regret notifications to customers when materials cannot be filled by another institution, and better cash handling for circulation staff in VCirc that provides staff the amount of change to give a customer. While many of these items may seem small, each takes time to develop and provides an added benefit to those needing the features.

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, and various other minor changes.

Additional Services provided by MLS Information Technology Department

Our help desk has logged and our technicians have handled 1,348 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 have also completed the upgrading/installing of 163 computers as part of our technology replacement cycle. Technicians also visit each computer on a quarterly basis to upgrade software, Windows security updates, web browser plugins, and check for any hardware or software problems with the computer as well as cleaning the keyboards, mice, monitors and making sure equipment is in good working order.

Many other projects have also been completed. All staff computers were upgraded to Microsoft Office 2007, Internet Explorer was upgraded to Version 8, the Print Management software was upgraded, all signup and print management computers were upgraded, and new keyboards, mice, and headphones were installed on all childrens' computers. These new keyboards for the childrens' computers are colorful and sized for a child's smaller hands.

Plans for the Coming Year

The IT department will be involved with moving the computers, network, and phone equipment from the Southern Oaks Library to a temporary location for the remodeling of the building. We will also continue to be involved in areas of construction of the new Northwest Library that relate to technology. 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.

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.

Northwest Library Preparation

Now that construction is beginning on the Northwest Library, we have been planning for all of the technology related purchases that will need to be made for the Northwest Library. In addition to acquiring computers for staff and public use, we will be purchasing all of the networking equipment, having the data circuit installed, purchasing all related printers, barcode scanners, RFID equipment, and coin boxes for the Express Checkout computers and the surveillance cameras and equipment for surveillance at the new building. We will be purchasing a 7-bin sorter for this library that will clear materials as customers return them and sort them into general shelf location bins. We will also be contracting for the installation of the data cabling and overseeing this part of the project.

Something new that is being added to the Northwest and Southern Oaks libraries is touchdown stations located on the public service floor that will allow staff to move about the building rather than sitting at a desk and customers coming to them. These stations will be computers that will allow staff to perform catalog searches and place reserves for customers. We have been exploring the possibility of using iPads as touchdown stations as they are very light and could be carried by staff directly to the shelf as needed. We have purchased an iPad for testing and initial tests have shown that it will work well for this type of use. The staff catalog will have some redesign that will allow staff to look up a customer card directly from the catalog and select the customer so that a reserve can be placed even if the customer does not have their library card with them.

Southern Oaks Library Remodel Preparation

In addition to preparing to move Southern Oaks to a temporary location while the building is remodeled, we will also be planning for the move back to the remodeled building. This will involve purchase of additional computers (computers for public access are going to be doubled), re-installation of the data circuit and network equipment, installation of the data wiring, purchase and installation of new surveillance equipment, and the purchase and installation of a 7-bin sorter.

Separate YA Computer Area Planned for Northwest & Southern Oaks

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. As part of the design for the Northwest Library and re-design of Southern Oaks, YA areas with separate computers and a separate sign-up have been planned. This system will work the same as the other but 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.

Begin WiFi 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 new standard will allow for much faster wireless operating speeds (144Mbps compared to 54Mbps 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. The first phase of this upgrade will be to purchase a Wireless Lan Controller that will control access points across the system. It will allow for much quicker configuration should a unit go bad and will also prevent "rogue" devices from accessing the network.

MLS Application Conversion for Windows 7

It is becoming more difficult to purchase computers with Windows XP installed and we believe this will become impossible during the next year. We have been testing Windows 7 and plan to purchase future computers with Windows 7 as the operating system. This will require converting all MLS application software to a newer version of Remote Server Call (RSC) that

will allow the applications to communicate with the NonStop System which is the library's main database server.

This will be a fairly lengthy and involved process and we will implement Windows 7 computers in areas where all applications have been converted. We will also need to make sure applications will continue to work on current Windows XP installations which means that testing of each application must occur on both operating systems before it can be implemented. We have already converted the software used on public computers so Windows 7 computers can be installed in public areas at any time.

Changes to Materials Selection Software for Customer Suggestions

The library system allows customers to suggest titles for the library to purchase if we do not currently own the material. This is done from the Catalog Search screen in CyberMARS. These requests have then been forwarded to Materials Selection as an e-mail and they process the requests by checking to see if it is in system, does it meet the library's collection policy, are reviews available recommending the material, and if it is in print or not yet published. If the material is purchased, the customer is then placed on reserve for the title so they will be notified once it is received.

The enhancements to the software will automate the processing of these requests and put them directly into a database accessible through their mlsMaterials software. They will be able to combine requests and place orders and once orders are placed, reserves will automatically be placed for all customers that have requested that the library purchase the title.

NonStop System Operating System to be Upgraded

Another project that will need to be accomplished during the coming year is the upgrade of the Operating System on the NonStop. This will require working with a NonStop specialist to make sure everything is going to work right and then taking the system down on an "off" time to perform the upgrade and re-load the system. This will have to be done on overnight hours or on a day that the library is closed as it will take several hours and we do our best to keep the system available to customers 24/7 year round. We will put a notification on the website notifying customers in advance of the planned outage.

Other Projects

In addition to the projects listed above, we will be upgrading/replacing approximately 155 computers. In addition, when the Northwest and remodeled Southern Oaks libraries are opened, we will be adding over 100 computers to the inventory. 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. This will bring our inventory of computers to over 800 units in addition to printers and other IT related equipment.

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. We also plan to upgrade the memory and operating system of the library's main

router to allow us to implement security fixes that will keep users from violating copyright laws and attempting to share movies and songs through the library's network.

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
- Evaluating the library's database structure

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 26 servers, 231 public computers, 13 Express Checkout computers, 42 Children's computers, 58 CyberMARS catalogs, and 281 staff computers as well as computers that manage the public computer sign-up 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 18 Windows 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. Three servers provide the software that operates the library's phone system and voicemail services.

Desktop Computers and Laptops

The library system has 653 desktop and laptop computers. These computers are used for staff work (281), public computers with Internet access (231), children's use (42), CyberMARS (60), Express Checkout (13) and 26 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. The Downtown library is connected to the Cox WAN through a 1Gb connection. All other full-service libraries and the Service 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-nine 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

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

Express Customer Units

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

Cash Handling

- ⇒ Fines and other payment collections
- ⇒ Prepaid Accounts
- ⇒ Cash/credit card reconciliation interface with Business Office system
- ⇒ Credit card PCI compliance

System Reserves

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

MLS Web-based Software

- ⇒ CyberMARS
 - Public Access Catalog -- providing author, title, subject, call number, and keyword access
 - Viewing of Personal records including transactions, status of reserves, and prepaid account
 - Renewal of materials
 - Acceptance of credit cards for payments of fines and/or lost materials
 - Placing of reserves
 - Notification of reserves ready for pickup
 - eNotification of overdues
 - eReminders for both system reserves and materials coming due
 - Placing of Parental Preferences Option
 - Customer authentication for OverDrive E-media access
 - 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 MetroPLIS 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)
- ⇒ GeoLearning Learning Management System (hosted by GeoLearning)

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. 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.